



AGS May 2020 Meeting Presentation

The Detroit City Portal A New Chapter in the Story of Sweet Home Mine Colorado Rhodochrosite Mining

by
Philip M. Persson

The Detroit City project is a new (2016) mineral specimen mining venture for world-class rhodochrosite specimens at the Sweet Home Deposit, situated near Alma, Colorado approximately 130 km southeast of Denver. The epithermal vein-type Ag-Pb-Zn-Cu deposits of the Alma District, including the Sweet Home Mine, are hosted in Proterozoic (~1.7 Ga) metasedimentary rocks of the Idaho Springs group (Mistantoni 1998). Mineralization is coeval with the final stages



of magmatic activity associated with the emplacement of shallow-level monzonite porphyry intrusions, including the nearby (~8 km) Climax molybdenum porphyry deposit and the inferred Buckskin stock (Luders et al. 2008). Hydrothermal fluids with both a magmatic component related to late outgassing and fluid exsolution from Climax-style intrusions as well as a meteoric influence were critical in the creation of the Sweet Home and other nearby deposits (Luders et al. 2008).



The Sweet Home deposit has been known for fine specimens of rhodochrosite crystals and associated minerals for over one hundred years (*e.g. Endlich 1876*) and operated as an intermittent silver and base metal producer until 1967.

In 1991, Bryan Lees of Collector's Edge Minerals leased the mine and modernized it as part of a major mineral specimen mining project. Numerous world-class mineral specimens were collected over the following 14 years, including the "Alma King" rhodochrosite. Significant crystallized minerals at the Sweet Home deposit include rhodochrosite, fluorite, tetrahedrite, quartz, galena, chalcopyrite,



hubnerite, and numerous other species. After the Sweet Home mine closed in the fall of 2004 due to a lack of identified mining targets, a detailed study was undertaken by geologist Dean Misantoni and others. This study utilized existing data from the Sweet Home Mine as well as surface mapping and other historical data to explore the viability of mining the upward extension of the deposit for rhodochrosite crystal pockets. In early 2016, a new specimen mining project named the Detroit City Portal was begun. This horizontal adit is situated ~70 m above the former Sweet Home adit and was driven to access an unmined extension of the Sweet Home vein system believed to contain high-quality rhodochrosite crystals. Present mine workings include a ~150 m long access tunnel which intersects the main Sweet Home vein, which in being mined via a vertical stope using a modified cut-and-fill method. Seven significant crystal-bearing pockets have been discovered



since targeted specimen mining began in mid-2018. The stope has advanced ~30 m above the portal level and will ultimately be developed ~65 m vertically. Specialized equipment such as hydraulic splitters and diamond chainsaws are an integral part of effective specimen mining, in addition to a detailed understanding of structure and geochemistry. The approximately six-year mine life of the Detroit City project will hopefully yield the bonanza of world-class rhodochrosite crystals that made the Sweet Home Mine famous with mineral collectors and geologists around the world.

SPEAKER BIO

Phil Persson is a geologist with a specialty in mineralogy, economic geology, and igneous petrology. He obtained a BA in geology from the University of Colorado and an MS in economic geology from the Colorado School of Mines. He has worked in the mineral exploration industry as a geologist looking for Au, Cu, and polymetallic deposits in the USA and Sweden. He has been a dealer in mineral specimens for 15+ years and a 'lifelong collector', and he is currently a sales and marketing coordinator for Collector's Edge Minerals Inc in Golden, Colorado. He has been involved in research on the mineralogy and genesis of rare-element pegmatites in Colorado and has helped organize a number of symposia and events on mineralogy and mineral collecting in the Denver area. He is passionate about collecting and helping people build significant collections, ore deposit exploration and developing new resources, and general science literacy.

