

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOCATIONS AND DESCRIPTIONS OF LODE PROSPECTS
IN THE LIVENGOD AREA, EAST-CENTRAL ALASKA

By

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Introduction

Lode prospects (fig. 1) in the vicinity of Livengood, Alaska, are described in table 1, and analyses of rock samples from prospects 6 and 11 are given in table 2. These samples were collected from two exposures of altered and metallized bedrock in Lillian and Olive Creeks. Placer gold has been produced downstream from these exposures. Field work and analyses were done as part of the Heavy Metals Program of the U.S. Geological Survey.

The auriferous vein described from the right limit of Lillian Creek (6 of figure 1 and table 1) is economically unattractive on the basis of present information because of its limited width and discontinuity along strike. The presence of this vein does, however, indicate that the more favorable host rocks such as the auriferous silicified breccia (4 of figure 1 and table 1) and contiguous rocks in and along Ruth Creek within the Lillian Creek-Ruth Creek area warrant further investigation.

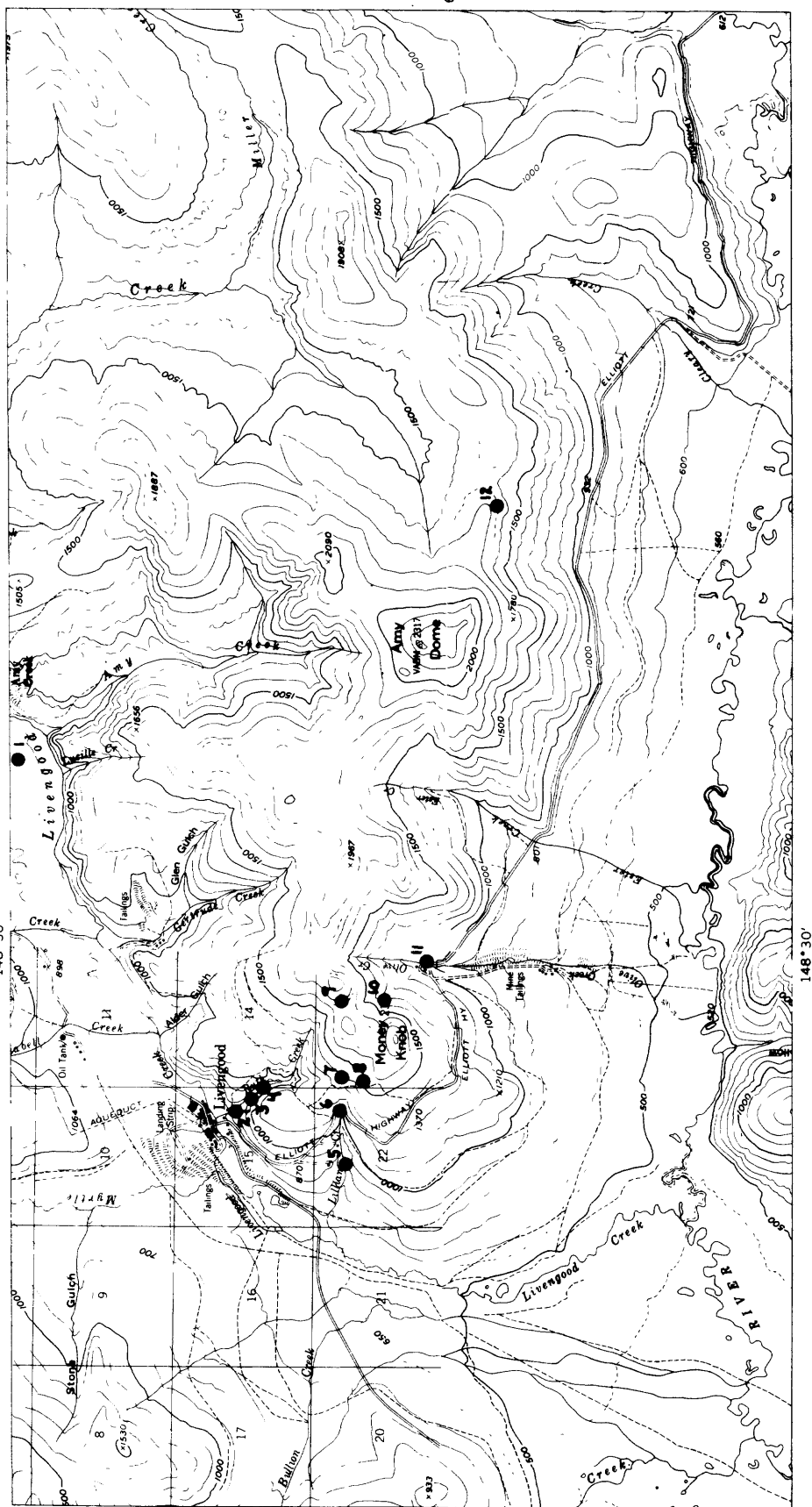
Bulk rock samples of propylitized porphyritic felsite from the northeasterly trending crushed and altered zone on Olive Creek (11 of figure 1 and table 1) contain anomalously high values of Be, Zn, Ba, B, Y, La, Zr, Sn, and Nb. An investigation of the extent of this hydrothermally altered zone, its relationships to the adjacent country rock, and the distribution of metals within it are necessary to assess its importance.

