

# Feature

## Mine of the Month

# Mohawk Mine



(Ivanpah District, CA)

The Mohawk Mine explores hydrothermal deposits emplaced by a Cretaceous igneous intrusion into much older overlying carbonate formations. The group of claims that comprise the mine lay within the Ivanpah Mining District, about 4 miles east of the Cima Road exit off I-15, which is 66 miles south of Las Vegas. This same area hosts a number of other localities that are well known to seasoned mineral enthusiasts. These include the Copper World and Dewey Mines, the gold-bearing open-pit Colosseum Mine, and the world famous Mountain Pass rare earth deposit worked by Molycorp.

Though located in the early 1900s, the mine was operated primarily during both World Wars. 1916-18 shipments yielded only 4 ounces of gold, but 20,000 pounds of copper, and over 250,000 pounds of lead. In 1942, the Ivanpah Copper Company acquired rights to the property, and from 1942-52 produced significantly more than prior efforts. During this period 206 ounces of gold were recovered, along with 92,802 ounces of silver, 183,600 pounds of copper, 1 million pounds of zinc, and 2.9 million pounds of lead! The mine has been inactive since 1957.

The Mohawk claims are located on a small ridge along the southern flank of the main body of the Clark Mountain Range, and directly adjacent to Interstate 15 in San Bernardino Co., CA, about 20 miles from the Nevada border. This ridge is known as Mohawk Hill, composed of the late-Cambrian Bonanza King Formation intruded by a small pluton of granite, the Clark Mountain Stock. All the mine workings, found on both the north and south sides of the ridge, lie within the Bonanza King. This carbonate unit consists essentially of alternating thin-bedded, blue-gray, and tan-white limestone in one facies, and a whitish dolomite marble that marks a skarn zone in the other. Near the west end of the mining property lies a small pod of early-Cambrian Tapeats Quartzite in non-conformable contact with the Bonanza King.

Ore mineralogy at the Mohawk Mine is complex. According to reports from the early history of the mine, cerussite dominated the secondary suite of minerals, but smithsonite was also common. Minor amounts of malachite, azurite, and chrysocolla can still be found on the dumps. Galena and sphalerite were the primary minerals in the vein, along with silver and gold. Gangue consisted of abundant iron and manganese oxides in a matrix of coarsely crystalline quartz and calcite, with minor amounts of jarosite, plumbojarosite, and pyrite.

Ore mineralization ostensibly lies within a tactite (skarn) zone of moderately to intensely silicified and recrystallized limestone and dolomite. However, the only indication of true calc-silicate alteration typically associated with skarn mineralization is a small exotic block of tremolite schist on the north side of Mohawk Hill, minor talc-serpentine alteration of calcite, and scattered grains of epidote and vesuvianite in the mostly unaltered Bonanza King Formation several hundred meters from the intrusive contact. The intrusive itself has undergone strong sericitic and weak argillic alteration. Biotite has been altered to chlorite and a mixture of iron oxides; feldspar, to sericite and clay minerals.

# OBSERVATIONS and COMMENTS

This is another mine that I often visited and mapped in the mid 80s, and still ranks among my favorites. Though the pickings, as is becoming more and more the case, are growing ever more scarce, there remains opportunity for finding worthy and unusual mineral specimens.

When the recession of the early 80s induced the value of gold to rise sharply from \$35 an ounce to over \$800, many private opportunity-seeking investor/propector groups were prompted to turn their interests towards gold. This is the period when I was hired to assess the potential viability of re-working many of the mines in the region, primarily the Goodsprings District in Clark County, NV, but also the nearby mining districts of times past. This included the Ivanpah District, which is how I first became acquainted with the Mohawk Mine.

Early reports indicated that underground workings consisted of seven adits, nine shafts, and five prospect pits. However, many of the workings were already long inaccessible by the time I arrived. Those that *were* accessible I explored and mapped. Nevertheless, from a collector's perspective, the dumps were—and still are to an extent—the best place to find rare and valuable mineral specimens, and good examples of common ones, that were of no interest to the early-day miners.

