

THE COMSTOCK DISTRICT.....150 YEARS LATER

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Abstract

On January 28, 1859, James Finney ("Old Virginny") and associates located placer claims on Gold Hill at the base of Sun Peak. By March or April while working the claim down through decomposed rock, gold was discovered in quartz. The Comstock district in the southern Virginia Range of western Nevada, as the area came to be known, was the first major silver-gold discovery in the United States.

The geology of the district includes Early Mesozoic meta-igneous and metasedimentary rocks intruded by Late Mesozoic granitic plutons that are unconformably overlain by Oligocene to Early Miocene silicic ash-flow tuffs and Early to Middle Miocene andesites with accompanying intrusions of andesite-diorite stocks. High sulfidation alteration accompanied the latter stages of this magmatism (~15.3 Ma, Hudson et al, in press). After a brief hiatus, andesite dikes were intruded concurrently with east-side-down normal faulting and renewed andesitic volcanism. Intermediate sulfidation precious metal mineralization of the Comstock and Silver City Lodes (14.1 Ma, Hudson et al, in press) appears to have been related to further tectonic activity but not directly to dated magmatic activity. The similar intermediate sulfidation Occidental Lode formed somewhat later (~13.4 Ma, Hudson et al, in press). Pliocene to Recent reactivation of the major structures down-dropped and preserved from erosion much of the high level alteration while exposing near the surface much of the ore mineralization.

High sulfidation alteration includes quartz-alunite, quartz-pyrophyllite-diaspore, quartz-illite, and quartz-sericite assemblages in several centers of alteration. Overprinted locally on this earlier alteration are the Comstock – Silver City and Occidental hydrothermal systems. The Comstock – Silver City Lode systems consist of complex cross-cutting, multi-phased quartz, quartz-adularia, quartz-calcite veins with precious and base metal deposition occurring in many selective bodies along the lodes. The Occidental Lode contains quartz-adularia stockwork veining above and below massive calcite that hosts much of the ore. Epidote-bearing propylitic alteration forms belts along the intermediate sulfidation veins. Pyrite-rich anhydrite-quartz-illite alteration occurs in the hanging wall of the Comstock Lode, but is unclear as whether it was formed by high or intermediate sulfidation activity. Enrichment of Ag, Au, As, and Tl characterize oxidized lode mineralization, whereas the acidic alteration is characterized by enrichment of Tl, Te, As, B, F, Hg, Mo, Pb, and Sb. District wide depletion of Zn, Co, Ni, and Mn in surface exposures may result from either hypogene or supergene leaching.

Reference:

Hudson, D.M., Castor, S.B., Garside, L.J., and Henry, C.D., in press, Geology of the Virginia City Quadrangle, Washoe, Storey, Lyon, and Carson City Counties, Nevada: Nevada Bureau of Mines and Geology Map 165, scale 1:24,000.