Explanation for Table 1.

Metals		Geologic Notes
tr	trace	
Mineralogy		
asp	arsenopyrite	----- Dashed lines bracket field and laboratory observations.
calc	calcite	
cr	chromite	Abbreviations used for publication series
chry	chry	
ci	cinnabar	B U.S. Geological Survey Bulletin
au	gold	TDM Territory of Alaska Department of Mines Pamphlet
mag	magnetite	
mari	mariposite	
py	pyrite	
qtz	quartz	
sb	stibnite	
sulf	unidentified sulfide(s)	

Explanation

- Lode prospect



Base from U. S. Geological Survey 1:63,360 topographic series: Livengood (C-4), 1952; Livengood (B-4), 1953; Livengood (C-3), 1954; and Livengood (B-3), 1954. Compiled, Menlo Park, Base Map Unit, 2-24-67.

Figure 1.-- Map showing locations of lode prospects in the Livengood area, Alaska.

Table 1.--Description of lode prospects in Livengood area, Alaska

	Mine or Prospect Name	Claim(s) or Veins, Adits	Reference to some Past and Present Operators	Metals	Mineralogy	Geologic Notes	Veins	Attitudes		Reference(s)
								Faults, Crushed Zone(s)	Foliation, Bedding of Country Rock	
1	Livengood Creek (approx. location)			Sb	sb	Stibnite vein apparently discovered while drift mining for placer gold on bench claim.				TDM 1, p. 14 B 712, p. 183
2	Ruth Creek #1 (approx. location)			Cr	cr	Small excavation exposed body of chromite in serpentinite.				B 662, p. 274 B 872, p. 250 TDM 1, p. 16-17
3	Ruth Creek #2		John Radak	Sb	sb	Stibnite vein exposed in placer cut.				TDM 2, p. 16
4	Ruth Creek #3			Au, Ag, Cr	qtz., calc, py, asp, au, cr, mari(?)	Numerous narrow (up to 3 inches) pyrite-arsenopyrite-gold-bearing quartz stringers with contiguous mineralized zones (up to 36 inches wide) occur in an altered, green-stained, dolomite-calcite-quartz-sulfide rock. Late calcite veins carry some gold and sulfide minerals.				B 662, p. 273-274 B 712, p. 183 B 872, p. 247
5	Lillian Creek #1 (approx. location)				sulf	A few hundred feet northwest (downstream) from the prominent slate outcrops in the floor of Ruth Creek an auriferous (0.86 oz/ton Au), brown, silicified breccia contains disseminated sulfides.		N. 65° W., vert.	N. 70° E., 32° SE.	
6	Lillian Creek #2			Sb	sb	Stibnite vein exposed during placer operation.				B 666, p. 271 TDM 1, p. 14
				Sb, Au, Hg	qtz., sb, ci, au	Mineralized zone containing thin seams of stibnite and traces of cinnabar and gold exposed in a cut bank on the north side of Lillian Creek.				TDM 1, p. 14
				Hg	ci	Limonite-stained quartz-arsenopyrite vein (up to 4 inches wide) in altered, interbedded pelitic and arenaceous metasedimentary strata.	N. 32° W., 53° NE.			
7	Lillian Creek #3					Report of cinnabar in decomposed granitic material at the head of Lillian Creek.				B 872, p. 247
8	Griffin		George Griffin L. M. Miller	Au, Ag(tr), M(tr)	qtz., asp(t)	Caved adit and pits expose green-stained quartz and silicified country rock.				TDM 1, p. 13
9	Olive Creek #1		Ed Hudson			Trenching in metasedimentary strata cross-cut by dikes and quartz veins.				
10	Olive Creek #2		Hudson	Hg	ci	Cinnabar in weathered granitic rock.				B 662, p. 274 TDM 1, p. 26
11	Olive Creek #3			Be, Wb, Zn, Ba, B, Y, La, Zr, Sn,	qtz., asp	Crushed and altered (yellow-brown on weathered surface), sulfide-bearing porphyritic igneous rock in brecciated chert country rock. This northeastern trending faulted zone is approximately 220 feet wide and approximately 200 feet thick and is composed of altered volcanic rocks (southeast) from greenschist-facies metasedimentary strata (northwest).		NE.		
12	Parker	Any 1-7	Carl Parker	Ni, Cr	cr, mag, sulf(tr), Ni-Fe alloy(tr), chry	Nickeliferous alpine-type serpentinites with Ni distributed among silicates, spinel group minerals, alloys, and sulfides. Values range up to 0.4% Ni for whole rock samples.				

