

# DAISY MOUNTAIN ROCKCHIPS

The purpose of Daisy Mountain Rock & Mineral Club is to promote and further an interest in geology, mineralogy, and lapidary arts, through education, field experiences, public service, and friendship.

**VOLUME 5, ISSUE 9**

**SEPTEMBER 2020**



NATROLITE from Horseshoe Dam, Maricopa County, Arizona. *Photo by Stan Celestian*

**PRESIDENT'S VIEW**

**We bought amethyst hill!**

The Club is now the proud owner of The Blue Owl mine, more familiarly know to many of us as Amethyst Hill. This purchase is a milestone for The Daisy Mountain Rock and Mineral Club. This past year we determined that in order to preserve collecting sites for our hobby we needed to claim sites in-order to protect them from residential and commercial development as well as renewed interest in old mines by the mining industry. This purchase is in keeping with that decision. We paid \$5000.00 for the mine, not a small sum by any measure. We will also pay an annual fee of \$160.00 to the BLM before the first of September to maintain ownership.

What will we be collecting at The Blue Owl? The mine is known for specimen quality cerussite. Cerussite is a white lead crystal. Specimens from the mine are for sale on Esty and Amazon. Barite, amethyst, galena, fluorite and fluorescent calcite are also found on Amethyst Hill and the adjacent hill, which is also part of our claim. The Blue Owl was originally claimed as a silver mine. Silver is still available, mixed in with the galena, giving it noticeable bluish cast and deformed crystals. Perhaps at some point we will research how to extract the silver, an increasingly attractive idea as the price of silver is approaching \$30.00 an ounce.

Bill Freese has scheduled a field trip to the mine for November 21-22. Dave Haneline has been busy developing a protocol for our use, fees for other clubs and individuals, and maintenance of our mine. Stan Celestian is a past partner in the mine and has a PowerPoint presentation that all of us should be anxious to see as soon as the pandemic allows. Access to the mine is good. It is seven tenths of a mile off Constellation Road. The road in needs high clearance, but to get to the top of the Hill four-wheel drive is also needed. I had no difficulty attaining the top of the hill in my Nissan Murano with all-wheel drive. Over time we will need to improve the road, but one word of caution, if access is too good it will invite unwanted visitors. This has been a problem in the past. One incident involved a group of four wheelers who burned a large stack of pallets at the base of the hill leaving a residue of nails in the road.

I am extremely excited about this step into the future for our Club. We have a wonderful hobby that puts us in touch with our planet in an intimate and protective way. The purchase of the Blue Owl is the first step to ensure that we will be able to enjoy collecting, and at the same time ensure that special collecting sites will be available for future generations of rockhounds.

Ed Winbourne, President

**THE WORLD FAMOUS  
BLUE OWL MINE, YAVAPAI  
COUNTY, ARIZONA**

by Stan Celestian

The **Blue Owl Mine**, just a few miles east of Wickenburg, along Constellation Road, was initially a silver prospect that proved to be uneconomical. Its original name was the S and O Claim, and it was established in 1980. It was claimed by the Widham Drilling Company. Mining involved the development of a small pit with two shallow drifts, that created the existing talus slopes. In 1981, two 150' holes were drilled, and three samples were obtained and assayed. The results are illustrated on the following table:

*Blue Owl Mine continued on page 9...*

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## FOSSILS: PART XI

Kingdom: Animalia

Phylum: Mollusca Class: Scaphopoda

By Susan Celestian

Also known as “tusk shells” or “tooth shells”, scaphopods are a minor member of the fossil record. The name means “shovel foot”.

General scaphopoda characteristics are as follows:

- ▶ The geologic record of the class extends from the Mississippian (maybe Devonian) to Recent.
- ▶ The body plan is simpler than other molluscs: no heart, no gills, no blood vessels, simple nervous system (scattered ganglia), and digestive system (stomach, intestines, anus), and the only sensory organs detect the presence of food.
- ▶ The shell is tusk-shaped, and open at both ends.
- ▶ Scaphopoda habitat:
  - Scaphopods are exclusively marine.
    - ◊ They generally occupy soft substrates in offshore (subtidal) environments; although they are known in intertidal zones.
    - ◊ They have been found down to nearly 15,000 deep.
- ▶ Scaphopoda habit: .
  - Feeding habits: Scaphopods eat mainly diatoms and foraminifera, with some supplemental vegetation.
  - They have a relatively large radula (tooth-like structure) that grinds up the prey, for ingestion.
  - Adults spend nearly their whole lives buried in sediment. Sometimes they will extend their shell a bit into the water for expulsion of waste and re-oxygenation. Their shell is oriented with the larger end furthest into the sediment, and the narrow end closest to the water.

