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TERRITORY OF ALASKA
DEPARTMENT OF MINES

REPORT ON THE EXAMINATION OF THE COPPER CREEK COPPER PROSPECT, EAGLE QUADRANGLE

KX 60-61

(60)

by

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ABSTRACT

The Copper Creek copper prospect is in the northwestern part of the Eagle Quadrangle at 64° 51' N latitude and 143° 20' W longitude. The distance from the prospect to the nearest airstrip is about 40 miles; to the nearest road, about 100 miles. At the prospect a mineralized zone, 4 to 5 feet wide and tabular in shape, outcrops in the face of a steep cliff. Two samples from the outcrop of the mineralized zone contained 5.26 and 2.50 per cent copper respectively.

INTRODUCTION

The Copper Creek copper prospect has been known to prospectors in interior Alaska for many years, but it was not mentioned in any publication until 1949. In that year it was examined by a U. S. Geological Survey party, and the results of that examination were published in U. S. Geological Survey Circular 335, RECONNAISSANCE FOR RADIOACTIVE DEPOSITS IN EAST-CENTRAL ALASKA, 1949, by Helmuth Wedow, Jr. and G. E. Tolbert. The report in Circular 335 describes the geology and mineralogy of the deposit, gives the results of a radiometric survey, and lists the equivalent-uranium content of seven samples; but it does not give the percentage of other valuable metals in the deposit.

The prospect was examined on July 11, 1955, by Robert H. Saunders, Associate Mining Engineer of the Territorial Department of Mines, to obtain information for the Department of Mines in regard to the potential value of the deposit and particularly to obtain samples that would give an indication of the value of all marketable minerals in the deposit.

LOCATION AND ACCESSIBILITY

The prospect is located at 64° 51' N latitude and 143° 20' W longitude in the northwestern part of the Eagle Quadrangle. It is on the right limit side of Copper Creek, tributary to the Charley River, about six miles from the mouth of the creek.

There is no easy route of access to the prospect. Although the lower part of the Charley River is navigable for small river boats,

the river is not navigable for many miles below the mouth of Copper Creek. During the early 1900's when work was being done on the prospect, materials and supplies were brought from Eagle by pack horse train. The distance over the old pack horse trail from Eagle to the prospect would have been about 100 miles.

The U. S. Geological Survey party that examined the prospect in 1949 went in by helicopter. Access to the prospect for the 1955 examination was gained by traveling on foot from a samll airstrip on the east side of Alder Creek, tributary to the Seventymile River. Over most of the route from Alder Creek to the prospect, it is possible to stay on ridges above timberline. The distance to be covered is about forty miles one way, and the trip requires about six days total travel time from Alder Creek to the prospect and return.

Some of the residents of Eagle are optimistic about the possibility of a road being constructed in the near future between Eagle and a dredging operation on Woodchopper Creek, tributary to the Yukon River; this road probably would come within 30 miles of the prospect. In other parts of the Fourth Division, however, there has been no serious talk of constructing this road, and so many other roads have been widely discussed that it seems likely that road construction between Eagle and Woodchopper Creek will be far off in the future.

HISTORY AND OWNERSHIP

The Hudson brothers, who later mined at Livengood, staked claims on the Copper Creek prospect in the early 1900's and drove an adit

to explore the deposit. The prospect was restaked in 1946 by Howard Sparks of Fairbanks, and he owned it at the time of the examination by the U. S. Geological Survey in 1949; since then it apparently has reverted to the public domain, so that it is now again open to location.

GENERAL GEOLOGY

The geology of the area around the prospect has been described in U. S. Geological Survey Bulletin 872, THE YUKON-TANANA REGION, ALASKA by J. B. Mertie, Jr., 1937, and in U. S. Geological Survey Bulletin 538, A GEOLOGICAL RECONNAISSANCE OF THE CIRCLE QUADRANGLE, ALASKA by L. M. Prindle, 1913. The maps that accompany both bulletins show the bedrock underlying the Charley River drainage basin to be a granitic intrusion of Mesozoic age. This mass of intrusive rock has been called the Charley River batholith. On the divide between Copper Creek and the Seventymile River drainage, there are numerous outcrops of metamorphic rocks of sedimentary origin. These apparently are roof pendants, erosional remnants of the rocks that formerly overlaid the batholith. The Copper Creek prospect is in one of these masses of metamorphic rock.

