

## Saguache County

### Bonanza District (aka Kerber Creek District)

Dunn (2003) follows the example of Henderson (1926) in identifying the Bonanza District with the Kerber Creek District. She describes it as occupying 17-18 square miles, overlapping with the **Clover Creek** and **Silver Creek Districts** (which we do not discuss). Vanderwilt's (1947) preferred name is the Kerber Creek District, occupying the area surrounding Kerber Creek in the Cochetopa Hills at the northwest end of the San Luis Valley.

Burbank (1947) provided a detailed description of the district in Vanderwilt's volume (Ibid), and both Patton (1915) and Burbank (1932) discussed the district in detail. Cappa and Wallace (2007) provided a summary and maps. These are synthesized in the following description of the district. Additional references include: Hill (1909) and Steven and Lipman (1976).

Rocks of the district include Tertiary volcanics upon Precambrian rocks, with infolded synclines of Paleozoic sediments. The Precambrian rocks consist of granites, gneisses and schists. These are overlain by Paleozoic sedimentary rocks ranging from the Manitou Limestone and Harding Quartzite (Ordovician) to the Sangre de Cristo formation (Pennsylvanian-Permian). On top of this is a thick sequence of volcanics (at least 4000 feet) of the greater San Juan volcanic field - flows, tuffs and breccias of rhyolite, rhyodacite, quartz latite, trachyandesite, and andesite.

The basal Rawley andesite/trachyandesite is 1500 feet thick, of probable Eocene age (Van Alstine, 1975) and is the most productive ore zone. Lead-silver deposits were the first ores mined, as veins were discovered along Kerber Creek in 1879. The mining town of Bonanza (still extant, albeit very small) grew up to support the industry. The 6200 feet-long Rawley tunnel in 1911-12 improved output from the district. Most of the ore around the tunnel was mined in the years 1923-1930, when the mills were finally dismantled.

Deposits were primarily complex ores of pyrite-sphalerite-galena-chalcopyrite-bornite-enargite-tennantite-strohmeyerite in a gangue of quartz, calcite, rhodochrosite, and barite. Some bismuth occurred in cosalite. Types of deposits differed geographically. In the northern part of the district, quartz veins of high sulfide content (lead-zinc-copper-silver +/- gold) predominated; in the south quartz-rhodochrosite-fluorite veins were dominant with minor sulfide, where silver was the most valuable.

Cappa and Wallace (Ibid) point out that additional exploration was conducted in the period 1952-54 and into the late 1970s, the latter for porphyry molybdenum.

One feature of the district is the Villa Grove turquoise mine, which produced clear blue gem turquoise. It closed in 1970. The Villa Grove (Hall) turquoise mine (sec. 26, T. 47 N., R. 8 E.; pl. 1) is located in the intrusive Turquesa gabbro in the Rawley Andesite of the Bonanza volcanic complex; it was originally mined for copper as far back as the 1890's. J.S. Randall recognized turquoise minerals in 1893; however, the Villa Grove Mine was not developed for turquoise until 1936. The deposit was developed by a pit, open cuts, and underground drifts (Eckel, 1997). Pearl (1941) described the turquoise as veins and

nodules filling openings in felsite porphyry. Later workers (Mayhew, 1969) described the turquoise as a fracture filling in the Turquessa gabbro. The Turquessa gabbro visible at the mine in 2004 had a porphyritic texture and was strongly altered. The mine produced high-quality turquoise, essentially free from veining and having a sky-blue color. Peak production was in the 1940s, when turquoise sold for \$15 to \$45 a pound. Voynick (1994) mentioned that the value of the production through the 1950s was \$80,000. The mine is currently (2006) closed (Cappa and Wallace, 2007).

Mines listed in the district (mindat.org) include:

- (Rawley No. 12 tunnel; High Rock tunnel)<sup>1, 2</sup>
  - Clark vein
- Ajax
- Alder Creek
- American Mammoth
- American Revenue
- Antoro Mine<sup>1, 2</sup>
- Ashley Tunnel Occurrence
- Atlantic Mine
- Baltimore Mine<sup>2</sup>
- Bernice Prospect
- Black Bess Mine<sup>1</sup>
- Bonanza
  - Empress Josephine Mine (Empress Josephine and Boss Mammoth Claims)
- Bonanza Mine (Cornucopia Claims; Bonanza No. 1)<sup>1</sup>
- Brighton
- Broadbury Group
- Buffalo Mine
- Burlington Mine
- Chicago Mine
- Chief
- Chloride Mine (Claims: Chloride 1-4)
- Cliff Mine (Cliff No. 1 Tunnel)
- Clover Creek Dist
- Cocomongo Mine<sup>1, 2</sup>
- Colorado Belle Mine (Claim: Belle of Colorado)<sup>2</sup>
- Columbia Group
- Commander Mine (Razoo Mine)
- Cora Shaft<sup>1</sup>
- Coronet
- Cronje Tunnel
- Cross Mine (Burlington; and Japan Claims; Cross)
- Crown Point Shaft Occurrence
- Defiance
- Deming Mine (Demming Mine)
- E D Shaft
- Eagle Mine (Eagle-Hawk Mine Eagle and Hawk Claims)<sup>1, 2</sup>
- Empress Josephine Mine (Empress Josephine & Boss Mammoth Claims)<sup>1, 2</sup>
- Enterprise Group (Golden Blow Out; Claims: Silver Key; Enterprise)
- Erie Mine<sup>2</sup>
- Essie and Little Jeff Mines
- Euclid Mine
- Evening Star Mine
- Exchequer Mine<sup>1, 2</sup>
- Express Mine (Express - Headlight Mine)<sup>2</sup>
- Findley Gulch (Findlay Gulch)
- Gem City<sup>1</sup>
- Gladstone Shaft Occurrence (Chicago No. 11 Claim)
- Glennbrook Mine
- Great Depth Tunnel Occurrence (Dandy; Claims: Great Depth)
- Great Mogul Tunnel (First Chance Mine)<sup>1</sup>
- Green Bay Tunnel (Claims: Green Bay; Big Manitou; Emma; Grand View; Little Manitou)
- Gypsy Queen Mine<sup>2</sup>
- Hanover Mine<sup>1, 2</sup>
- Hayden Mountain Group

