

The Geologic History of New Almaden

In the Jurassic, around 300 million years ago, Quicksilver Park was close to the equator, and under water. To the south lay volcanic mountains that had just subducted a spreading center, much like California 80 million years ago, before the San Andreas Fault. Fast rivers dumped rocks and sand of many types, metamorphic, volcanic, and sedimentary, into the ocean. This became graywacke over time (the French call it the nasty sandstone). During quieter times, undersea volcanoes oozed out lavas, and chert layers were deposited on these eruptions. You can see some chert layers on the West side of the road as you approach the town of New Almaden. Better examples can be seen at a bend in the road leading to Mt. Umanum, just below the trail leading to Mt. Baldy.

The North American Plate rotated counterclockwise as it moved North. There was a deep subduction zone trench that accumulated sediments. Some of these sediments were subducted quite deeply into the mantle of the Earth before being rejected and forced back to the surface. The process of subduction metamorphosed the rocks. Mantle ultramafics became serpentinite, lavas became greenstones, graywackes became schists, and chert became metachert. There are some lovely metacherts on a ridge east of the New Almaden Trail above the water tower near the Webb Canyon entrance to the park.

The San Andreas Fault Zone began in Southern California about 40 to 80 million years ago, but did not reach Quicksilver Park until about 12 million years ago. Quicksilver Park is east of the main trace of the San Andreas, but the park is in the San Andreas Fault Zone, and is bounded by two faults that separate the Capitancillos Range from the Sierra Azul, and the Santa Teresa hills.

The faults tap into heat from deep in the Earth, and have been the locations of springs and volcanics. The warm springs leached mercury, and a little gold out of the volcanic rocks. The first deposits were cinnabar, calcite and magnesite. These were mostly reworked in the springs, and altered to cinnabar and dolomite.

New Almaden may have been under water until about 1 million years ago. The area was lifted up above sea level along bends and pinches of the San Andreas Fault Zone as the West side of California moved NNW. The ocean muds washed off, and exposed the deposits of cinnabar. Soft rounded cobbles of cinnabar rolled down creeks where the Ohlone people found them and used them as decorative paint. They traced them back to a cave in the hills.

Castillero saw them in the courtyard of Mission Santa Clara, and thought that they were gold and silver ore. He tested the ore for mercury by heating it on charcoal and holding a glass upside down to collect the gasses. When the glass became grey and cloudy, he wiped the inside with his finger, and produced a silver drop of mercury. He knew that made him a rich man, because Mexico needed mercury to get gold and silver out of their ore.