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Cerussite on aurichalcite, San Antonio Mine, 8th Level, 3 cm.

The Santa Eulalia Mining District lies in central Chihuahua, Mexico about 360 km south of El Paso, Texas and 23 km east of Chihuahua City. Santa Eulalia has been in nearly continuous production for over three centuries (1703–present) and ranks as one of Mexico's chief silver and base metal producers: over a half billion troy ounces of silver and nearly 6 million tonnes of lead and zinc have been recovered from her mines. In a regional geological and mineralogical perspective, Santa Eulalia is the largest of a family of distinctive intrusion-related ore deposits hosted in limestone and dolomite called "Carbonate Replacement Deposits" that occur in a 2,200-km-long belt running from Hidalgo State to the Chihuahua–U.S.A. border and into the USA. This belt of deposits includes many of Mexico's most prolific specimen-producing districts such as: Mapimi (Ojuela), Naica, Concepcion del Oro, Los Lamentos, San Carlos, San Pedro Corralitos, Charcas and Sabinas–San Martin. That these deposits are prolific specimen producers stems from aspects of their primary genesis and subsequent oxidation that create abundant open space during times when potential for crystal growth is high. Additionally, the largest Carbonate Replacement Deposits characteristically undergo multiple stages or pulses of mineralization and oxidation, which results in mineralogical overprinting and the creation of a wide range of mineral species and pseudomorphs. Santa Eulalia's large size, multi-stage genesis and deeply penetrating oxidation make her especially well-endowed in this regard.

The mining district is divided into the West and East Camps, based on a combination of geography, production and style of mineralization. The West Camp lies on the western flank of the range and is characterized by massive sulfide manto and chimney orebodies with local,

Legrandite on gypsum, Inglaterra Mine, 2nd Level 5 cm wide.

Wulfenite, Buena Tierra Mine 13th Level, 6 cm wide.

high-level iron-calcic skarns. The East Camp ("Campo Oriente" a.k.a. the San Antonio mine area) lies on the eastern fringe of the range and is characterized by bilaterally symmetrically zoned, intrusion-cored skarns with peripheral massive sulfide manto bodies. The 2.5 km wide intervening zone, known as the Middle Camp, contains minor mineralization and saw only limited production. The ultimate source of the district mineralization is actively being sought but remains elusive.

The earliest mining at Santa Eulalia focused on extensive near-surface oxidized orebodies dominantly composed of cerussite and anglesite laced with silver halides. These were very high grade and were diligently followed downwards from the surface until water and/or sulfides were encountered. The West Camp mines are all above the water table, but oxidation extends

Pyrite ps Pyrrhotite, Inglaterra Mine, 3rd Level 14 cm tall.

erratically from 150 to 750 m depth depending on whether the Capping Series volcanic rocks were thick enough to prevent infiltration of surface waters. Because of this, oxide-ore workings terminated against sulfides on different levels in separate but adjoining mines. In contrast, in the San Antonio Mine the water table is quite high, sub-horizontal and well-defined, lying at the 8th Level of the mine, approximately 400 m below the surface. Because nothing impeded groundwater infiltration there, ores are almost completely oxidized down to the water table where an unusually well-developed body of supergene zinc mineralization exists. Pristine sulfides extend below this to the bottom of the mine. The development of selective flotation in the early 20th century allowed exploitation of the by-passed sulfide ores composed of galena; sphalerite and pyrrhotite, which became the backbone of district production to the present. These ores were followed from the base of oxidation to depths of over 1,200 m below the surface. Active mining continues in the East Camp, but the West Camp is largely mothballed and the deepest levels are gradually filling with water; the water level currently has reached the 18th Level.

Tons of superb mineral specimens, ranging from individual microminerals to the contents of entire caverns, have been recovered from Santa Eulalia's labyrinthine mines, primarily during the last 100 years. Few private and museum collections and probably even fewer dealer stocks lack specimens from the district. At present, approximately 200 mineral species have been identified from the district and although no species unique to the district have been found (yet!), Santa Eulalia has yielded some of the world's finest specimens of calcite, creedite, gypsum, hemimorphite, ludlamite, mimetite, natanite, pyrrhotite, rhodochrosite and smithsonite. Although specimen production volume is down from the middle of the last century, important finds continue to be made almost annually and the prospects for continued production are excellent.