Other Mines and Prospects

A number of other properties in the vicinity of New York Canyon produced small quantities of ore in former years, including the Champion, Mayflower, Mastodon, Silver Guardian, Vacation, Neversweat, Wedge, Copper Queen, Ideal, Giroux, and Calvada. These properties have been prospected and worked through tunnels and shafts ranging from 150 to 800 feet in depth.

The commercial copper ore is composed of copper carbonates and oxides in limestone, occurring in masses of irregular size and shape. All these properties have been idle for many years, and most of the mine equipment has been removed. The opportunities for mining additional copper ore from these properties are promising if the price of copper ever attains a figure comparable to the World War price. With the present price of copper the outlook for producing ore of shipping grade is not encouraging.

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SILVER STAR DISTRICT

The Silver Star, also known as the Gold Range, Mina, or Douglas district, is in Excelsior Mountains in southern Mineral County. The nearest shipping point is Mina on the Mina-Hazen branch of the Southern Pacific R. R., 6 miles northeast of Camp Douglas. The Douglas portion of the district covers a mineralized area roughly 2 miles long and 1 mile wide.

Veins carrying gold and silver were discovered at Camp Douglas by Pepper, Grassi, and Robb in 1893. From 1893 to 1903 considerable activity prevailed at Camp Douglas, and during this period lessees are reported to have produced about $500,000. During the panic of 1893, Camp Douglas was known as the "Dinner Pail", because of the opportunity afforded lessees to make a good living. The discovery of bonanza ore at Tonopah in 1900 drew many of the leasers away from the camp, so that production declined.

In former years, several small mills were erected in the Douglas area, but the bulk of the ore has been shipped to smelters for treatment. Most of the ore has been mined from shallow depths; the deepest working is the Bounce shaft, 425 feet deep.

The metal production of the Silver Star district from 1902 to 1935 is shown in table 8.

The tungsten deposits in the Excelsior Mountains were discovered in 1916 by Charles W. Noble on claims that he originally located for silver. Shortly after the discovery of tungsten the Noble property was sold to Atkins-Kroll Co., who operated it until 1918, when the mine was sold to other interests.

TABLE 8. - Gold, silver, copper and lead production from Silver Star district, Mineral County, Nev., 1902-35

(Compiled by Charles White Merrill, Mineral Production and Economics Division, U. S. Bureau of Mines)

Year	Placer						Lode			
	No. of mines	Gold		Silver		Total value	No. of mines	Ore, short tons	Gold	
		Fine oz.	Value	Fine oz.	Value				Fine oz.	Value
1902	--	--	--	--	--	--	1	480	288.41	$5,962
1903	--	--	--	--	--	--	3	205	359.33	7,428
1904	--	--	--	--	--	--	4	256	225.52	4,662
1905	--	--	--	--	--	--	5	697	718.37	14,850
1906	--	--	--	--	--	--	2	650	290.25	6,000
1907	--	--	--	--	--	--	--	--	--	--
1908	--	--	--	--	--	--	5	234	108.01	2,233
1909	--	--	--	--	--	--	4	127	41.75	863
1910	--	--	--	--	--	--	7	250	208.11	4,302
1911	--	--	--	--	--	--	7	121	65.42	1,352
1912	--	--	--	--	--	--	17	1,505	344.17	7,115
1913	--	--	--	--	--	--	14	413	258.64	5,347
1914	--	--	--	--	--	--	8	296	181.58	3,754
1915	--	--	--	--	--	--	21	2,016	1,528.49	31,597
1916	--	--	--	--	--	--	20	1,485	312.56	6,461
1917	--	--	--	--	--	--	22	2,651	107.27	2,218
1918	--	--	--	--	--	--	18	2,262	40.16	830
1919	--	--	--	--	--	--	6	439	8.64	179
1920	--	--	--	--	--	--	7	118	41.70	862
1921	--	--	--	--	--	--	5	50	18.39	380
1922	--	--	--	--	--	--	6	133	84.93	1,755
1923	--	--	--	--	--	--	8	143	96.95	2,004
1924	--	--	--	--	--	--	7	345	196.80	4,068
1925	--	--	--	--	--	--	9	390	472.50	9,767
1926	--	--	--	--	--	--	8	333	266.58	5,511
1927	1	21.34	$441	5	$3	$444	10	236	188.15	3,889
1928	--	--	--	--	--	--	8	538	323.53	6,688
1929	--	--	--	--	--	--	7	322	416.38	8,607
1930	--	--	--	--	--	--	3	583	309.74	6,403
1931	--	--	--	--	--	--	6	1,232	736.37	15,222
1932	--	--	--	--	--	--	12	886	549.97	11,369
1933	--	--	--	--	--	--	11	739	610.28	15,599
1934	--	--	--	--	--	--	17	5,083	1,804.71	63,075
1935	--	--	--	--	--	--	14	7,443	2,876.06	100,662
Total		21.34	$441	5	$ 3	$444		32,220	14,079.72	$361,014

