milling is furnished by a Witte gasoline engine.

The Olsen property contains 5½ acres. The shaft on this property is 70 feet deep. Mine workings total approximately 350 feet. The vein averages 16 inches in width and dips 75°. In March 1936 it was the only active property in the district. The grade of the ore mined averages $25 per ton. The ore, which is mined by hand methods, is hauled 3/4 mile to a mill having a capacity of 2 tons per 12 hours. The mill equipment consists of a Straub grinding unit having a 30-mesh screen, and an amalgamation plate 6 inches wide and 2 feet long. Mercury is used in the Straub mill. The ore is screened by hand through a 1-inch-mesh screen. The oversize is stored for future treatment. The undersize is sent to the Straub mill. Power for milling is furnished by a Mecco 6-hp. gasoline engine. Water for milling is hauled by truck from a well 2 miles away. Some mill water is reclaimed. Water consumption is roughly 125 gallons per ton of ore.

George B. Noble of Scossa owns 43 acres in the district. Development work comprises an inclined shaft 150 feet deep and some surface cuts. No lateral work has been done from the Noble shaft. In 1931, when the shaft was sunk, 150 tons of ore were extracted and treated in a custom mill at Rosebud.

Seven Troughs District

The Seven Troughs district is on the west slope of the Seven Troughs Range about 30 miles west of Lovelock. The district was prospected in 1905 but did not attract attention until 1907, when the Mazuma Hills mine was opened. The success of this property and subsequent discoveries by lessees stimulated activity so that in 1908 over 40 companies were organized, many of which were leasing companies. The Mazuma Hills Co. and the Kindergarten Co. each erected a 10-stamp amalgamation-concentration mill in 1908, and in 1909 the Darby Reduction Co. installed a cyanide plant to handle custom ores. The Darby mill was equipped with an automatic Vezin sampler, ten 1,000-pound stamps, two 4- by 17-foot tube mills, a Dorr classifier, amalgamation plates, four agitators, and an Oliver filter. The mill operated until 1918 when it was dismantled.

The Seven Troughs Mining Co., which was formed in 1911, included the Kindergarten and a number of other properties. This company installed a 50-ton cyanide plant in addition to the Kindergarten mill. In 1929 the Seven Troughs Co. erected a 100-ton cyanidation plant. The mill was first started in August 1929 and closed down in June 1931. Subsequently this mill has been operated intermittently by lessees. In March 1936 there was little mining activity in the district.

Table 3 shows the production of the district from 1908 to 1934. A large part of the production has been made by lessees.

A brief description of the geology of the Seven Troughs area is given by Ransome.15/ The formation is mainly rhyolite cut by basalt dikes. The principal veins follow the basalt dikes. The vein filling consists of sugary quartz and shattered country rock. The values are chiefly in gold with some silver.

The Nevada State Gold Mine Co. (formerly Seven Troughs Mining Co.) owns most of the mineral acreage in the district. Development work comprises a drainage and haulage tunnel 11,900 feet long and extensive underground workings. The property is completely equipped for mining and milling. Equipment includes a power plant, four Diesel engines having a combined rating of 750 hp., a 100-ton cyanidation mill, a machine shop, ore-hauling equipment, drilling equipment, and housing accomodations for the mine and mill crew.

15/ Ransome, Frederick Leslie, Notes on Some Mining Districts in Humboldt County, Nev.: U.S. Geol. Survey Bull. 414, 1909, pp. 22-25.

TABLE 3. - Silver and gold produced from deep mines, Seven Troughs district, Nevada, 1908-34