MINERAL DEPOSITS

The deposit outcrops in the face of a steep cliff near a bend in Copper Creek. It disappears at the bottom of the cliff under a talus slope and at the top of the cliff under soil and vegetation. It is 4 to 5 feet wide at the outcrop and dips about vertically. The face of the cliff is too steep to show the strike of the deposit.

The presence of small amounts of uranium in samples from the deposit is reported in U. S. Geological Survey Circular 335; the uranium is thought to be an impurity in malachite and azurite.

The following description of the mineralogy is from U. S. Geological Survey Circular 335:

> "Tentative identifications show a lime-silicate rock and an amphibolite as the two main lithologic types at the prospect. The bulk of the metallic minerals is in the lime-silicate rock, mainly along a contact with the amphibolite, with minor amounts of the metallic minerals disseminated through both rock types but in diminishing amounts away from the contact. Chalcopyrite, malachite, and azurite are the chief metallic minerals at the prospect. Minor amounts of galena are present and traces of gold, silver, and tungsten have been reported in assays."

WORKINGS

An adit, which was driven by the Hudson brothers, is the only underground opening on the prospect. The portal to the adit is 10 to 15 feet above Copper Creek in the face of the steep cliff where the deposit outcrops. The portal is now caved, but the adit was accessible when the U. S. Geological Survey party examined the prospect in 1949. According to U. S. Geological Circular 335, the adit is 114 feet long; it leaves the mineralized zone about 40 feet in from the portal, and the inner part of it is in barren rock. The miners failed to follow the mineralized zone apparently because they did not understand the structure of the deposit.

There is a log building near the portal that probably served as a messhall and bunkhouse; the roof has caved in and the building has deteriorated beyond use.

SAMPLES AND ASSAYS

Two samples were taken during this examination, and they were assayed at the Territorial Department of Mines Assay Office at College. The results were as follows:

Sample No.	Ounces per Ton		Per Cent		
	Gold	Silver	Copper	Zinc	Others
3	Tr	0.80	5.26	0.3*	None*
4	Nil	1.16	2.60	0.3*	Bismuth 1 to 5 per cent.*

Neither lead nor tungsten were detected by the spectroscopic examination of the samples, but small amounts of both metals have been reported in other samples from the deposit. Bismuth has not been reported previously from this prospect, and its presence in Sample Number 4 was wholly unexpected. The amount of uranium in samples taken from the deposit during the U. S. Geological Survey examination in 1949 was too small to be of economic importance except possibly as a by-product of the mining of other valuable minerals.

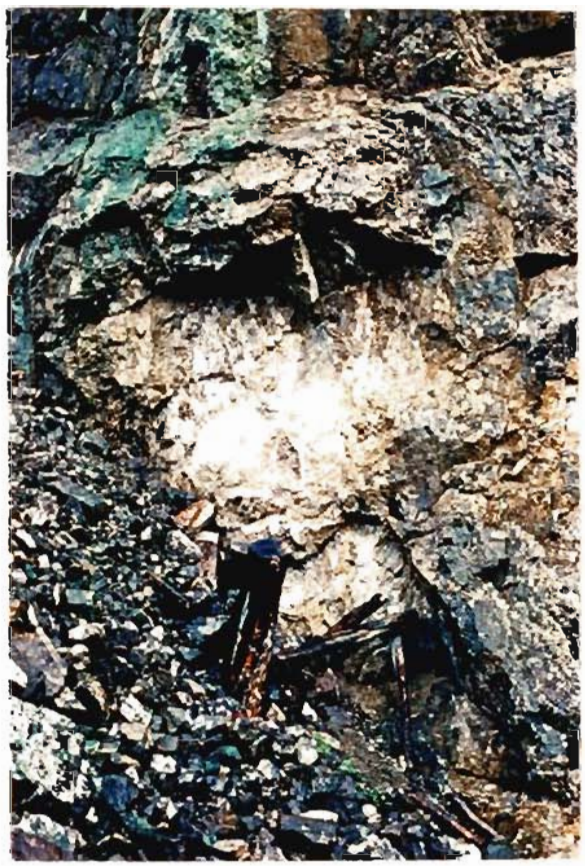
SUMMARY

The samples taken during this examination indicate that the deposit at Copper Creek is too low-grade to compensate for the remote location of the prospect.