Continued --

TABLE 8. - Gold, Silver, copper and lead production from Silver Star district, Mineral County, Nev., 1902-35 (Continued)
(Compiled by Charles White Merrill, Mineral Production and Economics Division, U. S. Bureau of Mines)

Year	Lode (Continued								Total value, lode and placer
	Silver		Copper		Lead		Total value	Average recoverable value of ore per ton1/	
	Fine oz.	Value	Pounds	Value	Pounds	Value			
1902	148	$78	--	--	--	--	$6,040	$12.58	$6,040
1903	298	161	--	--	--	--	7,589	37.02	7,589
1904	19,008	11,025	--	--	--	--	15,687	61.28	15,687
1905	3,356	2,047	56,376	$8,795	14,106	$663	26,355	37.81	26,355
1906	5,124	3,484	180,000	34,740	120,000	6,840	51,064	78.56	51,064
1907	--	--	--	--	--	--	--	--	--
1908	1,345	713	591	78	64,453	2,707	5,731	24.49	5,731
1909	11,915	6,196	315	41	45,581	1,960	9,060	71.34	9,060
1910	7,660	4,142	536	68	15,427	679	9,191	36.76	9,191
1911	4,829	2,559	35	4	6,103	275	4,190	34.63	4,190
1912	7,663	4,713	100,244	16,540	30,478	1,371	29,739	19.76	29,739
1913	3,835	2,316	12,512	1,939	12,621	555	10,157	24.59	10,157
1914	2,365	1,308	947	126	38,634	1,507	6,695	22.62	6,695
1915	14,843	7,525	41,138	7,199	181,031	8,508	54,829	27.20	54,829
1916	8,252	5,430	190,567	46,880	7,906	545	59,316	39.94	59,316
1917	9,038	7,447	283,473	77,388	24,033	2,067	89,120	33.62	89,120
1918	4,415	4,415	225,417	55,678	9,812	697	61,620	27.24	61,620
1919	3,070	3,438	31,335	5,828	898	48	9,493	21.62	9,493
1920	11,687	12,739	1,079	199	71,378	5,710	19,510	165.34	19,510
1921	4,529	4,529	490	63	7,444	335	5,307	106.14	5,307
1922	8,690	8,690	93	13	19,363	1,065	11,523	86.64	11,523
1923	2,849	2,336	1,219	179	16,495	1,154	5,673	39.67	5,673
1924	503	337	31	4	5,537	443	4,852	14.06	4,852
1925	3,329	2,310	1,229	175	22,955	1,997	14,249	36.54	14,249
1926	10,651	6,646	6,502	910	30,885	2,471	15,538	46.66	15,538
1927	3,035	1,721	4,364	572	12,222	770	6,952	29.46	7,396
1928	1,053	616	66	10	6,611	384	7,698	14.31	7,698
1929	2,525	1,346	242	43	12,567	792	10,788	33.50	10,788
1930	561	216	--	--	--	--	6,619	11.35	6,619
1931	1,061	308	--	--	--	--	15,530	12.61	15,530
1932	2,337	659	248	16	3,489	105	12,149	13.71	12,149
1933	980	343	160	10	--	--	15,952	21.59	15,952
1934	3,552	2,296	97	8	6,854	254	65,633	12.91	65,633
1935	5,690	4,090	316	26	9,119	365	105,143	14.13	105,143
Total	170,205	$116,179	1,139,622	$257,532	796,002	$44,267	$778,992	$24.21	$779,436