*Scaphopoda continued on page 4....*



## NATROLITE

By Susan Celestian

Natrolite most often forms in the cavities of basalts. The best collectable natrolite in Arizona is found in the rubble on the slopes, down to the river, off the road near the entrance to Horseshoe Dam campground. Globally, it occurs in many places; however, the most notable specimens come out of the flood basalts of the Deccan Traps, in India.

Hot water, circulating through the cooled basalt, dissolves out silica and other elements. After ‘cooling’ to about 350°F, crystals form out of the water, in the vesicles in the basalt. *Do you remember what a basalt is called when the vesicles are filled with minerals?*

**Chemical Formula** -  $\text{Na}_2\text{Al}_2\text{Si}_3\text{O}_{10} \cdot 2\text{H}_2\text{O}$

**Crystal System** - Orthorhombic (3 axes of unequal length and at 90° to each other). Go to [Mindat](#) and scroll down to interactive graphic of crystalline natrolite.

**Growth Forms/Habits** - acicular, often radial and forming balls; more rarely large crystals

**Hardness** - 5-5.5

**Color** - Colorless, white, light gray; sometimes yellow, brown, green, pink

**Luster** - vitreous to pearly

**Streak** - white/colorless

**Specific Gravity** - 2.2-2.3

**Cleavage** - perfect in one plane

**Fracture** - uneven

**Other** - may fluoresce (white, yellow, light blue)

- dissolves in HCl

- it fuses in a candle flame (which Na turns yellow)

**Uses of Natrolite:** ion exchange in water purifiers and other chemical filters

*Natrolite continued on page 4....*

...Scaphopoda continued from page 2

- Mobility: Scaphopods burrow by pushing and pulling with their foot.
- Reproduction:
  - ◊ Scaphopods are either male or female.
  - ◊ Eggs and sperm are released into the water, where they are fertilized.
  - ◊ After a planktonic stage, the offspring settle into soft sediment, where they mature into adults.

Images of scaphopod fossils follow, in Figures 1-2.



**FIGURE 1 MODERN SCAPHOPODS** This assortment of tusk shells (*Dentalium* sp.) were collected in Cholla Bay, at Rocky Point, Mexico. Length 1.5", large diameter 1/8"  
Photo by Stan Celestian



**FIGURE 2 FOSSIL SCAPHOPODS** This scaphopods (*Dentalium* sp.) weathered out of the Miocene Astoria Formation, at Beverly Beach, Oregon. Length 2+", large diameter 1/4"  
Photo by Stan Celestian

#### GENERAL RESOURCES FOR SCAPHOPODA

[https://en.wikipedia.org/wiki/Tusk\\_shell](https://en.wikipedia.org/wiki/Tusk_shell)

<https://ucmp.berkeley.edu/taxa/inverts/mollusca/scaphopoda.php>

<https://ucmp.berkeley.edu/taxa/inverts/mollusca/scaphopoda.php>

#### Zoom Board Member Meeting Minutes August 20, 2020

In attendance: Bill F., Claudia M., Cynthia B. (on phone), Deanne G., Don R., Ed W., Jessica C., Rebecca S., and Tiffany P.

- Claudia M. updated us on the scholarship
  - ◊ Hannah Nichols had her scholarship sent to Mesa Community College
  - ◊ Good luck to this Soil Science major!
  - ◊ Updated scholarship page for next year can be found online
  - ◊ Thank you again Claudia M. for all your hard work on the scholarships
- Claudia M. reminded the club that **t-shirts are available**
  - ◊ Please email her to receive [cmarek2@cox.net](mailto:cmarek2@cox.net)
- Cynthia B. discussed the financials
  - ◊ Dues to Rocky Mountain Federation expected Dec. 15
  - ◊ Revenue was lost due to show cancelation
    - ◊ Club still in good standing
    - ◊ If necessary, small business loans are available
- Ed W. discussed upcoming club meetings
  - ◊ Everyone was given a chance to talk and give suggestions
  - ◊ There was a unanimous consensus to pause general club meetings
    - ◊ We are looking into outside venues for either Oct. or Nov. weather permitting
      - \* We understand this is a difficult time and apologize for any Inconvenience
    - ◊ Health and attendance are the largest concerns
      - \* Room capacity at the civic building is currently 30 ppl
    - ◊ The board will continue to meet when available
    - ◊ Jennifer G. would like to have another wire wrapping class
      - \* She will email club when date is set

Minutes continued on page 6....

