

Other properties are the Briggs Capitol group of 17 patented claims owned by Yeoman Briggs of Nelson, Nev., the Wallace group of 10 patented claims owned by William C. Wallace of Oakland, Calif., and associates, the Nevada Eagle group of six patented claims owned by the J. T. Weyerhaeuser interests of Tacoma, Wash., and various other groups of unpatented claims.

In the Capitol area the ore occurs as numerous narrow quartz veins in monzonite and andesite. Values are chiefly in gold, with small amounts of silver. Nearly all the properties in this section are in the prospect stage of development.

GOLD BUTTE DISTRICT

(Gold, Zinc, Copper, Mica, Magnesite)

The Gold Butte district is in southeastern Clark County in the southern end of the Virgin Range. It includes the territory south of Gold Butte lying between the Nevada-Arizona boundary line on the east and the Virgin River on the west. Mining was begun in this area in the eighties. A small boom occurred in 1908, when the camp of Gold Butte was established, and although a number of small companies were organized to work various properties, no important discoveries were made. The total production from the district has been about \$75,000, mostly in shipping ores. In 1936 the principal operation in the district was that of the Lake Shore Mining Co.

The geology of the Gold Butte mining district has been described by Hill^{11/}.

The ore deposits are of two types - replacement deposits in limestone and quartz veins in gneiss and granite. The ore in the limestone consists of oxidized copper, lead, and zinc minerals. The values in the quartz veins are chiefly in gold.

A small amount of sheet mica has been produced from pegmatite dikes in the vicinity of Gold Butte.

Lake Shore Mining Co.

The property of the Lake Shore Mining Co., comprising the Utah group of four unpatented claims owned by O. W. Yates, A. W. Lawson, and Fred Gibson of Las Vegas, Nev., is located about 15 miles south of Gold Butte and 5 miles from the shore of Lake Mead. In 1934 and up to July 1935 the Utah group and other claims were worked by the Gold Cross Mining Co., controlled by Salt Lake City interests. The Gold Cross Mining Co. erected a small amalgamating mill on the shore of the Colorado River and treated about 400 tons of ore. This company also shipped 340 tons of ore,

^{11/} Hill, James M., Notes on Some Mining Districts in Eastern Nevada: U. S. Geol. Survey Bull. 648, 1916, pp. 42-53.

averaging \$51 per ton, to Utah smelters. The Lake Shore Mining Co. acquired the Utah group of claims under bond and lease from C. C. McDonald, of Overton, Nev., in 1935 and started operations in September of the same year. Up to February 1937 total production by the present owners was 1,800 tons of shipping ore with a net value of \$30,000. Five men are employed. Development work comprises an incline 200 feet deep and other workings, totaling about 400 feet.

The ore occurs in a quartz vein that dips about 8° and follows the hanging-wall side of a diabase dike. The width of the vein varies from 6 inches to 6 feet, averaging about 2 feet. The vein and dike are in granite formation.

Due to the flat dip of the vein, most of the ore shipped by the present owners is mined by the open-cut method. The granite overburden is drilled with jackhammers and blasted with 40 percent gelatin dynamite and No. 6 caps attached to tape fuse. Compressed air is furnished by a portable compressor. Stripping is done with a 10-cubic-foot capacity Le Tourneau bulldozer operated by a 60-horsepower caterpillar tractor. The average cost of stripping is 12 cents per cubic yard. After the overburden has been removed (a maximum depth of 20 feet), the ore is hand shoveled into a truck and hauled 5 miles to the shore of Lake Mead, where it is loaded onto a barge. The barge is towed by power boat 56 miles to Cashman Docks, and the ore is again shoveled into trucks and hauled to the railroad siding at Boulder City, 6 1/2 miles distant. The barge and power boat are owned by the company. Smelter returns from a shipment of ore to the American Smelting & Refining Co. were as follows:

Metal quotations:	Au	\$34.9125 per oz.	
		<u>Oz.</u>	
Settlement assay:	Au	1.5525	
	Ag	.775	
		<u>Percent</u>	
	Insol	88.7	
	S	.4	
	As	.1	
	Fe	4.3	
	CaO	1.5	
Metal payment:	Au at \$31.81825 per oz.	.....	\$49.40
Treatment charge (base)	.....	\$ 3.22	
10 percent excess over \$20 (max.)	.....	<u>1.78</u>	
Total treatment charge	.....	5.00	<u>5.00</u>
	Net value per ton	.....	44.40
	<u>Lb.</u>		
Wet weight	125,740		
Less 2.15 percent moisture	<u>2,704</u>		
Net weight	123,036	or 61.518 tons.	
	61.518 tons at \$44.40 per ton	.....	\$2,731.40
Freight, \$6.60 per ton	.....	\$414.94	
Emergency freight	.....	25.15	
Demurrage	.....	2.00	
Watching	.....	8.00	
Assaying	.....	<u>6.00</u>	
			<u>456.09</u>
	Net proceeds	.....	2,275.31

Azure Ridge Group

The Azure Ridge group of four unpatented lode claims owned by John F. Perkins of Overton, Nev., is near the Arizona-Nevada boundary in the southeastern part of the Gold Butte district. The only production from the property was in 1918, when John F. Perkins shipped two carloads of zinc ore and one carload of copper ore. The zinc ore averaged 40 percent zinc and the copper ore 35 percent copper, with small values in gold and silver. This ore was hand-sorted and hauled to St. Thomas for shipment to smelters. Since 1918 the property has been inactive.