1/ Not to be confused with average assay value of ore.

General Tungsten Corporation

The General Tungsten Corporation, incorporated in 1926, George F. Thompson, president, owns 10 unpatented claims in the Excelsior Mountains, 14 miles southwest of Mina via Pepper Springs. From Pepper Springs there is no road to the property, and supplies and ore must be transported by pack train.

Development consists of two tunnels, respectively 600 and 300 feet in length, a shaft 50 feet deep, and several open-cuts, totaling in all about a thousand feet. There is no equipment on the property.

Production has been one carload of gold-silver ore shipped in 1926 and 350 tons of scheelite ore milled at the Wagner mill at Silver Dyke in 1928. The scheelite ore is said to have carried 3 1/2 percent WO_3. In 1936, the corporation applied for a R. F. C. class B mining loan of $20,000 for further development of the property. It was stated that this loan has been approved.

The Silver Dyke vein system traverses the property and in places is 100 feet wide. Values are in gold, silver, and scheelite in a gangue of quartz and country rock.

Silver Dyke Mine

The Silver Dyke mine and concentrator are on the east flank of the Excelsior Mountains 14 miles by automobile road southwest of Mina, Nev. The Silver Dyke property comprises nine unpatented claims controlled by the Nevada-Massachusetts Co., Inc., which also owns tungsten mines near Mill City, Nev. During the World War period this property was owned and operated by the Atkins-Kroll Co. of San Francisco. This company erected a 50-ton concentrator at Sodaville for the treatment of the scheelite ore. In 1926, lessees constructed a 25-ton concentrator on the Wagner property, which was operated until 1927. In 1929 the Wagner and Silver Dyke properties were acquired by the Nevada-Massachusetts Co., Inc., and in 1930 the present concentrator of 60 tons capacity was erected.

The value of the production of scheelite concentrates from this property has been close to $1,000,000.

In 1936, the Silver Dyke mine and concentrator employed a crew of 35 men, and 55 tons of scheelite ore per day were being treated. The concentrates produced averaged between 63 and 66 percent WO_3.

Development includes a crosscut tunnel 800 feet long and several shafts totaling, in all, about 4,000 feet of underground workings. The plan and section of the mine workings are shown in figure 4. The ore is mined by shrinkage and open-stope mining methods.

Mining equipment includes an Ingersoll Rand Imperial-type 10-compressor, rock drills, steel sharpener, and a Baldwin Westinghouse storage-battery locomotive.

The scheelite ore is concentrated by tabling, following by magnetic separation to clean the bulk table concentrates. The flow sheets of the crushing plant and concentrator are shown in figures 5 and 6. Mining cost is $4.50 and milling $2 per ton.

Electric power for mining and milling is purchased from the Mineral County Power System. Power consumption averages 60,000 kilowatt-hours per month at a cost of about 2 cents per kilowatt-hour.

Water for milling is obtained from Spearmint Springs in Spring Canyon in the Pilot Range. The pipe line is 10 1/4 miles in length and 4 inches in diameter and is buried a depth of 30 inches. The flow of water to the mine is by gravity and pumping. Pumping lift is 1,528 feet, and the water is raised by three Ingersoll Rand, direct-connected, centrifugal pumps automatically controlled. In December 1932 a major earthquake in the vicinity of Mina cut off the mill water supply formerly obtained from a well and springs near the mine.

