Bureau of Mines
Report of Investigations 4694

INVESTIGATION OF THE COVE MEADOW COPPER DEPOSIT, HUMBOLDT COUNTY, NEV.

BY RUSSELL R. TRENGOVE

United States Department of the Interior — May 1950

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UNITED STATES DEPARTMENT OF THE INTERIOR
Oscar L. Chapman, Secretary
BUREAU OF MINES
James Boyd, Director

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by

Russell R. Trengove[1/]

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ILLUSTRATIONS

1/ Mining engineer, Reno Branch, Minerals Division, U. S. Bureau of Mines.

INTRODUCTION AND SUMMARY

The Bureau of Mines developed by core drilling the Cove Meadow copper property, also known as the Patterson property, from May 6, 1949, to August 6, 1949. It is in the Cove Meadow mining district, northwestern Humboldt County, Nev., 102 miles northwest of Winnemucca. The purpose of the work was to determine possible reserves in a mineralized shear zone in andesite that has been partly explored by several surface cuts and two shallow underground workings. Production from this zone to August 1, 1949, was 98 tons of hand-sorted copper ore assaying 5.1 percent.

The development work performed by the Bureau of Mines comprised a study of the geology, mapping the area, sampling the outcrops, and exploring by diamond drilling the shear zone adjacent to the fault. Seven holes were drilled for a total of 1,246 feet. Mineral reserves indicated by the project are confined to a length of 500 feet along the strike.

ACKNOWLEDGMENTS

The investigations undertaken at the Cove Meadow copper deposit were part of the work of the Reno Branch of the former Mining Division, A. C. Johnson, chief.

Chemical analyses were performed at the Rare and Precious Metals Experimental Station, Reno, Nev.

The cooperation and assistance given by O. W. Wisby, one of the purchasers of the property, was greatly appreciated. Wisby constructed a road to the drilling sites and hauled water for drilling.

LOCATION AND PHYSICAL FEATURES

The Cove Meadow deposit (fig. 1) is in T. 42 N., R. 32 E., M. D. B. & M., northwestern Humboldt County, Nev., 102 miles northwest of Winnemucca, at an altitude of 5,800 feet. Winnemucca, the nearest supply point, is served by main lines of the Southern Pacific and Western Pacific Railroads and by bus and truck lines.

The property is reached by following U. S. Highway 95 north to the Denio Road junction, a distance of 32 miles, then along the Denio Road to Leonard Creek Junction, 38 miles distant. From this point a rough sand and gravel road is followed westward for 32 miles to the deposit. The deposit is in an isolated area. There are no telephone, telegraph, or mail services. The nearest telephone is at the Quinn River Crossing, 35 miles distant.

Climate in the area is semi-arid. During the hot, dry summer months there are occasional cloudbursts as well as winds of such velocity that buildings are overturned. Heavy snowfall during the winter makes the property inaccessible.

Water is scarce. Drinking water and water for drilling was obtained from a spring on the Bartlett ranch, 4 miles from the deposit. Sagebrush and varieties of desert grass is the only vegetation in the immediate vicinity.

HISTORY

No authentic information can be obtained as to the early history of the property. It was probably discovered in the late 70's. The plats of the patented claims are dated July 10, 1883. From a comparison of the size of the dumps and the excavations, it is doubtful if shipments of any consequence were made. One prospector in the area stated that an attempt was made by the original owners to get a shipment of copper ore to the Western Pacific Railroad at Jungo, but the horse-drawn wagon bogged down in the desert sand and was left there.

In September 1948, the Wisby brothers constructed a road to the deposit. They hand-sorted the ore from various dumps and made their first shipment in November 1948. This shipment of 46 tons assayed 2.83 percent copper, 0.005 ounce gold, and 1.875 ounces silver. Ore from three places along the outcrop was mined, and a second shipment of 42 tons of hand-sorted ore was made July 27, 1949; this shipment assayed 7.5 percent copper, 0.01 ounce gold, and 3.30 ounces silver.2/

PROPERTY AND OWNERSHIP

The property is owned by Frank W. Roberts and Helen K. Roberts of Caldwell, Idaho, but the Wisby brothers of Chemult, Oreg., have a contract for the purchase of the claims.

