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STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

BUZBY LEAD-SILVER PROSPECT FAIRBANKS, ALASKA

by
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PROSPECT EXAMINATION 58-17

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NAME AND LOCATION OF PROSPECT

The Buzby lead-silver prospect is located near Latitude 64°02'N, 147°19'W, north of Slide creek, a tributary of Dry Creek in the Fairbanks A-1 quadrangle.

OWNERSHIP

Mr. Buzby holds 81 unpatented lode mining claims. A description of the claims is on file in the district recorders office and the Fairbanks office of the Alaska Division of Geological and Geophysical Surveys.

ACCESSIBILITY

An airstrip has been constructed on top of a hill in sections 26 and 27, T10S, R2E. The prospect is about 700 feet down the slope north of the airport. It is accessible by a winter trail from Ferry on the Alaska Railroad or from mile 46 on the Richardson highway. Ore for sale was transported by a tractor down sled from the claims to Mr. Buzby's home at mile 46, Richardson.

METALS

Lead and silver.

PAST PRODUCTION

High grade lead-silver ore was hand-sorted from a shallow trench. Approximately 12 tons of ore assaying 44.4 ounces of silver per ton and 48.1% lead was shipped to the American Smelting & Refining Company, at Helena, Montana, in the spring of 1973.

SUMMARY

Development, limited to trenching along the vein for approximately 130 feet, has exposed a well-defined fracture containing the lead mineral galena. The fracture is small but very easily followed. Two additional veins containing high-grade galena strike at an acute angle with the principal fracture. The assays and shipment indicate approximately 1 ounce of silver for each 1% of lead. Although the mineral occurrence does not constitute a commercial deposit, it is a focal point of mineralization.

The wall rock is believed to be the Mystic Creek Member of the Totatlanika Schist.

EXAMINATION

I examined the property on August 1st with Bill McClintock, Mining Engineer, as an associate. It was raining, but we were able to map the exposed area and sampled on a 10-foot interval. Figure 1 shows the local geology and sample locations. Table 1 indicates the analyses and the width of the fracture in the cut at the sample locations shown on figure 1.

GEOLOGY

The rock in the cut is classified as a black schist. A black limestone that effervesces freely when treated with dilute acid occurs in the immediate vicinity of the cut, but not in the area shown on figure 1. The black schist with interbedded limestone indicates the rock is the Mystic Creek Member of the Totatlanika Schist. Wahrhaftig (1968) states "The Totatlanika Schist is predominantly of volcanic origin, and interbedded black schist and a fossiliferous limestone lens indicate a submarine origin. The chloritic schist may originally have been basaltic flows or basic intrusions, and the feldspathic schists may have originally been related to underwater pyroclastic eruptions.

"The only fossil evidence on the age of the schists comes from a fossiliferous limestone lens in the Mystic Creek Member, which yielded Syringopora of Mississippian(?)age. The Totatlanika Schist is therefore assigned a Mississippian(?)age."

The fractures (veins?) containing galena cut across black schist. In addition to the fractures, there is a prominent altered zone (figure 1) that stands out because of its light color. Samples from the altered zone numbers 18, 19, and 20 are not of ore grade, but appear anomalously high in silver and lead. The aqua-regia soluble iron content of the samples is higher than would be expected from the unaltered rock.

The fissures containing the sulphide mineralization are strong and easily recognized. The grade is good in local areas along the strike.

The fractures break across the schistosity of the rock, and are nearly vertical. No attempt was made to map schistosity or dip of the fractures other than the small cross fault noted on figure 1 near sample 5. This fault indicates postmineral movement. Insufficient work was done to indicate if variations in dip would have any effect on size or concentration. Exposures along the vein must be made by trenches to remove the overburden.

No attempt was made to classify the type of deposit. The mineralization may have resulted from the remobilization of sulphides from an undiscovered syngenetic stratiform massive sulphide ore body in the area. The description for the origin of Totatlanika Schist as given by Wahraftig suggests that it would have provided an environment suitable for syngenetic massive sulphide deposit. Anderson (1969) states "Earlier in this discussion I emphasized my conviction that many of the massive sulfide deposits are associated with volcanic rocks that accumulated in a marine environment, a conclusion shared with Kinkel. The supporting evidence is overwhelming that all of the important deposits in Phanerozoic rocks had a marine environment." The environment would also seem to fit Anderson's mineral assemblages III.

