Boulder County

Jamestown (Central) District

The most comprehensive information concerning the Jamestown or Central District comes from Goddard, 1947; Lovering and Goddard, 1950, Galbraith, 1960, and summaries on Mindat.org.

The Jamestown District occupies some 36 square miles in central Boulder County. Gold was discovered in the district in 1865 and 500 prospectors soon rushed in. The first mill was erected in 1867. In 1875, telluride ores were recognized and activity increased. A big boom came in 1883 with the discovery of lead carbonate ores. In 1903, the district began to produce fluorspar. The gold price increase in 1933 brought about renewed activity again and mining for uranium continued into the 1970s. Fluorspar production continued to the mid 1970s (Blake, 1973).

The geology of the Jamestown District consists of Precambrian rocks of the Idaho Springs Formation, along with Boulder Creek and Silver Plume granites. Tertiary intrusive rocks range from alaskites to basalt. The district is centered on a quartz monzonite porplyry stock of Porphyry Mountain. Three large faults cut through the district, creating three large breccia "reefs," dike-like breccia zones.

Mineralization Lovering and Goddard (1950) recognize four basic types of deposits. Additionally, the District hosts a pegmatite province, making five distinct deposit types. Most of the deposits appear to be related to small stocks of granodiorite to quartz monzonite. The pegmatites appears to be related to the Precambrian granitic rocks (Galbreath, 1960).

Lead-silver deposits occur in veins or pipes, most into the Silver Plume granite Argentiferous galena along with tetrahedrite ("gray copper") predominates along with chalcopyrite and sphalerite in a gangue of quartz, feldspar. Some gold occurs in the chalcopyrite and pyrite.

Fluorspar occurs in veins and breccia zones, both as finely granular and coarsely crystalline aggregates. Accompanied by quartz, clays and sulfides, some of the veins also carry uraninite. The breccia zones range up to 70 feet wide and over 350 feet in length; veins occur as long as 1000 feet and from inches to 16 feet wide.

Pyritic gold veins are the third type of deposit. These feel later fissures. Quartz occurs with coarse pyrite and chalcopyrite with some galena. The fourth deposit type is the telluride veins. Up to 10 feet wide and a mile or more long, quartz predominates with some pyrite. Grades were excellent, ranging from 0.5 to 15 opt gold and 0.5 to 25 opt silver. Lovering noted in 1947 that none of the veins had bottomed.

The pegmatites of the Jamestown District are dominated by quartz, potash feldspar and plagioclase. According to Galbreath (1960), the main accessories are cerite, epidote, fluorite, allanite, muscovite, and black tourmaline.

The variety of deposit types in the Jamestown District makes it a bonanza for the variety of minerals found. Mindat.org lists 113 different minerals identified in the district. Of particular note are 17 different telluride minerals, eight rare earth-bearing minerals and three rare germanium-bearing minerals.

The telluride minerals are

altaite - PbTe;
buckhornite -$AuPb_2BiTe_2S_3$,
calaverite - $AuTe_2$
coloradoite - HgTe
hessite - Ag_2Te
krennerite - (Au, Ag) Te_2,

melonite -$NiTe_2$,
nagyagite - $Pb_5Au(TeSb)_4$,
paratellurite - TeO_2,
petzite - Ag_3SbS_3,
rickardite - Cu_7Te_5,
stutzite - Ag_7Te_4,
sylvanite - $(Ag, Au)_2Te_4$,
tellurantimony - Sb_2Te_3,
tellurite - TeO_2,
native tellurium - Te
tetradymite - Bi_2Te_2S

Rare earth minerals are the following: (REE in the formula indicates one or more of the rare earth elements)

allanite - $(Ca,REE)_2(Al,Fe^{2+}, Fe^{3+})_3(SiO_4)_3(OH)_3$
bastnaesite - $(REE)(CO_3)F$
britholite - $(Ree,Ca)_5(SiO_4,PO_4)(OH,F)$
cerite - $(Ce,Ca)_{10}(SiO_4)(OH,F)_5$
yttrofluorite - $(Ca,Y)F_2$
gadolinite - $(REE)_2(Fe^{2+}Be_2Si_2O_{10}$
monazite - $(REE,Th)PO_4$
tornebohmite - $(REE)_2Al(SiO_4)_2(OH)$

The Germanium-bearing minerals are

briartite - $Cu_2(Fe,Zn)GeS_4$
germanite - $Cu_3(Ge,Fe)(S,As)_4$
renierite - $(Cu, Zn)_{11}(Ge,As)_2Fe_4S_{16}$

Mindat.org identifies over a hundred different mines/claims/prospects within the Jamestown District. The mines on the map of Goddard (1947) include the Fourth of July, Orofino, Pine Shade, Mayflower, Hercules, P)rincess, Longfellow, Copper Blush, December, Golden Age, Eureka, Sentinel, Grand Central, Earl, Grand Union, Lily, Standard, Gladiator, Rip Van Dam, Ellen, Durias, Vanadium, Black Diamond, Nugget, Little Don, Tippecanoe, Governor Group, Roman Eagle, Thunderbolt, Grouse, Greenback, Bondholder, New Brunswick,Kicking Horse, Last Chance, John Jay, Golden Bell, Ten-Forty, Buena, Yellow Girl, Invincible, Brown Spar, Chancellor, Nations Treasure, Emmett, Buckhorn, Burlington, Alice, Crackerjack, Bessie B., Golden Cross, Red Spruce, Goldfince, McKinley, Stanley Gladstone, Argo, Mt Pleasant, Consolation, Overland, and Atlantic.

References:

Mineral Resource Data System (MRDS) - Online Spatial Data – Jamestown District

Blake, Norman R., 1973, A Summary of Mineral Industry Activities in Colorado 1971; Colorado Bureau of Mines, Denver CO.

Goddard, E.N. (1947), The Front Range Mineral Belt, in Vanderwilt, John W. *Mineral Resources of Colorado*, State of Colorado Mineral Resources Board, Denver CO.

Goddard, E. N., 1946, Fluorspar Deposits of the Jamestown District, Boulder County, Colorado: Colorado Scientific Society Proceedings, v. 15, no.1, 47 p.

Lovering, T.S. and Goddard, E.N., 1950, Geology and Ore Deposits of the Front Range, Colorado; U.S.G.S. Professional Paper 223.

Mindat.org; Jamestown District CO; accessed 19 July 2012.