The Roberts property consists of four claims patented in 1883 and named Ne Plus Ultra, Chancery, Match Box, and Vulcan, and one unpatented claim, the Cove Meadow. Work by the Bureau of Mines was on the Ne Plus Ultra and Match Box claims.

LABOR AND LIVING CONDITIONS

There are no living accommodations on the property. Board and tent space for the drill crews were furnished by Mrs. Josie Pearl, the well-known woman prospector and gold-mining operator, who resides on the Bartlett property, 4 miles distant.

The nearest source for recruiting labor is Winnemucca, Nev. The prevailing wage rate is $1.35 per hour for common labor.

2/ O. W. Wisby, Chemult, Oreg.

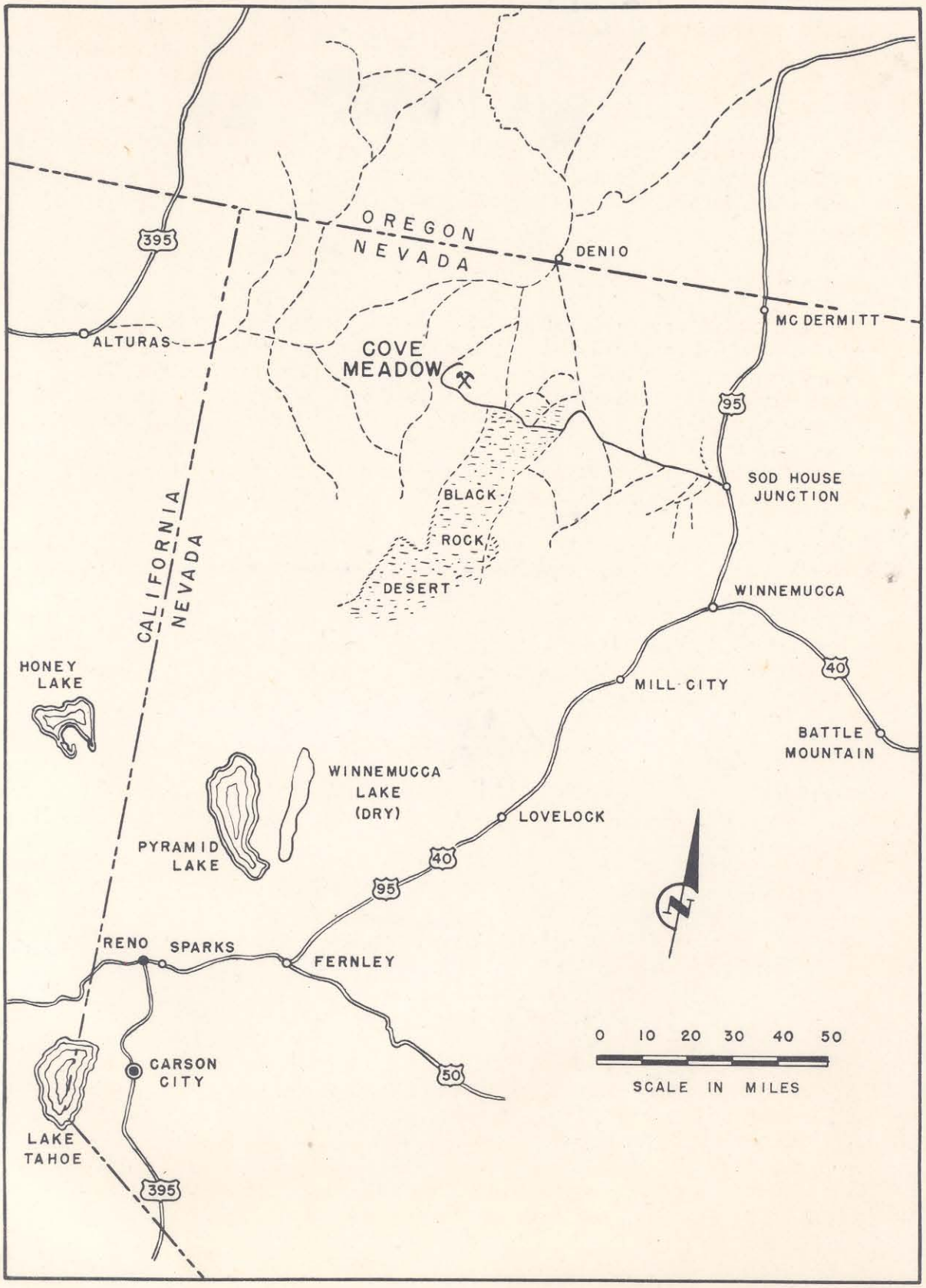


Figure 1. - Location map.

