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November 7th, 1969.

Mr. W.R. Bergey, Director,
Highland-Bell Mines Ltd.,
300 - 999 W. Pender St.,
Vancouver, 1, B.C.

Dear Sir:

Re: Property of Highland Mercury Mines Ltd.

At the request of Mr. Fred Hall, I am writing you concerning this property which is on the north shore of Pinchi Lake, Omineca Mining Division, B.C. I visited the property, leaving Vancouver on October 28th and returning on Friday, October 31st, 1969.

HISTORY

I instigated staking of the Highland Mercury property in late 1964. The reasons for this action were several, the chief ones being a rising price for mercury and the development of "mercury geochemistry", particularly in the U.S.A. by H. Hawkes.

The ground I caused to be staked was held years ago by Cominco, then allowed to lapse when mining ceased at that company's property in 1944. In 1964, a Cominco staking crew arrived at Pinchi Lake to stake this ground just as my crew had completed the task. Cominco's property is thus confined now to the original core of 28 Crown-granted mineral claims.

With the location of the CIN claims, as they were called, I set out to obtain as much information as possible on the Cominco property. Fortunately I remembered that A. Freeze had done his Ph.D. thesis in 1941 on the property and thus I obtained the text of his dissertation from Ann Arbour and the accompanying maps from Princeton University. These data still constitute a major part of our geological information on the subject of Pinchi.

In the spring of 1965, I imported from Val d'Or a Jean Alix linecutting crew and arranged to have 40 odd miles of line cut on the CIN claims. I laid out the baselines, NW and SE of the Cominco property, on the regional trend, had crosslines cut at 400

foot intervals and stations established at 200 foot intervals on the crosslines. Early in June, a two man sampling crew started soil sampling on the heels of the linecutters; the procedure used is described in my assessment report to the B.C. Department of Mines entitled "Geochemical Report on the CIN Group". Briefly, the samples were obtained using 1½" hand augers and the clay was generally penetrated a matter of 24"±. The analytical work was done by Dr. R.E. Delavault at U.B.C. with some checking by John Barrakso of Kennecott. I probably spent about 10 days at Pinchi Lake in 1965, generally on the Cominco ground to familiarize myself with the environment of the ore occurrences - before Cominco crews descended on the property.

In 1966, we did some check geochemistry (filling in at 100 ft. intervals in "interesting areas") and the samples obtained were sent for analysis to Barringer Research in Toronto. Although the care with which these 1966 samples were taken is a matter for speculation, in some instances there was a correlation between the "high" analyses obtained in 1965 and 1966. There were also "highs" obtained, particularly on the east grid, for which there were no obvious explanations.

(Cominco undertook an extensive geochemical operation in the Pinchi L. - Tezzeron L. - Ft. St. James area in 1965-66. It was undertaken by Dr. Louis Azzaria, a brilliant disciple of H. Hawkes. Trenching on Azzaria's anomalies was highly disappointing, the program was completely abandoned and Azzaria 'retired' to Laval U.)

During the summer of 1966, MHB hired Dr. Toru Kikuchi and he spent about a month "geologizing" the CIN claims. His work suffered as he had arrived fresh from Japan, spoke little English and, in addition to mapping, was supposed to keep an eye on the soil samplers.

In 1965, I read a paper by the geophysicist, Sumi, published by the European Geophysical Union, in which the author extolled the use of IP as a prospecting tool for cinnabar, and described his success at a mercury mine in Yugoslavia. I discussed this paper with leading Canadian geophysicists who were unanimously skeptical but, nevertheless, with Cominco's permission, I commissioned Hunting to run an IP line over the Cominco West zone, which was essentially unmined at the time. Some anomalous IP values coincided with the West zone but much higher values were obtained elsewhere (over graphitic schist, I suspect). In return for giving Cominco the results of our IP survey, we received a corresponding geological section of the West zone.

Subsequent to all the above, trenching by bulldozer was carried out on the west grid along picket lines where high geochemical values had been obtained. I warned that the overburden would

be too deep for this step to be successful and I was, in the main, correct.

I have gone into the history in some detail in order that you can appreciate what has been done and what has not been done on the property. Obviously, little time has been spent on finding and mapping individual outcrops (but, then, geology was never a strong point with MHB).

GENERAL GEOLOGY

On the Pinchi properties of Cominco and Highland Mercury, we are concerned with the following rock units:

1. Cache Creek group - Permian
2. Takla group - U. Triassic to U. Jurassic
3. Trembleur Intrusions - Post Cache Creek and pre-Takla.

The Cache Creek group is characterized by limestone but also includes ribbon chert and a great variety of schists composed of graphite, quartz, mica, carbonate and glaucophane. To a lesser extent, greenstone (andesite and basalt) forms part of the Cache Creek.

On the north shore of Pinchi Lake, the schists are more abundant than the limestone but the latter occurs in large outcrops that dominate the landscape for miles. The schists, on the other hand, generally weather easily; they occur in small exposures and tend to underlie topographic depressions.

Crystalline magnesian limestone occurs in three large outcrops along the north shore of Pinchi Lake - immediately southeast of the resort area, in the southwest corner of the Cominco property, and beyond the southwest corner of the Highland Mercury west grid. The rock is generally light grey in colour but may be darker, depending upon the amount of graphite present.

On Discovery Hill, limestone is the host rock for the main Cominco orebody and hydrothermal solutions are responsible for a colour change to buff, brown, or mottled white and brown. This rock, the host rock, is referred to as "buff carbonate" or "ferro-dolomite". It contains a fair amount of silica and is a hard, brittle rock.