...Natrolite continued from page 2

Natrolite is a zeolite. Zeolites are hydrous microporous silicates -- they hold a lot of water within their crystal structure, and on a microscopic scale they are full of holes. The positive ions ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ) are only loosely bound, and easily given up. Both of those characteristics make zeolites (including natrolite) very useful. Not all zeolites are suitable for all applications, and in fact most commercial zeolite use is of synthetic zeolites, because the purity and composition can be controlled. Some of the uses are:

- used for ion exchange in water softeners and purifiers
- sieve out particles from water and other commercial liquids -- particles that can't get through all those holes in the molecules.
- remove nitrogen from oxygen generated for high altitude air supplies and portable home oxygen supplies.
- catalysts and absorbants
- capture of nuclear waste ions
- cat litter - non-clumping
- laundry detergent (softens water)
- additive to Portland Cement, to slow drying times, which improves strength, and to lighten the weight of the material
- Zeolites in Debbie Meyer Green Bags, absorb ethylene, to extend the shelf life of produce we bring home from the grocer.
- QuikClot (a product that stops bleeding)
- absorb ammonia in aquaria and bird droppings
- amendment to potting soil (absorbs water and releases over time)

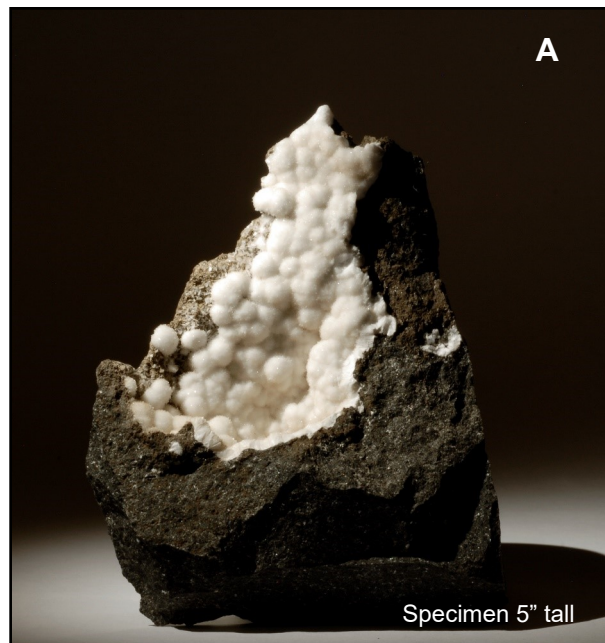
See Natrolite in Figures A-C.

#### GENERAL RESOURCES FOR NATROLITE:

<https://www.mindat.org/min-2947.html>

<https://www.minerals.net/mineral/natrolite.aspx>

<https://www.instagram.com/p/Bsx-QEqAAhm/>



**FIGURE A** These three photos highlight the typical characteristics of natrolite from Horseshoe Dam in Maricopa County, Arizona. The long, slender (acicular) crystals are arranged radially, forming hemispheres or mounds, nestled in pockets in basalt.

*Photos by Stan Celestian*

*Natrolite continued on page 5....*

...Natrolite continued from page 4



**FIGURE B “OPTICAL” NATROLITE** This is another view of the specimen on the cover page of this newsletter. Note that each crystal transmits light, such that each crystal glows at its tip. The ball is about 0.5” across. The fuzzy white material beneath the natrolite is another, as yet unidentified, zeolite.

*Photo by Stan Celestian*



**FIGURE C NATROLITE AND ANALCIME** This specimen from Robertson Quarry in Dayton, Mason County, Washington. The crystals are very slender and delicate. The view is about 7” x 5” *Photo by Stan Celestian and used with permission of Mineral Sciences, Museum of Natural History of Los Angeles County (NHMLA-25163)*

#### GENERAL RESOURCES FOR NATROLITE:

<https://www.mindat.org/min-2947.html>

<https://www.minerals.net/mineral/natrolite.aspx>

<https://www.instagram.com/p/Bsx-QEqAAhm/>

Aaron Celestian, mineral curator at the Natural History Museum of Los Angeles County, wrote an article for his blog, titled “[How a mineral gets bigger when squeezed](#)”. In fact, natrolite was the first zeolite discovered to expand when squeezed. If you are interested in this seeming paradox, “and what it can tell us about planetary processes in our solar system”, click on the link above. It’s a very interesting article, and he writes for the non-mineralogist.