The interpretation of postmineral faults and an evaluation of occurrences of sulfides in fractures could be important in the probability of finding an ore body in an area that either has a soil mantle or is covered by the Nenana Gravels. Outcrops are limited to steep slopes or exploration cuts. The occurrence of sulphides in fractures may be due to remobilization and not epigenesis.

SAMPLES

The samples taken are believed to be of sufficient size to be representative and would exceed 5 pounds per linear foot. The analyses were completed by Donald Stein, Assayer for the Alaska Division of Geological and Geophysical Surveys.

CONCLUSIONS & RECOMMENDATIONS

The exposure of galena is too small to sustain a mining operation. However, the grade is high enough to make a commercial deposit if quantity can be located. This is a target area for additional exploration.

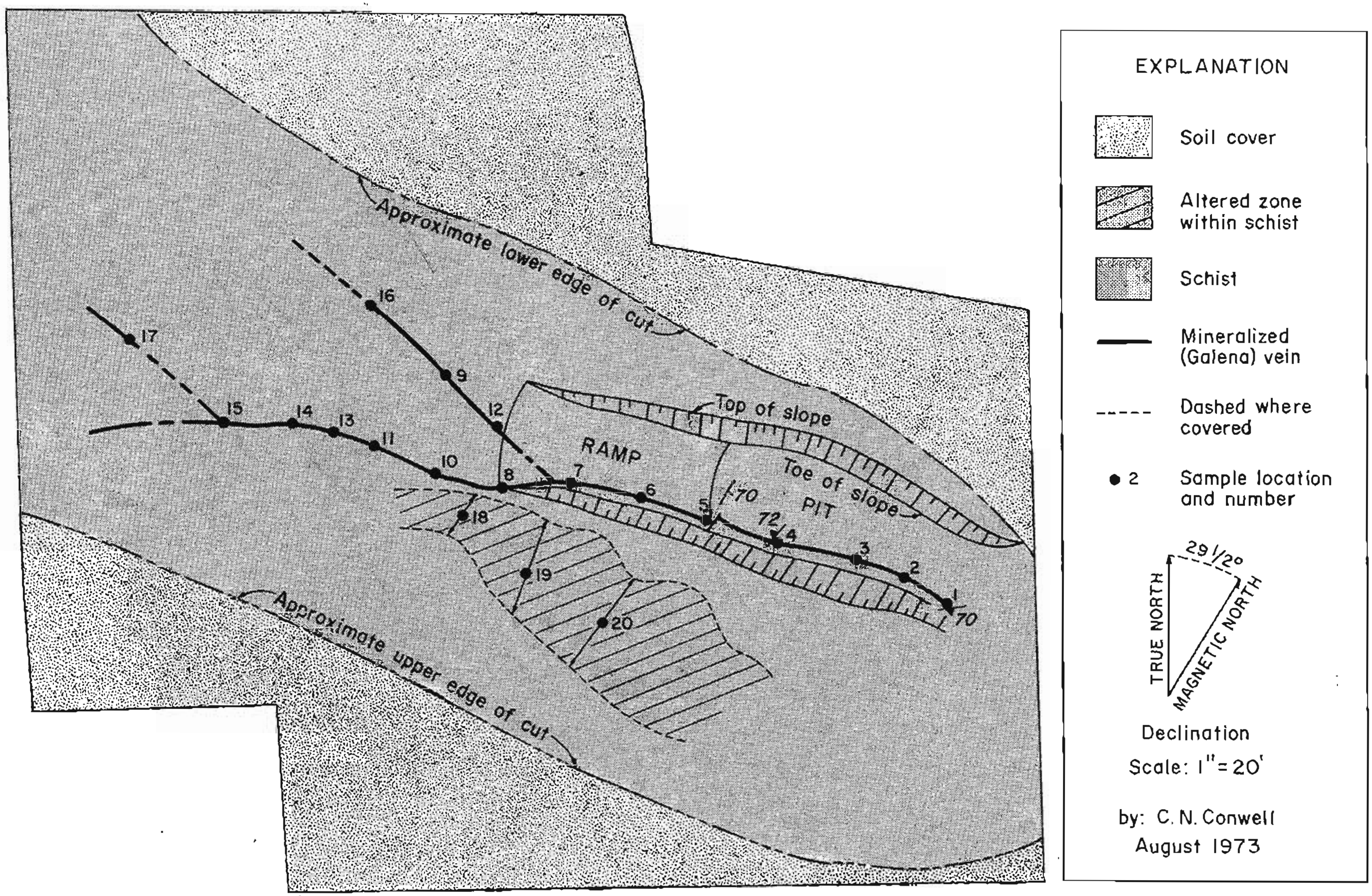
Although there is a high risk involved in any development within an area that has yet to produce an operating mine, a risk must be taken to find an new ore body. In this location, a risk is required to find the commercial ore body, but the value of the ore has been proven by a smelter return.

