

CUB CREEK, YUKON TERRITORYSUMMARY OF CUB CREEK DATA

1. In 1955, prospectors discovered sulphide boulders along Cub Creek near Haines Junction, Yukon Territory. Five large (over 500 lbs.) boulders are scattered along the creek bed for a distance of 350 feet; another small boulder occurs 350 feet further downstream; and a huge (over 10 tons) boulder occurs in the adjacent northwest bank of Cub Creek.

2. The mineralogy of the sulphide boulders is typical of that found in many of the "strata-bound sulphide deposits" found throughout the world. The sulphides are mainly pyrite carrying chalcopyrite and sphalerite (1.6% copper, 4.4% zinc). All boulders display banding.

Thin section examination of a rock remnant on the largest sulphide boulder revealed an altered rock which is largely sericite and quartz. This may have originally been a rhyolitic lava or tuff.

3. The sulphide float is in an area of Mush Lake volcanic rocks. The Mush Lake group in this area is bounded on the northeast by the Shakwak Fault and on the southwest by southwesterly-dipping regional thrust faults which separate it from the rugged mountains of Palaeozoic strata to the southwest.

4. The Mush Lake group along the Kluane Lake area to the northwest is of Triassic age and consists of a lower volcanic unit -- basalt and andesite with minor shale, argillite, greywacke, silty limestone, chert and conglomerate; and an upper sedimentary unit -- limestone, thinly bedded shaly limestone, calcareous and silty shale, and gypsum (Muller, J. E., 1965).

The volcanic unit of the Mush Lake group in the Cub Creek area consists of saussuritized andesite and basalt in flows, pillow lava and breccia (Wheeler, J. O., 1962).

In Dezadeash Lake area to the southeast, the Mush Lake group contains a volcanic unit of andesite, basalt, volcanic breccia, tuff, argillite, slate and limestone and a sedimentary unit of crystalline limestone, quartzite, slate and argillite (Kindle E.D., 1953).

The Mush Lake group throughout the Kluane Ranges is noted for its numerous copper occurrences.

5. The rock boulders in Cub Creek in the vicinity of the sulphide boulders come from the glacial till in the area and consist largely of andesitic rock which may be part of the Mush Lake group or part of the overthrust Palaeozoic strata of the mountains immediately to the southwest. Conspicuous boulders of red jasperoid are common. Prac-

tures in the jasperoid contain magnetite.

6. The nearest outcrops to the area of sulphide float consist of basic volcanics which occur in Alteration Creek, a creek parallel to and 3500 feet southeast of Cub Creek.

7. As one advances up Alteration Creek he passes fairly massive outcrops of unshered basic volcanics and gradually comes into outcrops of rock that are altered along fractures and shears. These suddenly give way to a zone of decomposed rock in which there are no good outcrops and in which it is very difficult to find a specimen that is not completely altered and decomposed. Large parts of the alteration zone have a bleached appearance. The alteration zone occurs across the hillside for at least 1000 feet and extends uphill for at least 500 feet and possibly much further.

The writer briefly examined this area in 1966, but made no field notes. Recollection is that the volcanic cliffs immediately to the northeast of the alteration zone contain numerous altered or sheared faults and fractures but that these faults did not have the persistent attitude that one might expect if they were related to a regional thrust fault.

8. The area of the sulphide float has a cover of glacial till and the sulphide boulders in the creek bed have come from this till. The glacial history of the till is of great importance in determining the source of the sulphide boulders. Glacier movement from several directions could have brought debris to this locality.

The oldest glacier of importance would have been that which occupied the Shawkak Valley and moved in a northwesterly direction bringing debris from the southeast. Secondly, the cirques at the head of Telluride Creek would have supplied glaciers and debris during and after the activity of the Shawkak Valley glacier. The latest and relatively recent glacial feature is the Cub Creek rock glacier which has come from the southwest and overridden the previous glacial deposits.

9. Detailed prospecting up Cub Creek and up Telluride Creek by several prospectors and several geologists in the past failed to locate any more sulphide boulders than those which are restricted to an area 700 feet by 400 feet along the lower reaches of Cub Creek. In addition to the lack of sulphide boulders up Cub Creek and up Telluride Creek there is also a lack of geochemical evidence of any additional similar sulphides at the headwaters of these two creeks.

10. The large 10-ton boulder in the bank of Cub Creek is of particular significance as it probably lies outside of the limits of the Cub Creek rock glacier. This one boulder is in the bank of a small flat-topped bench which appears to be a continuation of the flat-topped bench across Telluride Creek to the north and across Cub Creek to the southeast.

11. The fact that all of the sulphide boulders occur in a very restricted area and consequently probably had a very local source; the fact that no additional sulphide boulders or suitable geochemical anomalies were found up Cub Creek or up Telluride Creek; the probability

that the 10-ton boulder within the bank at Cub Creek is part of the till that lies under the Cub Creek rock glacier; and the fact that no sulphide boulders are found along Alteration Creek led the writer to postulate a source to the southeast, probably between Cub Creek and Alteration Creek.

12. A resistivity survey done by Dr. Clark in 1956 was designed to test a source along Cub Creek. This survey detected a resistivity anomaly that crosses Cub Creek and strikes southeasterly, apparently ending at the zone of alteration. *NOTE: Three c.d.h. drilled at this time failed to reach bedrock. (10)*

13. Canex Aerial Explorations Ltd. found a zone of discontinuous conductors (Turam long wire method) coinciding with Clark's resistivity anomaly and extending southeast to the alteration zone. They put two 190-foot churn drill holes into the alteration zone and reportedly got some disseminated native copper.

14. The Turam Survey done by H. O. Seigel & Associates Ltd. and interpreted by Dr. R. A. Bosschart detected an anomaly in the place suggested by the writer as the source of the sulphide float. Dr. Bosschart interpreted a short zone of good conductivity dipping gently northeast. Depth of current axis is 200 feet. *NOTE: This Turam anomaly is in a different location than the one mentioned in #13 above. Seigel suggests original anomaly may largely have been due to overburden conduction (16)*

The following paragraph is from an appraisal by the Geophysical Department of Canadian Nickel Company: "The upper surface of the conductive body appears to be at least 400 feet long, possibly longer. This could of course increase with depth. The Turam results are not strong, but this is expected with heavy overburden over a body of short strike length. The conductivity of the body appears to be good."

15. Three lines of soil samples taken across the anomalous zone were tested for mercury at Barringer Research Limited and yielded some surprisingly anomalous values and a very puzzling pattern. The anomalous values are surprising because one would not expect to get mercury anomalies through such a depth of overburden and the pattern is puzzling because the anomaly is not over the EM conductor. The writer has made the suggestion that the mercury pattern reflects the underlying bedrock stratigraphy. However one would be reluctant to make any very positive interpretations.