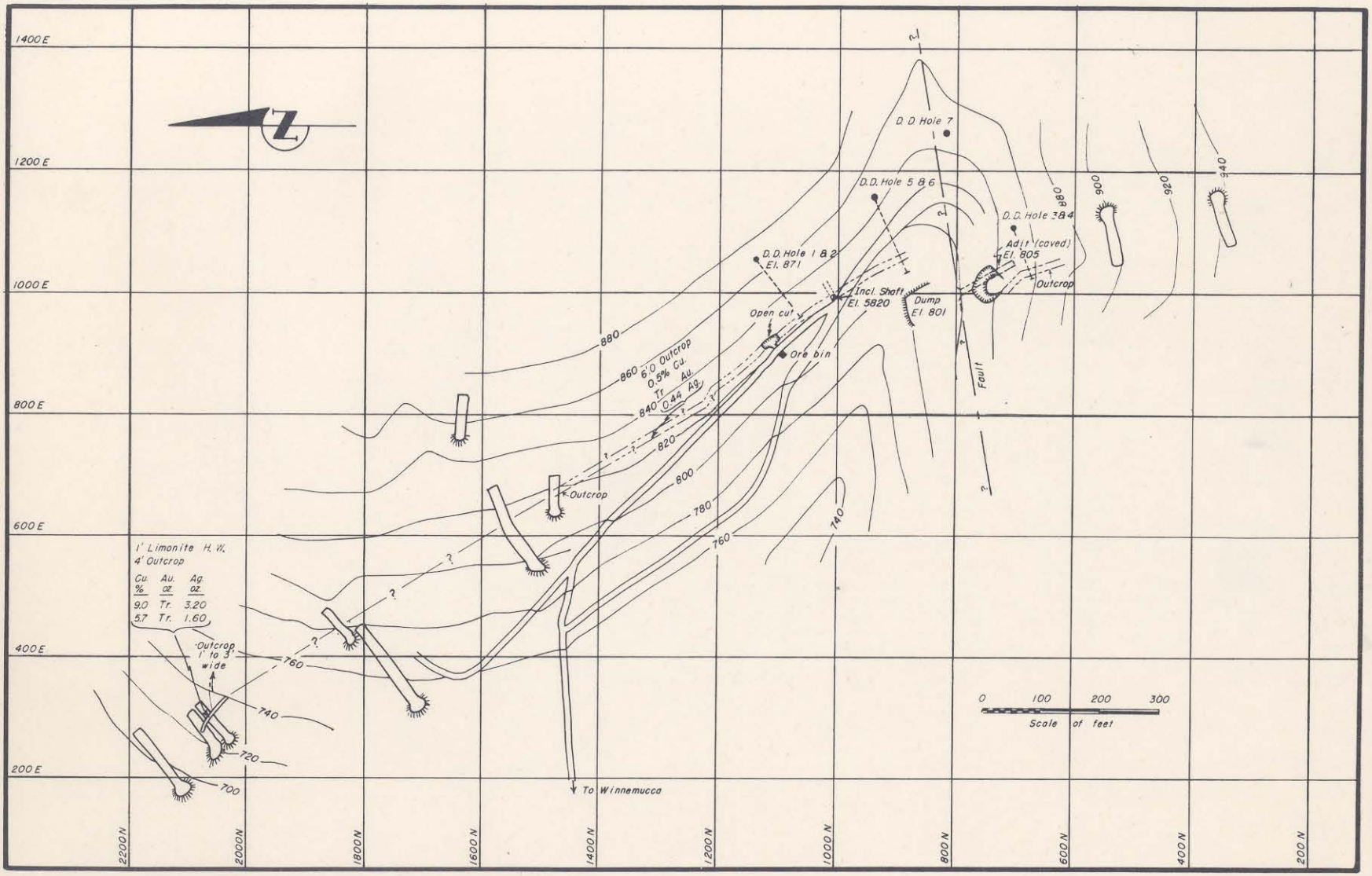
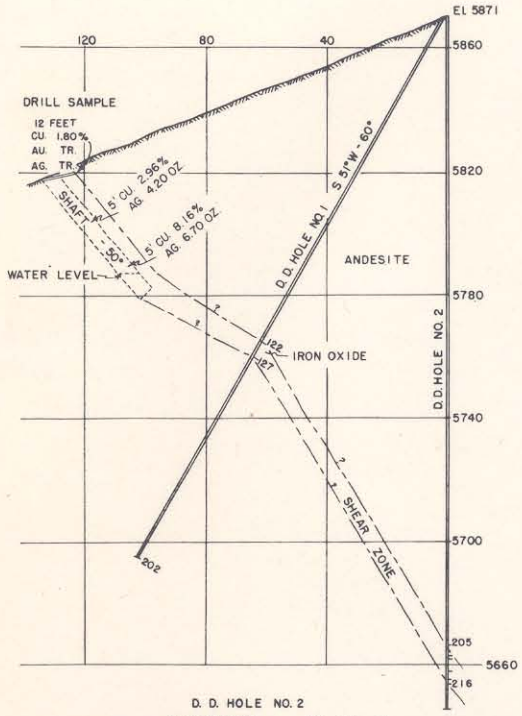
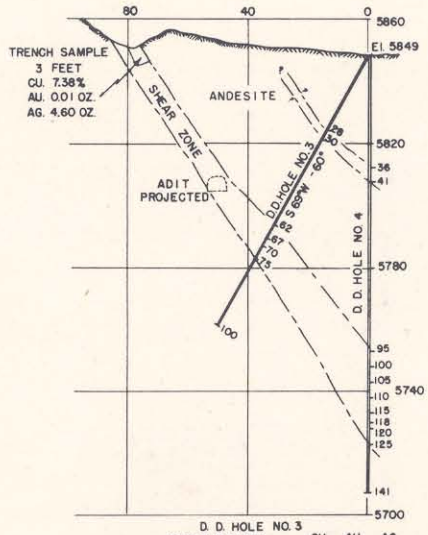


