History of the Queen of the Hills Mine, Lemhi County, Idaho

Victoria E. Mitchell

Staff Report 97-16
April 1997

Idaho Geological Survey
Morrill Hall, Third Floor
University of Idaho
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INTRODUCTORY NOTE

This report was prepared under a cooperative agreement with the U.S. Forest Service, Region IV, as part of a project to identify and describe inactive and abandoned mines in the state of Idaho. Work on this project included preparing detailed histories of mines in Region IV that had significant recorded production. The information in this report is from a number of published and unpublished sources in the Idaho Geological Survey's mineral property files. Where not otherwise noted, most of the mine production data is drawn from the U.S. Geological Survey's (USGS) annual volumes on *Mineral Resources of the United States* (1882-1923) and the equivalent volumes produced by the U.S. Bureau of Mines (USBM) (*Mineral Resources of the United States,* 1924-1931, and *Minerals Yearbook*, 1932 to present). Information on underground workings and mine equipment is) generally from the annual reports of the Idaho Inspector of Mines (IMIR), published from 1899 to 1979. After 1974, the Mine Inspector's office was known as the Mine Safety Bureau, a section of the Idaho Department of Labor and Industrial Services. Detailed accounts of mine operations are, for the most part, drawn from the annual reports prepared by the companies for the State Inspector of Mines; these reports were required by law and the information contained in them formed the basis of the Mine Inspector's annual reports. Reports of recent developments are taken from the Idaho Geological Survey's (IGS) annual reports on the developments in mining and minerals in Idaho (from 1984 to present) or from similar reports produced by the Survey's predecessor, the Idaho Bureau of Mines and Geology (IBMG) from 1975 to 1984. Other published sources are referenced in the text. A complete bibliography is included at the end of the report. Where direct quotations are taken from source materials, the original spelling and grammar are preserved even in cases where they do not conform to currently accepted usage.

History of the Queen of the Hills Mine, Lemhi County, Idaho

Victoria E. Mitchell[1]

The Queen of the Hills Mine is in the Eureka mining district on Deriar Creek at an elevation of about 5,600 feet (Figures 1 and 2). The mine is about 7 miles by road northwest of Salmon. At various times, it has been known as the Queen of the Hills, the Amagosa, the Copper Queen, and the Queen and Crescent.

The mine is a quartz vein deposit hosted by Proterozoic granite or augen gneiss (Figure 3). Three veins are located on the property: the Queen, the Nellie, and the Eva. All three strike N. 30° E. The Queen vein dips 80°-85° SE., while the Nellie and Eva veins dip steeply northwest. Ore shoots within the veins pitched 45°-55° S. (Umpleby, 1913). The veins were coarsely crystalline quartz that contained scattered crystals of pyrite, chalcopyrite, galena, and the oxidation products of these sulfide minerals. Ore grades ran from less than 0.2 ounce of gold per ton to nearly an ounce per ton (Anderson, 1956). The gold values were associated with the pyrite (Umpleby, 1913).

The mine was located in the early 1880s, but active development did not begin until 1898. Between then and 1910, 9,000 feet of work was done on five levels. The mine was opened to a maximum depth of 400 feet. During this time, the mine produced around $80,000 in gold bullion, most of which was extracted by a 15-stamp mill located on the property (Umpleby, 1913). (Table 1 shows companies operating at the mine.)

[1]Idaho Geological Survey, Main Office at Moscow, University of Idaho, Moscow.

