History of the Kimberly Mine, Idaho County, Idaho

Victoria E. Mitchell

Staff Report 00-10
June 2000

Idaho Geological Survey
Morrill Hall, Third Floor
University of Idaho
Moscow, Idaho 83844-3014

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CONTENTS

ILLUSTRATIONS

TABLES

INTRODUCTORY NOTE

This report was prepared under a cooperative agreement with the U.S. Bureau of Land Management (BLM), Idaho State Office, 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 selected mines on BLM-administered lands in Idaho. The information in this report is from a number of published and unpublished sources in the Idaho Geological Survey's mineral property files.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 annual reports made by the companies to 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 Kimberly Mine, Idaho County, Idaho

Victoria E. Mitchell[1]

LOCATION, GEOLOGY, AND WORKINGS

The Kimberly Mine is in the Marshall Lake mining district in southern Idaho County (Figure 1). It is at an elevation of 7,300 feet, near the head of Bear Creek in the south-central part of sec. 20, T. 24 N., R. 5 E. (Figure 2). The area is about 45 miles by road from McCall and 13 miles north of Burgdorf.

The mine is owned by Summit Silver Incorporated, which also owns the Gold Crest and the Leadville groups (May, 1984). These mines are on the eastern extension of the Gold Crest (Digger) vein, the southern of the two veins in the Kimberly Mine (Figure 3). The Gold Crest Group is on the ridge which crosses the line between secs. 20 and 21, and the Leadville (Hinkson-Bishop) Mine is near the southern boundary of sec. 21.

The Kimberly and Gold Crest mines are near the southern edge of a schist and quartzite roof pendant enclosed by granitic rocks of the Idaho batholith. The Leadville Mine is in granitic rocks to the east of the roof pendant (May, 1984). The ore is in quartz veins, and the original workings were from areas where the vein was hosted by granitic rocks (Lorain, 1938). There are two parallel veins on the Kimberly claims. The Crystal vein runs approximately beneath the Kimberly camp. It strikes N. 75° W. and dips 30° S. The vein is at least 4 feet thick and is composed of vuggy quartz and iron oxide. It has been explored by two tunnels. A 600-foot adit, which is caved at the portal, was 1,000

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

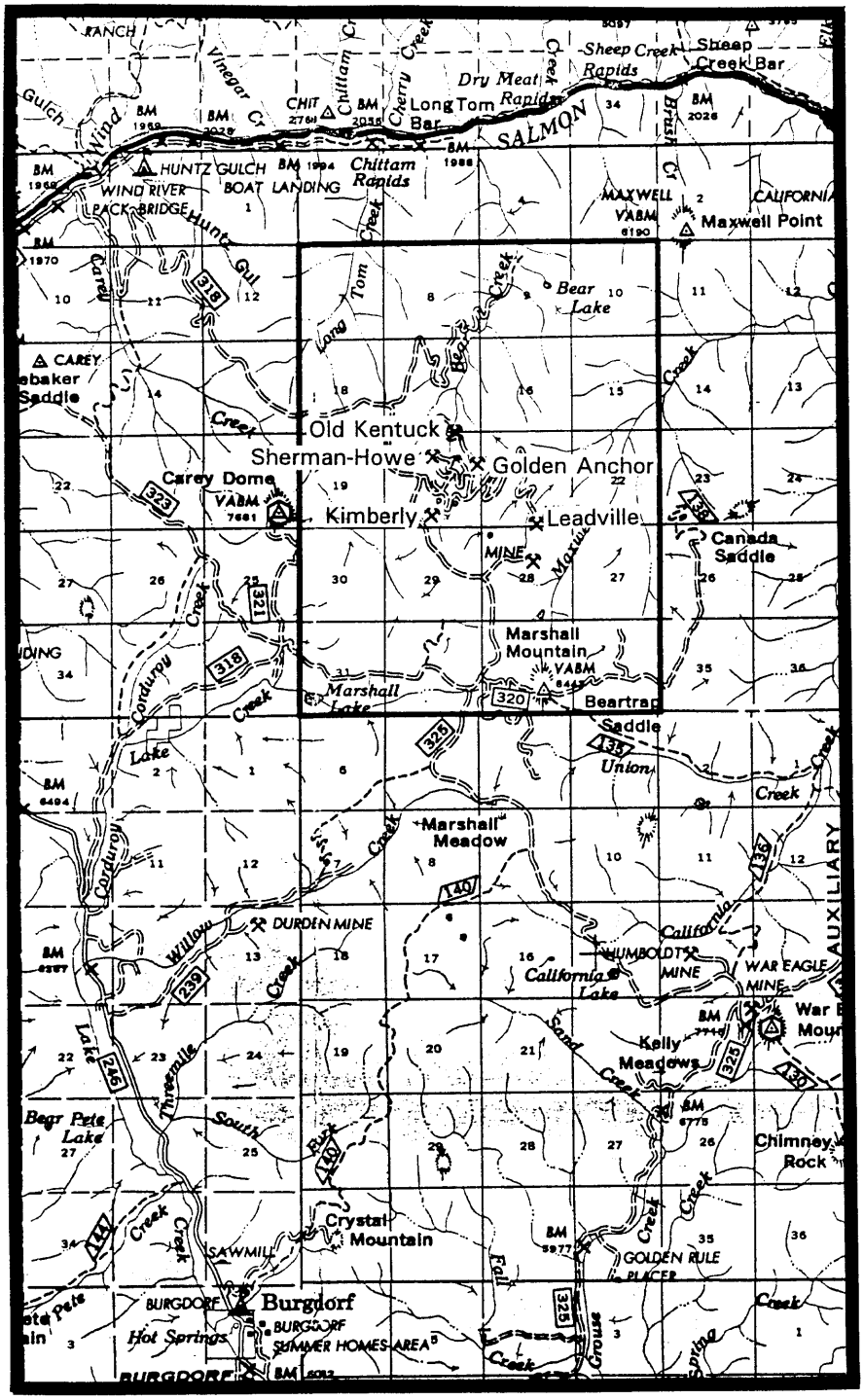

Figure 1. Marshall Mountain area and vicinity, southern Idaho County, Idaho (U.S. Forest Service, 1966, Payette National Forest planimetric map, scale 1 inch = 2 miles).

