

The fabulous vanadates, arsenates and phosphates from New Mexico

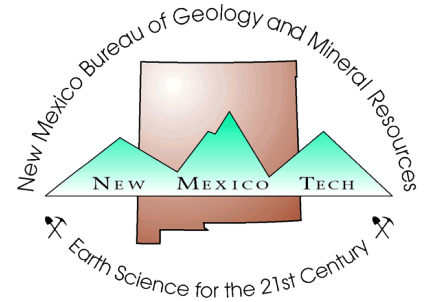
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The Fabulous Vanadates, Arsenates and Phosphates from New Mexico

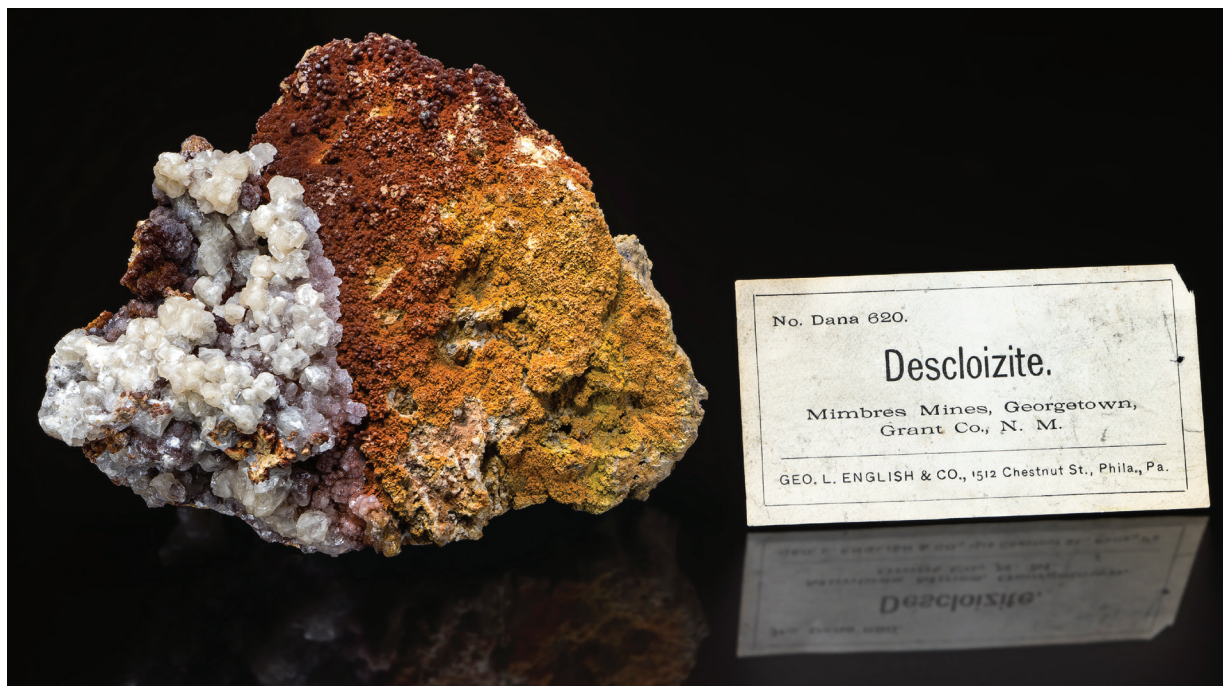
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Long before spectacular discoveries of vanadinite in Morocco and descloizite in South West Africa, these minerals from New Mexico were highly sought after by collectors and museums in the United States and abroad. Vanadinite was first described in the region by Genth, F. A. and Rath, G.V. (1885) from Lake Valley. They described a new “species,” endlichite, from the area, which was subsequently discredited as an arsenic rich variety of vanadinite. They briefly noted vanadinite from the Georgetown district. George L. English visited the area in 1889 (*Exchanger’s Monthly*, Vol. 4, No. 7, page 8) and wrote a comprehensive description of the descloizite and vanadinite from the Georgetown district. This was followed by an ad by English in the *Exchanger’s Monthly* (1889, Vol. 4 No. 6 page iv) titled “Descloizite From New Mexico. Several entirely new varieties: Red, Orange, Yellow and Brown.” He goes on to describe them as “Incomparably finer than specimens of the mineral ever before known.”