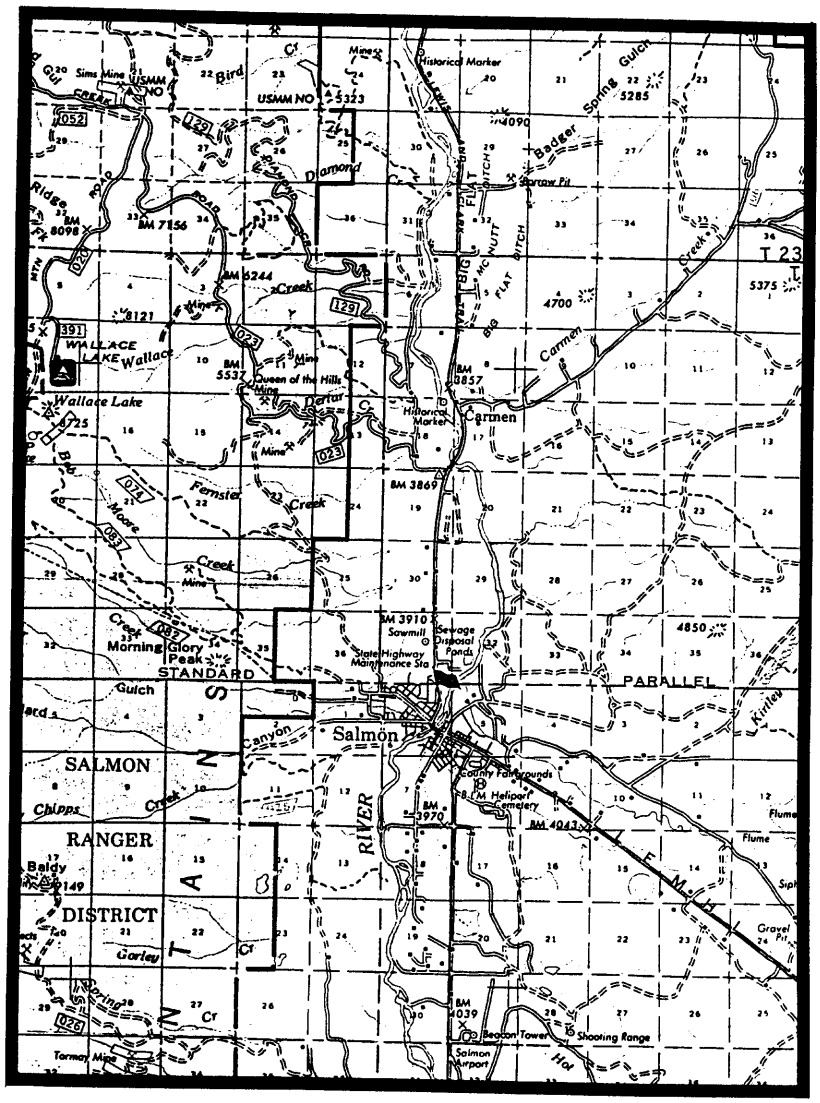

Figure 1. Location of the Queen of the Hills Mine and vicinity, Lemhi County, Idaho (U.S. Forest Service Salmon National Forest map, scale ⅜ inch = 1 mile).

