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TERRITORY OF ALASKA
DEPARTMENT OF MINES

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REPORT ON THE PRELIMINARY EXAMINATION OF A MOLYBDENUM DEPOSIT ON PORPHYRY MOUNTAIN NEAR McCARTHY, ALASKA

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ABSTRACT

Several years ago a molybdenite-bearing quartz vein was discovered on the west slope of Porphyry Mountain about four miles from McCarthy, Alaska, in the Copper River Region. About 400 ft of underground workings were driven to explore the vein, and the property was then abandoned without having been brought into production. The property was re-staked in the summer of 1951 by Mr. Ernest Gercken of McCarthy. The deposit is probably not minable under present economic conditions. If roads are built to provide cheaper transportation from McCarthy to the coast, and if molybdenum does not decrease in value relative to the cost of labor and supplies for mining, the deposit may become minable in the future.

INTRODUCTION

As part of its program to furnish aid to prospectors in Alaska, the Department of Mines regularly employs mining engineers to examine mines and prospects. In August 1951, the Department received a request to send an engineer to examine the molybdenum deposit near McCarthy. In response to this request, James A. Williams and Robert H. Saunders, Associate Mining Engineers, examined the property on October 2, 1951, while making investigations in the Copper River Region. This report is written from notes taken during that examination.

LOCATION AND ACCESSIBILITY

The property is on Porphyry Mountain about four miles east of McCarthy, at approximately 61° 25' N latitude and 142° 50' W longitude. Since the abandonment of the Copper River and Northwestern Railroad, airplanes have provided the only transportation over the fifty miles between McCarthy and Chitina. A gravel road from Chitina intersects the Richardson Highway about 12 miles from Copper Center. There are gravel roads from McCarthy to some of the placer mines on Dan and Chititu Creeks. There is an old wagon road from McCarthy to the molybdenum property, but brush now makes this road impassable.

Since the start of hostilities in Korea, increasing copper prices have caused a revival of prospecting in the Copper River Region. If this prospecting leads to the development of a copper mine, a road may be built from McCarthy to Chitina. Preliminary surveys have been made for a road along the old railroad bed from Chitina to Cordova, a distance of about 140 miles. These two roads would provide access from McCarthy to the coast over a route about 190 miles long.

PHYSICAL FEATURES

Porphyry Mountain is a peak about 6300 ft high on the south end of a north-south ridge that extends from Regal Mountain to the north side of the Chitina valley. McCarthy Creek flows due south along the east side of the ridge, then it turns around the south end of the ridge and flows northwestward to the foot of the Kennecott Glacier near the town of McCarthy. There it joins the melt water from the glacier and turns southward to the Nizina River, tributary of the Chitina.

Across the Kennecott Glacier from Porphyry Mountain, there is a group of peaks rising to over 6000 ft. About 30 miles northwest of Porphyry Mountain, the Kennecott Glacier heads on the slopes of Mt. Blackburn, a peak 16,140 ft high.

The town of McCarthy is at an elevation of 1400 ft on a terrace on the east side of the glacier. The molybdenum property is on the west side of Porphyry Mountain at an elevation of 4100 ft. About five miles to the north on the same ridge is the abandoned Bonanza Mine of the Kennecott Copper Corporation.

HISTORY

According to information obtained from the residents of McCarthy, the property was originally staked by Frank Iverson, who formed a company to finance driving the underground workings. The company drove about 400 ft of drifts and crosscuts, but no molybdenum was produced.

In the summer of 1951, the property was visited by "Tex" Bremer, an employee of the United States Smelting, Refining, and Mining Co. at Fairbanks, Alaska. Bremer made a tentative partnership agreement with the present owner and examined the property, taking samples and making his own quantitative tests in the field. He concluded that the property cannot be worked under present conditions but that it might be minable if a road is built from Chitina to McCarthy.

PROPERTY AND OWNERSHIP

Records of mining claims recorded at Copper Center prior to 1945 were destroyed by a fire.

The molybdenum property was probably open for location for several years until it was staked in the summer of 1951 by Mr. Ernest Gercken of McCarthy, the present owner.

GENERAL GEOLOGY

Porphyry Mountain is composed of granite porphyry. Near the top of the mountain, there are a few isolated remnants of Cretaceous sediments including shale, sandstone, and conglomerate.

The wall rock of the molybdenum deposit is granite porphyry throughout the present workings. The deposit is a molybdenite-bearing quartz vein. The vein strikes about east-west and dips vertically. Width of the vein where exposed underground varies from four inches to eighteen inches.

There is a possibility that the two vein segments exposed in the underground workings are parts of two separate veins instead of being parts of the same vein. At the time of this examination, snow obscured the outcrops, but in the summer it is probably readily apparent from the outcrops whether there are one or two veins. The two exposures should be considered to be parts of the same vein until proven otherwise.

DEVELOPMENT AND UNDERGROUND WORKINGS

The map included in the appendix shows the outline of the underground workings. An adit driven at about right angles to the strike of the vein intersects the vein about forty feet from the portal. A drift turned off the adit at about right angles follows the vein for about thirty feet, but the drift was not driven parallel to the strike of the vein, consequently, the vein goes into the north wall of the drift. About fifty feet farther the drift again intersects the vein and follows it for about forty-five feet, then the drift bears to the north leaving the vein again. The drift continues about 160 ft in the general direction of the strike, but it does not again intersect the vein, unless the vein is hidden by a heavy coating of ice in the last thirty feet of the drift. About forty feet from the turn where the drift left the vein for the second time, a crosscut was driven about 60 ft to the north. There are no quartz veins exposed in this crosscut.