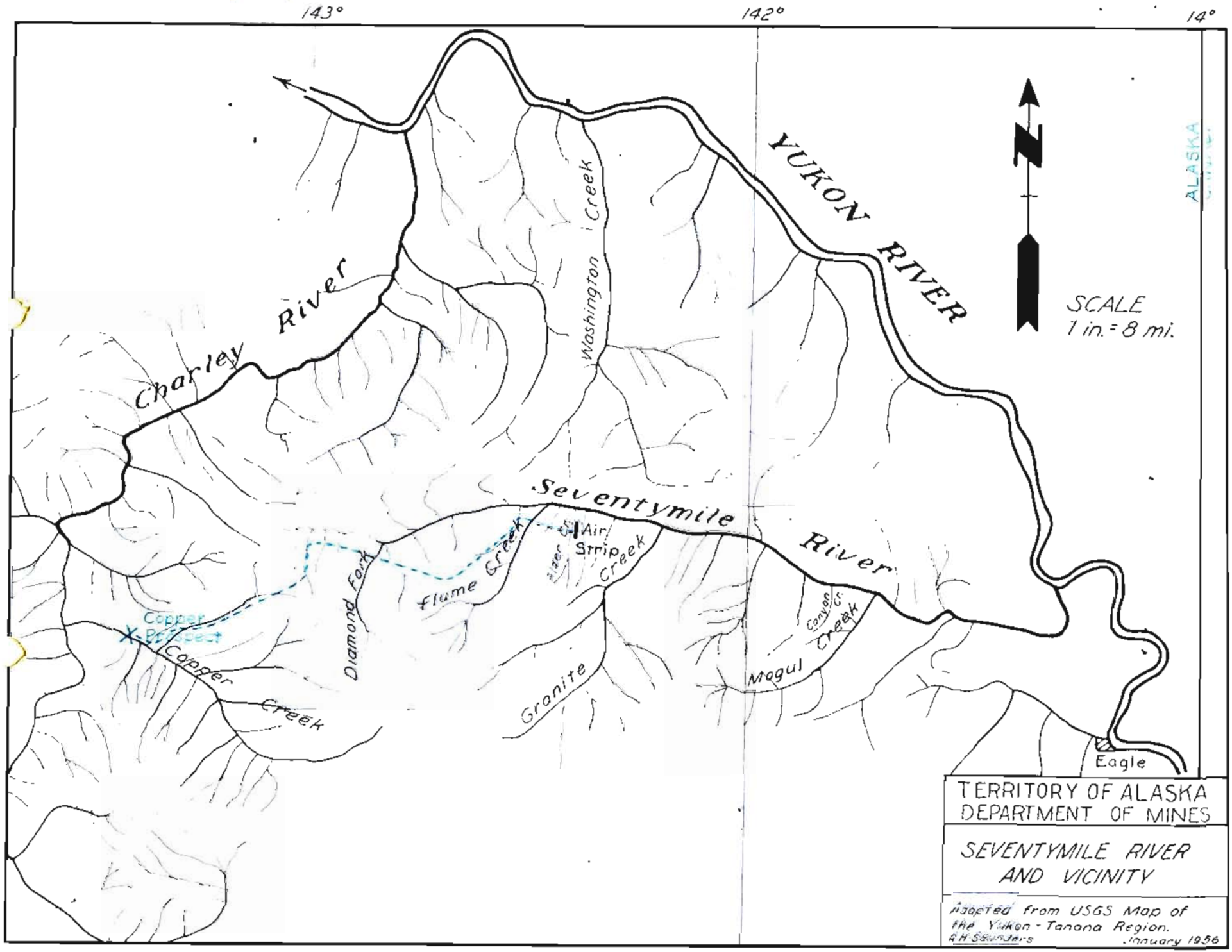
The presence of roof pendants on the divide between Copper Creek

*By spectroscopic examination.

and the Seventymile River drainage makes that area more favorable for prospecting than it would be if the bedrock were all granite as shown on the geologic maps of the region. Roof pendants have been reported to be numerous throughout the entire area drained by the Charley River.



Outcrop and caved portal. Mineralized zone is green and white.


143°
142°
14°
65°
YUKON RIVER
Washington Creek
Charley River
SCALE
1 in. = 8 mi.
ALASKA
Seventymile River
Flume Creek
Air Strip
Creek
Diamond Fork
Copper Prospect
Copper Creek
Granite
Mogul
Canyon Cr.
Creek
Eagle
TERRITORY OF ALASKA
DEPARTMENT OF MINES
SEVENTYMILE RIVER
AND VICINITY
Adapted from USGS Map of
the Yukon-Tanana Region.
R.H. Sanders
January 1956