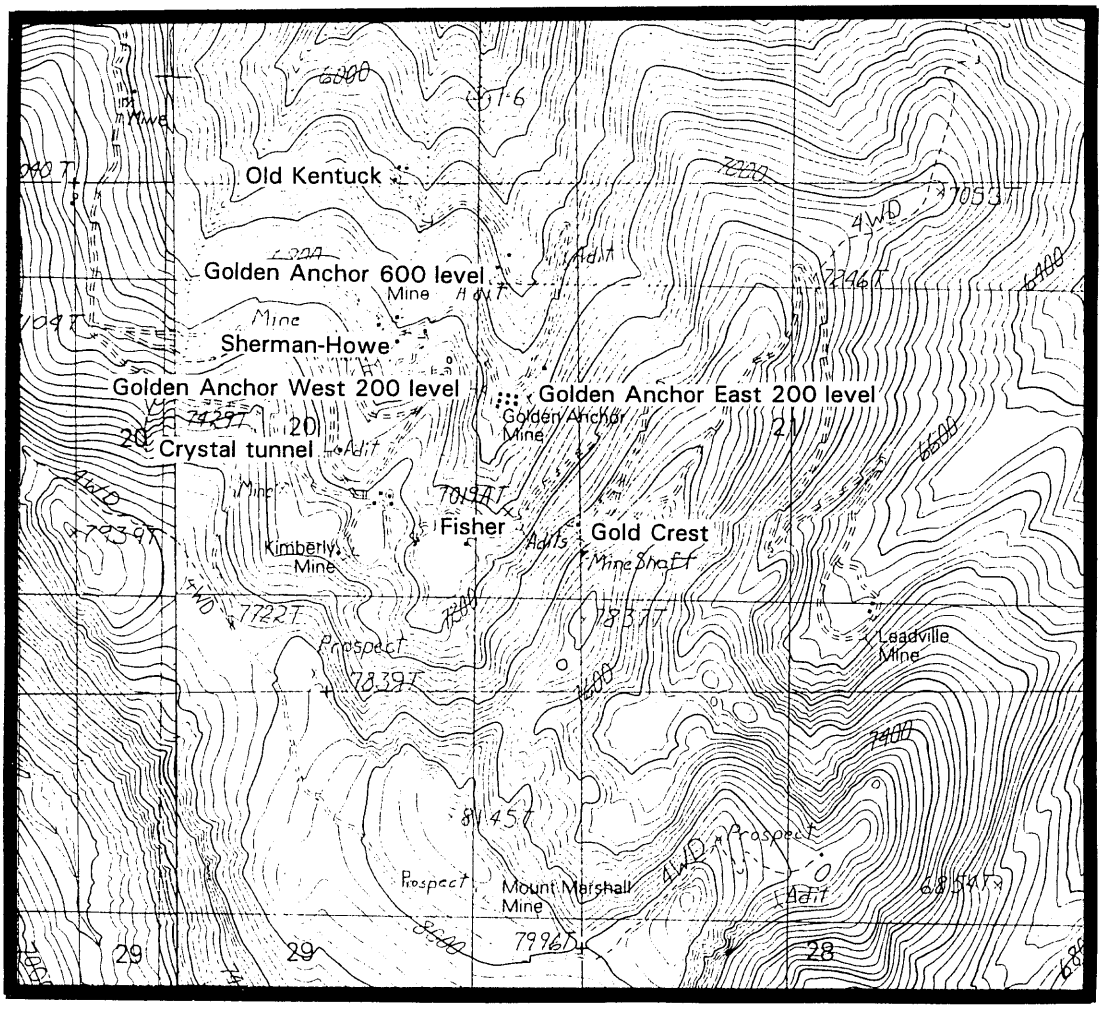

Figure 2. Topographic map of the Kimberly Mine and vicinity (U.S. Geological Survey Johnson Butte and Carey Dome 7.5-minute topographic maps).