This property is in the prospect stage of development and all work has been superficial in character. Development comprises an adit 100 feet long, another of 40 feet, and several shallow shafts, totaling in all about 300 feet of workings. Mineralization occurs in a faulted zone in limestone near granite.

Webster Group

A group of seven unpatented claims in Cedar Basin is owned by Mrs. A. G. Webster of Moapa, Nev. In 1937 this property was under option to H. G. Snyder of Salt Lake City, Utah. Development comprises a shaft 130 feet deep and several hundred feet of lateral workings. Property is equipped with a 2-stamp mill (1,050 pounds each), a jaw crusher (6 by 8 inches), and an amalgamation plate (4 feet long and 3 feet wide). Mill equipment is operated by an automobile engine. About 150 tons of ore, averaging 1 ounce of gold per ton, was treated in this mill.

The ore occurs in a quartz vein in the granite. The dip of the vein is about 75° and the average width is 18 inches. Formation is altered granite and schist traversed by pegmatite dikes.

Mica Deposits

In 1873 Daniel Bonelli discovered mica deposits 4 miles east of Gold Butte, but because of their isolation and unfavorable transportation facilities very little mining was done. As far as the writer could learn, the only production has been 5 tons of sheet mica shipped by Bonelli prior to 1900 and 2,500 pounds shipped by Frank Allsop in 1908. In recent years these deposits have not been exploited. William Garrett of Gold Butte is the owner of several unpatented mica claims in this area.

The deposits have been prospected by a number of shallow shafts, the deepest of which is about 40 feet. The mica, associated with garnet, quartz, feldspar, and tourmaline, occurs in pegmatite dikes that cut granitic schists. Due to the manner in which the mica occurs, it is difficult to mine it in large sheets. The mica is said to be of good quality as to transparency, color, cleavage, and flexibility, and the size of the sheets varies from 6 to 15 square inches.

Magnesite Deposit

Magnesite occurs in the vicinity of Horse Springs, 14 miles by road southeast of St. Thomas, Nev., and 9 miles north of Gold Butte. The deposit was located originally by Fay Perkins of Overton, Nev., in 1922. The present owner is Albert Bauer. No production has ever been made. Development comprises several short tunnels and a shaft about 60 feet deep. Fine-grained dolomite and magnesite beds overlain by shale and underlain by limestone and dipping about 30° outcrop for several thousand feet.

GOODSPRINGS (YELLOW PINE) DISTRICT

(Zinc, Lead, Copper, Gold, Silver,
Molybdenum, Vanadium, Cobalt, Platinum)

The Goodsprings, also known as the Yellow Pine, district covers an area of several hundred square miles in the southern part of the Spring Mountain Range in southwestern Clark County. The town of Goodsprings, the center of mining activities of this area, is 8 miles northwest of Jean, Nev., a station on the Union Pacific R.R.

Potosi mine in the northern part of the district was discovered by a party of Mormons in 1855. Shortly after, a small amount of lead ore was mined from this property and was treated locally in crude smelters in order to obtain lead for bullets. This venture proved unsuccessful and work stopped until 1868, when a group of prospectors found lead ore in the southern part of the area. They located a number of claims and organized the New England mining district, but when they found that the lead carried low silver values the district was abandoned. A member of this party, named Good, camped at the springs in the vicinity after the others had left, and Goodsprings was named for him. After the collapse of the New England district, the only work done for many years was by prospectors from Ivanpah, Calif., and Eldorado, Nev.

The permanent settlement of Goodsprings dates from 1886, when A. G. Campbell, John Denslow, A. E. Thomas, William Smith (all from Utah), and others began a systematic search for lead ore. They located over 40 claims and did considerable development work. In 1892 a miner by the name of Jonas Taylor, from Ivanpah, Calif., located a cropping of iron oxides and named it the Keystone mine. Samuel Godby of Pioche, Nev., secured from Taylor a short-time option on one-half interest in the Keystone mine for \$20,000. Godby hastened to San Francisco, where he sold one-half of the option to a banker for \$20,000, thereby securing a one-quarter interest for virtually nothing. The three partners started to work the property and several carloads of ore were shipped to Colorado smelters, one netting them \$9,000 and another nearly \$16,000. At that time the nearest railroad connection was at Fenner, Calif., on the main line of the Santa Fe, approximately 100 miles to the south. The high-grade ore shipped from the Keystone caused considerable excitement, and at the end of 1892 the camp had a