The geology of the Silver Dyke mine has been described by Kerr[25].

The Silver Dyke vein system has a length of 4 1/2 miles and a maximum width of 600 feet. This vein system has been called the Great Silver Dyke of western Nevada, although it is a vein rather than a dike and the silver mineralization has not been important from the production viewpoint.

In a general way the vein system follows a contact between diorite and other volcanics. The scheelite-bearing veins measure from a few inches to 15 feet in thickness. The ore shoots are spaced irregularly along the vein system and range from 60 to 120 feet in length. The scheelite, in grains and masses, occurs in quartz associated with albite. A small amount of pyrite is present also. The ore mined averages about 1 percent scheelite.

Tungsten Dike Group

The Tungsten Dike group of six unpatented claims, owned by E. T. Heggland of Mina, is in the Excelsior Mountains 12 miles southwest of Mina. Property is inaccessible by automobile. Production has been 30 tons of scheelite ore.

Development consists of a tunnel 190 feet long, a shaft 48 feet deep, and some open-cuts totaling 500 feet.

These claims also are on the Silver Dyke vein system, and the values are in gold, silver, and tungsten, which are in a series of lenses.

25/ Kerr, Paul F., The Tungsten Mineralization at Silver Dyke, Nev.: Bull. University of Nevada, vol. 30, no. 5, 1936, 70 pp.

Nevada Douglas Gold Mines, Inc.

The largest holdings in the Douglas area are owned by the Nevada Douglas Gold Mines, Inc., of which Harry E. Springer of Mina is the principal owner. Property comprises 16 patented and 4 unpatented claims.

Development includes a tunnel 500 feet long, a shaft at the tunnel portal, and other workings. In 1927 the company erected a 65-ton all-slime cyanide mill on the property, which has operated for short periods. Mill equipment includes a Blake crusher, Hardinge ball mill, Dorr duplex classifier, Oliver filter, two Dorr agitation tanks, and three Dorr thickening tanks. The mill is operated by gasoline engine.

A tailings pile on the property estimated to contain 10,000 tons is reported to carry good values in gold.

The formation is mainly andesite, argillite, and dacite. A number of veins range from 1 to 5 feet in width. The principal gangue mineral is quartz, which is considerably shattered. Manganese and calcite also are present. The main vein which strikes nearly east and west, is at the contact of quartz porphyry and andesite. The width of this vein ranges from a few feet up to 30 feet. The smaller veins, from which most of the production has been derived, intersect the contact vein at acute angles. Values are chiefly in gold and silver.

High Ore Group

The High Ore group of three unpatented claims is owned by B. G. Strawser, 1733 Cardova St., Los Angeles, Calif. In June 1936, the property was under lease to E. C. Van Allen, who worked with three men.

Development work consists of an incline shaft 130 feet deep and several hundred feet of lateral workings.

Equipment includes a Straub mill having a capacity of 2 1/2 tons in 9 hours and a gravity tram 600 feet in length from the mine to the mill. Ore is mined by hand methods.

In June 1936, a 7-day mill run produced 7 1/2 ounces of bullion worth $25 per ounce. The grade of the ore treated was $12.50 to $42 per ton.

Primary crushing is done with a 7- by 9-inch Blake-type crusher. After grinding in the Straub mill the values are recovered by amalgamation on a plate 7 1/2 feet long and 2 1/2 feet wide. By grinding to 30-mesh the recovery is about 75 percent of the values. The mill is operated by a 15-horsepower Stover gasoline engine.

Water for milling is hauled by truck from Pepper Springs 2 1/2 miles distant. Water consumption in milling is approximately 1,500 gallons per 9 hours. Part of the water is reclaimed.

The ore occurs in veins in rhyolite. Values are chiefly in gold.