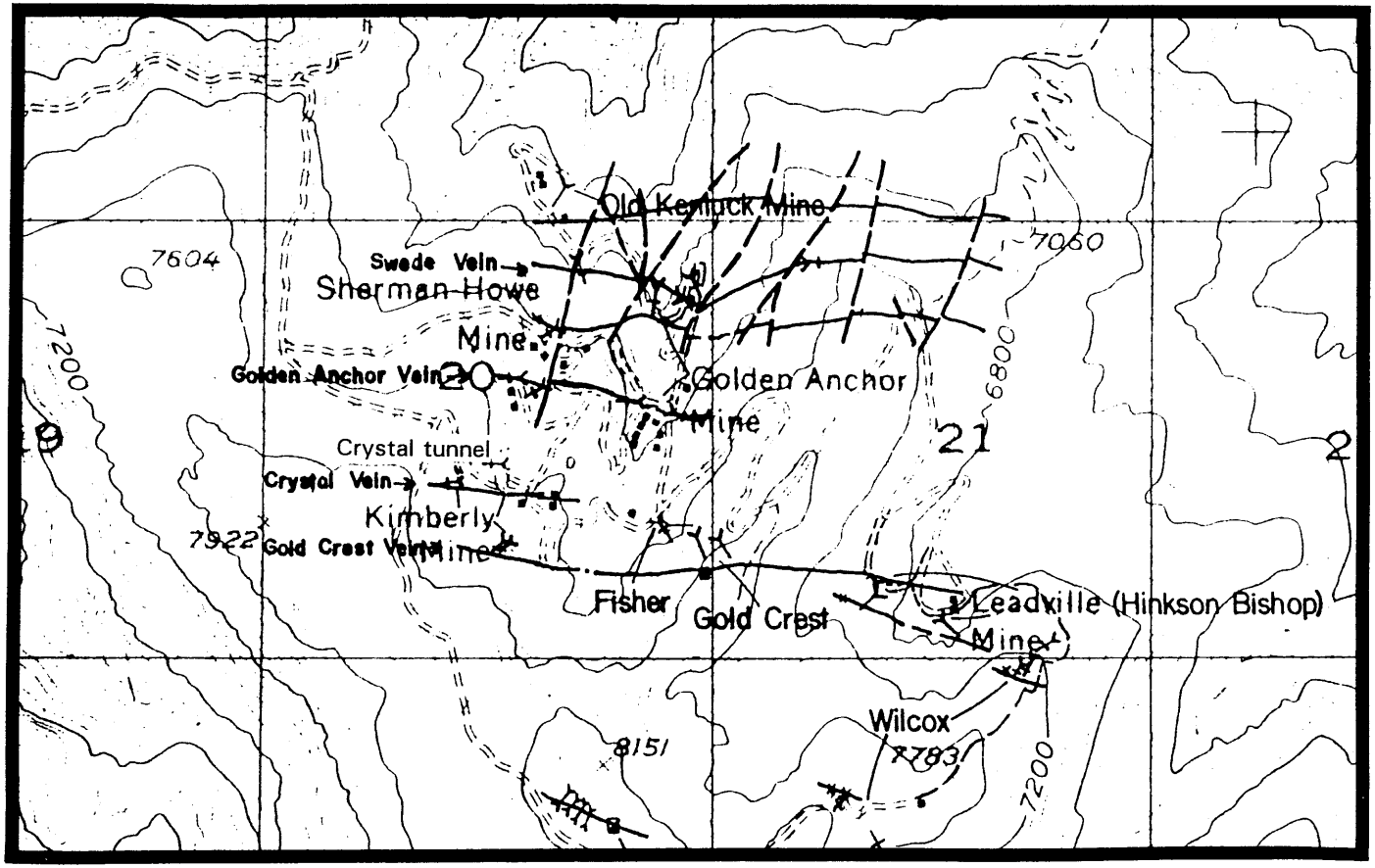

Figure 3. Location of the major veins in the Marshall Lake district (May, 1984, Plate III).

feet west of the Kimberly camp. The Crystal tunnel was driven from the millsite through the Crystal vein to intersect the western part of the Gold Crest vein. Several drifts and crosscuts explore the vein in this area (May, 1984).

The Gold Crest vein strikes N. 80° W. and dips between 55° and 80° S. (Lorain, 1938; May, 1984). The original Kimberly workings were two adits and a stope that reached the surface near the southwestern side of West Twin Lake. The Fisher and Gold Crest adits explore the middle segment of the Gold Crest vein. The original Fisher tunnel is caved and covered by the dump of the new Fisher adit, which was started by Summit Silver in the 1970s. The Gold Crest No. 2 tunnel was rehabilitated in the 1970s and is about 540 long where it reaches the vein (Figure 4). Uphill from the Gold Crest No. 2 is an inclined shaft and a partially caved adit (probably the Gold Crest No. 1). On the Hinkson-Bishop, or Leadville, property, shallow trenches and two adits explore the eastern end of the Gold Crest vein. As of 1980, both adits were caved. In addition, two adits and a shaft explore the Hinkson-Bishop vein, which is south of and parallel to the Gold Crest vein. Summit Silver rehabilitated the Hinkson-Bishop No. 1 adit in 1980 (Figure 5). The vein in the adit consists of white to iron-stained quartz with locally abundant galena, sphalerite, and pyrite. The sulfides commonly occur in stringers or in bands less than an inch wide. The west Hinkson-Bishop adit is also open (May, 1984).

KIMBERLY MINE

The Kimberly claim was located 150 feet north of Twin Lakes on September 25, 1900, by George Conners, Dan LeRoy, A.A. Easton, W.A. Scott, and George A. Wright. (Table 1 lists the companies and individuals operating at the Kimberly Mine.) The five men also located three other claims in the vicinity of Twin Lakes in August and September 1900 (Figures 2 and 3). In 1901, the men staked several claims, known as the Jewel Group, along Bear Creek a couple of miles north of the Kimberly. They organized Kimberly Gold Mines, Inc., to operate the two groups of claims. Conners and Wright installed a two-stamp mill on the Jewel property, and considerable rich, free-milling gold ore was processed, earning the miners a substantial profit. Conners also earned an additional $700 from ore he mined from the Kimberly and crushed with a hand mortar. Ore from the Jewel Group averaged $50 per ton in free gold, and an additional $500 to $1,000 per ton came from the concentrates (Murray, 1979).

Extensive work was done on the Jewel Group in 1902. Two adits were opened on the Jewel claim and one on the Belle Orr. The mill operated for most of the year. The profits were apparently sufficient to purchase a new ten-stamp mill and concentrating tables, and to cover the cost of blocking out enough ore to justify the new equipment (Murray, 1979).

