

Santa Teresa Mercury Mine Field Trip

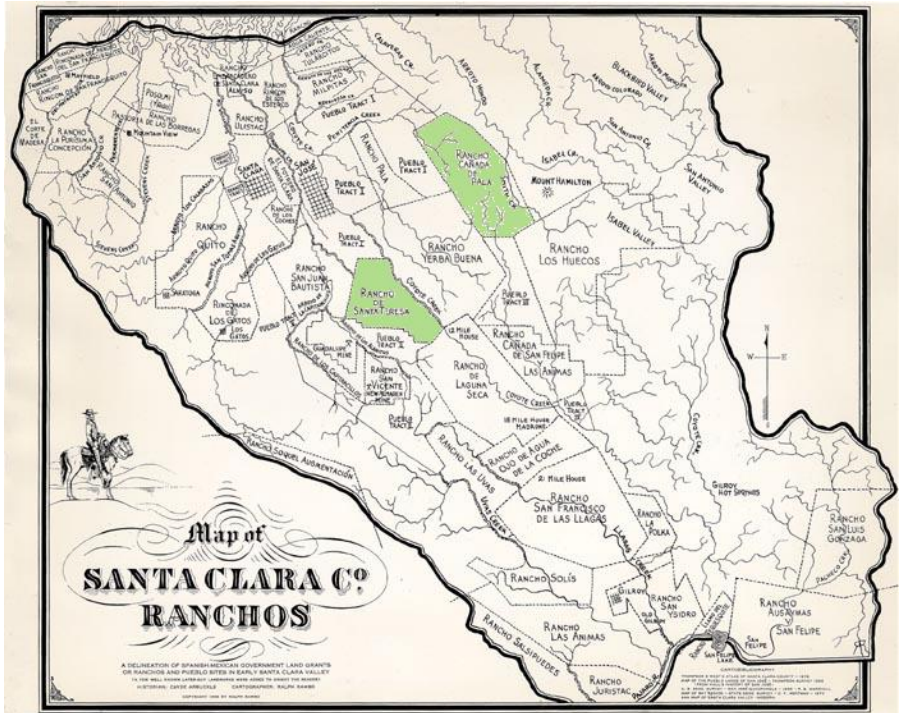
Santa Clara County, California

Gene and Sharon Cisneros

December 29, 2016

It was a rare opportunity to visit the Santa Teresa Mine and one that we couldn't pass up. Aside from our mineralogical interest in the mine, we had a special interest in visiting the Santa Teresa. We had recently discovered that Gene's great great grandfather was mining engineer and assayer Jose Joaquin Bernal, a member of the DeAnza Expedition in 1775 and was the original land grant recipient of Rancho Santa Teresa. The Santa Teresa is a Mercury mine that is located on the south side of the original 10,000 acre rancho and on the eastern flank of the Santa Teresa hills. It is also just a mile or so northeast of the Bernal Mine, which will hopefully be the subject of a future field trip. The discovery of the Santa Teresa Mine may have been around 1875, but it wasn't commercially mined until 1898. Over the following few years several tunnels and a shaft were driven and a furnace was installed.

Upon hearing about Gene's ancestry discovery, our old friend and geologist Mike suggested that we make a field trip to the mine. The Santa Teresa Mine is now on a part of a 140 acre privately owned parcel, so access would normally be difficult if not impossible. Fortunately, since Mike had done the geological mapping of the mine for the owners, he was able to obtain access for us.



Bernal land grants in Santa Clara County

It was a brisk and clear 48 degree morning in December as we set off to our rendezvous location. The Santa Teresa is just across the valley and approximately fifteen miles, as the crow flies, from our home. We were fortunate, the traffic was sparse and we arrived forty five minutes later and an hour early. It wasn't long before Mike arrived and after his brief introduction to the geological setting and looking at his geological and topo maps for orientation, we were ready to begin our explorations. We drove a short distance to a very impressive estate where we checked in with the owners, who were most gracious in allowing us access to their private property.

As we left the estate, we passed through a couple of electrically controlled gates and then over the top of the hill to view a wonderful vista of the valley



Sharon takes in the vista

below and Lick Observatory perched atop of the Mt. Hamilton range beyond. One could not but wonder what the view would have been for the early miners. The Kaiser Hospital and the sprawling urban congestion that we viewed below would certainly not have been a part of their vista.

