

## ***New discoveries at Copper Hill, Taos County, New Mexico***

Ramon S. DeMark, Thomas Katonak, Jesse Kline and Virgil W. Lueth

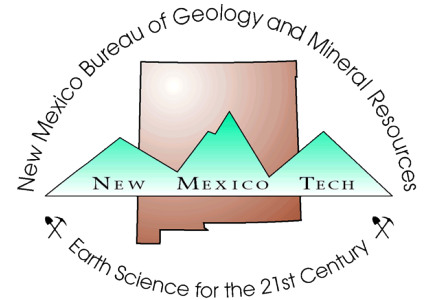
39th Annual New Mexico Mineral Symposium  
November 10-11, 2018, Socorro, NM  
pp. 12-14

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The symposium is organized each year by the [Mineral Museum](#) at the [New Mexico Bureau of Geology & Mineral Resources](#).



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Diopside (FOV 2mm); Vesigniete on Conichalcite (FOV 2mm); Volborthite (FOV 9mm). Photos by Michael Michayluk.

Copper Hill lies in the Picuris mining district of Taos County, some two miles north of the well-known Harding mine. The Copper Hill Mining Company first developed the property in 1900 (Lindgren, 1910) and erected a concentration mill. The Champion mine, on the west end of Copper Hill, was developed around a 180-foot shaft and a 60-foot shaft with a 350-foot connecting adit. On the Oxide King claim, a short distance to the south, a 180-foot shaft was sunk. The Wilson mine (prospect) is just east of these workings (Lindgren, 1910). Mineral deposits described by Lindgren consist of veins of glassy quartz carrying copper, silver and gold. Lindgren also reports chalcocite, cuprite, malachite and chrysocolla being present and “it is said that argentite and tetrahedrite also occur”.

Williams and Bauer (1995) describe the deposit as a strata-bound copper-silver antimony deposit located near the contact between the early Proterozoic Ortega formation (quartzite) and younger shists (Rinconada formation). Mineralized quartz veins exist at the Champion mine and Wilson prospect. These veins contain clumps containing oxidized copper, iron and antimony oxides along with considerable malachite and chrysocolla staining. Stibiconite, partzite, hematite, cuprite and chalcocite were identified using X-ray diffraction (Williams and Bauer).

A. Locke, et. al. evaluated the property in 1920 and they noted that “(the) local report in Santa Fe is that it was largely a stock-selling scheme.” Additionally, “a concentrator was built and burned as soon as a fire insurance policy was issued on it.” Locke concluded “the impossibility of the property becoming an important copper producer.” During the 2000’s the Champion area was leased/operated for production of ornamental rock (Taos News archives) but the patented claim has been dormant since that time.

In 1988, one of the authors (RSD) noted a micaceous, neon-yellow mineral at the Wilson prospect. It was determined that this was volborthite (hydrated copper vanadate) through microprobe analysis (Hlava, pers. comm. 1988). Additionally, in 1980, conichalcite (calcium, copper arsenate), initially reported from Copper Hill by Joe Taggart (DeMark, 1980), was found to be widely occurring in the area. Neither mineral had previously been reported from Copper Hill. In May, 2010, diopside was found in the Champion mine area. Identification was based on distinctive crystal morphology and color. Only a small number of specimens were recovered.

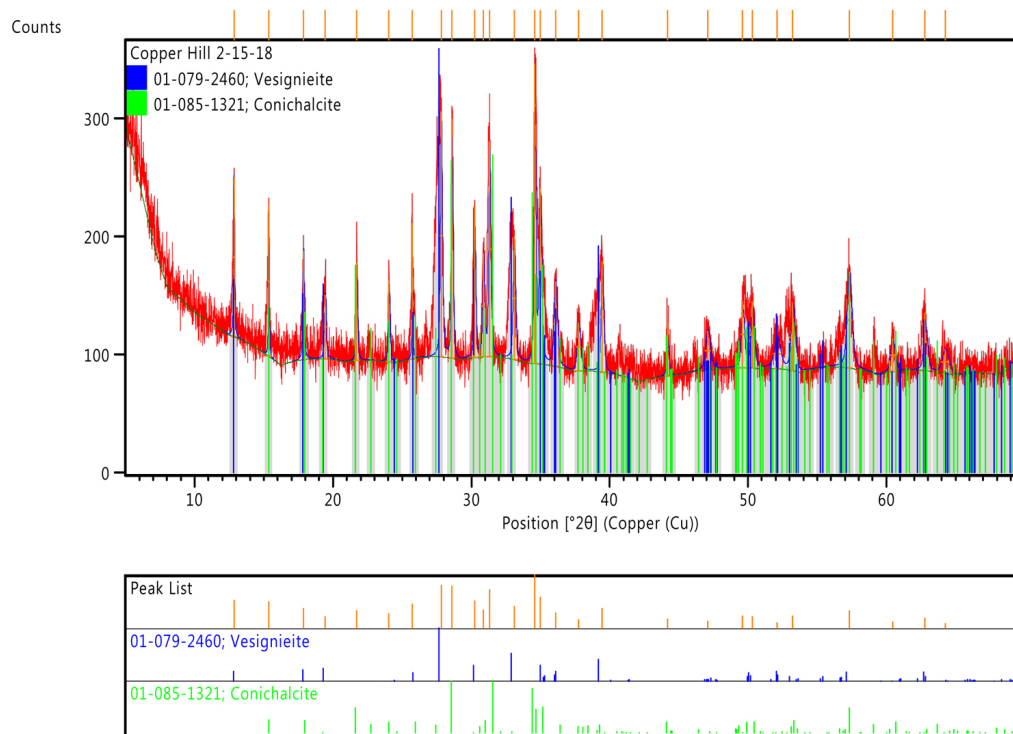


Figure 1. X-ray diffractogram of vesignieite and conichalcite from the Wilson prospect, Copper Hill district, Taos County, NM.