The 1903 IMIR (p. 82-83) described the Marshall Lake district and included a specific reference to the Kimberly:

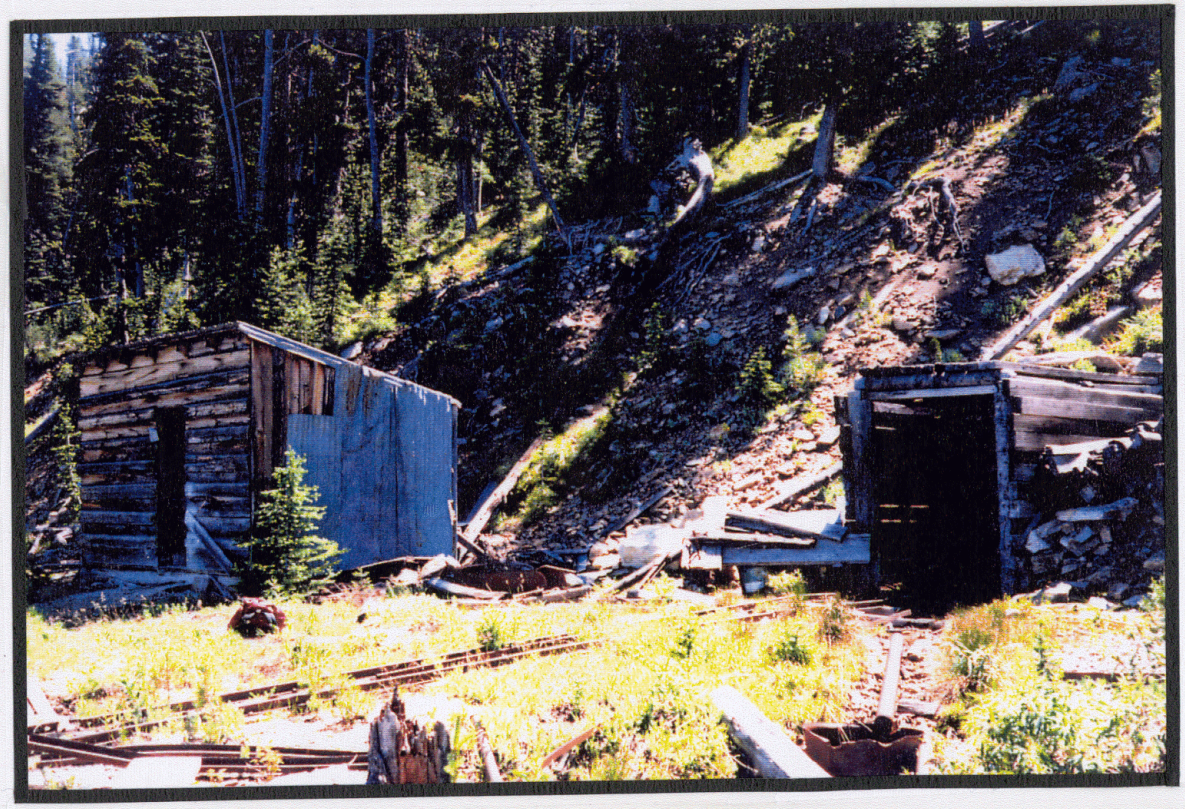

Figure 4. Gold Crest No. 2 adit above the Kimberly Mine (Fisher Tunnel; photograph by Earl H. Bennett, Idaho Geological Survey).

Figure 5. Mine adit at the Leadville (Hinkson-Bishop) Mine (photograph by Earl H. Bennett, Idaho Geological Survey).

Table 1. Companies and individuals operating at the Kimberly Mine.

Name	Officer	Date Incorporated	Charter Forfeited	Year(s) at Mine
George Conners (¼ interest after 1907); heirs after 1911	—	—	—	1900-1907; 1907-1911; 1911-1913
Dan LeRoy	—	—	—	1900-1939
A.A. Easton	—	—	—	1900-1907
W.A. Scott	—	—	—	1900-1904
George A. Wright	—	—	—	1900-1907
Kimberly Gold Mines, Inc.[1]	[2]	[2]	[2]	1901-[3]
F.E. Robinson and Company[4]	[2]	[2]	[2]	1907-[3]
John Weber	—	—	—	1908-[3]
Sam Gerber	—	—	—	1913-1936
Gold Run Mining Co.	Clifford O. Olson, President; Daniel Flotre, Manager	August 22, 1935	Nov. 30, 1941	1937-1938
Kimberly Gold Mines, Inc.	M.T. Hokenstad, President	Feb. 21, 1938	merged with Summit Silver: 1975	1938-1975
Summit Silver, Inc.	Peter Laczay	Dec. 28, 1968	active	1975-[5]
Gold Cache, Inc. (lessee — 50%))	[2]	[2]	[2]	1983-1984
Gold Resources, Inc. (lessee — 50%)	[2]	[2]	[2]	1983-1984
Strata Mining and Exploration, Inc.	Rod Johnson, owner	[2]	active	1993-[6]
Warren Dredging Co.[7]	E.T. Fisher	(partnership)	—	1939-1942

[1]This company may have been a partnership rather than a corporation. No records of this company are available, but the similarity of the name to the later Kimberly Gold Mines, Inc., suggests the "Inc." may not have been part of this company's name.
[2]Information not available in Idaho Geological Survey's files.
[3]This date is not known, but other activities suggest it was sometime prior to 1916.
[4]This company may have been a partnership rather than a corporation.
[5]Owner of record as of 1988.
[6]Last available information was for 1993.
[7]This company operated only at the Gold Crest Mine.