Table 2.--Semi-quantitative spectrographic analyses and gold analyses of rock samples from near Livengood, Alaska

Loc- ality	Field No.	Tag. No.	Mg percent	Fe percent	Ca percent	Ti percent	Au ¹ / Au ²		As ppm	Sb ppm	W ppm	V ppm	Mo ppm	Sn ppm	Ni ppm	Cr ppm	Ba ppm	Sr ppm	B ppm	Pb ppm	Mn ppm	Bi ppm	Be ppm	Nb ppm	Y ppm	Cd ppm	Cu ppm	Zr ppm	Ag ppm	Ia ppm	Zn ppm	Sc ppm	Co ppm	
							ppm	ppm																										
Symbols used: < = less than; > = greater than Spectrographic analyses by K. C. Watts 1/Gold analyzed by spectrographic methods; analyses by K. C. Watts 2/Gold analyzed by atomic absorption DOR-1, cold method; analyses by E. Martinez, T. Roemer, and R. Tripp 3/Gold analyzed by fire assay; analyses by W. D. Goss, J. E. Troxel, and C. Huffman																																		
6	66AF-59	615	<.02	>.20	.2	.002	15	7.2	18.3	>10000	1000	<50	<10	30	<10	10	5	300	2000	50	70	700	<10	1	<10	200	<20	1000	<10	<.5	<20	300	15	5
6	60	616	.2	7	.3	.1	<10	4.7	6.1	>10000	150	<50	700	<5	<10	15	10	700	700	70	20	500	<10	3	<10	200	<20	70	10	<.5	<20	<200	10	<5
11	52	608	.2	5	.1	.5	<10	<.02		<200	<50	<10	<5	30	<5	20	500	<100	30	200	100	<10	10	300	200	<20	30	>1000	<.5	150	<200	<5	<5	
11	53	609	.2	5	<.05	.2	<10	<.02		500	150	<50	<10	<5	<10	<5	300	<100	20	100	300	<10	3	200	150	<20	15	1000	<.5	70	<200	<5	<5	
11	54	610	.7	10	.2	.5	<10	<.02		<200	150	<50	<10	<5	<10	<5	700	<100	70	500	2000	<10	<1	30	100	<20	30	300	5	70	<200	<5	5	
11	55	611	1	10	.2	.7	<10	<.02		<200	<50	<10	<5	<10	<5	70	700	<100	100	70	3000	<10	2	50	100	<20	15	500	<.5	70	<200	<5	<5	
11	56	612	1.5	10	.1	.3	<10	.02		<200	100	<50	<10	<5	30	10	1500	<100	100	150	1500	<10	20	200	>200	<20	20	>1000	<.5	150	700	<5	<5	
11	57	613	1	7	.2	.3	<10	<.02		<200	<50	<10	<5	50	10	5	700	<100	100	300	700	<10	15	300	>200	<20	100	>1000	<.5	150	500	<5	<5	
11	58	614	.2	7	.05	.3	<10	<.02		500	150	<50	<10	7	30	20	5	500	<100	50	150	500	<10	10	300	>200	<20	30	>1000	<.5	150	300	5	<5

Limonite-arsenopyrite
mass from quartz vein.Unconsolidated
limonite-quartz vein
material.Dark-brown stained,
pyrite-bearing por-
phyritic feldite.Limonite-quartz vein
material.Gray, porphyritic
feldite with pyrite-
quartz veinlets and
disseminated pyrite.Gray, porphyritic
feldite with dis-
seminated pyrite.Gray, porphyritic
feldite with dis-
seminated pyrite.Gray, porphyritic
feldite-chert rock
with disseminated
pyrite.Unconsolidated
limonitic material.