PE-114-9

REPORT OF BOHEMIA TUNNEL, BOHEMIA BASIN, YAKOBI ISLAND, ALASKA
April 23, 1938

Location and Accessibility:

The Bohemia tunnel is located inland from the beach on the south shore of Yakobi Island, a distance of two and one-half miles, at an elevation of 900 feet. A trail leads from a small cabin on the beach into Bohemia Basin, thence along a small creek to the west end of the basin to a cabin, and thence a steep climb to the tunnel. The tunnel is located on the Bohemia group of claims held by the Nickel Corporation of America. At the date of the writer's visit to this property, heavy snow prevented the examination of the numerous cuts and the surface outcrops in the vicinity of this tunnel. Therefore, this report is confined to the underground conditions within the tunnel.

Description of Tunnel:

The tunnel from its portal, elevation 900 feet, bears generally southwest for a distance of 165 feet. This direction is nearly at right angles to the general strike of the formations. The slope of the mountain at this point is steep and the mountain continues to rise steeply above, with the face of the tunnel over a hundred feet directly below the surface. The walls and roof of the tunnel are considerably oxidized with iron oxides, the result of weathering of the contained sulphides in the ore. The depth of this oxidation is nearly an inch into the fresh rock, and penetrates all fractures for a distance of several feet. The tunnel over its entire length is in norite, a variety of gabbro. From the portal for a distance of 65 feet, only a slight mineralization was noted. From this point on the mineralization increases in amount for the remaining length of the tunnel, reaching the greatest amount at a point 20 feet back from the face. Small slip fractures were noted in various directions in the norite. At a point 75 feet from the portal a 4-inch vein consisting of feldspar, bronzite, biotite mica, quartz, alteration products, and a slight mineralization, was followed for 12 feet (note location on sketch). This vein contains a larger crystallization than the norite and is apparently of later origin. The character of the mineralization is pegmatitic, showing a segregation under slow cooling, one of the factors in magmatic segregation.

Two samples were taken for slides. Sample specimen No. T.B.M. 41 was taken from the east wall at a point 40 feet from the portal. The following minerals and percentages were noted:

Plagioclase feldspar - labradorite	50%
Bronzite	30%
Olivine and pyroxene	10%
Metallic	1-2%
Others (undetermined)	8-9%

The olivine is inclosed wholly in the bronzite. The metallic sulphides have been determined by U. S. G. S. Bull. 773, "Mineral Resources of Alaska, 1923," p. 101, as consisting of pyrrhotite, pentlandite, and chalcopyrite, with pyrrhotite predominating.

Sample specimen No. T. D. M. 43 was taken at a point 120 feet from the portal in an area of greater mineralization. The following minerals and percentages were noted:

Plagioclase feldspar - labradorite	40%
Bronzite	40%
Olivine and pyroxene	10%
Metallics	5%
Others	5%

The increase of bronzite, which is altered nearly to hypersthene, is accompanied by a greater increase of metallics. This results in an increase of both copper and nickel. Some alteration of the feldspars was noted with a slight association of the sulphides. However, most of the sulphides are associated with the bronzite. This association shows a primary origin for the sulphides.

Samples:

Nine channel samples were taken, beginning at the face, of 10-foot lengths. Ten pounds or more of material was taken per sample with a moil and pieces with diameters greater than one-half inch. This 90-foot length within the tunnel does not mark the extremities of this mineralized zone. Values no doubt would continue ahead in the tunnel and a lesser amount of mineralization with possibly low values would continue to the portal. Included in the samples was an undetermined amount of oxides and decomposed products. Thus, the average values of 0.63% nickel and 1.21% copper for the nine samples represents lower values than would be obtained from freshly broken rock, due to the processes of oxidation.

The following tunnel sketch gives the positions and results of samples taken, together with the geology.