a Gibson impact amalgamator. Power for milling is supplied by a caterpillar Diesel engine. Water for milling is obtained from Wellman Spring, 3/4 mile from the mill, through a 2-inch gravity-flow pipe line.

The formation is chiefly limestone intruded by diorite and quartzite. In places the limestone has been altered by contact metamorphism to tactite composed chiefly of garnet, epidote, and nontronite. The gold is erratically distributed in replacement and contact metamorphic deposits. A number of samples of the contact metamorphic material were taken by the writer and assayed for tungsten, but no tungsten was found. The ore minerals are gold, cerargyrite, copper carbonates, cerussite, pyrite, and galena in a gangue of quartz, iron oxide, jasper, calcite, and altered country rock. The smelter returns on the last shipment of ore made by Mrs. Florence McCoy on April 5, 1932, to the American Smelting & Refining Co. were as follows:

Metal quotations:	Gold	$20.67 ounce
	Silver	.29708 ounce
		Ounces
Settlement Assay:	Gold	1.615
	Silver	9.1
		Percent
	Lead	1.3
	Insoluble	58.0
	Iron	15.7
	Lime	.3
		Pounds
Wet weight:		58,240
Moisture, 14.3 percent		8,328
Dry weight		49,912 or 24.956 tons
Metal payment:	100 percent of gold at $19.50	$31.49
	95 percent of silver at $0.29708	2.57
	Gross value per ton	34.06
Treatment charge:		3.50
	Net value per ton	30.56
	24.956 tons at $30.56	762.66
Deductions:	Freight advanced $6.86 per ton	199.76
	Net proceeds	562.90

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NEW PASS DISTRICT

The New Pass district is on the east slope of the New Pass Range near the boundary line of Lander and Churchill Counties, 31 miles west of Austin. Gold was discovered here by A. Monroe, Tom Plane, and others from Austin in the fall of 1865. In 1868 a 5-stamp amalgamation mill operated by steam was erected at Warm Springs several miles east of the mine. This mill operated for several years and treated about 12,000 tons of ore. About 1917 the Austin

New Pass Mining Co. acquired the principal mine and erected a 75-ton cyanide mill, but the operations were unsuccessful and the property was sold to W. C. Pitt of Lovelock to satisfy a mortgage. In recent years there has been only small-scale activity in the district.

No accurate production statistics are available, but output probably has exceeded $200,000, most of which was derived from the Pitt mine now owned by the Nupaz Mining Co.

Nupaz Mining Co.

The Nupaz Mining Co., F. M. Lovell, 1025 W. Fourth St., Los Angeles, Calif., president, owns a group of 13 claims, 8 of which are patented, and 1 patented millsite. This property was last worked about 1931 by Andrew Drum of Fallon, Nev.

Development consists of three main adits, the longest of which is 1,500 feet, a shaft 350 feet deep, and other workings totaling about 5,000 feet. The vertical range of the workings is about 350 feet. There is no mining equipment on the property. The cyanide plant and pipe line have been dismantled and the equipment has been sold. Water for milling was obtained from Gilbert Springs through a gravity pipe line about 6 miles long.

Two veins, the Superior and Gold Belt, occur in diorite. The Superior, the principal vein, strikes N. 10° W. and dips about 75° westward. The average width is about 3 feet. The ore is chiefly free gold in a quartz gangue; that milled in former years is reported to have yielded $9 to $14 per ton.

The tailings pile at Warm Springs originally contained about 12,000 tons, but a large proportion has been scattered by winds. Several thousand tons of tailings remaining have been sampled and are said to average $2 of gold per ton.

Thomas W. Mine

The Thomas W. mine comprises a group of five unpatented claims owned by Wayne H. Smyth and Howard Snyder of Austin, Nev. This property is on the Gold Belt vein and adjoins the property of the Nupaz Mining Co. Prior to the writer's visit in May 1938, the owners had worked the mine for several years, treating the ore in a small amalgamation mill at the mine. The production of bullion for the 2-year period was about $14,000.

Development consists of two shafts, each about 125 feet deep, and about 500 feet of subsidiary workings, principally on the vein. In May 1938 one of the shafts was being sunk to the 225-foot level. Equipment includes a gasoline hoist, a Fairbanks-Morse compressor (8 by 8 inches), blacksmith shop, a camp building, and an amalgamation mill equipped with Blake-type crusher (20 by 9 inches), an amalgamation plate 10 feet long and 4 feet wide, five stamps (1,150 pounds each) fed by Challenge feeder, a Washoe amalgamating pan (4 feet in diameter), and a Fairbanks-Morse 20-horsepower crude-oil engine.

Water for milling is obtained from two wells about 1 mile from the mine; it is pumped to the mill through a 2-inch pipe line by two plunger pumps each connected to a 3-horsepower, Fairbanks-Morse, Z-type gasoline engine.

Prevailing formation is silicified limestone and diorite. The Gold Belt vein strikes N. 15° W. and dips nearly vertical. The width ranges from 1 to 3 feet, and the gold is associated with small amounts of galena, copper, and lead carbonates in a quartz gangue. The vein is displaced for short distances by several faults. The grade of the ore milled ranged from $30 to $40 per ton. From 85 to 90 percent of the gold in the ore was recovered by amalgamation.

Happy Days Group

The Happy Days group of two unpatented claims owned by George Partenico is about 3 miles westerly from Warm Springs and 1 mile southeast of the New Pass mine. This property has been worked intermittently on a small scale for shipping ore, but production has been small. Several years ago Partenico erected a small Kincaid amalgamation mill at the mine in which a small tonnage was treated.

Development consists of a shaft 200 feet deep, a shaft 85 feet deep, and lateral workings totaling 300 feet more. Equipment includes a small, partly equipped mill, a home-made hoist, a blacksmith shop, and a camp building.

The prevailing formation is shale. Ore occurs in small lenses in a vein striking N. 25° W. and dipping 60° northeasterly near the surface and at depth nearly vertical. The vein is crushed and disturbed by numerous faults. The ore contains gold, with minor amounts of silver, in a gangue composed chiefly of quartz.

Manganese Deposit

A deposit of manganese occurs on the west side of Antelope Valley about 5 miles north of Warm Springs. The only locations are two unpatented claims owned by L. A. Merrigan of Reno, Nev. This deposit was discovered about 20 years ago. Very little work has been done, and no manganese has been produced.

Manganese associated with considerable siliceous material is present in two veins up to 20 feet in width in an igneous formation. One vein is traceable on the surface for about 300 feet. A representative sample yielded 25 percent manganese and 50 cents in gold per ton.

RAVENSWOOD DISTRICT

The Ravenswood district is in the Ravenswood Range of mountains about 25 miles northwest of Austin. It was organized in 1863, when many locations were made for silver but the veins were found to contain mostly copper, and after a short period of activity the disappointed prospectors withdrew. Except for desultory prospecting, there has been no activity in this area for many years. Several carloads of shipping ore have been mined.