The Marshall Lake district has the reputation of producing some of the finest native gold specimen ore of any camp in the State. The gneral [*sic*] formation is mica schist that is cut at right angles to its strike with well defined fissure veins. The veins are not large; they vary from one to three feet, however, and in places form into lenze-shaped shoots ten to fifteen feet wide.

These veins are filed with oxidized brown quartz and white quartz that is in places well sprinkled with iron and lead sulphides and coarse native gold. Occasional patches of soft amorphous lead gray mineral occurs in the ore which runs several thousand dollars in gold when assayed separately and may prove to be a combination of lead and tellurium.

The advantages for the rapid and economical development of the mines in this district are most exceptional. The fissure system is cut almost at right angles to its strike by the canyon to a depth of fifteen hundred or two thousand feet, developing the veins by a natural shaft, as it were, from which adit levels can be started and run in on the veins at convenitnet [*sic*] horizons on either side of the canyons, while the creek flows a large stream of water sufficient to afford fine water power, and the steep canyon slopes are well timbered, so that mining and milling can be very economically and profitably carried on, although the veins are not as large, for they carry high proportionate values, ranging from ten dollars to one hundred dollars per ton in average samples, and according to recent advice from the district several hundred pounds of ore have been extracted from the Kimberly vein which is all matted together with shreds of coarse native gold that is thought to contain values at the rate of several thousand dollars per ton in gold.

The Kimberly and Jewell group of ten claims, in which this rich discovery was made, is under bond to a responsible company of New York capitalists headed by Mr. James L. Hill, who are locally represented in Idaho by Doctor Law.

This company has already paid ten thousand dollars cash on the purchase price of the property and from present appearances the deal will be closed and a mill put up on the property in the early spring.

In March, a group of men from New York paid the owners of the Jewel and Kimberly groups $2,500 toward the $65,000 purchase price of the property. A second payment was made in June, but the deal fell through (Murray, 1979).

In 1904, Conners, Scott, and their partners located the Digger claim 1,000 feet west of West Twin Lake. This claim was later acquired by Kimberly Gold Mines (Murray, 1979).

The 1906 IMIR contained a brief description of the workings of the "Multnomah Mine" (the Multnomah was one of the claims in the Jewel Group). It stated (1906 IMIR, p. 78): "This property has been prospected to a limited extent by several short openings, and with its big blocks of float quartz gives evidence of containing ore shoots several hundred feet long that will average from two to four feet thick and twenty dollars per ton in gold."

In 1907, the Kimberly and Jewel Groups were sold to F.E. Robinson and Company of Los Angeles, California. The initial payment was $25,000. The new owners were impressed by several random samples gathered from the property that assayed between $26 and $90 per ton in gold (Murray, 1979).

In 1908, Robinson sold a one-eighth interest in the Kimberly, Red Cloud, Enterprise, Digger, and Jewel claims to John Weber for $10. Weber also purchased a three-twentieths interest of three other claims in the Jewel Group from Robinson. Limited development continued at both the Kimberly and Jewel mines during 1908 and 1909 (Murray, 1979).

The 1911 IMIR contained descriptions of the Kimberly, Jewel, and Multnomah claims. About the Kimberly, the Mine Inspector said (1911 IMIR, p. 73):

> The Kimberly vein, a short distance below the Marshall Lake vein at the head of Bear Creek, is opened on the shore of a small glacial lake by a succession of short tunnels and discloses an ore shoot 280 feet long to a depth of 160 feet that varies in width from four to twenty-two inches and has been traced along its strike by several open cuts and rich float for a distance of fully 2,000 feet. Each one of the principal openings on this property has a dump of rich ore. The largest pile is from a shallow shaft and contains 50 tons of rich looking brown honeycombed quartz. From this pile the specimen ore was hand sorted as it was mined, and 200 pounds of ore selected in this manner was crushed in a hand mortar and yielded 40 ounces native gold. The 50-ton dump was then carefully cut down and an average sample of five tons milled in a local two-stamp mill, that yielded $51 per ton to free plate amalgamation, which would add about $20 per ton to the original free gold value of the ore. The total assay values of the vein from numerous average samples is said to be $150 per ton, from which it would appear that at least one-third of the values are available to free plate amalgamation. This condition seems to be true both of the surface oxidized ore and the baser ore in the lower tunnel, where the solid white quartz is intimately mineralized with fine parallel threads and bands of lead, zinc and iron sulfides, pans well in free gold and produces concentrates containing six or seven hundred dollars per ton in gold and silver values.

The same report contained the following description of the Jewel (1911 IMIR, p. 74):

> The Jewel Vein is in a contact with a calcite reef and gneiss formation. It is 18 inches to three feet wide and is opened by a tunnel on the vein 75 feet long and several deep cuts. The ore shoots carry an average value of $109 per ton, and a 50-ton sample of this ore was milled that yielded $32 per ton in free gold and it concentrated at a rate of 15 or 20 tons into one, with an average concentrate value of $700 gold and 30 ounces silver per ton.

The 1911 IMIR also contained information about the Multnomah (1911 IMIR, p. 74):

> The Multnomah is another strong narrow fissure with three openings, including a 15-foot cut and a 20-foot tunnel and 100-foot cross-cut tunnel which intercepted the vein at a depth of 100 feet. This vein has an average width of two feet carrying some schisty and talcy gouge accompaniments. The average value of the quartz in these openings run from $30 to $50 per ton, and all the openings on both this and the Jewel mine have produced coarse gold specimen ore that would assay anything you wanted it to by close enough selection up to a pyramid crystal of pure gold in pieces weighing up to one-fourth ounce.