My recommendation, to Mr. Buzby, is continue exploration along the strike by shallow trenching, searching for a wider section of the vein. To a company, I would recommend that a geologist make a more detailed study of the lithology of the Mystic Creek Member of the Totatlanika Schist and attempt to classify the probable origin of mineralization. In this way it might be possible to make a theoretical model to guide a more sophisticated exploration program.

REFERENCES

Anderson, C. A., 1969, Massive sulfide deposits and volcanism: Econ. Geol., v. 64, p. 126-146.

Wahraftig, C., 1968, Schists of the central Alaska Range: U. S. Geol. Survey Bull., 1254-E, p. E1-E22.



BUZBY LEAD-SILVER PROSPECT

Section 27 - Township 10 South, Range 2 East
Fairbanks A-1 Quadrangle, Alaska

Figure 1

TABLE 1

SAMPLE ANALYSIS [1]

Sample	Width (inches)	Ounces Per Ton		Weight Percent [2]			
		Gold	Silver	Copper	Lead	Zinc	Iron
1	2	0.008	6.5	0.019	4.4	0.32	9.5
2	2	0.67	96.0	0.110	13.0	0.460	7.5
3	5	0.005	93.4	0.350	46.0	2.50	2.7
4	2 1/2	0.001	5.0	0.012	4.60	0.650	21.0
5	3	0.003	46.7	0.017	42.5	1.60	6.0
6	2	0.002	13.1	0.010	10.4	0.66	20.0
7	5	0.004	43.7	0.024	21.5	2.40	4.2
8	16	0.002	0.50	0.006	0.370	0.050	2.4
9	5	0.008	58.3	0.045	42.5	1.60	1.0
10	1	Nil	0.70	0.015	0.620	0.135	7.0
11	11	0.002	0.070	0.012	0.420	0.130	7.5
12	8	0.004	10.5	0.016		0.045	2.3
13	8	0.010	70.0	0.026	26.0	0.300	5.5
14	2	0.008	65.5	0.049	56.0	0.790	0.5
15	3	0.005	87.5	0.017	68.0	0.270	0.5
16	4	0.007	81.7	0.0200	62.0	0.215	0.5
17	2	0.009	23.3	0.0265	20.5	0.100	1.0
18	96	0.003	0.60	0.007	0.160	0.026	2.4
19	168	0.001	0.90	0.007	0.410	0.008	1.5
20	192	0.002	0.213	0.006	0.080	0.065	3.7

1 Accuracy of the atomic absorption analysis for gold, silver, copper, lead, zinc, and iron is ±10% of the reported value.

2 Aqua-regia soluble.

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INTRODUCTION

On June 15, 1972, I made a brief examination of mineral showings on claims owned by Bob Buzby of 46 Mile Richardson Highway, Fairbanks, Alaska. Mr. Buzby provided air transportation from Fairbanks to an airstrip on the claims and transportation with an all terrain vehicle to the sample locations. The area was visited again on September 15, 1972 but snow covered the area and no attempt was made to do any additional field work.

LOCATION

The prospect is located on Dry Creek about 70 miles southeast of Fairbanks on the north side of the Alaskan Range in Fairbanks A-1 and Healy D-1 quadrangles. It is less than 30 miles in a direct line from the Alaska Highway between Fairbanks and Delta Junction, Alaska, and approximately 60 miles from the Alaska Railroad at Ferry. (Figure 1).