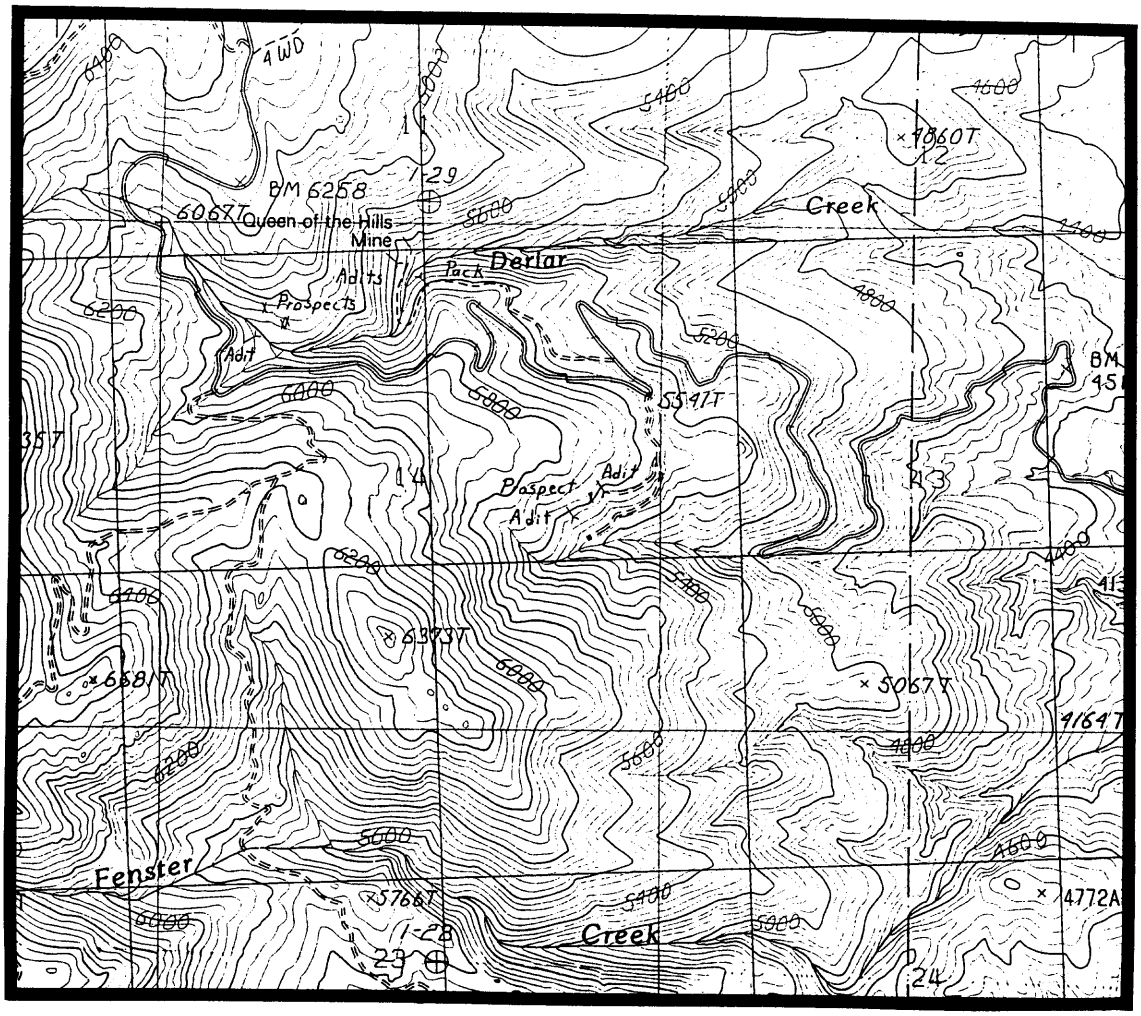

Figure 2. Topographic map of the Queen of the Hills Mine (U.S. Geological Survey Salmon 7.5-minute topographic map).

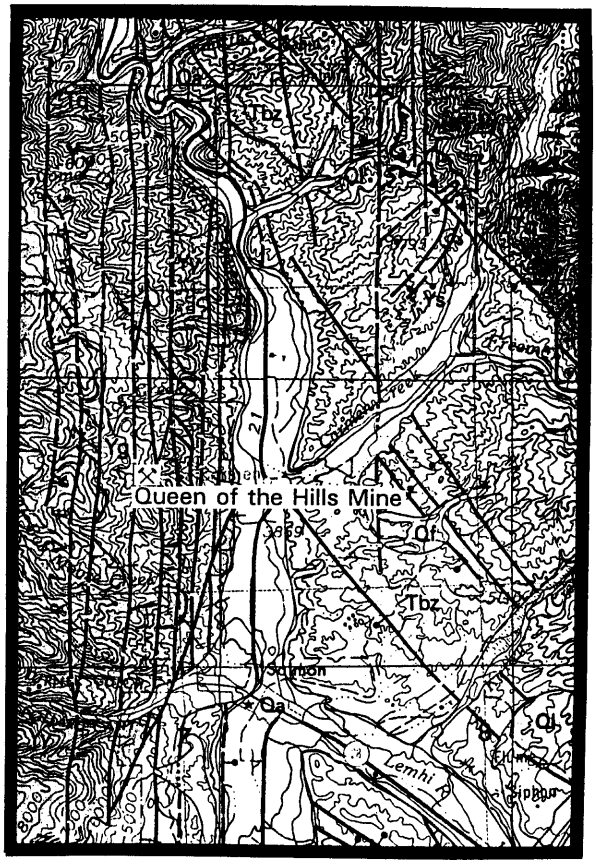

Figure 3. Geologic map of the Queen of the Hills Mine and vicinity, Lemhi County, Idaho. Yy = Middle Proterozoic Yellowjacket Formation; Yl = Middle Proterozoic Lemhi Group; Yg = Middle Proterozoic porphyritic granite; Tq = Tertiary monzogranite, granodiorite, quartz monzodiorite, and related intrusive granitic rocks; Tc = Eocene Challis Volcanics; Tbz = Pliocene to Eocene Bozeman Group and related valley fill rocks; Ql = Quaternary landslide deposits; Qa = Quaternary alluvium. Heavy lines are faults: ball-and-bar symbols mark downdropped blocks on normal faults; sawteeth are on upper plates of thrust faults (Ruppel and others, 1993).