At the West zone, 1200 feet west of the Discovery Hill or Main zone, much of the cinnabar, at least at the surface, occurred in white chert.

In our area of interest, the Takla group is represented by a dark green andesite of fragmental aspect. In places it is schistose, in places bands of limestone are present. It is intersected by numerous carbonate veinlets, some of which contain hematite. It is not known to contain cinnabar, at least at Pinchi Lake.

Pinchi Mountain, to the north of the western group of CIN claims, is composed of pyroxene-rich peridotite that is well serpentinized. The southern margin of Pinchi Mountain is a very prominent fault scarp and the rock here has been intensely altered hydrothermally. Much magnesite has developed and the overall aspect of the rock is indistinguishable from that of the host rock on Discovery Hill. That is to say, the rock on the southern margin of the Pinchi Mountain ultrabasic mass is a "buff carbonate" - unfortunately, devoid of cinnabar, at least at the surface.

Serpentine is present on the Cominco property, 1/2 mile southeast of the Main zone. Here it does contain cinnabar in scattered minor amounts.

The dominant structural feature of the general area is the famous Pinchi fault which is a profound 'break' several hundred miles long. In our more restricted area, the Pinchi fault is presumed to occur in the depression between Discovery Hill and an andesite hill a few hundred feet to the north. In other words, here the Pinchi fault is accepted as that marking the border of the Cache Creek sediments on the south and the Takla andesite on the north. The trend of this fault is N.70°W. The most obvious fault on the north shore of Pinchi Lake, however, is that described above, along the south margin of Pinchi Mountain; this is presumed to be another strand of the Pinchi fault.

Whereas the Highland Mercury ground has few exposures, the adjoining Cominco ground has many and thus we know that, in general, the Cache Creek beds strike about N.70°W and dip northeasterly in the area of interest. From the outset, this disparity of outcrops on the two properties led the writer to ponder its significance and the only conclusion arrived at was the obvious one that durable rocks, such as the limestone, were much less common at the bedrock surface of the Highland Mercury property.

MINERALIZATION

The only mineral of consequence in the two principal Cominco deposits (Main and West) is cinnabar. Stibnite, pyrite and chalcopyrite occur sporadically in very minor amounts.

Limestone is the principal host rock but it is very doubtful that chemical composition played any role in the deposition.

What was important was the fact that the limestone was altered to "ferro-dolomite", it was repeatedly fractured and silicified - i.e. it was made into a brittle rock that fractured readily and thus permitted ingress of the mineralizing solutions. The mode of occurrence is fracture-filling, not replacement.

The nature of the mineralization does not lend itself to detection by geophysical or geochemical means. With regard to the latter, it has been proven by the writer and others that the surface of the ground at Pinchi has not suffered surface contamination by fumes from the wartime operation. On the other hand, I believe that mercury, in some form, is distributed in the overburden along substantial segments of the Pinchi fault and that this, plus redistribution of surface materials by glacial processes is largely responsible for meaningless geochemical anomalies in the soil.

HIGHLAND MERCURY EXPLORATION

All the above brings us finally down to the big question - how to find a mercury deposit on the company ground, if one is there. The answer is not an encouraging one for, by elimination, we regress to the time honoured method used in eastern Canada by prospectors tied on to producing gold mines, i.e. run out a picket line on strike and be prepared to cross-section the ground at intervals, bearing in mind that the Main zone at Pinchi is possibly 600 feet long and that one is dealing with something more complicated than a simple quartz vein structure.

Highland Mercury has suffered from lack of geological attention. This situation has now been largely rectified by the Line 20W cross-section which extends from the serpentine southwards to the lakeshore. This section which is 5600 feet west of the Cominco West zone, clearly indicates that, in slightly more than a mile, the components of the Cache Creek group have changed markedly from limestones, quartz-mica schists, ribbon cherts, etc., to a preponderance of graphitic schists, greenstone and only minor amounts of hard, quartzose rocks. No limestone was recognized as such in Holes 1, 8, 9, 10, 11, 12 - the Cache Creek holes on Line 20W.

In my opinion, Ristvedt pinned down the Pinchi fault in Hole 1 - i.e. assuming the fault to be at the Cache Creek-Takla boundary. The rock cut in Holes 3, 4, and 5 is clearly Takla.

I have one very pertinent observation to make about the Line 20W cross-section as it is presently depicted. A great deal of yellow is shown in Hole 8 and subsequent holes to the south. According to the legend, 'yellow' is reserved for quartzose schists but in actual fact a great deal of greenstone and andesite have been depicted in yellow on the cross-section. For example, in Hole 8, from 81'-312',

the rock is plain old greenstone (Cache Creek andesite). Hole 9 is entirely Cache Creek andesite plus bands of graphite schist. Some quartzose material was intersected deep in Hole 10 and "yellow" should be reserved for this potentially favourable rock.

If a 'green' (different from Takla andesite green) were used specifically for Cache Creek andesite or greenstone, and black for graphite schist, it would be immediately apparent to the observer that these two, not too favourable, rock types constitute probably 85 per cent of the rock intersected in Holes 8 to 12. Such a coloured section would also emphasize the narrow, quartzose bands that hold out some possibility.

Before proceeding further next year, the core should all be carefully relogged by somebody with a knowledge of the environment. Consideration should be given to drilling nearer the common Cominco-Highland Mercury boundary, say along Line 8W, and it should be remembered that the only cinnabar cut to date was in Hole 1, at a depth of 302'.

Respectfully submitted,

BACON & CROWHURST LTD.

W.R. Bacon, Ph.D, P.Eng.