Figure 2. - Topographic map showing locations of workings and diamond drill holes.



D. D. HOLE NO. 2

FROM	TO	CORE RECOVERY FT.	%	NO.	CU. %	AU. OZ.	AG. OZ.
205	207	1'-6"	75	C-1	0.02	TR	TR
207	208	1'-0"	100	C-2	0.03	"	"
208	212	3'-0"	75	C-3	0.05	"	"
212	215	3'-0"	100	C-4	0.02	"	"
215	216	1' 0"	100	C-5	0.02	"	"

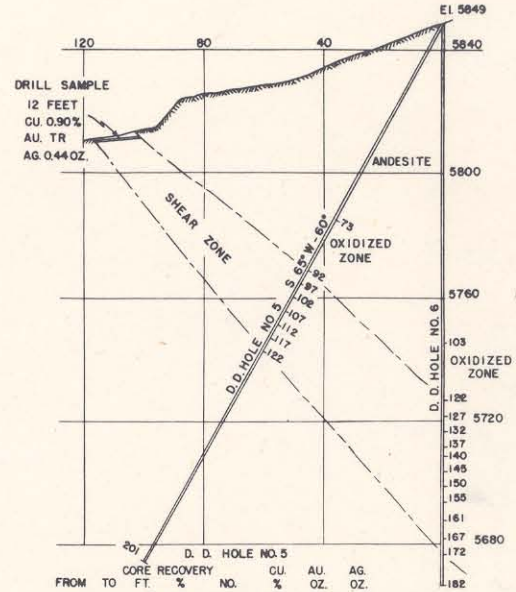


D. D. HOLE NO. 3

FROM	TO	CORE RECOVERY FT.	%	NO.	CU %	AU OZ.	AG OZ.
28	30	2'0"	100	C-10	4.53	0.01	1.40
30	35	0'0	0	S-10	0.48	TR	0.16
57	62	0'2	3	S-11	0.25	TR	TR
62	67	2'2	43	C-11	2.40	"	2.10
"	"	"	"	S-12	1.60	"	0.90
67	70	0'7	20	C-12	4.17	"	3.00
"	"	"	"	S-13	2.57	"	1.04
70	75	2'6	50	C-13	0.50	"	TR
"	"	"	"	S-14	0.83	"	0.20