*Minutes continued from page 3....*

- Bill F. discussed upcoming field trips
  - ◊ These have been going well and will continue
  - ◊ Capacity will depend on area
  - ◊ First trip for the season set for late September
    - \* Will have sign-up and email sent out soon
  - ◊ Fires, weather, and COVID are making locations difficult
    - \* Any suggestions are always welcome
    - \* Payson, Prescott, Strawberry Pine, Bloody Basin, and Sunset Crate mentioned as possible future trips
- Ed W. updated us on the show
  - ◊ School will not allow us to use gym
  - ◊ We will wait and see if March show is possible in a new location
    - \* Quartzsite show will be a helpful indicator to decide how we proceed
- Sadly, John M. has stepped down from his role on the board
- ▶ Dues are coming up soon, Tiffany will send out email with Square payment option when available

Respectfully submitted, Rebecca Slosarik

# FIELD TRIP TO PAYSON

## Saturday, September 26, 2020

Field Trip Committee chair, Bill Freese led a field trip to a hillside near Payson -- a hillside chock full of geodes. A small group ventured forth -- a morning filling buckets with treasure, followed by a leisurely lunch along the idyllic banks of the East Verde River. ....Now we hope a lot of them are hollow!  
*Photos by Bill Freese.*

Work on those arm muscles -- and be sure to reserve a spot on the next trip!



Ready and raring to fill those buckets with geodes!



Good to see Clark & Marie out and about!!

*JoAnn and I had a great time today picking geodes. We got a solid five gallon bucket full. As usual the field trip went off without a hitch. We appreciate your preparedness and fun trips.  
Mike Speciale*



Geodes continued on page 8...

....Geodes continued from page 7

We really enjoyed ourselves today. Geodes all over the place, beautiful picnic area, and the weather couldn't have been better! Thank you so much! JoAnn Speciale



Thanks for the fun today up Payson way. The geodes were so fun to find, and resting by the creek even better. What a fun day. Can't wait for the next time. Got a bucket full to share. Maria and Clark



Clipart courtesy FCIT



This is one geode that Stan Celestian collected on the scouting trip, the week before the field trip. A few like this could really sparkle up your garden!





....Blue Owl Mine continued from page 2

	GOLD OZ/TON	SILVER OZ/TON
	Current Value \$1962/oz	Current Value \$27.25
Sample 1	0.006 \$11.72	4.05 \$110.36
Sample 2	0.007 \$13.73	0.45 \$12.26
Sample 3	<0.001	3.95

In 1982, Nyal Niemuth, of the Arizona Department of Mining and Minerals (ADMM), identified the following minerals from the samples:

- Silver Halide
- Sulfosalts
- Barite
- Iron Oxides (Hematite and Limonite)
- Quartz (Smoky, Amethyst)
- Fluorite
- Calcite
- Siderite
- Cerussite

In 2005, Richard Zimmermann filed a claim on the mine, that occupies a portion of Amethyst Hill, and extends northwest to a calcite-bearing seam, along the top of a small hill. The mine was renamed the Blue Owl. The mine name resulted from the fact that at the time, Zimmermann owned the Midnight Owl Mine (a famous pegmatite mine), and in keeping with avian naming, decided to call it the Blue Owl, because the mine is within the Blue Tank Wash drainage area.

Richard Zimmermann, along with Stan Celestian, worked the mine for “fun” until 2020, when it was obtained by the Daisy Mountain Rock and Mineral Club through the efforts of Ed Winbourne, Dave Haneline, and Stan Celestian.

Zimmermann and Celestian worked the mine for quality cerussite crystals. Several specimens sold for over \$200, mostly to Arizona collectors. They did not find much amethyst (at Amethyst Hill) and often joked “Barite Hill” would be a more appropriate name, based on the abundance of that mineral. Along with the prize cerussite crystals, hand-sized specimens of white barite crystals were collected for sale. Much of the barite was also used in “Teacher Kits” for the Arizona Mining and Mineral Museum, and later for Mardy Zimmermann’s outreach programs, through the Earth Science Museum. Mardy would also invite her fluorescent collecting friends out to the mine for evening searches of fluorescent would minerals. Most

....Blue Owl Mine continued from page 9

Notable they collected reddish-orange fluorescent calcite, blue fluorescent fluorite, and greenish fluorescent common opal, that often encrusted barite crystals.

The mine is easily accessible off Constellation Road, about 6.5 miles east of Wickenburg. The mine is located in Yavapai County. See Figure 1'.



**FIGURE 1'** This is a general view of the area providing the spatial relation between the city of Wickenburg and the location of the Blue Owl Mine. The blue line separates Maricopa County (below) from Yavapai County.

Constellation Road is a fairly well maintained road upon which any "normal" vehicle can navigate, at least to the junction with the turn off to the north (unmarked - Blue Owl Mine Road). From the turn it is about 1 mile to mine. The last 0.2 miles up to the mine is over a poor road and high clearance is required. Once at the mine, parking is limited to about 5 or 6 vehicles if the parking process is well organized.