I have been fortunate to have found a host of fine specimens including hetaerolite and hydrohetaerolite, chalcophanite, carminite, austinite, conichalcite, adamite and cuproadamite, fraipontite, arseniosiderite, beaverite, rosasite, scorodite, and agardite among the rarer species; and jarosite and natrojarosite, goethite and lepidocrocite, aurichalcite, azurite, malachite, hemimorphite, chalcopyrite, chlorite, and chrysocolla among the more common minerals. Though cerrusite and smithsonite were supposedly dominant minerals here, I have never found respectable specimens of either at any of the workings from either side of the ridge.

To the east of the Mohawk is an adit driven into the base of the ridge. The dumps alone indicate very little mineralization. I mention it for two reasons. At the end of the tunnel one can find evidence of the talc-serpentine alteration mentioned earlier in this report. Secondly, during my only inspection of this prospect, I found a desert tortoise that had lodged itself into a crevasse hibernating to wait out the long winter season. You just never know what you're going to discover when you explore a long-forgotten excavation!

While in the area, visit the nearby Copper World and Dewey Mines, both well-known to mineral hunters (see topo map on page 8). Look for malachite, azurite, chrysocolla, serpentine, and more on the dumps of the Copper World. At the Dewey are specimens of the very rare carbosilicate, thaumasite, in addition to samples of chalcanthite coating the walls near the entrance of the adit. One visit and you'll find yourself returning repeatedly to these rewarding locations.



**Mohawk Hill**

This is a view of the ridge looking NW from Interstate-15. Easiest route to the area is to go past this point to Cima Rd about 4 miles further on, then backtracking to the mines on a well-graded powerline road. White arrow points to south fork as mentioned in directions on previous page; red arrows indicate locations of workings on this side of the ridge.



## LOCATION

**DISTRICT:** Ivanpah San Bernardino County, California

**TOPO MAP:** Mescal Range Quadrangle 7.5 Minute Series  
secs 7,8 T 16 N R 13 E

**GPS:** 35° 28' 53" N, 115° 36' 53" W

**DIRECTIONS:** From Las Vegas south on I-15, about 65 mi to Cima Road Exit 272; exit right (NW) .4 mi to powerline rd; right (NE) 3.6 mi to fork; go left to access mines on north side of Mohawk Hill, or right to main Mohawk Mine workings on south side of ridge. All roads are easy to traverse without 4WD, but high clearance is recommended.

## GEOLOGY

### SETTING:

Late-Cambrian carbonate Bonanza King Formation intruded by Cretaceous Clark Mountain Stock. Mineralization in skarn zone of up to 210 meters in thickness.

### REFERENCES:

Hewett, D.F., 1956, Geology and Mineral Resources of the Ivanpah Quadrangle, CA and NV, USGS Professional Paper 275, 172 p.

<http://geology.csupomona.edu/drjessey/fieldtrips/mohawk/mohawk.htm>, 2002  
(no longer available online)

# PHOTOS OF LOCATION and MINERALS



## Can't Miss It

Clark Mountain rises prominently behind the famous Molycorp Mountain Pass rare earth mine just off Interstate 15 at Bailey Road. Besides the Mohawk Mine, there are many other mines worthy of exploration in this general vicinity.

## Fork in the Road

Just 3.6 miles in from Cima Road, this intersection leads explorers to the north and south sides of Mohawk Hill. I consider all the workings to be part of the Mohawk Mine, but the main workings are to the right, which leads to the south side of the ridge.



## Burro Country

A sizable population of burros lives in this area of the Mohave National Preserve. Though they keep a watchful eye on visitors, the burros are often encountered near roads; please use caution as you drive through their habitat. The south flank of Cima Dome rises gently in the background center left.