TOPOGRAPHY AND CLIMATE

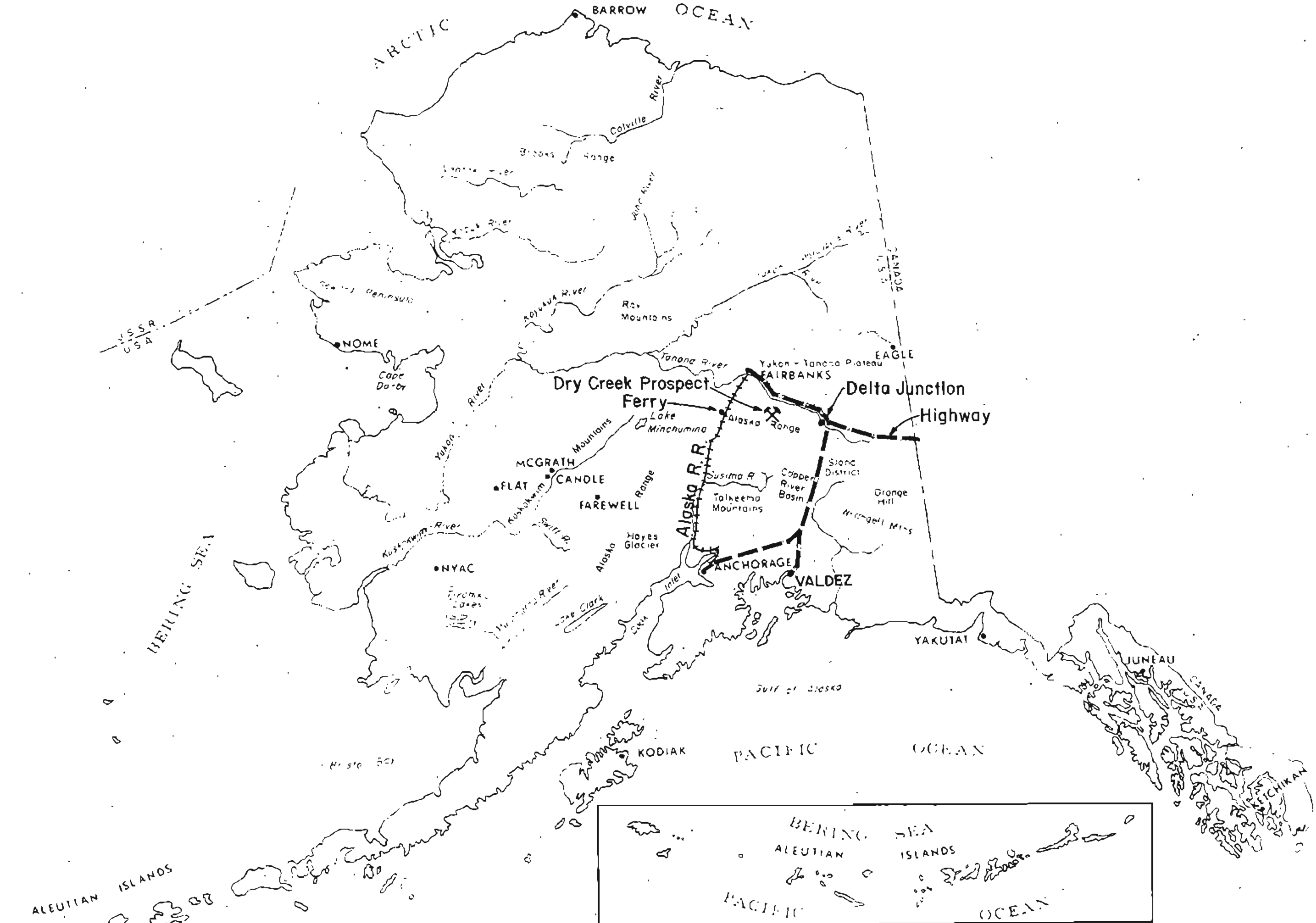
The prospect is located on low hills north of the very rugged mountains of the Alaska Range. The climate is arctic. Temperatures vary from 80° in the summertime to -60° in the wintertime. The area should normally be free of snow from the first of June to the first of September.

