

The Buck and Charley mine is on the south side of Rochester Canyon a short distance below Lower Rochester. In 1935 Charles Mayer, working the property under lease, shipped several carloads of rich ore, and the Rochester Plymouth Mines Co. was organized and a 50-ton flotation mill built.

The mine is developed by several adits and a shaft 200 feet deep sunk from the lowest adit level. Most of the ore has been mined from near the surface. Besides gold and silver, the ore carries pyrite, zinc blende, and galena. Until April, 1936 about 19,000 tons of ore ranging in value from \$6 to \$20 per ton had been treated in the flotation mill.

Figure 7 shows the mill flow sheet. It was designed for a capacity of 50 tons per 24 hours, but as much as 70 tons have been treated. The cost of the mill was about \$45,000. The concentrates range from \$180 to \$400 per ton in value. Concentrates are shipped to the smelter by truck. Moisture in the concentrates after filtering averages 12 to 18 percent. The reagents used are aerofloat, xanthate, and cresylic acid. The pulp density in the flotation circuit is maintained at 25 percent solids.

Water for milling is obtained from the mine. Power is purchased from the Sierra Pacific Power Co. The motor horsepower required for milling is 121. Thirty men are employed in the mine and the mill.

There are two other mills in the district both of which were idle in March 1936. The Lonney amalgamation concentration mill is equipped with 15 stamps. This property is under lease to E. Lyon of Rochester. The Lincoln is a 2-stamp amalgamation mill.

In addition to the Rochester Plymouth Mines Co. operations about 10 men were leasing or prospecting properties in the area in March 1936.

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Rosebud District

The Rosebud district is in the Kamma Mountains 35 miles northwest of Inlay, a station on the Southern Pacific Railroad. Sulphur, 9 miles northwest, is the nearest shipping point. Silver-gold ore was discovered in 1906, and a short-lived boom followed. Since 1908 the annual production, chiefly from leasing operations, has been small but consistent. Total production is estimated to be \$125,000. The only mill that operated in this area was erected several years ago by the American Mining & Milling Co., which had a bond and lease on the Brown-Palace mine. The mill had a daily capacity of 50 tons. The company became involved in difficulty, and the equipment of the mill was dismantled and sold. Judging from the tailings dump, several thousand tons of ore were treated in the mill. A. H. Leach sampled these tailings and obtained an average of \$2 per ton at current metal prices.

The veins at Rosebud are all in rhyolite, which in most places is extremely altered and somewhat silicified, kaolinized, and sericitized, and contains pyrite that has been changed to iron oxide. Most of the veins show little quartz. The mineralized material is largely soft, white kaolinite. In general the deposits do not have definite walls.

The principal property is the Brown-Palace mine on the Golden Juniter unpatented claim owned by Paul Webster of Rosebud. The mine is entered through several tunnels. Total development work is approximately 1,600 feet. Air drills are used in mining. Compressed air is furnished by an Ingersoll-Rand type-11 compressor driven by an automobile engine.

Several years ago six lessees, calling themselves the "Tagged Six," discovered ore on the Brown-Palace ground and shipped 12 carloads which are reported to have had a gross value of \$81,000. In March 1936 the Brown-Palace mine was under lease to A. H. Leach, Jeff Rice, and R. L. Smith. Royalty is 20 percent on net smelter returns, and the mine is leased for 6 months. The ore mined by Leach and associates was taken from the stope that produced the 12 carloads of rich ore. It is necessary to screen the ore to obtain a shipping product. The minus-1-inch screen product shipped constitutes about 50 percent of the mine-run material.

Smelter returns on a carload of screened ore shipped by Leach on February 18, 1936, to the International Smelting & Refining Co., of Salt Lake City, furnished the following information:

Metal quotation:

Gold - per ounce .....	\$35.00
Silver do. ....	.77

Settlement assay:

Ag - oz. ....	9.625
Au - do. ....	.3925
Copper - percent .....	.1
Fe - - - do. ....	4.3
Sulphur do. ....	1.6

Metal payments:

Ag - 95 percent .....	\$ 7.041
Au - 91 percent, 35.00 per oz.....	12.501

Gross metal payment .....	\$19.542
Treatment charge .....	3.20
Net value per ton.....	16.342

Base charge.....	\$3.45
Credit Utah Ore Sampling Co.....	.25
Treatment charge.....	3.20

Net weight - lb.....	119,100
Moisture, 4.9% - lb.....	5,836
Dry weight - - - do.....	113,264
tons.....	56.632
56.632 tons at \$16.342 .....	\$925.48

Utah Ore Sampling Co.....	\$35.73
Assaying.....	3.00
Freight, \$3.20 per ton.....	190.56
	229.29
Net proceeds .....	696.19

The haul from Rosebud to Sulphur costs \$2 per ton on contract.

Adjoining the Golden Jupiter claim is a group of three claims, two patented and one unpatented, owned by A. H. Leach and S. A. Bunce. The vein on this property is 3 feet wide and dips 70°. Development work comprises a shaft 125 feet deep and several hundred feet of lateral workings. The vein is exposed on the surface for a length of 250 feet. Three carloads of ore were shipped from this property in 1935. A shipment made on March 6, 1935, to the United States Smelting & Refining Co., Salt Lake City, furnished the following information:

Settlement assay:

Au - oz.....	0.23
Ag - do.....	28.0
Insoluble - percent .....	77.2
Fe - - - - do. ....	6.4
S - - - - do. ....	2.8

Wet weight - lb.....	77.540
Less moisture, 4.5 percent - lb .....	3.490
Net weight .. - lb.....	74.050
tons .....	37.025

Value of gold at \$31.8183 .....	\$7.32
Ag, 100 percent at \$0.7575 .....	21.21
	28.53
Less 5 percent Ag. ....	1.06
	27.47
Less working charge .....	4.75
	22.72

37.025 tons at \$22.72 per ton .....	\$841.21
Freight 40 tons per minute, \$3.90 per ton. ....	\$156.00
Freight surtax, 7 percent .....	10.92
Hauling \$2.20 .....	85.29
	252.21
Net returns .....	252.21
	589.00

Three groups comprising 14 unpatented claims are owned by S. A. Bunce and John F. Kunz. Development work on these claims is superficial and totals little more than 100 feet. Two carloads of ore averaging, respectively, \$14 and \$28 per ton were shipped in 1935.

E. J. Quirk of Rosebud owns 19 unpatented claims in one group. These claims have been developed by five tunnels and a 75-foot shaft, totaling roughly 2,000 feet of workings. Two veins are exposed on the Quirk property that average 4 feet in width with dips ranging from 45° to 75°. Quirk claims that considerable mill ore averaging \$10 or more per ton is exposed on the property. Sampling data are not available, and no ore has ever been shipped. Several other properties have produced shipping ore.

In 1935 lessees in the Rosebud district could send their ore to the 100-ton cyanide mill at Seven Troughs 30 miles distant. This mill was operated in 1935 but was idle in March 1936. The cost of hauling to Seven Troughs is \$4 per ton, and the milling charge on ore having a value less than \$25 per ton is \$3.50. The Seven Troughs mill paid 92 percent of the assay value in gold and silver.