# PHOTOS OF LOCATION and MINERALS



## Destination Reached

What looks like two different mines cascading down the hill is actually one operation working the same lode. Outcrops found high up a mountainside are worked until the diggings become too heavy to lift up. Miners then go down the mountain and drill into the deposit until they reach the vein again, dig up, and let gravity do the heavy work. This explains why most such adits are level and easy to explore.

## Hopper Opportunity

Inspecting the offerings adjacent to a large ore hopper. Such locations are good places to start your mineral search, as oftentimes potential specimens fall out as fatigued miners carelessly unload their ore carts into such temporary bins. The former miners at this location must have been particularly attentive; no such goodies here!



## Light versus Dark

Brown dumps indicate that the material was derived from a highly mineralized zone, and as such, are good places to look for mineral specimens. Conversely, light-colored dumps are a sure sign that miners had to dig through a lot of country rock just to get to the vein, and offer little potential for finding any treasures.



# PHOTOS OF LOCATION and MINERALS



**Scenic View**

View from above the ore hopper at the Mohawk Mine looking out at I-15 as it cuts its way through Shadow Valley in the southern distance. This region of the Mojave Desert is also known as the East Mojave National Scenic Area.



**Straight and True**

Typical level adit driven into the mountain to facilitate ease of transporting ore carts from the vein deep in the mountain to the dumps, tram, or hoppers outside. Such adits are always tall and wide enough for the miners to work without undue hardships. The job is hard enough as it is!



**Vein Effort**

Inspecting an ore sample dug from a vein in one of several adits of the Mohawk Mine.



**Payday!**

Miners had to dig through a lot of country rock to get to the mineralized zone such as this one that produced many rare secondary minerals prized by collectors.

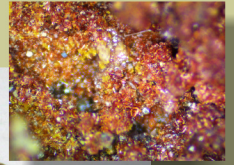
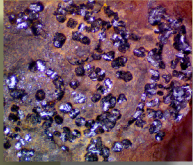


**Two Sides to the Story**

The deposit emplaced in Mohawk Hill was worked from both the south *and* north sides of the ridge. This is only one of several such excavations.



# PHOTOS OF MINE and MINERALS



**V 25 S**

**Chalcophanite**

1.5" x 1"

**III 16 D**

**Carminite**

2.88" x 1.75"



**XIII 02 C**

**Conichalcite**

5" x 3.75"

**V 22 D**

**Hydrohetaerolite**

2" x 1.5"

**X 102 D**

**Arseniosiderite**

2.38" x 1.75"

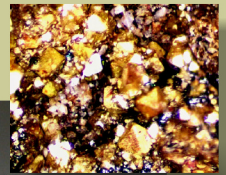
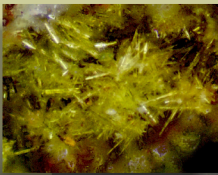


A visitor to the Mohawk Mine can expect to find at least some of these minerals.

*All specimens from the G. Miles Lehman Collection*



# PHOTOS OF MINE and MINERALS



**XIII 09 D**

**Agardite-Y**

1.88" x 1.5"

**II 50 D**

**Chalcopyrite**

2" x 1"



**VII 73 D**

**Malachite**

2.5" x 2.25"

**X 24 C**

**Natrojarosite**

3" x 3.25"

**VII 104 D**

**Azurite**

1.5" x .75"

