

# ***Aldrigeite und kellynoids von das Grube Kelly (Aldrigeite and kellynoids from the Kelly mine)***

Klaus Duhrberger

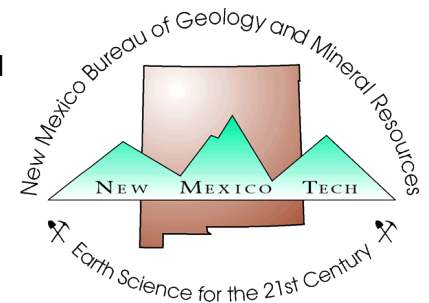
40th Annual New Mexico Mineral Symposium  
November 9-10, 2019, Socorro, NM  
pp.32-33

Downloaded from: <https://geoinfo.nmt.edu/museum/minsymp/abstracts/home.cfm?SpecificYear=2019>

---

The annual [New Mexico Mineral Symposium](#) provides a forum for both professionals and amateurs interested in mineralogy. The meeting allows all to share their cumulative knowledge of mineral occurrences and provides stimulus for mineralogical studies and new mineral discoveries. In addition, the informal atmosphere encourages intimate discussions among all interested in mineralogy and associated fields.

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



Abstracts from all prior symposiums are also available: <https://geoinfo.nmt.edu/museum/minsymp/abstracts>

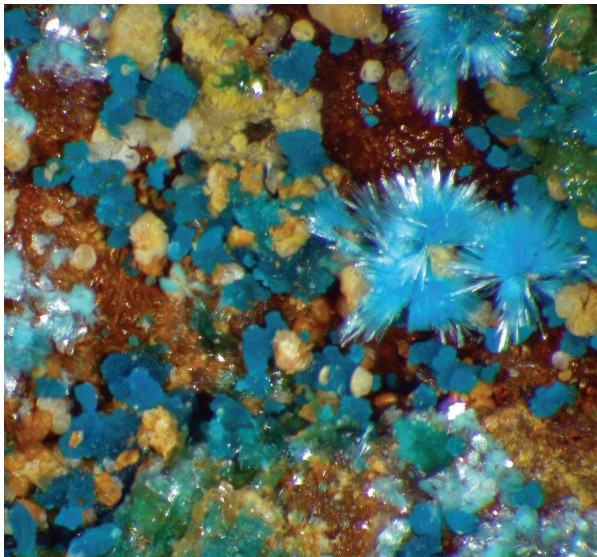
*This page is intentionally left blank to maintain order of facing pages.*

# Aldridgeite und Kellynoids von das Grube Kelly (Aldridgeite and Kellynoids from the Kelly Mine)

—by Doktor Klaus Fuhrberger

## Aldridgeite

A mineral assemblage was found in the Kelly Mine that had various secondary sulfate minerals. Most of the species were verified via xrd at the NMBG&MR. The identified minerals were aikinite (via eds, Travis Olds), chalcantinite, chlorite, covellite, galena, gypsum, ktenasite, neidermayrite, pyrite, acicular “serpierite”, and sphalerite. There were two unknowns, which were checked by Tony Kampf with pxrd and eds. Some yellow transparent acicular crystals turned out to be gypsum. The other, blue hexagonal-shape pearly-lustered wafers, turned out to be aldridgeite.



**Aldridgeite with 3 varieties (former “schulenbergesque” = wafers, former “serpierite” = prisms, and former “lazy serpierite” = spheres), with smithsonite and ktenasite (field of view = 6 mm).**

The Kelly Mine aldridgeite, (Cd,Ca) $(\text{Cu,Zn})_4(\text{SO}_4)_2(\text{OH})_6 \cdot 3\text{H}_2\text{O}$ , is the second reported occurrence in the world. It is the cadmium analog of serpierite,  $\text{Ca}(\text{Cu}^{2+}, \text{Zn})_4(\text{SO}_4)_2(\text{OH})_6 \cdot 3\text{H}_2\text{O}$ . Both minerals are monoclinic.

However, Kelly Mine aldridgeite has two habits and might be forming in two different crystal systems (consider that analcime can crystallize in any system!). Tony Kampf’s tests showed that the “serpierite” was also aldridgeite!

Aldridgeite was first published in 2015 and its xrd pattern was not in the NMBG&MR’s database, so it was missed on the initial tests. Both habits of crystals can exist on the same specimen.

## Kellynoids

The Kelly Mine is famous for its minerals, especially smithsonite. However, most of the ore in the mine lies within replaced Mississippian Kelly Limestone (323–354 myo), which can be fossiliferous, so it is not uncommon for Kelly Mine mineral specimens to have associated marine fossils. The most common being crinoid stem sections. Various brachiopods and horn corals have also been found associated with the minerals.

Additionally, the overlying Pennsylvanian Sandia Formation can be fossiliferous, with an even greater abundance and variety of fossils. However, if the sample originated in the mine, then it is more likely to be from the Kelly Limestone.

Whimsical names have been developed for some of the specimens. For instance, instead of labeling a specimen “smithsonite pseudomorph of a crinoid stem section”, the term “smithsonoid” is shorter and its intent seems obvious. This “abbreviating” can lead to many terms, such as smithsonoid, quartzinoid, calcinoid, hemimonoid, and crinophane. One also has to consider associated minerals attached to the fossils. Associations found so far include azursmithsonoid,



**Quartzinoid (8 mm long) with Baryte, Juanita Mine, Kelly, Socorro Co., NM**

hemimocalcinoid, brochantsmithsonoid, smithsoncricocalyx, wulfensmithsonoid, and malachrosasmithsonoid. Other discoveries with different fossils are azursmithsonhorncoral, hemimocalcinhorncoral, smithsonquartzinbrachyspirifer, smithsonbrachyderbyia, smithsonquartzinbrach, and hemimocalcinbrach, etc.

Certainly, other combinations are out there.



**Malachcerusgoethsmithsonhorncoral (6mm wide), Kelly Mine, Kelly, Socorro Co., NM**



**Azuresmithsonoid (11 mm diameter), Kelly Mine, Kelly, Socorro Co., NM**