An ad by A. E. Foote (1897, Vol. 4, No. 5) in the *Mineral Collector* mentions “Endlichite in beautiful crystallization” and is most likely the first ad for endlichite from Hillsboro. George L. English in the *Mineral Collector*, 1897, Vol. 7, No. 9 (back cover) describes “Endlichite from New Mexico, surprisingly

fine specimens of large gemmy, yellow crystals, \$2.00–\$10.00.” His ad in the *Mineral Collector*, Vol. 6, No. 1 of March 1899 describes “Endlichite from Hillsboro, finest known, 10 cts to \$5.00.” These crystals are undoubtedly from what has been known as the Macy mine. A search of the Sierra County courthouse, Claim Records Book 0, p.795, determined that the mine was first located in 1892 as the Percha mine by Robin, Macy and Strickland. It was located subsequently in 1980 as the “Barking Frog” by Dick Jones and others and located in 1983 as the “Bobbi Dee” by R. S. DeMark and others. In 1996, Mike Sanders and Tom Massis attempted to file on the claim after it had been abandoned but it was rejected by the BLM as “not federally leasable nor subject to claim.”

Turquoise is undoubtedly the best-known phosphate mineral from New Mexico. It was extensively mined by indigenous peoples in pre-Colombian New Mexico, most famously from the mines near Cerrillos. An article in *Exchanger’s Monthly* (1887), Vol. 3, No. 1, page 3, titled “*Minerals At The American Exhibition, London*” dubiously states “The precious turquoise comes from Los Cerrillos, New Mexico where Montezuma got his Chalchuhuitas that is valued above gold and silver”.



Descloizite from the Mimbres Mine, specimen approximately 9 cm. Photo by Erin Delventhal.w



Vanadinite from the Macy Mine, field of view, 9mm.
Photo by Michael Michayluk.

Turquoise from the Burro mountains achieved great renown in the late nineteenth century. It was reportedly discovered by John E. Colman in 1875 (Northrop, S. A., 1959). Also reported was that the “Elizabeth pocket (Azure mine) opened in 1893 produced more high-grade turquoise than any single deposit on record.”

Two arsenates and one phosphate were first described from New Mexico. Santafeite, a manganese vanadate, was found 12 miles north of Grants (Sun, M. S. and Weber, R. J. 1958). Maxwellite, a sodium iron arsenate fluoride from the Black Range tin district (Foord, E. E. et al., 1991) and meurigite, an iron phosphate found at the Chino mine by Ron Gibbs (Birch, W. D. et al., 1996). This was renamed meurigite-K in 2009 (Mindat).

Other New Mexico locations are notable for the occurrence of phosphate minerals. In particular, the Chino and Tyrone mines near Silver City, the Atwood mine area in the Lordsburg district and the Mex-Tex mine in the Hansonburg district. Ron Gibbs recognized 16 species alone from the Tyrone mine (Gibbs, R. B., 1986). Bob Walstrom recognized a remarkable number of new phosphate minerals from the Atwood mine area, including several new to New Mexico and the U.S.A. Ludjibaite was particularly notable (Walstrom, R. E., 2018). A mechanized dig at the Mex-Tex mine in 1995 by the claim owners revealed a half-dozen phosphate minerals that were previously unknown from the mine. Tsumebite, libethenite and pyromorphite were of particular interest (DeMark, R. S. and Massis, T. M., 1999).

Additional occurrences of vanadates, arsenates and phosphates are found throughout New Mexico. Some deserve mention because of their variety and exceptional or unusual morphology. Monazite (Ce) has been reported from many locations, but the Petaca district in Rio Arriba County has produced the most significant specimens. Blocky crystals several inches across and weighing many pounds have come from the Globe mine, along with “feathery” crystal aggregates. Pucherite, the rare bismuth vanadate, was found

at the Harding mine (Hlava, P. F., 1985). In 2018, vesignieite, a rare barium copper vanadate was found in excellent spherical crystal aggregates at the Wilson prospect on Copper Hill in Taos County (DeMark, R. S., et al., 2018). Agardite (La), a rare-earth calcium copper arsenate was found and described (Modreski, P. J., 1979) from the Red Cloud mine in Lincoln County. It was subsequently approved in 1981 as a new mineral with lanthanum dominant in the rare-earth site. A green tabular mineral found at the Comfort claim in the Mahoney district of Luna County in 1980 was determined by Paul Hlava to be an undescribed lead, copper arsenate molybdate. It was later approved to be new a mineral (molybdofoarnacite) from Tsumeb, Namibia. The Comfort claim find is reputed to be the third world occurrence (Northrop, S. A. and La Bruzza, F. A., 1996).

Many other species and locations are worthy of mention but are too numerous to cover in this presentation. Additional discoveries will undoubtedly continue with the enthusiastic and intense probing by New Mexico field collectors of the state’s mines and outcrops.

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