D. D. HOLE NO. 4

36	41	0'0"	0	S-20	0.55	TR	0.20
95	100	2'6	50	C-20	6.75	0.01	4.60
"	"	"	"	S-21	3.95	0.01	3.10
100	105	1'8	33	C-21	3.87	TR	3.20
"	"	"	"	S-22	3.63	0.01	2.40
105	110	0'8	13	C-22	5.49	0.05	4.20
"	"	"	"	S-23	4.95	0.01	2.40
110	115	1'0	20	C-23	1.72	0.01	2.56
"	"	"	"	S-24	2.28	TR	4.26
115	118	1'6	50	C-24	1.43	"	0.90
"	"	"	"	S-25	1.50	"	0.80
118	120	1'6	75	C-25	1.13	"	0.24
"	"	"	"	S-26	1.23	"	0.80
120	125	2'0	40	C-26	1.27	"	0.30
"	"	"	"	S-27	0.50	"	TR



D. D. HOLE NO. 5

FROM	TO	CORE RECOVERY FT.	%	NO.	CU. %	AU. OZ.	AG. OZ.
92	97	2'0"	40	C-32	2.17	TR	1.30
"	"	"	"	S-80	1.00	"	0.20
97	102	2-0	40	C-34	2.10	"	0.80
"	"	"	"	S-81	1.45	"	0.50
102	107	3-5	68	C-35	1.17	"	0.70
"	"	"	"	S-82	0.90	"	0.20
107	112	2-7	52	C-36	0.93	"	0.50
"	"	"	"	S-83	0.73	"	0.30
112	117	2-1	42	C-37	1.35	"	2.70
"	"	"	"	S-84	1.23	"	1.00
117	122	3-6	70	C-38	3.00	"	2.60
"	"	"	"	S-85	1.52	"	1.80

D. D. HOLE NO. 6

122	127	0'8"	14	C-58	0.35	TR	0.50
"	"	"	"	S-58	3.40	"	2.30
127	132	0-6	10	C-59	3.43	"	0.30
"	"	"	"	S-59	1.65	"	1.60
132	137	1-0	20	C-60	0.50	"	3.50
"	"	"	"	S-60	0.62	"	0.50
137	140	1-4	44	C-61	1.40	"	0.50
"	"	"	"	S-61	1.23	"	0.60
140	145	0-8	14	C-62	0.09	"	TR
"	"	"	"	S-62	0.60	"	0.20
145	150	0-10	17	C-63	0.17	"	TR
"	"	"	"	S-63	0.92	"	0.30
150	155	0-4	6	C-64	1.60	"	0.50
"	"	"	"	S-64	4.47	"	1.30
155	161	1-0	17	C-65	2.07	"	0.30
"	"	"	"	S-65	2.13	"	0.30
161	167	1-5	24	C-66	1.06	"	0.10
"	"	"	"	S-66	1.00	"	TR
167	172	2-8	64	C-67	0.43	"	TR
"	"	"	"	S-67	0.80	"	0.20

Figure 3. - Vertical sections through drill holes (1-2), (3-4), and (5-6), and sample analyses.