Bentonite

A deposit of bentonite type of clay was discovered about 1928 on the east slope of Excelsior Mountains about 1 mile west of Sodaville.

Production of bentonite has been in the neighborhood of 15,000 tons from two claims owned by Cooper Shapley, formerly of Bishop, Calif. The bentonite was mined by power shovel and hauled by truck to Sodaville at a cost of 90 cents per ton. The bentonite was shipped to the Pacific coast markets for use as oil-well drilling mud. The deposit has been prospected by a number of trenches and shallow shafts.

Individuals living at Mina, Nev., who own bentonite claims are J. R. Towner, three; William Ray and William Gash, two, jointly; and George F. Thompson, several.

The bentonite occurs as a bedded deposit underlying surface detritus. It is said to be free from grit and in places is iron-stained and traversed by seams of gypsum. The overburden ranges in depth from 6 to 10 feet. Large reserves are indicated.

TEEL'S MARSH DISTRICT

Teel's Marsh is 2 miles south of the old mining camp of Marietta in southern Mineral County. It is reached by automobile road from Mina, a town on the Southern Pacific R. R. 26 miles to the northeast by way of Belleville.

This marsh, which in reality is a dry lake, was first worked for sodium chloride in the late sixties. The salt supplied the chlorination mills at Aurora, Comstock, and Candelaria. It is interesting to note that this marsh was the site of the first discovery of borax in Nevada by F. M. Smith, better known as "borax" Smith, and J. P. Smith, his brother. According to S. T. Kelso of Hawthorne, Nev., who was at one time superintendent for the Smith Brothers, borax was found in Teel's Marsh about 1872. Shortly after, several plants for the extraction of borax were erected in the southeast portion of the marsh. These plants maintained a steady production up to 1892, when they were abandoned because of the discovery of richer deposits of the borax mineral, colemanite, in the vicinity of Death Valley, Calif. Although Teel's Marsh is not important economically at present, it produced a considerable quantity of borates and played an important part in the development of the borax industry in the United States.

Teel's Marsh is 5 miles long, 1 to 2 miles wide, and covers an area of about 8 square miles. The elevation of the surface of the marsh is 4,900 feet above sea level. The common salts in the playa deposits in the great basin region of which Teel's Marsh ia an example are the chlorides, sulphates, carbonates, bicarbonates, and borates of sodium and potassium. Magnesia and lime are present as minor constituents. In nearly all of the deposits the

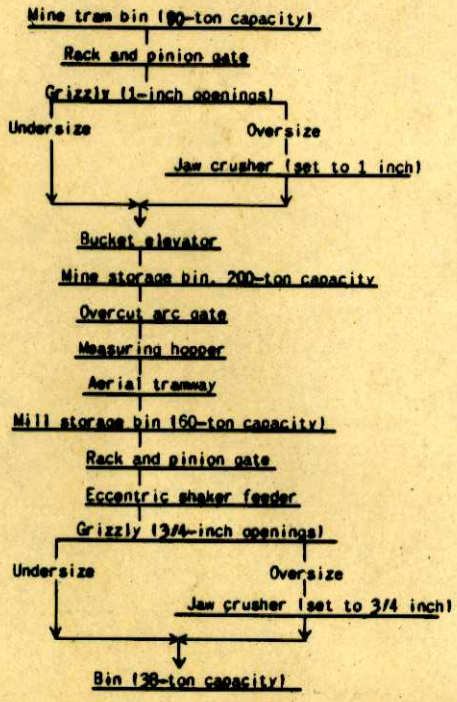

Figure 5.- Flow sheet of Silver Dyke crushing plant.