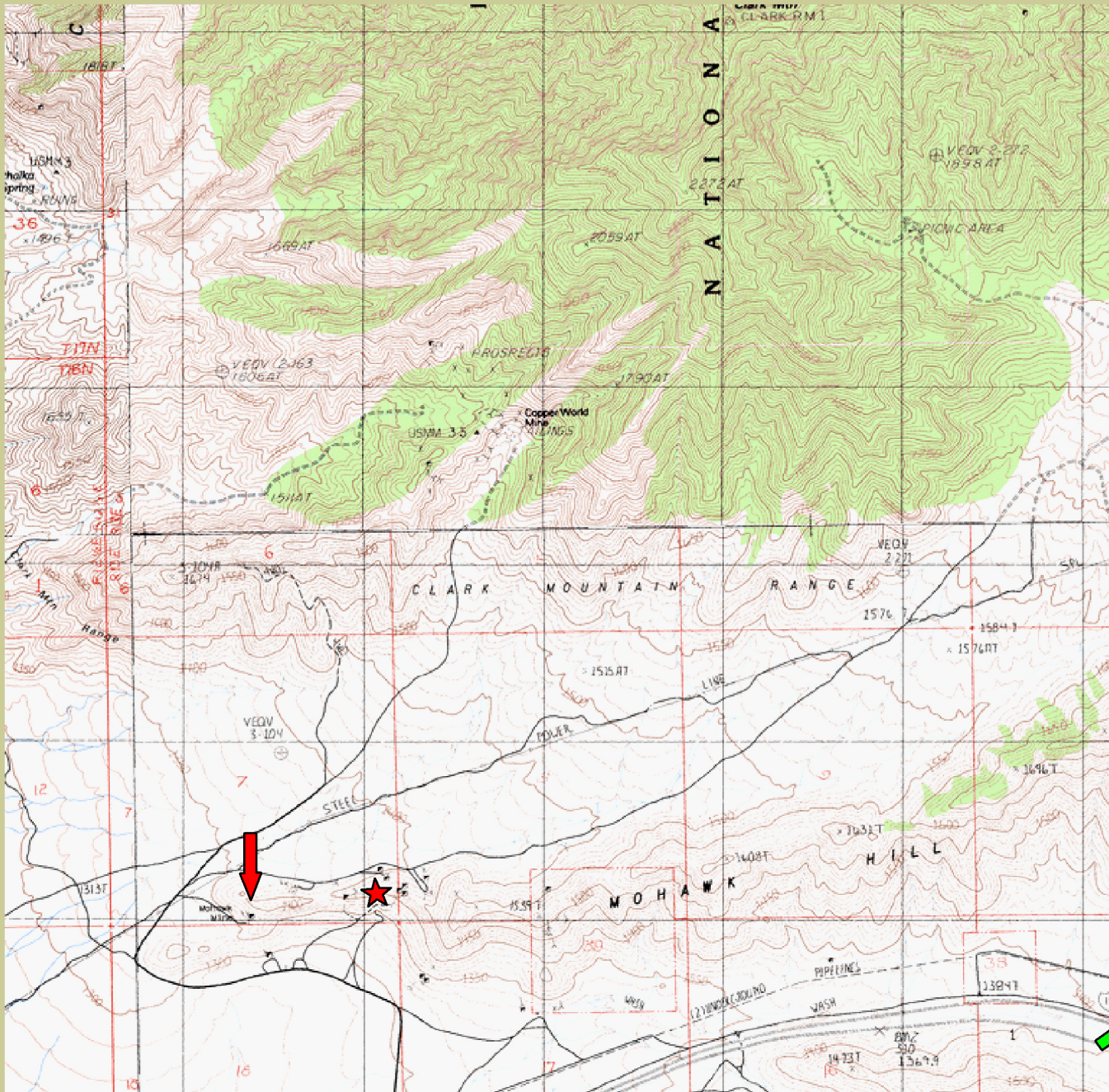


A visitor to the Mohawk Mine can expect to find at least some of these minerals.