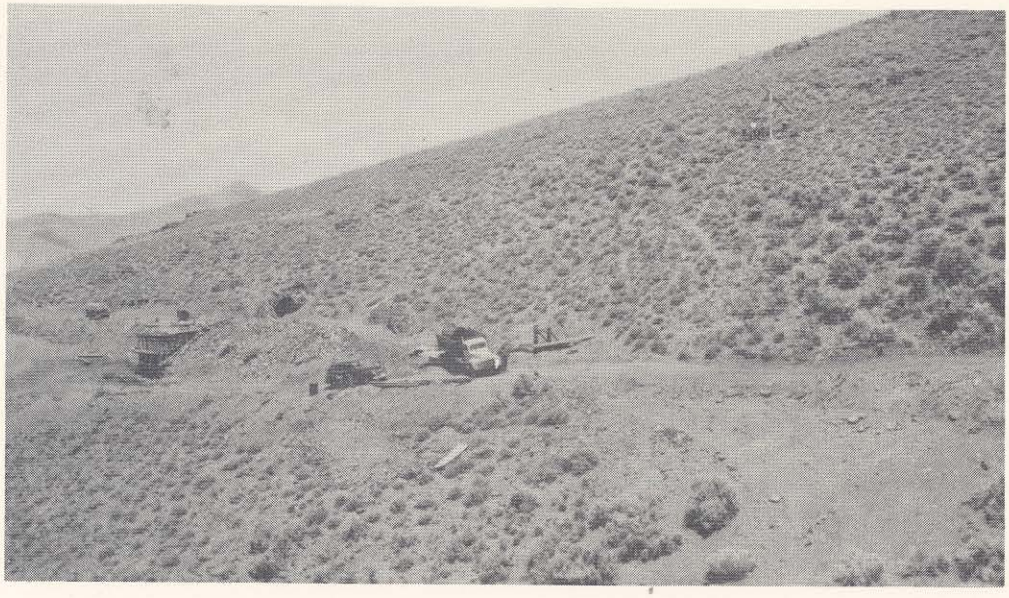


Figure 4. - View looking north, showing tripod over diamond-drill holes 1 and 2. (Note collar of inclined shaft near truck.)

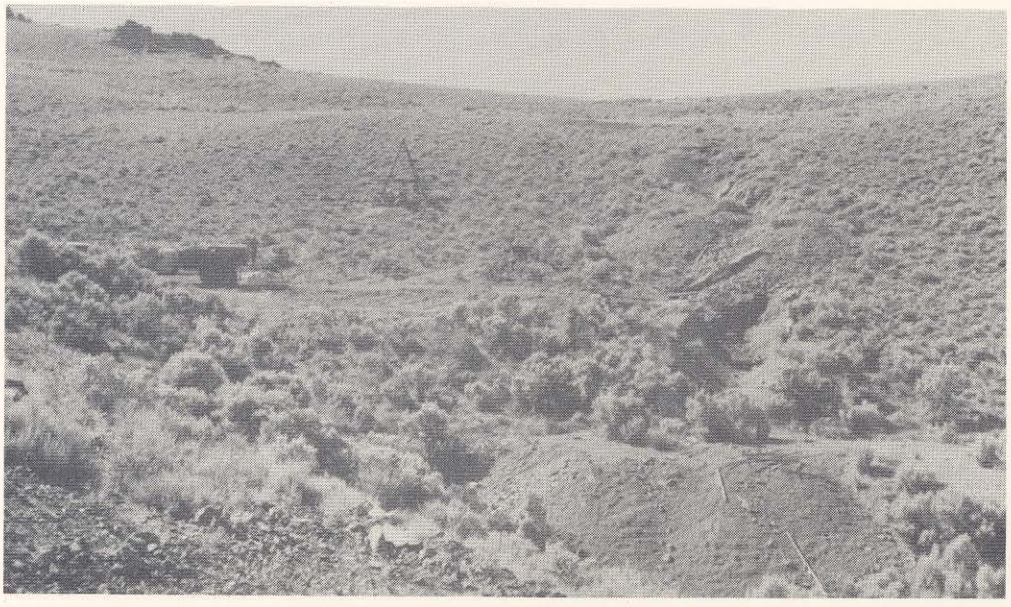


Figure 5. - View looking south, showing tripod over diamond-drill holes 3 and 4. (Note old adit portal and workings along outcrop of shear zone.)