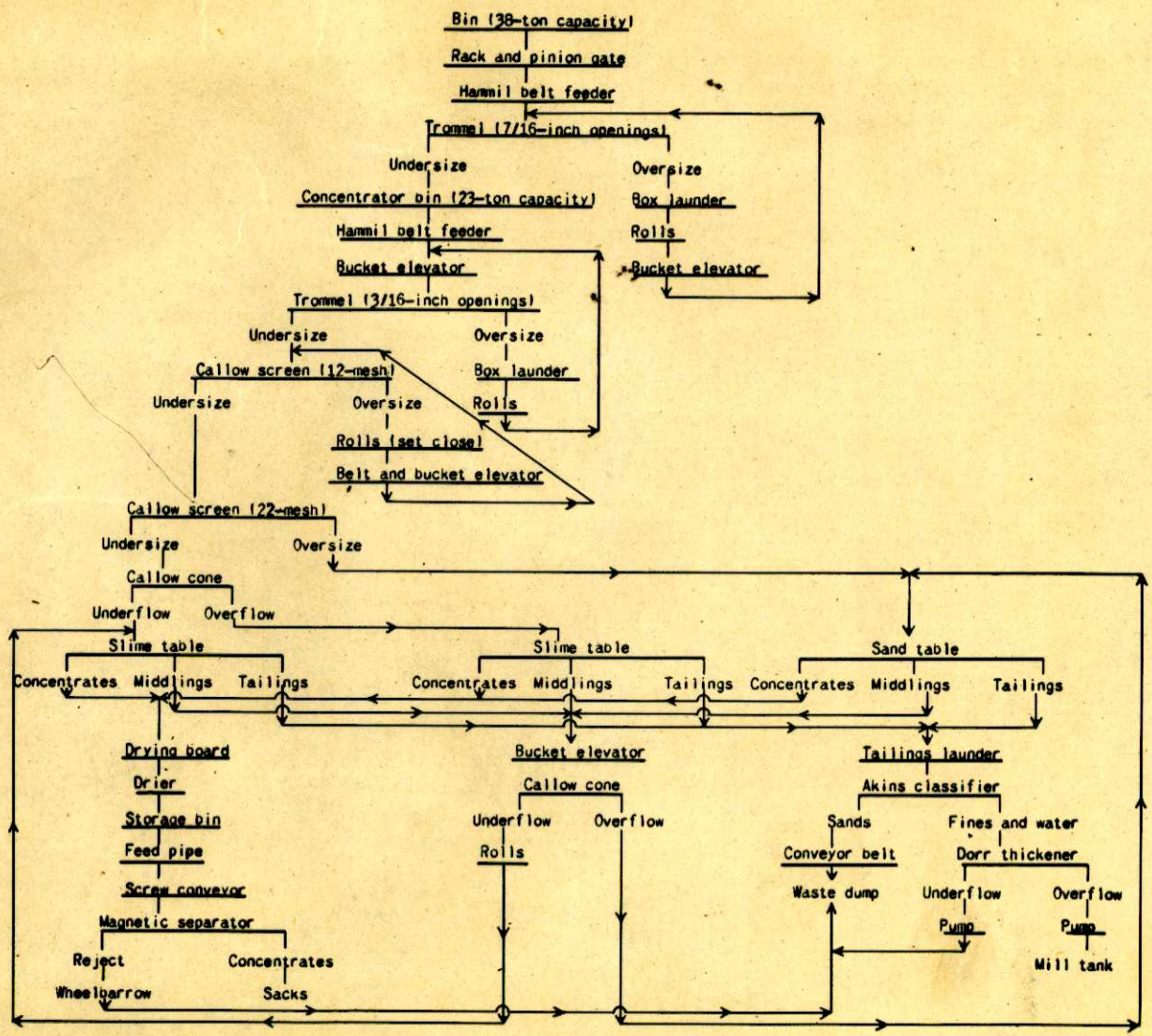

Figure 6.- Flow sheet of Silver Dyke concentrator.