Collecting at the mine can be achieved by looking through the rubble within the pit and along the talus slopes on the north side of Amethyst Hill. Much barite can be found in small outcrops in the pit as well as in the parking area. Amethyst can also be found in the rocks in the pit and along the rocks surrounding the pit. However, good purple color would most likely be found by digging below the surface as the amethyst bleaches to clear (or milky) with prolonged exposure to ultra violet light in sunlight.

....Blue Owl Mine continued from page 10

To search for **cerussite** (a lead carbonate) one must dig into the solid rock walls of the pit. There are still several promising areas in the pit area, that will absolutely yield excellent cerussite crystals. Zimmermann and Celestian had the advantage of using jackhammers to break up the wall rocks and expose pockets. As a general rule, while digging in the brecciated (fragmented) wall rock, every time a large boulder was removed, a barite-lined pocket would be uncovered, that included at least a few cerussite crystals. Working a pocket on April 1, 2007 Celestian uncovered a single pocket that contained 87 cerussite crystals. Unfortunately, they were not all prize specimens.

The most prized specimens from the mine were lustrous cerussite crystals, perched atop clean white barite crystals. Obtaining the "matrix" specimens was very difficult. In most cases the cerussite was the last mineral to form in the pockets. Their attachment to the barite was very tenuous, and they were very easily dislodged. When exposing a cerussite crystal on barite, they often created a net or cushion below the crystal with toilet paper or paper towels. This was an attempt to preserve the pristine nature of the crystal, when it fell off the matrix, as they carefully tried to remove the underlying barite from the pocket.

In the vast majority of cases, the cerussite crystals were found dislodged from the walls of the pocket, and simply laying on the bottom of the pocket. The crystals may have been dislodged from the vibrations associated with earlier (prior to 2005) mining operations. Heavy equipment could have caused the crystal to break away from their matrix, and/or blasting to remove rock could certainly released crystals from their precarious footholds. The author knows of at least one day of blasting in the late 1980's.

Zimmermann and Celestian did not use any blasting at the mine. After the terrorist attack of 9/11/2001, obtaining dynamite and legally storing it, became very difficult for weekend miners. Instead, they used Dexpan ©, an expansive concrete. Several 6' deep holes were drilled into the wall rock, or boulders that required removal. The Dexpan was then mixed with water and poured into the holes. As the Dexpan hardened, it had the expansive capability of 18,025 pounds per square inch. The advantages of using the expansive concrete was that it was easy to obtain, much safer than dynamite, cheaper, and had the added advantage of not creating a shock wave or vibrations that could potentially damage crystals. Dexpan-filled holes were normally left overnight. The next day revealed many cracks in the rocks, that permitted easier removal. Here is a link to at least one source for Dexpan: [DEXPAN](#) There are many other hardware stores that offer the product as well.

Located on the northwest part the claim there is also a calcite vein. Zimmermann included it as part of the 20-acre claim, because it was a plentiful source of cleavable calcite for Mardy's use in her outreach efforts. The calcite hill had been prospected at least 60 years ago. Small amounts of chrysocolla (a copper silicate) can still be found in the rocks around the hill. There is also an abundance of milky quartz scattered along the hillside. The origin of the quartz is from a pegmatite on the adjacent hill.

The calcite is primarily white, with streaks of gray and brown from inclusions. Often large (12") fragments can be recovered from the vein, that strikes along northeast/southwest direction. A small pit was created many years ago by prospectors, who noted the small coppery "color" in the rocks. They were most likely looking for gold, which is often associated with copper deposits. The material excavated from the pit was dumped immediately to the west. That loose material is easily dug into, and has yielded hundreds of pounds of cleavable calcite. Undoubtedly, much more still remains in those piles.