There was little activity except for assessment work in the Marshall Lake district between 1912 and 1914 (Murray, 1978). The 1913 IMIR credited the Kimberly mine with producing 50 tons of ore from a 50-foot shaft; this ore ran $70 per ton in gold, which was recovered by amalgamation. The description is strikingly similar to that from the 1911 IMIR, which suggests that the Mine Inspector may have been repeating the 1911 report rather than describing 1913 activities. In 1913, George Conners's heir (Conners died in 1911) sold Sam Gerber a one-quarter interest in the Kimberly and Jewel Groups for $1.00 and "other good and valuable considerations." Gerber also obtained a one-fifth interest in the Multnomah and three other claims in the same transaction (Murray, 1979).

Exploration continued on the Jewel and Multnomah claims in 1915 (Murray, 1979). The 1916 IMIR (p. 38) stated that the Kimberly was "particularly noted for magnificent native gold specimen ore." In the fall of 1916, the Kimberly Group was bonded by Sam Gerber and Dan LeRoy in preparation for working the property the following spring. In

1917, Gerber and LeRoy negotiated with a Philadelphia company who wanted to buy the Kimberly and Jewel Groups (Murray, 1979). The deal apparently fell through.

Except for exploration and annual assessment work, little was done at the Kimberly for the next twenty years. In 1929, Dan LeRoy sold Sam Gerber an undivided three-tenths interest in the Multnomah and three nearby claims. Several cabins were built at the Kimberly during the early 1930s (Murray, 1979). In 1936, Sam Gerber and Dan LeRoy exchanged interests in their properties. Gerber traded all rights to the Kimberly for a clear title to the Jewel and Multnomah Groups, while LeRoy received sole possession of the Kimberly (Murray, 1979).

In 1937, the Gold Run Mining Company obtained a lease on the Kimberly from Dan LeRoy. (Gold Run had leased a property on Union Creek the previous year.) The lease and bond cost the company $24,500. The company estimated that about 3,000 tons of ore had been blocked out on one of the veins in the mine and was ready for stoping. (See Table 2 for development work and men employed at the mine.) Plans called for milling the ore at the Sherman Howe Mill. Gold Run hired sixteen men to erect camp facilities at the Kimberly and to build a road to the mine (Murray, 1979). In September 1937, ore was being mined from open, overhand stopes. The ore shoot was about 270 feet long, with an average width of 12 inches, and was being worked through a short adit and a crosscut on the vein (Lorain, 1938).

Kimberly Gold Mines, Inc., was organized in early 1938, and the new company took over operation of the mine. About 220 feet of development work was done during the year, and improvements were made to the camp. Of the 1,500 feet of workings on the property, the longest tunnel was 370 feet. Work in 1939 consisted mostly of surface trenching, repairing buildings and equipment, and rehabilitating the mine workings. The company purchased the property from Dan LeRoy during the year for $70,000.

Work in 1940 included running a tunnel on the Digger (Gold Crest) vein, which averaged about 10 feet thick in that area. In April, the company started the Crystal tunnel from a site 200 feet lower than the other tunnels. A 50-ton-per-day (tpd) flotation and amalgamation mill was built at the mouth of the Crystal tunnel (Figure 6). In addition to the new mill, the company also constructed a combination office and living quarters for the mine superintendent, a new compressor house, and a new blacksmith shop. Plans called for expanding the mill capacity to 100 tpd.

The new mill started operation in June 1941. Ore that assayed $75 per ton was mined and processed through the mill. This ore came from the lower levels of the mine (Murray, 1979). At that time, the Crystal tunnel was 1,039 feet long. The Digger tunnel was 600 feet long, and the Kimberly Nos. 1 and 2 tunnels were, respectively, 240 and 360 feet long. There were approximately 2,750 feet of workings on the property.

The Jewel Group produced ore during the year and during the following year. The mine was worked by Sam Gerber until his death in 1945, and as of 1979, the property was still held by his widow (Murray, 1979).

Table 2. Development work, number of men employed, and operating companies at the Kimberly Mine, by year.

Year	No. of Men Employed	Tunnels (feet)	Sinking (feet)	Cross-cutting (feet)	Drifting (feet)	Other (feet)	Operator
1937	4	—	50	—	110	—	Gold Run Mining Co.
1938	12[1]	—	—	—	220[2]	—	Kimberly Gold Mines, Inc.
1940	6	300	—	53	—	—	Kimberly Gold Mines, Inc.
1941	12	1,300	—	100	300	—	Kimberly Gold Mines, Inc.
1942	10	350	116	150	605	—	Kimberly Gold Mines, Inc.
1949	6	400[3]	—	565	—	—	Kimberly Gold Mines, Inc.
1950	5	—	—	—	366	—	Kimberly Gold Mines, Inc.
1951	5	—	—	—	—	1,191[4]	Kimberly Gold Mines, Inc.
1952	3	—	—	—	178	—	Kimberly Gold Mines, Inc.
1953	3	—	—	200	300	—	Kimberly Gold Mines, Inc.
1954	2	—	—	100	125	—	Kimberly Gold Mines, Inc.
1955	5	30	—	—	50	—	Kimberly Gold Mines, Inc.
1956	5	—	—	—	100[5]	—	Kimberly Gold Mines, Inc.
1957	6	—	—	—	100	110[6]	Kimberly Gold Mines, Inc.
1958	6	844	—	—	130	—	Kimberly Gold Mines, Inc.
1959	6	300	—	—	100	—	Kimberly Gold Mines, Inc.
1960	14	466	—	—	500	—	Kimberly Gold Mines, Inc.
1961	30	450	—	—	—	—	Kimberly Gold Mines, Inc.
1963	3	—	—	89	—	—	Kimberly Gold Mines, Inc.
1964	3	130	—	—	—	—	Kimberly Gold Mines, Inc.