GEOLOGY

The area north of the low hills is covered by recent sediments. The exposed bedrock in all areas examined is a schist. No attempt was made to classify the schist. Wahrhaftig, 1968, has classified the schists of the Alaska Range in the quadrangles immediately west, Fairbanks (A-2) and Healy (D-2). Pewe, and others, 1966, have tentatively identified the schist as Totatlanika of Mississippian age on the geologic map of the Fairbanks quadrangle.

MINERALS

The metal minerals that were identified in hand specimens included the lead minerals, galena and cerussite, and the copper minerals chalcocite, chalcopyrite, azurite and malachite. Galena was exposed at the surface with very little alteration to cerussite. The dark copper sulphides were difficult to determine in a hand specimen. The presence of copper was easily detected by the blue and green minerals, azurite and malachite. The high copper values in samples 10 and 11 were used as an indicator of chalcocite.



LOCATION MAP - DRY CREEK PROSPECT

Figure 1

GEOPHYSICS

The Alaska Division of Geological and Geophysical Surveys completed an airborne magnetometer survey of the Fairbanks (A-1) quadrangle in 1971. The contours have been plotted on the Figure 2. The magnetic high may indicate an intrusive rock north of the sample locations. The magnetic low may indicate the intrusive dips to the south and is under the mineralized area. This may be significant as representing a source for mineralization in the overlaying schist.

SAMPLES

A total of 12 samples were collected in the area. The approximate location is indicated on Figure 2. All samples were analyzed by the Division Laboratory in Fairbanks and the analyses are included with this report as Table 1. The samples are described as follows:

Sample 1. A copper showing under water in a trench immediately northwest of the airport. It was difficult to get a good channel sample of this area because of water.

Sample 2. A streak of galena, approximately 8 inches wide, that is exposed in two cuts, for a horizontal distance of about 50 feet.

Sample 3a. Copper veinlets in schist.

Sample 3b. Copper veinlets in schist about 10 feet away from 3a.

Sample 4. A chip sample, 4 to 5 feet wide on the back of an old tunnel.

Sample 5. A chip sample on the same structure in a dozer cut.

Sample 6. A 12-inch channel sample of copper mineralization dissiminated in the schist.

Sample 7. Mineralization in quartz veins in the schist.