....Blue Owl Mine continued from page 11

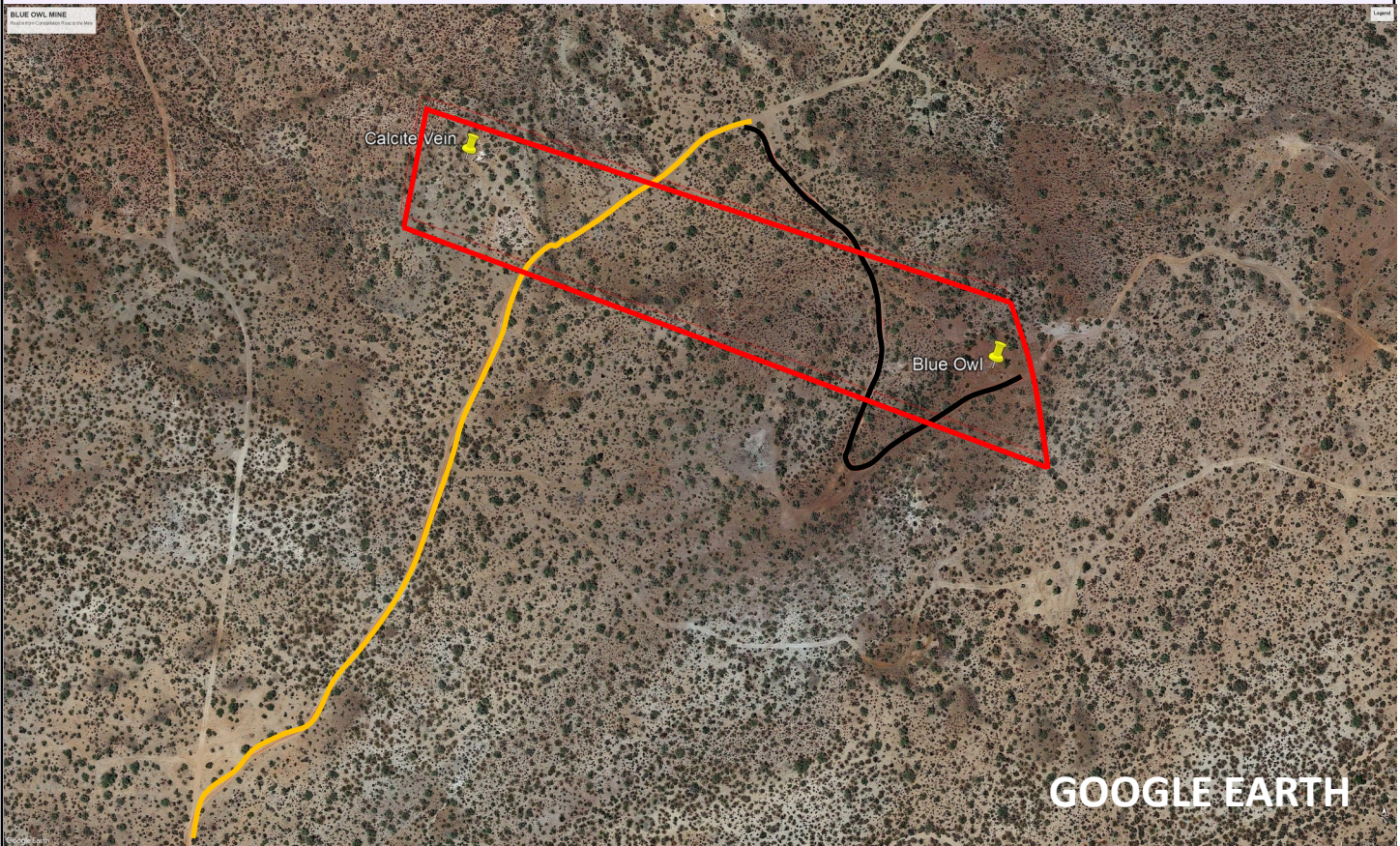
The area around the claim has many small veins of fluorite. The author has found several one-inch fluorite octahedrons laying on the surface. They were highly weathered, but were greenish in color when fresh. Attempts at finding a producing vein were futile. Veins of amethyst, some mixed with purple and green fluorite, have been found. A very productive vein of amethyst was excavated by Zimmermann and Celestian in 2013 (see Figure 2'). A few small crystals of wulfenite were also found along with small pockets of barite. These were found 0.43 miles due north of the Blue Owl Mine.



**FIGURE 2' BEAUTIFUL VEIN OF AMETHYST**  
The hills host many veins that come and go, crisscrossing the countryside.  
*Photo by Stan Celestian*

It is a wonderful place to explore... in cool weather.

See Figures 3'-9' for views of the claim.



**FIGURE 3' A CLOSER VIEW OF THE CLAIM** (outlined in red). This view shows the position of the Blue Owl Mine on top of what is locally known as Amethyst Hill. The yellow pin on the left is in the far western portion of the 20-acre claim, and indicates the position of the calcite hill. The orange line represents a "good/fair" dirt road. The black line is the final 0.2 miles up to the claim and is very rough.