SAMPLES AND ASSAYS

Two samples taken during this examination were assayed at the Territorial Department of Mines Assay Office at College, Alaska. The locations from which the samples were taken are shown on the map in the appendix. Sample No. 1 assayed 1.83% molybdenum, and Sample No. 2 assayed 0.87% molybdenum. At the present price of $0.60 per pound for molybdenum sulfide, the market value of molybdenum contained in one ton of 1.83% ore would be $36.60, and the market value of molybdenum contained in one ton of 0.87% ore would be $17.40.

PROPOSALS

The time spent on this examination was limited to one-half day in order to avoid a delay of one week waiting for air transportation. The map included in this report, therefore, is not a complete geologic map of the underground workings; a more detailed study would probably disclose features not shown on the map. Also, if more time had been available, sufficient ice could have been removed from the last thirty feet of the drift to expose the drift walls and back. If economic conditions affecting the area change enough to make the mining of the property an attractive venture, this deposit should be re-examined, preferably in the summer. The surface outcrops should be mapped, and a more detailed geologic map of the underground workings should be made.

The parts of the vein thus far exposed cannot be mined at a profit under present conditions. If roads are built from McCarthy to the coast, the property may become minable, but more prospecting will be required to justify any investment in mining and milling equipment.

Porphyry Mountain, "X" shows approximate location of portal.

Portal of adit.

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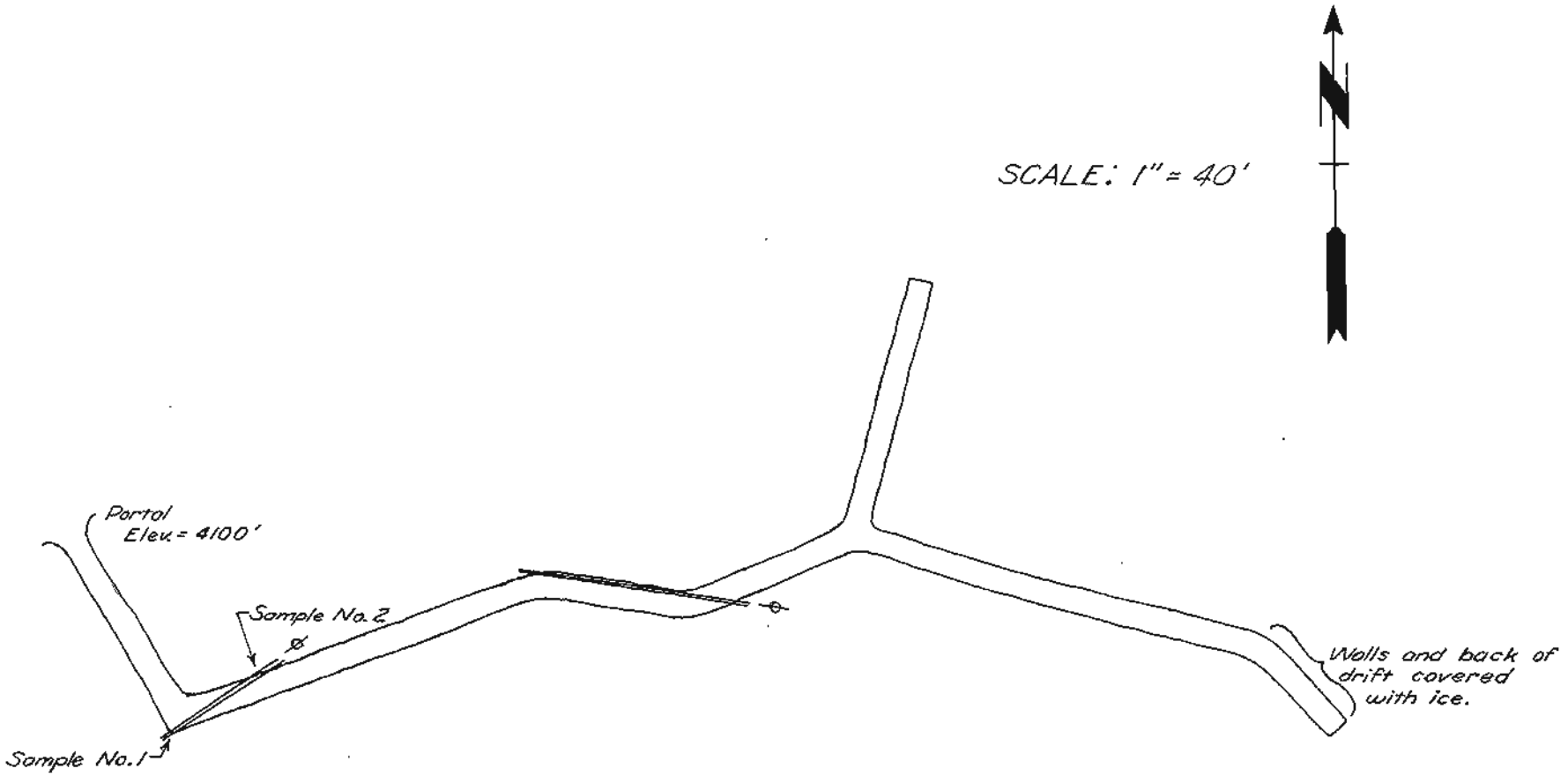

Wallrock - Granite porphyry.
Molybdenum-bearing quartz vein -

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PORPHYRY MT.
MOLYBDENUM PROSPECT

From compass survey by J. A. Williams & R. H. Saunders, Assoc. Min. Engrs. October 1951.