We meandered down a wet and slippery two track dirt road for perhaps a half mile where we parked and began our explorations. A short hike down a steep brushy slope and we were on a flat that once was the site of the Huttner-Scott furnace, which was a revolutionary new design in the early 1900s and capable of higher processing rates of up to 40 tons of ore per day. Only a foundation and several brick walls remain as a ghostly tribute to the once state of the art furnace. The remaining walls, foundation and clay pipes have succumbed to weathering and overgrowth over the past century. A long overlooked axle and wheels from an ore cart was a great find.

Little remains today of what were a large investment in time and labor, over a period of just a few years. The construction of the Huttner-Scott furnace typically cost \$20,000 in the day, which translates to a



Mike examining ore car remains



Piece of flue pipe and brick

present day cost of approximately \$500,000. Its construction required over 165,000 red, fire and custom bricks and the labor of 12 men for nearly three months. Despite the large and rapid investment that was made to develop this mine and its processing plant, the low production rate of the sought after mercury



Crumbling walls are a ghostly reminder of the once state-of-the-art processing plant



**Sharon warns Poison Oak tree to stay back
It didn't work...**

resulted in its shutdown after a just a few years of operation. Reportedly, only nine flasks of quicksilver were ever recovered, resulting in a financial disaster for the stock holders. There are no records of further production.

Time passed quickly and we headed back up the hill to a sunny knoll

to have lunch. We had been lucky and picked a relatively dry winter day for this trip and although the ground was still damp and slippery from the recent rains, we enjoyed our lunch in relative warmth. The high for the day hit 64 degrees!

As usual, Sharon found a comfortable place to relax and enjoy her lunch, while Mike and I discussed the geological setting of the mine. The Mercury ore, called Cinnabar, is found in a silica-carbonate rock, a mixture of common silicate and carbonate minerals that is derived from the hydrothermal alteration of serpentine. At this locality, the silica-carbonate rock is found near the top of the ridge in contacts between the local country rocks, serpentine and sandstone.



Sharon dines in comfort

As we finished our lunches, we set off to more intimately visit the actual outcrops of silica-carbonate rocks and one of the early exploratory tunnels that was driven to determine the extent of the vein. Following a short drive along a slippery dirt track, we arrived at the site of the early explorations into the silica-carbonate rock, or “quicksilver rock” as the early miners called it. We made a short, but fairly rough descent down through the overgrown brush thicket, while trying to avoid the poison oak that was in abundance, and eventually found the entrance of a short exploratory tunnel and a vertical ventilation shaft. Here the silica-carbonate was exposed for at least a few hundred feet. From early references, we knew that looking down the slope there were at least three main adits driven into the side of this hill and two connecting ventilation shafts. The total aggregate length of tunnels is reported to be about 2,000 feet in length. We stood in front of a now debris covered ventilation shaft and wondered how thick that debris plug might be. Could it support a person walking on it? We didn’t try...



Sharon checks to see if anyone is home



Gene standing in front of debris plugged vertical shaft

The ore dumps were only recognizable as anomalous humps in the surrounding terrain, due to a century of erosion and overgrowth. With some searching, we were able to find many boulders of silica-carbonate rock to

take out our frustrations on. Beating on the hard and tenacious rock was almost futile and we were sorry to have not brought along a bigger sledge hammer. But, persistence paid off and we were able to knock off some of the material, which in some cases show tiny flecks of brilliant red Cinnabar. It was exciting to see color, however no high grade material was found. Interestingly, we did not find any other commonly associated minerals.

It was a productive day in that we had a great outing and the company of our friend Mike. We came away with little in the way of mineralogically interesting specimens, but were deeply touched by having the experience of exploring the land where Gene's ancestors had once lived and worked. We will be content if we can gain access to the now county owned Bernal mine, also on the original Santa Teresa land grant and just 1.5 miles away.

Back at home, viewing the specimens that we collected under the microscope revealed more than we had expected from our cursory field inspections. Though small, many fairly well formed euhedral Cinnabar crystals are present on the background of drusy Quartz. It has also been observed, as we previously thought, that there are few other associated minerals that are obvious. The following images of the massive and crystalized Cinnabar were taken with a DinoLite Digital Microscope. Since this is a relatively unknown location and not previously documented photographically, we will make an effort, in the near future, to prepare higher quality photographs of the specimens with our multi-focus imaging system for addition to the Mindat.org archives.



Massive Cinnabar, FOV ~2.5 cm



Cinnabar crystal FOV = 1.8 mm



Cinnabar crystal FOV = 1.8 mm



Cinnabar crystal FOV = 1.8 mm