- Hornet Manganese Mine
- Hortense Mine<sup>2</sup>
- Ignacio
- Joe Wheeler Mine (Claim: Golden Wave)<sup>2</sup>
- Josephine
- Jupiter Mine
- Jureta Tunnel Occurrence
- Katie Mine
- Kerber Creek Limonite Deposit (Kerber Creek Bog Iron Deposit)
- Kerber Creek Prospect
- Keystone Mine
- Kismuth Mines
- Klondike Mine
- Legal Tender Mine<sup>2</sup>
- Liberty Mine<sup>2</sup>
- Little Bonanza
- Little Darling Mine
- Little Jenny Mine (Jennie Mine; Jenny Mine)<sup>2</sup>
- Little Manitou Mine
- Little Pittsburgh Mine
- Little Thelma Mine
- Manitou - Sunlight Mine
- Marine Lode
- Mariposa Adit Occurrence<sup>2</sup>
- May Belle Tunnel<sup>1</sup>
- May Queen Prospect (Merrimac and May Queen Claims)<sup>2</sup>
- Memphis Mine (Arkansas Shaft)<sup>1, 2</sup>
- Michigan Mine<sup>1, 2</sup>
- Minnesota Mine
- Minnie Lynch Mine<sup>1, 2</sup>
- Morning Star Mine
- Navajo Claims
- New York Shaft
- Now What Mine<sup>2</sup>
- Oregon Tunnel Mine<sup>2</sup>
- Paddy Doyle Mine
- Paragon Mine<sup>1, 2</sup>
- Payson Mine
- Pershing Mine (Pershing Manganese Mine; Saguache Manganese Mine No. 334)<sup>2</sup>
- Porphyry Peak Alunite Deposit
- Queen City Mine<sup>2</sup>
- Radcliff Mine
- Rainbow Mine<sup>1</sup>
- Rawley Mine
- Revenue Mine
- Rico Mine<sup>2</sup>
- Rosalie Mine (Rosa Lee Mine)
- Sarah D
- Schoville Group
- Senator Mine
- Shawmut Mine<sup>1, 2</sup>
- Silver Creek Mine (Silver Creek 1-3)
- Sosthenes Mine (Sosthenis Mine)<sup>1, 2</sup>
- St. Joe Mine (St. Joseph Mine)<sup>1, 2</sup>
- St. Louis Mine<sup>1, 2</sup>
- Stemwinder Mine
- Superior Mine<sup>1, 2</sup>
- Twins Mines
- Vallejo Tunnel<sup>2</sup>
- Vienna Mine<sup>1, 2</sup>
- Villa Grove Turquoise Mine (Hall Turquoise Mine; Villa Grove Mine; Turquoise Lode and Turquoise Blue Lode Claims)
- Vini-Vidi-Vici
- Wainright
- Warwick (Paddy Doyle)
- Washakee
- Whale Mine<sup>1, 2</sup>
- Wheel of Fortune Mine<sup>2</sup>
- Whitney Group
- Wide Awake Mine
- Wisconsin Adit Occurrence (Brighton Claim)<sup>2</sup>
- Yellow Type Mine
- Zero Tunnel

Notes: <sup>1</sup> Specific discussion of this mine appears in Patton (1915).

<sup>2</sup> Specific discussion of this mine appears in Burbank (1932).

Minerals listed in the district (mindat.org) include:

Acanthite	Galena	Pyrargyrite
Altaite	var: Argentiferous Galena	Pyrite
Alunite	Gold	Pyrolusite
Anatase	'Halloysite'	Quartz var: Jasper
Anglesite	Hausmannite	Rhodochrosite
'Apatite'	Hematite	Rhodonite
Autunite	Hessite	Rickardite
Barite	Hydrobiotite	Rutile
Beidellite	Jarosite	Siderite
Bornite	Kaolinite	var: Manganooan Siderite
Calcite	'K Feldspar var: Adularia'	Silver
var: Manganooan Calcite	'Limonite'	Smithsonite
Cerussite	Mackayite	Spangolite
Chalcocite	Magnetite	Sphalerite
Chalcopyrite	Malachite	Stromeyerite
Chlorargyrite	Manganite	Stützite
'Chlorite Group'	Mazzettiite (TL)	Sylvanite
'Clay'	Microcline	Tellurium
Copiapite	Molybdenite	Tennantite
Copper	Montmorillonite	Tetrahedrite
Covellite	Muscovite	Turquoise
Diaspore	var: Illite	Uraninite var: Pitchblende
Dolomite	var: Sericite	Uranophane
Empressite (TL)	Pearceite	'Wad'
Enargite	Petzite	Wavellite
Epidote	Poughite	Zincocopiapite
Epsomite	<i>Proustite ?</i>	Zunyite
Fluorite	'Psilomelane'	

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[www.mindat.org](http://www.mindat.org), accessed September 2015.