[1]The men were employed during the summer only.
[2]This number is a combined figure for drifting and raising.
[3]The work on the tunnels may have been repair and rehabilitation only.
[4]Diamond drilling.
[5]Work was done on the Holte tunnel of the Gold Crest property.
[6]Raising.

Figure 6. Kimberly mill, probably soon after it was constructed. Note absence of trees around building (Murray, 1979, p. 84).

Development work continued at the Kimberly in 1942, and the company listed income from smelter returns of $267 for the year. War Production Board Limitation Order L-208, issued October 8, 1942, closed all "nonessential" (gold) mines for the duration of World War II. The mine remained closed until 1947. In 1943, the company sold off their truck (a ¾-ton Chevrolet), some machinery, and powder. Roofing material was sold in 1944, and more machinery was disposed of in 1945.

In 1948, the company repaired the camp buildings, which had been damaged by heavy snow. A geological survey was conducted to prepare for reopening the mine that summer. During 1949, the company cleaned out caved tunnels and did 565 feet of crosscutting to intersect the orebodies at depth. However, the company was forced to suspend operations on November 1 because it was unable to hire competent miners. Plans were made to resume operations when road and weather conditions permitted.

In 1951, the company did 1,191 feet of horizontal and vertical diamond drilling. Plans were made to crosscut to the drill intersections when operations resumed. During 1952, a portion of the main haulage tunnel was retimbered, and a new water system was installed. The company purchased an Eimco-Finlay mucking machine, drifters, and a stoper. Development work on the orebody continued.

The company remodeled the office building and overhauled the water system in 1953. About 100 feet of tunnels were retimbered, and the miners advanced about 250 feet into the face of the vein. There were approximately 4,000 feet of workings on the property.

In 1954, Kimberly Gold Mines leased the Gold Crest Group from James Harris and Albert Ryland. The company leased the Leadville Group from Messrs. Hinkson and Bishop the following year. According to Murray (1979), these claim groups were later purchased from their owners by Kimberly Gold. A new crusher was installed in the mill in 1955.

Development work in 1956 concentrated on the Holte tunnel of the Gold Crest property. The company also rehabilitated one cabin for living quarters and constructed a large supply and equipment shed.

Work in 1958 included building two ½-mile-long access roads and constructing compressor and storage houses. In addition, the company purchased an amalgam barrel, drying pans, and a loader. Development work totaled 974 feet during the year. Sale of gold produced while testing the milling process earned the company $3,929. Between 1955 and 1958, equipment purchased had increased the capacity of the mill from 50 tpd to 100 tpd.

Development work continued in 1960 and 1961. The mine produced in 1960, and enough ore was blocked out to supply the mill for 2 years. An assay office was set up in 1961.

The mine did not operate in 1962. (The 1961 IMIR stated that the mine ceased operations in October 1960; this is contradicted by the company's reports of work done in 1961. Suspending operations in October 1961 would be consistent with the company's reports to the Idaho Mine Inspector.) Exploration and development work continued from 1963 to 1966. Except for assessment work, the mine was inactive for the next decade.

GOLD CREST (FISHER) MINE

The Gold Crest Nos. 1-3 claims were staked by Andrew R. Joughin in July 1928. The claims are just below the outlet of East Twin Lake (Figure 2; East Twin Lake is to the east of the Kimberly Mine). These claims were later acquired by Hans Holte and James Harris. Harris and Holte located the Gold Crest Nos. 4-7 in May 1936 on the ridge east of the lake. Their heirs later sold the claims to Kimberly Gold Mines (Murray, 1979).

In 1939, E.T. Fisher of the Warren Dredging Company (a partnership which operated a dredge in Warren Meadows) and a crew of fifteen men explored the Gold Crest (Figure 3). The crew drove a crosscut 800 feet during the year, and plans called for doing another 2,000 feet of work to prove the reserves on the property. The exploration work continued in 1940, and the mine produced ore in 1941 and 1942. The property was leased by Kimberly Gold Mines in late 1953 or early 1954 and has been part of the Kimberly operation ever since.

HINKSON-BISHOP (LEADVILLE) MINE

The Hinkson-Bishop, or Leadville, Mine is at the head of Maxwell Creek at the eastern end of the Gold Crest vein (Figures 2 and 3). The deposit is hosted by granitic rocks of the Idaho batholith (May, 1984), although the vein is near the contact between the granite and a mafic dike. It has a strike of N. 85° E., and dips 40°-60° south. The ore contains galena, sphalerite, pyrite, and free gold (Lorain, 1938).

Jess Bradley staked the Leadville No. 1 claim in 1907. The Leadville No. 2 was discovered by Harry Hinkson and Arthur C. Bishop on July 1, 1910. Hinkson and Bishop staked additional claims in 1917 (Murray, 1979).

In 1926, the Leadville property produced a little gold ore, which was treated in a two-stamp amalgamation mill. The ore was mined from a crosscut driven at the 300 level of the mine and was reported to have assayed $100 per ton. Hinkson and Bishop continued to develop the mine in 1927 (Murray, 1979).

The Leadville Group produced 31 tons of gold ore in 1928. Small amounts of ore were also produced in every year between 1929 and 1934, except for 1932. According to Murray (1979), most of the mines in the district did not operate during 1932. Although the price of gold was fixed by the government, the prices for all other metals hit all-time lows in 1932, a factor which affected the profitability of the silver and other metals produced in addition to the gold.

Hinkson and Bishop did a little work on the property in 1936 (Murray, 1979). In 1937, they did 100 feet of drifting and raising on the vein. This work blocked out a body of milling ore. Some ore was produced from the mine in 1939 and in 1942.