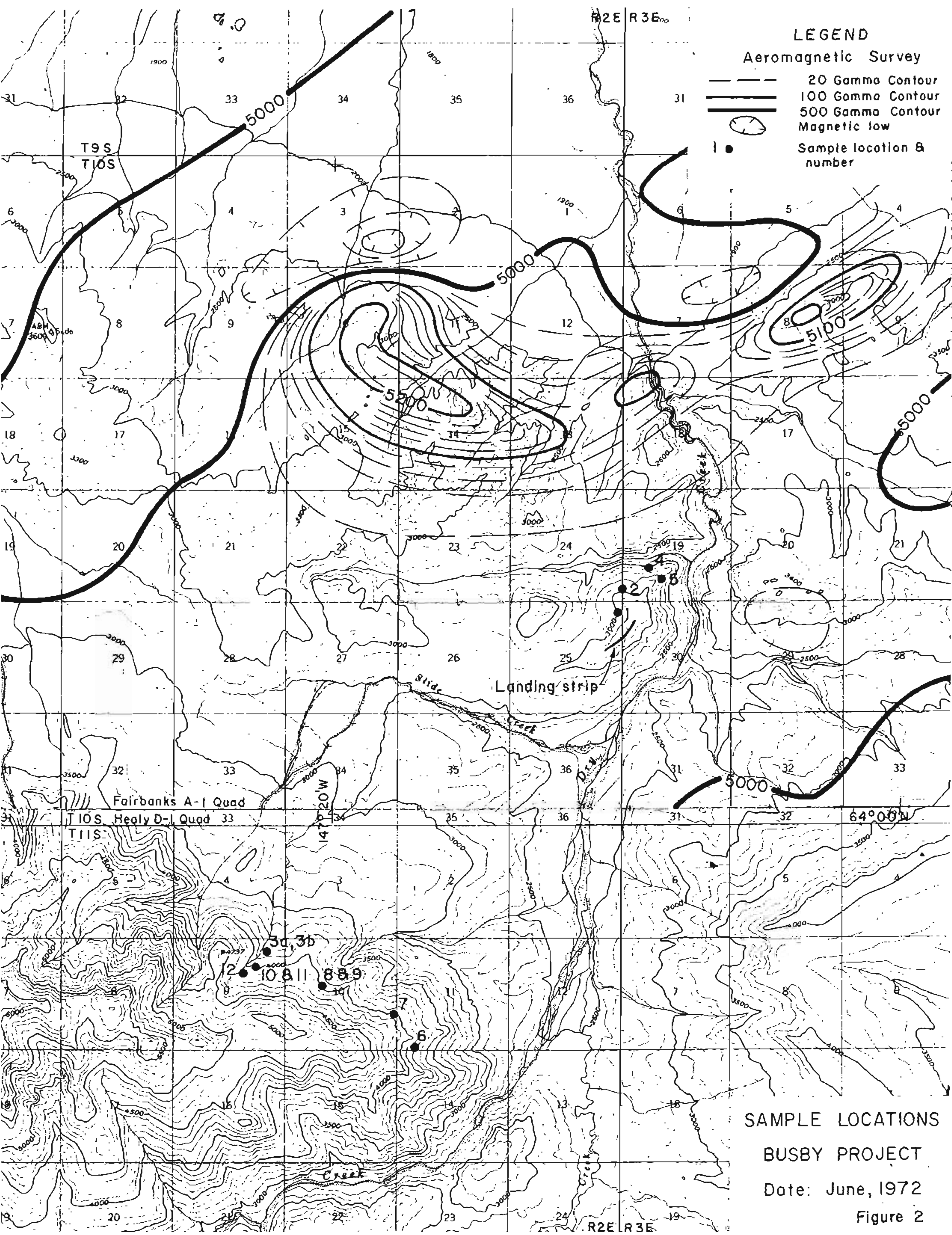
Sample 8. A copper mineral dissiminated in veinlets through the schist over a 4-foot outcrop.

Sample 9. Ditto No. 8, about 20 feet south along the same outcrop.

Sample 10. A selected piece containing copper minerals. The outer layer minerals are azurite and malacite. On a fresh surface chalcocite appears to be present.

Sample 11. A 2-inch veinlet of same material as No. 10 consisting of several chips taken laterally along the veinlet.

Sample 12. A gossan zone, poorly exposed but probably 3 to 4 feet wide.



SAMPLE LOCATIONS

BUSBY PROJECT

Date: June, 1972

Figure 2

PRESENT DEVELOPMENT

Mr. Buzby has exposed copper mineralization in several cuts near the landing strip. A short tunnel had been driven many years ago at sample location 4. Mr. Buzby farther exposed this structure by dozer cuts near sample location 5. At the time of examination the galena streak was exposed in 2 dozer cuts. After the examination Mr. Buzby worked along the vein and reportedly mined about 14 tons of lead ore which should analyze about the same as sample 2.

RECOMMENDATIONS

The widespread occurrence of copper mineralization and the high silver value of the galena warrant additional work on this prospect. The recommendations are divided as separate for the lead and the copper prospects.

The galena vein is small. The value of lead, silver and gold is sufficient to consider this vein for a small mining operation of direct shipping ore. On this basis the following recommendations are made:

1. Continue to explore the vein along the strike by open cuts. The cuts should be closely spaced or even a trench on the vein.

2. If the vein can be traced down the slope of the hill, explore at a vertical depth of at least 100, by a drift along the vein.

3. Save the ore that can be recovered, on the surface and drifting, by hand sorting for a shipment.

4. Diamond drilling on a small vein of this type is not recommended.

The copper mineralization covers a large area (about 6 square miles). The areal extent of copper mineralization and grade is sufficient to warrant additional exploration. Additional exploration should include:

1. Accurately map and locate each showing of copper mineralization.

2. Sample and map each area of copper mineralization separately.

3. Examine and map the fracture patterns on good rock exposures in the area covered by figure 2.

4. Investigate the trend indicated by the magnetic high to locate an intrusive rock.

5. If an intrusive rock is located, evaluate the intrusive as a possible source for copper mineralization.

REFERENCES CITED

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