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TERRITORY OF ALASKA
DEPARTMENT OF MINES

PRELIMINARY REPORT ON STIBNITE PROSPECT ON UPPER KANSAS CREEK, WOOD RIVER DISTRICT, ALASKA

Introduction

In June, 1941, an unreported stibnite deposit was found by the writer on upper Kansas Creek, in the Wood River District. No evidence of prospecting was found. Subsequently, the deposit was described briefly in Territorial Department of Mines Pamphlet No. 1, May, 1942, p. 11.

In August, 1942, the writer, accompanied by Eskil Anderson of the Department of Mines and Howard Sparks, prospector, returned to Kansas Creek and spent two days prospecting the deposit and examining the surrounding area. The prospect was then staked by Mr. Sparks and named the Ridge Claim.

Location

The prospect is on the middle fork of Kansas Creek, about a mile northwest of the Kansas-Dry Creek pass and about seven miles above the mouth of Kansas Creek. It is situated on a right-limit ridge, about 100 feet above the creek bed and at an altitude of about 4,800 feet.

Accessibility

During the winter the Wood River valley is accessible by dog team or tractor from the Tanana Valley. A winter trail leads from Fairbanks across the Tanana Valley to Wood River. The distance from Fairbanks to the Wood River at the mouth of Kansas Creek is about 70 miles. An alternate tractor route could be established from Wood River to the Richardson Highway near Birch Lake, a distance of about 50 miles. Birch Lake is about 60 miles from Fairbanks by an all-year road.

A tractor trail could also be established from the landing field on Grubstake Creek, past the head of Gold King Creek and down Mystic Creek to Wood River. The total distance from Grub-

stake Creek to the mouth of Kansas Creek is about 20 miles.

Freighting from Wood River to upper Kansas Creek could best be done in the winter, over the glacier ice of the creek. Kansas Creek has a grade of about three percent in its lower course; the grade increases to over six percent near the prospect.

Small planes can usually land on bars of the Wood River at Kansas Creek; however a permanent field could not be made in the present stream bed because of frequent floods. During the winter a temporary landing field suitable for larger planes could be made on the river bars. A permanent field could be made on a low, right-limit bench of the river, about a half-mile below Kansas Creek. This bench is cut by several shallow dry sloughs, which are apparently never flooded extensively. The altitude of the Wood River Valley at Kansas Creek is about 2,500 feet.

Timber and Water

Timber line on Kansas Creek is at an altitude of about 3,000 feet. The closest timber is about three miles downstream from the antimony prospect. Spruce sufficiently large for most mining purposes may be found near timber line. Good stands of spruce suitable for house logs grow in the wide valley of Wood River and in the lower valley of Kansas Creek for a distance of about a mile above its mouth.

On August 18, 1942, the water flow in the creek adjacent to the prospect was approximately 400 miners inches. Since most of the snow was gone from the mountains at the head of the creek it is probable that the normal summer flow is greater than 400 miners inches. A small flow may be anticipated under the ice during the winter, because the creek glaciers extensively.

Geology

In the vicinity of the antimony deposit the country rock is soft, black, slaty schist. It is considerably faulted and contorted, but in general the strike is northeast and the dip steep northwest. Nearby are found quartzite schists, as well as several other types of schistose rock. Red-weathering rhyolite flows are also contained in the schist. On the south side of the creek opposite the prospect is a large intrusion of coarse-grained granite with inclusions of diorite (?), while on the north side, on the ridge above the prospect, numerous small intrusions of granite were found.

The stibnite lode appears to strike northeast and dip steeply northwest, or parallel to the strike of the country rock; however, it was not exposed enough by prospecting to determine its attitude with certainty. It is likely that some frost-creep has occurred so that the attitude at the surface of bedrock would not be the same as that in undisturbed rock.

Numerous quartz veins, from a few inches to four feet thick, were found in the schist near the stibnite lode. They are all parallel to the schistosity and in general strike northeast. Most of the quartz is glassy and barren-appearing; some of the veins, however, contain arsenopyrite that weathers to a conspicuous rust color. A picked sample of the arsenopyrite-bearing quartz from several veins contained $18.20 in gold per ton, according to an assay by L. H. Saavala, Territorial Assayer at Anchorage. This sample represents only the mineralized portions of the veins; the gold content of samples taken across their full widths would doubtless be much lower.

Showings

Two trenches about 60 feet apart were dug along the inferred strike of the

antimony lode, as well as several small pits. In the upper trench a zone of quartz containing small lenses of stibnite was found. In the lower trench a zone of crushed quartz, containing six feet of antimony ore was exposed. Only the northwest wall of the ore was found; consequently if the trench was approximately normal to the lode, it may be over six feet wide. It is possible, of course, that movement caused by frost action may make the ore zone appear wider on the surface of bedrock that farther underground.

The stibnite occurs in lenses, from a fraction of an inch to about a foot across, in a wide quartz zone. Some of the lenses contain vein quartz and schist; others consist of practically pure stibnite. Small inclusions of black schist were also found in the ore zone.

The overburden is about six feet thick. In the prospect pits it consists chiefly of stibnite float, overlain by a one-foot layer of soft comminuted schist. In the upper trench the zone of stibnite float was about three feet thick; in the lower trench it was about five feet thick and extended to bedrock. An estimated two hundred tons of ore are contained in the overburden between the two trenches, but the total amount of ore in the overburden is probably much greater since the ore-bearing layer appears to extend beyond the limits of prospecting.

No attempt was made to obtain an average sample of ore because the deposit could not be sufficiently prospected in the time available. A picked sample of the high-grade ore contained 63 percent antimony, according to an analysis made by Art Glover, Territorial Assayer at College. Impurities were quartz and minor amounts of schist and gouge. On the advise of Mr. Glover, no analyses were made for the presence of objectionable impurities, since specifications of the Federal agency now buying stibnite make no mention of them. It is probable that with hand cobbing to remove included schist and vein quartz, ore

containing 50 percent antimony could be produced from the deposit.

Recommendations

Additional surface prospecting is necessary before the extent and tenor of the deposit can be determined. One or two weeks' hand-trenching by two men should be sufficient for this preliminary work, since the overburden is shallow and is easily handled by pick and shovel.

A large amount of high-grade float can be readily recovered, possibly by stripping the top layer of barren overburden with a bull dozer and then by bulldozing the underlying stibnite float into a washing and screening plant.

A tractor route to the prospect should be established before freezeup if underground development is contemplated within the next year.

Henry R. Joesting
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