Lorain (1938) visited the mine in 1937. At that time, 343 tons of ore had been mined from a stope about 80 feet long. The stope was worked through an adit driven from the mill level. The milling operation was described as follows (Lorain, 1938, p. 72):

The mill, which was housed in a 15- by 25-foot log building, consisted of two 850-pound stamps and a 4- by 7-foot amalgam plate. The stamps were set for a 5-inch drop at 90 drops to the minute; they crushed about 6 tons of ore per 24 hours to pass through a 30-mesh screen, or about 4 tons through a 40-mesh screen. Screens were set about 5 inches above the dies.

Tailings from the amalgam plate were carried by launder to another building and passed over a Wilfley table, which produced a $170 concentrate and a final tailing.

A recovery of about 70 percent was made by amalgamation alone; of this, 50 percent was recovered inside the battery and 20 percent on the plates. Tests run by a well-known ore-testing laboratory indicated that the gold was 80 percent free at 150 mesh. The gold is 670 to 680 fine.

The Wilfley table recovered 25 to 35 pounds of concentrate per ton of ore treated; laboratory tests indicated that by grinding to 150 mesh and floating about 75 pounds of concentrate would be recovered per ton of ore treated. A smelter assay of the current table concentrate was as follows:

Gold	ounces per ton	5.04
Silver	do.	7.40
Lead	percent	4.9
Insoluble	do.	30
Zinc	do.	4.3
Sulphur	do.	28.8
Arsenic	do.	.8
Iron	do.	24.8
CaO	do.	1.8
Antimony	do.	.3

Hinkson and Bishop apparently did nothing more than assessment work after World War II. The property was leased by Kimberly Gold Mines in late 1954 or early 1955. It has been operated by Kimberly ever since.

SUMMIT SILVER, INC.

In 1975, Kimberly Gold Mines, Inc., merged with Summit Silver, Inc. For the next several summers, Summit Silver employed a small crew to conduct exploration and development operations (at least until 1980). Summit Silver's efforts were concentrated on the Hinkson-Bishop and Gold Crest properties (May, 1984).

In 1983, Gold Cache, Inc., leased the nearby Golden Anchor Mine. (Gold Cache had previously leased the Kimberly.) In August, Gold Cache entered a joint venture with Gold Resources, Inc., to evaluate both the Kimberly and Golden Anchor mines. Gold Resources' geologists began examining the two mines.

Exploration work continued through 1984. Plans called for processing tailings from both mines during the year using a heap-leach method. Development work completed on the Kimberly since 1979 included driving the new Fisher tunnel (Figure 7) over 600 feet and reopening the Hinkson-Bishop No. 2 tunnel.

Summit Silver continued its exploration program at the Kimberly Mine in 1987. The company planned an underground drilling program for 1988. In 1993, Strata Mining and Exploration, Inc., a privately held company, explored a number of mines in the

Figure 7. Portal of the new Fisher adit at the Kimberly Mine (photograph by Earl H. Bennett, Idaho Geological Survey).

Marshall Lake district. Geophysics and remote sensing were used to extend the gold veins and trace offset segments. A 100-tpd gravity mill was constructed (Figure 8), and underground drifting and sampling was started along the Gold Crest vein. The results were encouraging and more work was planned for the next year.

Total recorded production between 1901 and 1957 from the Kimberly Mine and its associated properties is 5,501 tons of ore (Table 3). This material yielded 1,357 ounces of gold, 1,215 ounces of silver, and 1,501 pounds of lead. These numbers represent a minimum for the ore produced from these mines, because the record for the Leadville (Hinkson and Bishop) property is the only one that shows a reasonable correspondence between ore shipments and activity at the mine. Even after allowing for exaggerations on the part of the Idaho Mine Inspector, early production from the Kimberly seems greatly underreported, and production from the Jewel Group was not recorded before 1940. Also, in the period after World War II, production from any of these mines was reported in only two years (1957 and 1960). Although post-World War II activities were mostly confined to exploration, the mismatch between activity and ore shipments suggests that any ore produced as a byproduct of the exploration went unreported. Finally, no records are available for production (if any) from operations by Summit Silver, Gold Cache, or Gold Resources.

Figure 8. Rebuilt Kimberly mill, which contains a 100-tpd flotation mill (photograph by Earl H. Bennett, Idaho Geological Survey).

Table 3. Total production from the Kimberly and related mines.

Mine	Ore	Gold (ounces)	Silver (ounces)	Lead (pounds)
Kimberly Mine (1901-1960)	2,697	399.72	315	200
Jewel Group (1940-1942)	322	218	229	792
Gold Crest Mine (1934-1957)	1,986	483.39	531	159
Leadville Group (1920-1942)	496	256.24	140	350
TOTAL	5,501	1,357.35	1,215	1,501

References

Idaho Geological Survey's mineral property files (includes copies of company reports to the Idaho Inspector of Mines).

Idaho Geological Survey's (IGS) reports on regional developments in minerals, mining, and energy in Idaho, 1975-1992.

Idaho Inspector of Mines' annual reports (IMIR) on the mining industry of Idaho, 1899-1970.

Lorain, S.H., 1938, Gold mining and milling in Idaho County, Idaho: U.S. Bureau of Mines Information Circular IC-7039, 84 p.

May, T.P., 1984, The geology of a portion of the Marshall Lake district, Idaho County, Idaho: University of Idaho M.S. thesis, 101 p.

Murray, S.A., 1979, The Marshall Lake mines: their history and development: University of Idaho M.S. thesis, 97 p.

U.S. Geological Survey (USGS)/U.S. Bureau of Mines (USBM) Minerals Yearbook chapters for Idaho, 1900-1990.