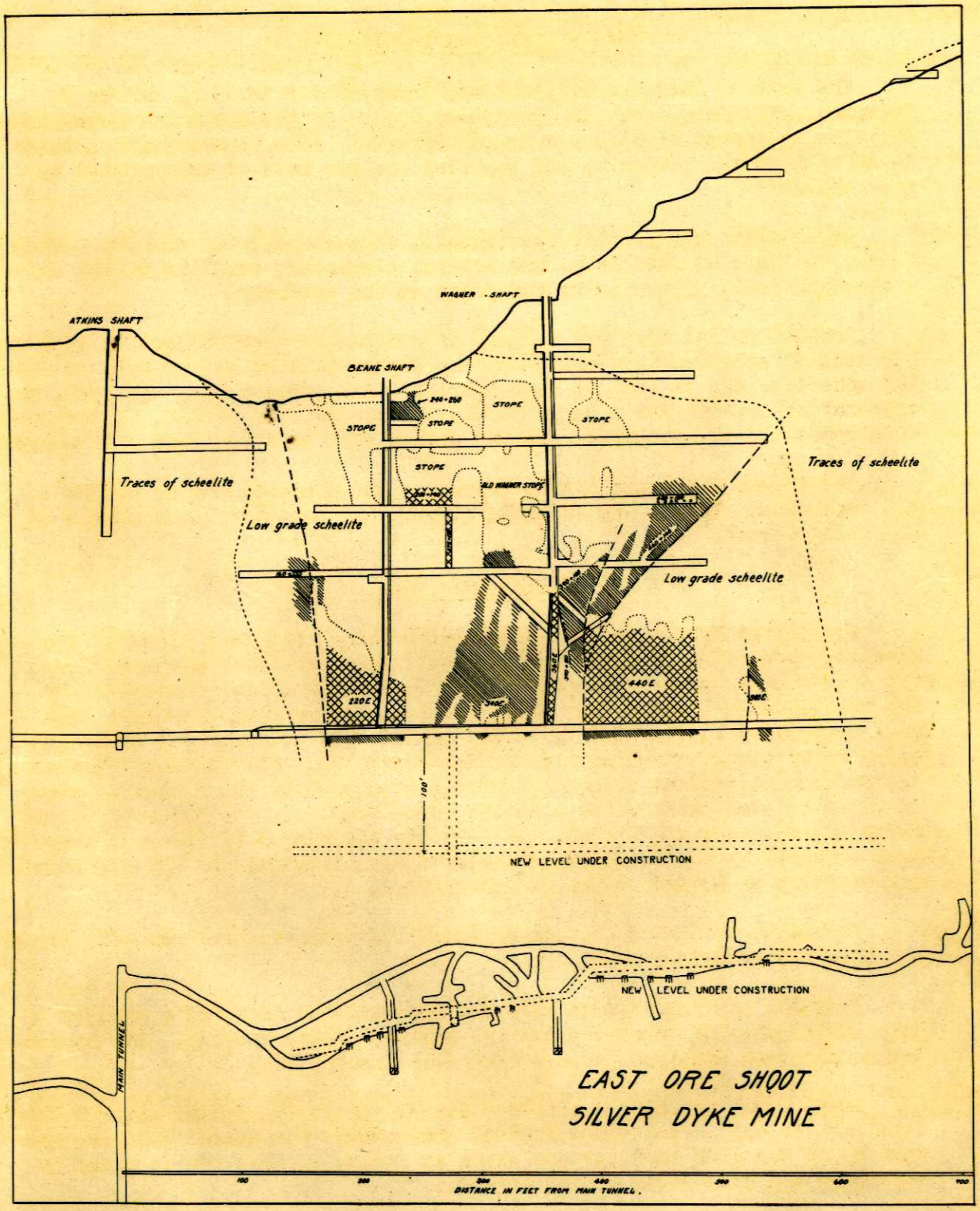

Figure 4.– Plan and section of Silver Dyke mine, Mineral County, Nev. (After Kerr.)