*All specimens from the G. Miles Lehman Collection*



# TOPOGRAPHIC MAP

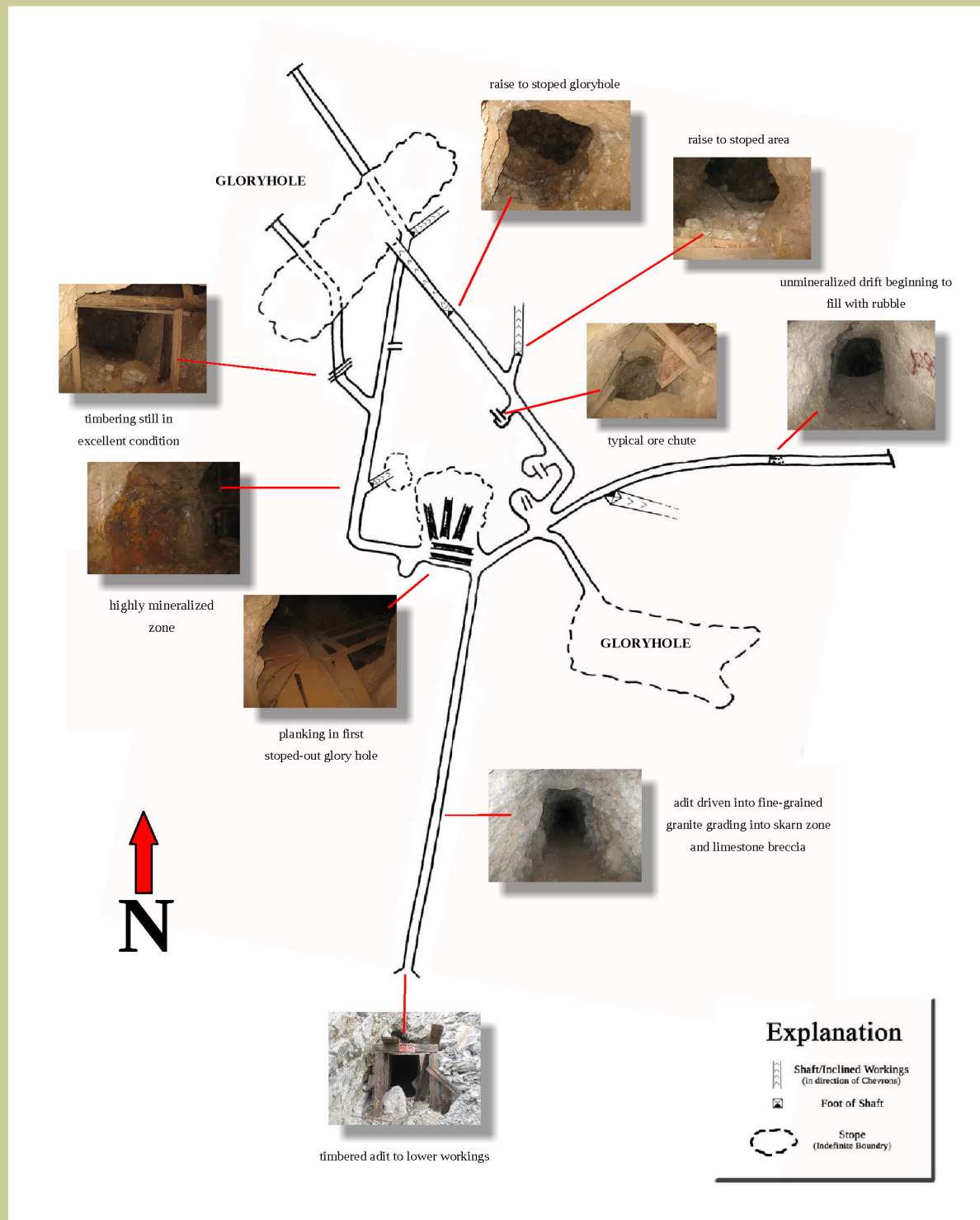


1-15 to  
Las Vegas  
about 60 mi

This is a scan from the Mescal Range Quadrangle showing the mines on Mohawk Hill and the nearby Copper World Mine to the NE. Note that the "Mohawk Mine" is shown to be located at the far west end of the ridge (red arrow). This is more of a prospect than a mine. The main workings--and what I consider to be the actual "Mohawk Mine"-- are located further to the east on the south side of the ridge (red star). Workings on the north slope explore the same mineralized system, thus I consider them to be extensions of the same mine.



# Plan of Workings



**Sketch map of Mohawk Mine (lower adit)  
south flank of Mohawk Hill**