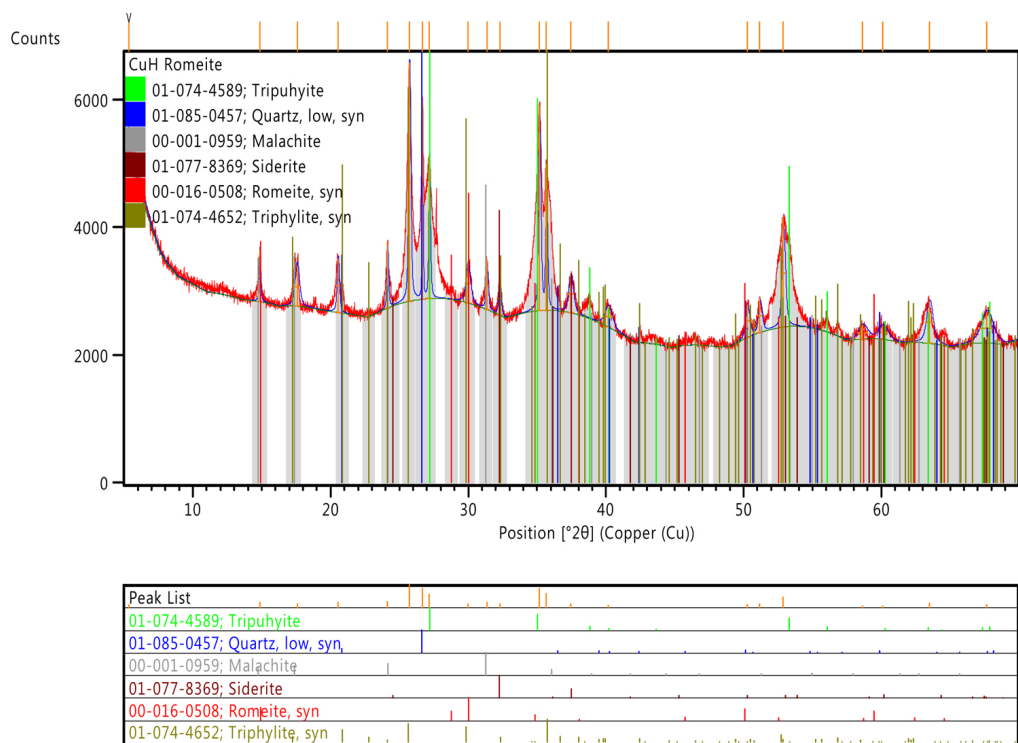


Figure 2. X-ray diffractogram confirming the presence of tripuhyite and possibly romeite at the Wilson prospect, Copper Hill district, Taos County, NM.

A visit to the Wilson prospect in early spring 2018 turned up what appeared to be a sub-metallic black mineral in association with conichalcite. Spherical crystalline aggregates (about .5mm) were found in a very few specimens. X-ray diffraction (Figure 1 page 13) determined that this mineral was vesignieite (barium copper vanadate) and that, in fact, it was a dark green. The mineral closely resembles specimens from the Mashamba West mine, Democratic Republic of the Congo (Mindat). This is a first occurrence of this mineral in New Mexico.

Clumps of the anhedral greenish vein material in the quartz veins at the Wilson prospect also aroused curiosity. This material has a box-work structure suggesting that it may have been altered from some other mineral. X-ray diffraction analysis (Figure 22 page 13) determined the mineral to be tripuhyite (an iron antimony oxide); possibly an alteration product of tetrahedrite. Tetrahedrite had been reported, but not identified, from Copper Hill (Lindgren, 1910).

The eastern portion of Copper Hill and the Wilson prospect are on BLM public land but a strip of private land must be crossed to reach the area. The locality has been withdrawn from mineral claims since 2000. The western portion of Copper Hill and the Champion mine are on private property and permission must be obtained prior to entry.

## References

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- Locke, A., et.al. 1921, Notes on the mines and prospects in Taos County, New Mexico, Augustus Locke Papers, unpub., Wyoming, Laramie.
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- Schilling, J.H., 1960, Mineral Resources of Taos County, New Mexico, NMBGMR Bull. 71, 124 pp.
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- Mindat.org

<b>Mineral occurrences at the Copper Hill Mining District</b>	
<b>Andalusite</b>	<b>Kyanite</b>
Agentite	<b>Malachite</b>
<b>Azurite</b>	<b>Muscovite</b>
<b>Brochantite</b>	<b>Opal</b>
Chalcocite	Partzite
Chloritoid	<b>Polyolithionite</b>
<b>Chrysocolla</b>	Pyrite
<b>Conichalcite</b>	<b>Quartz</b>
Cordierite	<b>Sericite</b>
Corundum	Sillimanite
<b>Covellite</b>	<b>Staurolite</b>
Cuprite	Stibiconite
<b>Dioptase</b>	Tetrahedrite
<b>Fluorite</b>	Tourmaline
<b>Garnet</b>	<b>Tripuhyite</b>
<b>Gold</b>	<b>Vesignieite</b>
<b>Hematite</b>	<b>Volborthite</b>
<b>Kaolinite</b>	<b>Wollastonite</b>

Mineral species verified on-site (see bold fonts).