....Blue Owl Mine continued from page 12



**FIGURE 4'** This is an aerial view looking northeast of the Blue Owl Mine, with the author's Toyota Tacoma parked above the pit. It shows two waste piles, created prior to 2005. The current productive area for cerussite is along the north facing pit wall (in the shadow). Photo by Stan Celestian



**FIGURE 5'** This is a closer aerial view of the pit, and also shows the extent of the parking on the hill top. Even from this view, the reddish brown wall rock can be seen. The rock fragments are also visible. The primary ore, galena, was brought into this area by hydrothermal fluids (basically mineral-rich hot water). The fluids moved along a fault line. The fault fragmented the host rock (an igneous rock called diorite). Faulting also opened the rock, so that the fluids could easily move through it. It was along these "water courses" that mineral deposition took place. The red line represents the approximate position of where the galena was found. Well over a hundred pounds of metallic, lustrous galena (PbS) were removed from this area. Another, smaller vein of galena was found near the base of the wall. Veins of barite and quartz can also be found in the wall. Photo by Stan Celestian

....Blue Owl Mine continued from page 13



**FIGURE 6'** Some of the heavy equipment that was used during the early exploration of the Blue Owl. Note the massive white barite crystals in the bucket. Photo by Stan Celestian



**FIGURE 7'** Zimmermann provided all of the mining equipment used at the mine. Here he is using a backhoe to muck out an area in the pit. Above the pit is "LeRoi" (LeRoi Airmaster 125 air compressor), a vintage air compressor made in 1942. As you can imagine, getting LeRoi operational was both a science and an art. It came with a hand crank, to get it to turn over. When running, it pumped enough air to operate Zimmermann's 60 pound jackhammer.



Malfunctions seem to be a persistent problem for all levels of mining. That was evident at the Blue Owl Mine as well. Fortunately, Zimmermann was a persistent problem solver. Here he has dismantled the carburetor, to check the gas line for blockage.

Funny... every time he brought out the air compressor, he stated it was running smoothly at his garage.

*Photos by Stan Celestian*

....Blue Owl Mine continued from page 14



**FIGURE 8'** A bulldozer was also in his arsenal of "toys". Here Zimmermann is filling in one portion of the pit to create a path to push the muck up the east side of the pit. Within the "Mining Plan of Operation" it was stated no material would be pushed down the slope. The plan was to push up all of the muck to one side, and then after the mining operation ceased, that muck would be used to fill in the pit and modify the contours of the hill.

Because the mine was sold to Daisy Mountain Rock and Mineral Club, that muck was not moved into the pit.

*Photo by Stan Celestian*



**FIGURE 9'** The vast majority of cerussite crystal recovery was done with hand tools. Once a pocket was opened, prybars and screwdrivers were used to open the pocket and delicately extract the barite wall rock, to retrieve the cerussite specimens.

In this picture Zimmermann (left) is looking at some promising red mud (hematite-rich clay). Barite-filled pockets, along with cerussites, were often found in the mud.

On this day, Dr. Aaron Celestian was a guest and tried his hand in a promising area of the pit.

*Photo by Stan Celestian*

....Blue Owl Mine continued from page 15

Figures 10'-24' are photos of the minerals from the mine.



**FIGURE 10'** This is the April 1st pocket, previously mentioned. The pocket is just to the left of the hammer, and contains many clay-coated cerussite crystals. A portion of the pocket had collapsed, and fragments had fallen to the bottom. Removal of those fragments revealed many crystals.



This is just the beginning of crystal removal from that pocket. It shows several nice specimens. Note the two delicate "snowflakes" on the ring finger of the right hand glove. Also note that all but one specimen is not attached to the matrix. It was very unusual to retrieve crystals perched atop the barite matrix. And even more rare that those crystals were lustrous and on clean barite, as much clay was associated with these pockets.

*Photos by Stan Celestian*



....Blue Owl Mine continued from page 16



**FIGURE 11'** This view is of the wall above the pit and shows the brecciated (broken angular fragments) of the igneous rock, diorite. Brecciation is often associated with earth movements, as along fault planes. The sudden movement breaks the rocks into many angular fragments. The process of brecciation tends to open up pore spaces, many of which are interconnected. These connected spaces can then be channels, through which mineralized fluids can be transported.

The primary ore at the mine is a silver-bearing galena (PbS - lead sulfide). This ore was then acted upon by aqueous fluids to produce the carbonate secondary mineral, cerussite ( $\text{PbCO}_3$ ).



During the mining process it became apparent that pockets, within the veins of barite, occurred below the large brecciated fragments of the diorite. The image to the left is a close-up view of the wall of the pit, and shows the angular fragments of diorite (dark gray). The white areas are barite, and most everything is coated with a layer of hematitic clay.

Many of the diorite fragments were surrounded by veins of barite, which was most likely the first mineral to be deposited in the channels created by the brecciation (faulting) of the rocks. Below this picture of the wall rock, I have colored some of the larger blocks of the brecciated diorite in purple.

In most cases, removal of one of these large fragments exposed a pocket below the fragment. Around 90% of the time these pockets contained cerussite crystals.