Table 1. Companies and individuals operating at the Queen of the Hills Mine.

Company Name	Officer	Date Incorporated	Charter Forfeited	Year(s) at Mine
Queen & Crescent Mining Company	[1]	[1]	[1]	1905-1907(?)
Copper Queen Mining and Smelting Company	George H. Crosby, President	May 31, 1906; reinstated: Dec. 9, 1913	Dec. 1, 1912; dissolved by court order: Dec. 1, 1921	1907(?)-1921(?)
Golden Queen Mining & Milling Co. (lessee)	[1]	[1]	[1]	1926
Gold Ore Mines of Idaho, Inc. (lessee)	Fremont Wood, President	Filed in Idaho: March 25, 1927; reinstated Dec. 19, 1928	1928; 1929	1927-1929
Frank Glennon, Joe Hughes, and Carol Medbury	---	---	---	1938-1942

[1]Information not available in IGS's files.

The IMIR described 1903 operations as follows (p. 106):

> Northwest of Salmon seven miles the Queen of the Hills mine is being developed by a cross-cut tunnel that will be nine hundred feet long when completed. This property carries a big, clean-cut fissure vein in granite, fourteen feet wide, on the same strike as the tin veins near Salmon. Its ores carry good pay value in free gold and also cyanide to excellent advantage. This property has been worked through a vertical shaft three hundred feet deep and has produced considerable bullion with a ten-stamp mill equipment. The new tunnel will afford an excellent advantage and prove a great economy in handling the ore and will tap the vein at considerable depth below the bottom of the shaft.

In 1904, the crosscut tunnel had been driven 600 feet, and the mine also had "some extensive shaft development work." The crosscut was intended for both drainage and haulage. The Mine Inspector stated that the mine had "large reserves of ore in sight" (p. 110) and noted that one of the principal owners was the Hon. R.W. McBride, senator for Lemhi County in the current Idaho legislature.

According to the 1905 IMIR (p. 89-90):

> The Queen and Crescent Mining Company own a well equipped group of claims, seven miles north of Salmon City, in the Eureka Mining District. The equipment of this

property consists of a 10-stamp mill and hoisting plant, also an air compressor and machine drills with which a long cross-cut tunnel has been extended to undercut at considerable depth the former development of the property, which has been done through a vertical shaft. This new tunnel is already in 1,100 feet and is expected to strike the main Queen vein at 1,200 feet, after which a drift will be continued along the vein and a raise put up to connect with the shaft and levels above, affording a convenient avenue for the drainage of the mine and the economical extraction of its ore bodies. This new tunnel has already cut one strong mineralized fissure, but drifting along its course is being deferred until the Queen vein has been encountered. The latter is one of the largest and best defined gold-bearing fissures in the county. It is over 10 feet wide, in strong granite walls, and when the development now in progress is a little further extended it is expected to afford an extensive tonnage of profitable gold ore. It is intended to push this big tunnel on further into the mountain, beyond the Queen vein, for the purpose of developing other important ore courses that traverse the property.

Development work slowed in 1906 due to the loss of the compressor plant. However, work was later resumed with a crew of four men.

The Copper Queen Mining and Smelting Company took over the property around 1907, although the records are somewhat uncertain about the date. (The situation is made even more perplexing because the Copper Queen Gold Mining Co. was operating the Copper Queen (or Tendoy Copper Queen) Mine about 30 miles to the southeast at the same time, and reports sometimes confused the two companies.) The 1907 IMIR contained the following about the year's operations at the Queen of the Hills (p. 121):

This property, situated about 3 miles northeast of the U. P., has been undergoing steady development with a small force of men for several years, and now has a total of 5,000 lineal feet of underground work, which cuts some very large bodies of fair grade milling ore at several hundred feet in depth. It was formerly worked through a shaft and equipped with a 10-stamp mill. The mill is now being removed to a more convenient site below the mouth of the long crosscut tunnel, through which the mine has been opened and drained at considerable depth. The property has an extensive acreage and carries several strong fissures in addition to the main vein and will probably make a considerable addition to the gold output of Lemhi County next season, as late accounts from the mine report a marked improvement in the value of its ore resources in the recent development.

