

## Custer County

### Central Custer County Mining Districts - Hardscrabble, Silver Cliff, Querida, Rosita Hills

Mining around the towns of Westcliffe and Silver Cliff occurred in mining districts variously called the *Hardscrabble*, the *Silver Cliff* or the *Westcliffe Districts*. Nearby - less than three miles to the southeast - mines were developed in the *Rosita Hills* or *Querida District* around the town of Rosita.

Deposits in both these areas occur in the same general geologic environment, originating from volcanic activity during the Oligocene Epoch, 32 to 26 million years before present (Steven, 1975). Mineralizing fluids were generated in a volcanic center - possibly beneath a single modest-sized volcano - during that time. Lava flows and tuffs were erupted onto the surface while super-heated fluids originating in the magma chamber below circulated through the rocks, depositing gold, silver, lead, zinc and copper. The feature is referred to as the Silver Cliff volcanic center.

The volcanic system formed several different types of deposits. Early fluids deposited silver ores rich in manganese in vugs and open spaces in rhyolite lava flows, probably on or near the surface at the time of the deposition. Later, fluids and superheated vapors permeated the rocks to deposit silver and base metals (predominantly lead, along with zinc and copper) in faults, fissures and other cracks in the rocks. During the late stages of the volcanic activity an explosive eruption blasted through the overlying rock, creating a pipe or chimney of rubble, providing a pathway for mineral-rich fluids to deposit gold, silver and other metals in the resulting breccia chimney.

After the main period of volcanism, the upper elevations of the volcano collapsed to create a caldera. More magma pushed up from below, leaving bodies of magma to slowly solidify beneath the now-quiet volcano as plutons.

The original discovery of silver was made in 1870. That brought on a wave of exploration and numerous mines were developed in the succeeding 20 years. The largest was the Bassick Mine, developed in the brecciated chimney at the northern edge of the old caldera. From 1872 to 1923, the two districts produced an estimated \$7 million worth of silver, lead, zinc, copper and gold. Most of the mines were exhausted in a few years, although the Bassick and several other smaller ones continued producing, some through the Korean War years. (Feldman & Crowley, 1980).

Geologists have recognized that the center remains a promising area for further exploration. Although much silver and other metals were recovered from the area but volcanic centers of this type with caldera are some of the most prolific silver producers known. (The Creede Caldera in Mineral County is a prime example.) Of particular interest at Silver Cliff is the recognition that metallurgical recovery from extremely rich silver ores left a lot of silver behind. Hildebrand, et al (1974), refer to individual samples reported to assay at several thousand ounces of silver per ton. Emmons, on his visit to the area in 1895, commented that ore of 20 to 30 ounces per ton Ag was being discarded as "lower grade" and "un-economic" (Emmons, 1896). Hildebrand's team found that much of the silver was contained in a complex ore with manganese that the processes of the day could not effectively treat.

The richest mines in the districts were the Bassick and the Bull Domingo. As noted, the Bassick tapped a breccia chimney at the edge of the caldera. The Bull Domingo tapped a second chimney a few miles north of the main volcanic complex. Both pipes were formed the Silver Cliff volcanic activity. Neither of these mines explored the full depth of the breccia chimneys. The extremely rich ore was mine to about 1400 feet at the Bassick and to only 550 feet at the Bull Domingo.

Several U.S. mining companies developed drilling programs in the area of the Silver Cliff volcanic complex in the 1960s and 70s. We have no record of their findings. They based their program on the fact that historically, only shallow ores were mined. Many geologists feel that mineral-rich veins continue to much greater depths than were explored in earlier years. Deeper veins, continuation of the chimneys, and the potential existence of underlying plutons (former magma chambers) are viewed as potential deposits of copper and molybdenum, in addition to silver (Sunshine Mining Company files.)

The multiple ownership of land parcels in the Westcliffe-Silver Cliff-Rosita area has been recognized as a potential problem. Consolidating land positions can present a deal-breaker for exploration and mining. Nonetheless, the old districts are believed to contain lots of silver still.

### **Production**

Estimated production of gold from 1872 to 1980 from the Westcliffe/Silver Cliff District is 100,000 ounces; from the Rosita Hills District, 25,000 ounces. Custer County as a whole has produced 4,744,339 ounces of silver, 626,825 pounds of copper, 41,916,696 pounds of lead and 1,907,627 pounds of zinc. (Figures for the 1960s are combined with other counties, so the number above is a minimum production.) Data specific to the districts is limited to a small period of time in the 20th century, but it is certain that nearly all the totals for Custer County come from the two districts.

As for number of mines operating, in the twentieth century, the Westcliffe/Silver Cliff District saw a peak of ten producing mines in 1940; the Rosita Hills District showed 4 producing mines in 1936.

### **Mines/Prospects/Claims**

The Colorado Geological Survey has identified the following properties and added them to the Mineral Resources Data System, operated by the U.S. Geological Survey.

**Westcliffe/Silver Cliff/Hardscrabble District**

Belfast Claim	Hoza Ranch	Plata Verde Mine
Ben West Hill Prospect	Immortal Mine	Pocahontas Mine
Boulder-Buffalo	Jay Gould Mine	Preston Gold Mine
Bull Domingo Mine	Jit Prospect	Racine Boy Mine
Carbonate Prospect	Kate Mine	Round Mountain Prospect
Dakota Maid	Keystone Mine	Songbird Mine
Deceiver	King of Carbonates Mine	Stephen Prospect
Defender	King of the Valley Mine	Vanderbilt Mine
Dolly Varden		Wild Cat Mine
Geyser	Lady Franklin Mine	
Green Mountain Deposit	New Hope	
Herman Passiflora Mine	New Pit Prospect	

**Rosita Hills/Querida****District**

Alexander Shaft	Good Hope Mine	Peerless Mine
Barite Lode	Gray Eagle Mine	Pioneer Mine
Bassick Mine	Hard Cash Deposit	Polonia Shaft
Belcher Prospect	Hector Prospect	Poorman Shaft
Ben Franklin Prospect	Harton Mine	Powhatan Prospect
Big Stake Nickel Deposit	Humboldt Mine	Quaker City Mine
Bonanza Mine	Indiana Prospect	Racer Mine
Broad Axe Prospect	Invincible Shaft	Rappahannock Prospect
Bullion Prospect	Iron Mountain Mine	Red Spring Tunnel
California Shaft	Julianna Mine	San Francisco Mine
Caroline Tunnel	Keepsake Mine	Sedgwick Shaft
Del Monte Prospect	King Prospect	Seneca Tunnel
Delaware Mine	Lizzie Mae Prospect	Silver Horn Mine
Democrat Hill Prospect	Lucille Mine	Silver King Shaft
Dinero Prospect	Mapleton Shaft	Star Mine
Dirigo Prospect	Matchless Prospect	Summit Mine
East Leviathan	Maverick Mine	Sunset Shaft
Elizabeth Prospect	Michigan Prospect	Transylvania Tunnel
Empire State Shaft	Mountain Boy Mine	Twenty-Six Shaft
Eureka Shaft	Mountain View Mine	Victoria Tunnel
Fiskdale Prospect	Nebraska Shaft	Virginia Mine
G.W. & Antrim Claims	Nellie Mine	West Leviathan Mine
Game Ridge Mine	New Pit Prospect	Zebra Project
Globe Prospect	New Shaft	
Golden Age Prospect	New Year Prospect	
Golden Gate Mine	Ophir Mine	
Golden King Shaft	P & O Mine	

## References

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Sunshine Mining Co. Colorado exploration files, unpublished data, Colorado Geological Survey.