Year[1]	Tailings and ore (short tons)	Value of gold	Silver (fine oz.)	Value of silver[2]	Value per ton	Total value[2]
1908	3,582	$180,501	18,533	$9,795	$53.13	$190,296
1909	2,551	128,671	45,012	23,406	59.61	152,077
1910	4,945	184,276	192,996	104,218	58.34	288,494
1911	4,832	348,255	153,079	81,132	88.86	429,387
1912	4,439	295,913	40,775	25,077	72.31	320,990
1913	2,066	81,372	21,788	13,160	45.76	94,532
1914	3,903	295,605	30,089	16,683	80.01	312,288
1915	8,038	465,007	22,734	11,528	59.28	476,535
1916	8,879	159,268	13,048	8,586	18.91	167,854
1917	5,552	81,830	6,554	5,401	15.73	87,231
1918	18,944	45,838	4,038	4,038	2.63	49,876
1919	8,244	28,756	1,638	1,835	3.71	30,591
1920	33	1,618	381	415	61.61	2,033
1921	79	3,437	735	735	52.81	4,172
1922	----	----	----	----	----	[2]/4,088
1930	15,363	220,210	22,686	8,734	14.90	228,944
1931	8,892	121,869	10,497	3,044	14.05	124,913
1932	1,104	20,878	2,968	838	19.67	21,716
1933	920	39,114	1,523	533	43.09	39,647
1934	21,512	228,093	11,098	7,158	10.94	235,251
Total	123,878	2,930,511	600,172	326,316	[3]/26.32	3,260,915

1/ 1923 to 1929, small production.
2/ Includes value of small quantity of base metals.
3/ Figure omitted in computing average value per ton in totals.
4/ Average value per ton.

In March 1936 Jess Owens and T. H. Williams leased a block of ground opened by the Regan shaft owned by the Nevada State Gold Mines Co. When the writer visited the property a small tonnage of ore had been mined, and the lessees were rehabilitating a small mill owned by Fred Preston of Lovelock in Seven Troughs Canyon to treat the ore. This mill is equipped with a 5- by 7-inch Blake crusher, a 5-foot Huntington mill having a 40-mesh screen, an amalgamating plate 4 feet wide and 10 feet long, and a Wilfley table. Power for milling is furnished by a 15-hp. Fairbanks-Morse gasoline engine. The mill was leased on a royalty basis of 50 cents per ton of ore milled.

Near the camp of Vernon, L. G. Nickerson and his two brothers were working their property of nine unpatented claims, developed by a 400-foot shaft and several adits totaling 4,000 feet in length. The vein ranges from 1 to 5 feet in width and dips 35°. Mining is done by hand methods. In 1935 several carloads of ore had been shipped by the Nickerson brothers to a Salt Lake City smelter. Hauling to Lovelock, 26 miles distant, costs $3.85 per ton on contract.

In 1935 lessees produced about 8,000 tons of ore by screening the mine dumps near the Tyler shaft in Seven Troughs Canyon. A small gasoline shovel was used for this work. After the dump material was screened, the fines were hauled 3 miles to the Seven Troughs cyanidation mill. According to J. H. Caustin, one of the lessees, the cost of loading and trucking was $1.18 and the cost of milling $1.53 per ton. The fines have an average value of about $6 per ton.

Sierra (Dun Glen, Chafey) District

The Sierra, Dun Glen, or Chafey district is at the north end of the East Range 12 miles northeast of Mill City. It was organized in 1863. The town of Dun Glen, settled in 1862, ranked next to Unionville in importance in this part of the State. At one time it had a military post garrisoned by a company of regulars.

Both placer and lode gold were discovered in the sixties by prospectors from Unionville, and a number of mines were opened. The important early mines were the Tallulah, Auld Lang Syne, Munroe, Mayflower, and Auburn. These properties have been worked intermittently up to the present time. In March 1936 the Auld Lang Syne, Auburn, Gold Top, and White Bear mines were being worked on a small scale. Total production from the lode properties in the district has probably exceeded $1,000,000. The greatest activity was from 1862 to 1880. According to Mineral Resources, production from 1908 to 1921, chiefly gold from lode mines, was valued at $314,441.

The placers occur over a large area and include Auburn, Barber, Wright, Rock Hill, and Dun Glen Canyons on the western slope of the range and Spaulding Canyon on the eastern slope. The production of placer gold is said to have had a total value of $4,000,000 and to have come principally from Barber, Wright, Auburn, and Rock Hill Canyons. In all probability the value of the placer production is less than that stated. The bulk of it was produced by Chinese miners.

The Auburn mine near the head of Dun Glen Canyon comprises five patented and six unpatented claims owned by Mrs. C. H. Rowland of Lovelock. In the eighties a 10-stamp amalgamation-concentration mill was operated on the property for several years. Production from the mine is reported to have been worth $250,000. The mine

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