The crosscut tunnel intercepted the vein at a depth of 400 feet below the surface.

Development continued on the Queen and Crescent in 1908. The mine had about 2,000 feet of tunnels and crosscuts, which gained a 400-foot depth on the Queen vein. (Presumably the 5,000 feet of development reported in 1907 included workings on other veins in the mine.) Five stamps were added to the mill, bringing the total up to fifteen.

The company operated the mine and mill continuously during 1909. The IMIR described the operations as follows (p. 76-77):

The property is equipped with a 15-stamp electric driven mill, power for which is derived from the Anderson power plant at Salmon City, the power line being six miles

in length. The current is transmitted at 1,100 volt tension, but is transformed to 440 volts at the plant. The mill equipment consists of a gyratory crusher, 10-stamp battery, amalgamation plates and Wilfley concentrator. This latter, however, is not being used at the present time owing to the fact that the ore being mined now is quite free from sulphides. The mine is equipped with a 5-drill electric driven Rand compressor. The mill, buildings and workings are lighted by electricity.

Two strong fissure veins filled with quartz and altered granite, accompanied by a dark dike rock similar in occurrence to the Trade Dollar vein at Silver City, in a granite formation, are developed in the workings. Five ore shoots have been developed in the property, with an aggregate length of over 1,000 feet. The strike of the veins is nearly north and south. One of these veins was formerly developed by old shaft workings 300 feet deep, which have been tapped by the present tunnel. The two veins developed in the lower workings are substantially parallel in strike but have converged dips, and, as near as can be estimated, should join at a point about 200 feet deeper.

This property was worked in a desultory manner for a number of years, but under the management of Emmerson Hill, has been put on a substantial paying basis.

The ore runs from $2.80 to $60 per ton, 80 per cent of the values are saved in the battery and on the plates. The mill has a capacity of 50 tons per 24 hours, and with the completion of the railroad to Salmon City should operate at a handsome profit for a long time to come.

When Umpleby (1913) visited the mine in 1910, it was in operation, but it apparently closed soon after that. In 1915, a trial run of the mill used ore from the dump. Several hundred tons of ore was treated by amalgamation in 1916, again as a test of the value of the property. Nothing further happened until 1926, when the Golden Queen Mining & Milling Co. leased the mine. The new company shipped one lot of lead concentrate rich in gold and put the mine in shape for production early in 1927.

Gold Ore Mines of Idaho, Inc., took over the Queen of the Hills in 1927. During the year, the mine plant and mill (which had been installed in 1909 or earlier) were rehabilitated and new equipment was added. Some of the mine workings were reopened, and a little development work was performed. Principal workings on the property were a 2,500-foot-long tunnel, in which a vertical shaft opened to a depth of 75 feet. The mine had an electrically driven Ingersoll-Rand compressor and a 15-stamp mill. In 1928, a small quantity of gold ore from the mine was treated by amalgamation, and the bullion was sent to the Boise Assay Office.

Most of the output from the Eureka district in 1938 was gold ore from the Queen of the Hills (or Last Chance) mine. The mine was operated by Frank Glennon, Joe Hughes, and Carol Medbury. They recovered 15 ounces of gold from 28 mine cars of ore which averaged 1 ounce per ton of gold. The mine produced about 200 tons of gold ore in 1939, an unspecified amount of ore in 1941, and 480 tons of ore in 1942. All this ore was treated by amalgamation.

In 1942, in accordance with War Production Board Order L-208, all gold mines in the country were closed for the duration of World War II. The Queen of the Hills never reopened, although a few yards of old tailings were placered in the late

1940s. When Anderson (1956) visited the mine in 1954, he noted that the surface plant had been dismantled and the workings were inaccessible. In 1989, Formation Capital Corporation, Hecla Mining Co., and Corona Gold, Inc., were involved in a joint exploration project on a claim block around the Queen of the Hills, but no work was done at the mine.

Total recorded production for the Queen of the Hills Mine between 1909 and 1947 is 11,654 tons of ore, 6 tons of reprocessed tailings, and 30 yards of placered tailings. This material yielded 1,713 ounces of gold, 364 ounces of silver, 188 pounds of copper, and 6,993 pounds of lead.

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