GEOLOGY AND ORE DEPOSIT

The rocks of the area consist of massive andesite, which is in contact with granodiorite on the northeast. The andesite in the central part of the property is intruded by a sense, fine-grained diorite. A schistose structure has been developed along a shear-zone in the andesite. This shear zone has a general strike N. 45° W. and dips 50° to 60° northeast. The shear zone, ranging in thickness from 3 to 35 feet and to several thousands of feet in length, is comprised of silicified schistose andesite and andesite parts of which have been more or less altered to chlorite.

The oxidized minerals near the surface comprise limonite, cuprite, malachite, azurite, and chrysocolla in a highly silicified gangue of schists and andesite. Traces of native copper were found in the drill cores 150 feet below the surface. Small complementary fractures occur parallel to the direction of shearing. Adjacent to these fractures, small lenses have been developed where mineralization is more concentrated; thus, a rib structure has been formed within the shear zone.

WORK BY THE BUREAU OF MINES

Prospecting in the early 80's consisted of several shallow pits on the outcrop, sinking of an inclined shaft along the dip to a depth of about 50 feet, and driving an adit possibly 80 feet long. This adit is caved and inaccessible.

In May 1949, the Bureau of Mines started development by core drilling. Seven holes totaling 1,246 feet were diamond-drilled. The area was mapped, and jackhammer drill samples were taken of the outcrops along the plane of the diamond drill-hole sections. The inclined shaft was sampled. (See figs. 2 and 3.) All holes except No. 7 cut the shear zone. Hole 7 was drilled in a slump area along a fault, thought to be a favorable location. Some copper mineralization was found in holes 3, 4, 5, and 6. (See fig. 3.) The holes are tabulated as follows:

Hole	Coordinates		Elevation, ft.	Dip	Bearing	Depth, ft.
	North	East				
1 ..	1142	1057	5871	-60°	S. 51° W.	202
2 ..	1142	1057	5871	Vert.	-	224
3 ..	707	1104	5849	-60°	S. 69° W.	100
4 ..	707	1104	5849	Vert.	-	141
5 ..	942	1157	5849	-60°	S. 65° W.	201
6 ..	942	1157	5849	Vert.	-	182
7 ..	534	1165	5905	Vert.	-	196
						1,246

Drilling was completed August 6, 1949.

Drilling was difficult in the brecciated andesite and involved considerable cementing. Caving ground necessitated 554 feet of cementing, or 44 percent of the total footage drilled. Core recovery was poor; the core recovery per hole ranged from 19.5 to 48.9 percent and averaged 35.8 percent. Sample analyses are given in figure 3, and diamond drill-hole logs follow.

DRILL-HOLE LOGS

Hole 1

Coordinates: 1142 N., 1057 E.
Elevation of collar: 5,871 ft.
Bearing: S. 51° W.
Inclination: -60°
Completed length: 202 feet

Footage			Core recovery		Core diam.,	
From-	To-	Feet	Ft.	Percent	in.	Description
0	69	69	10.0	14	1-5/8	Andesite.
69	122	53	17.0	32	1-1/8	Do.
122	127	5	2.7	54	1-1/8	Andesite and iron oxide.
127	132	5	1.2	24	1-1/8	Andesite, malachite stain, one piece.
132	202	70	35.0	50	1-1/8	Andesite.

Hole 2

Coordinates: 1142 N., 1057 E.
Elevation of collar: 5,871 ft.
Bearing: -
Inclination: Vertical
Completed length: 224 feet

Footage			Core recovery		Core diam.,	
From-	To-	Feet	Ft.	Percent	in.	Description
0	3	3	0	0	2-1/8	Surface.
3	25	22	10.7	49	2-1/8	Andesite.
25	77	52	19.0	37	1-5/8	Do.
77	153	76	33.0	43	1-1/8	Do.
153	224	71	46.0	65	7/8	Do.

Hole 3

Coordinates: 707 N., 1104 E.
Elevation of collar: 5,849 ft.
Bearing: S. 69° W.
Inclination: -60°
Completed length: 100 feet

Footage			Core recovery		Core diam.,	
From-	To-	Feet	Ft.	Percent	in.	Description
0	20	20	0	0	1-5/8	Surface, sand and boulders.
20	28	8	0.8	10	1-5/8	Andesite.
28	35	7	2.0	29	1-5/8	Mineralized, copper carbonate.
35	57	22	7.0	32	1-5/8	Andesite.
57	75	18	5.4	30	1-5/8	Mineralized, iron oxide and copper carbonate.
75	100	25	4.3	17	1-1/8	Andesite.

Hole 4

Coordinates: 707 N., 1104 E.
Elevation of collar: 5,849 ft.
Bearing: -

Inclination: Vertical
Completed length: 141 feet

Footage From-	Footage To-	Feet	Core recovery Ft.	Core recovery Percent	Core diam., in.	Description
0	15	15	0	0	2-1/8	Overburden.
15	23	8	2.6	33	2-1/8	Andesite.
23	36	13	9.2	71	1-5/8	Do.
36	41	5	0	0	1-5/8	Mineralized, malachite.
41	45	4	1.2	30	1-5/8	Andesite.
45	80	35	3.6	10	1-1/8	Do.
80	95	15	5.0	33	7/8	Do.
95	125	30	9.2	31	7/8	Mineralized, malachite.
125	130	5	2.0	40	7/8	Limonite.
130	135	5	2.5	50	7/8	Limonite and andesite.
135	141	6	1.7	28	7/8	Andesite.

Hole 5

Coordinates: 942 N., 1157 E.
Elevation of collar: 5,849 ft.
Bearing: S. 65° W.

Inclination: -60°
Completed length: 201 feet

Footage From-	Footage To-	Feet	Core recovery Ft.	Core recovery Percent	Core diam., in.	Description
0	3	3	1.5	50	2-1/8	Overburden.
3	17	14	7.3	52	2-1/8	Andesite.
17	50	33	17.6	53	1-5/8	Do.
50	65	15	2.6	17	1-1/8	Do.
65	67	2	0.8	40	1-1/8	Altered andesite.
67	102	35	8.0	23	1-1/8	Copper-stained andesite.
102	127	25	14.0	56	1-1/8	Copper-stained limonite.
127	132	5	2.9	58	1-1/8	Altered andesite - copper and iron stringers.
132	139	7	2.3	33	1-1/8	Altered andesite.
139	142	3	2.5	83	7/8	Do.
142	201	59	38.0	64	7/8	Oxidized zone. Very hard andesite with disseminated magnetite; occasional sulfide particle not visible to the unaided eye.

Hole 6

Coordinates: 942 N., 1157 E.
Elevation of collar: 5,849 ft.
Bearing: -

Inclination: Vertical
Completed length: 182 feet

Footage From-	Footage To-	Feet	Core recovery Ft.	Core recovery Percent	Core diam., in.	Description
0	10	10	7.0	70	2-1/8	Andesite with altered rib and seams of iron.
10	43	33	26.3	80	1-5/8	Do.
43	102	59	19.9	34	1-1/8	Do.
102	112	10	1.5	15	1-1/8	Schist, andesite, and quartz, with iron and copper stains.
112	119	7	1.6	23	7/8	Do.
119	140	21	3.8	18	7/8	Altered andesite stained with copper and iron, with occasional sulfide particle not visible to the unaided eye.
140	145	5	0.7	14	7/8	Cuprite and disseminated native copper.
145	150	5	0.8	16	7/8	Altered andesite, disseminated cuprite, and copper.
150	155	5	0.3	6	7/8	Magnetite, copper-stained.
155	161	6	1.0	16	7/8	Heavy magnetite stained with copper carbonates.
161	172	11	2.0	18	7/8	Altered andesite. Slight copper mineralization.
172	182	10	3.0	30	7/8	Andesite.

Hole 7

Coordinates: 819 N., 1262 E.
Elevation of collar: 5,848 ft.
Bearing: -

Inclination: Vertical
Completed length: 196 feet

Footage From-	Footage To-	Feet	Core recovery Ft.	Core recovery Percent	Core diam., in.	Description
0	6	6	2.3	38	2-1/8	Boulders and andesite.
6	13	7	2.2	31	2-1/8	Andesite.
13	50	37	11.5	31	1-5/8	Do.
50	113	63	25.0	40	1-1/8	Do.
113	196	83	15.0	18	7/8	Do.