One other tendency was noted during the years of collecting. The cerussite crystals closer to the top of the pit were lighter in color, in fact, often white and pseudo-hexagonal. (See Figure 11'.) The deepest and most lustrous crystals of cerussite were much darker in color, and were found in the deepest portion of the pit.



*Photos by Stan Celestian*

....Blue Owl Mine continued from page 17

# CERUSSITE

Lead Carbonate  $\text{PbCO}_3$



**FIGURE 12' PSEUDO-HEXAGONAL CRYSTAL** Note that the outline of the crystal is hexagonal. Cerussite is orthorhombic (as is aragonite -  $\text{CaCO}_3$ ). However, the *nature* (size and electrical properties) of the carbonate radical tends to exert itself by producing a more hexagonal-looking group of crystals. This crystal can be thought of as 3 crystals growing together, to form cyclic twins.

The bottom illustration is the same image but with different shading to show how the three different crystals are intergrown, to produce the cyclic twin.

I have added small arrows on the top diagram to show the clues to crystal twinning. The clues in this specimen are the small V's, that distinguish one crystal from the adjacent -- the area indicated by the small red arrows. I have picked out the three most obvious areas in the specimen, where the V's are located. Of the three, the bottom right one is the most pronounced.

Once the V's are located, the dark lines were drawn to distinguish one crystal from another. *Photos by Stan Celestian*



**FIGURE 13' ANOTHER TWINNED CRYSTAL OF CERUSSITE** This one, however, does not have the complete transformation to the pseudo-hexagonal outline, as the one in Figure 12'.

Both of these crystals were collected in the upper regions of the mine. *Photo by Stan Celestian*

Blue Owl Mine continued on page 19.....

....Blue Owl Mine continued from page 18



**FIGURE 14' OTHER FINE EXAMPLES OF CERUSSITE CRYSTALS FROM THE BLUE OWL MINE**

*Photos by Stan Celestian*

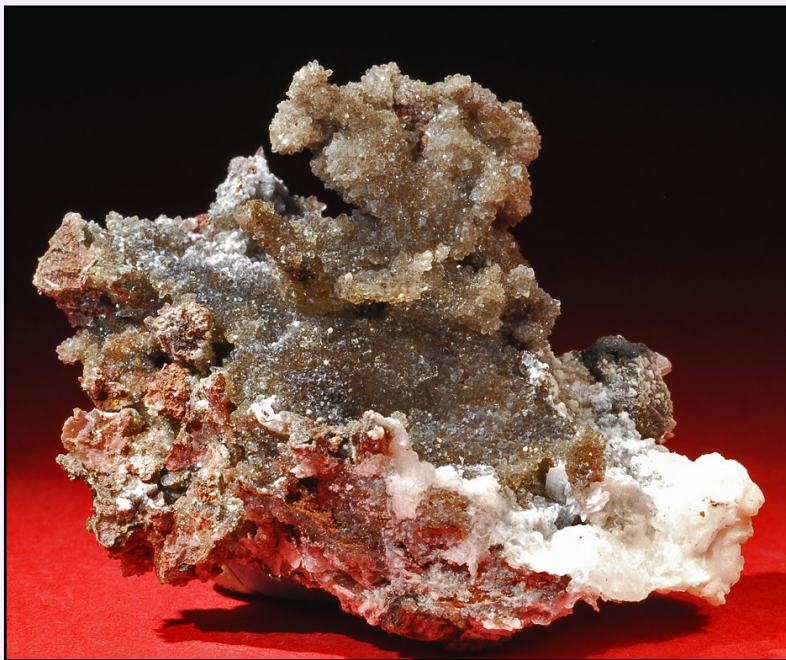
....Blue Owl Mine continued from page 19

# Other Minerals from the Mine



**FIGURE 15' SHARP AND LUSTROUS CRYSTALS OF SMOKY QUARTZ**

*Photo by Stan Celestian*



**FIGURE 16' DRUSY QUARTZ COATING MUD** In certain areas of the mine, drusy quartz was the last deposit to form. It formed a coating on many things, including calcite, barite and even mud.

*Photo by Stan Celestian*



**FIGURE 17' DRUSY QUARTZ COATING A FORMER FLUORITE CRYSTAL** The white crystalline mass, on the left, is Calcite. (Only small streaks of purple fluorite were found at the mine.)

*Photo by Stan Celestian*



**FIGURE 18' AMETHYST VUG** An amethyst vein is exposed on the south wall of the pit. It is near the top of the wall, and in the eastern portion of the pit. It is very hard rock.

*Photo by Stan Celestian*

....Blue Owl Mine continued from page 20

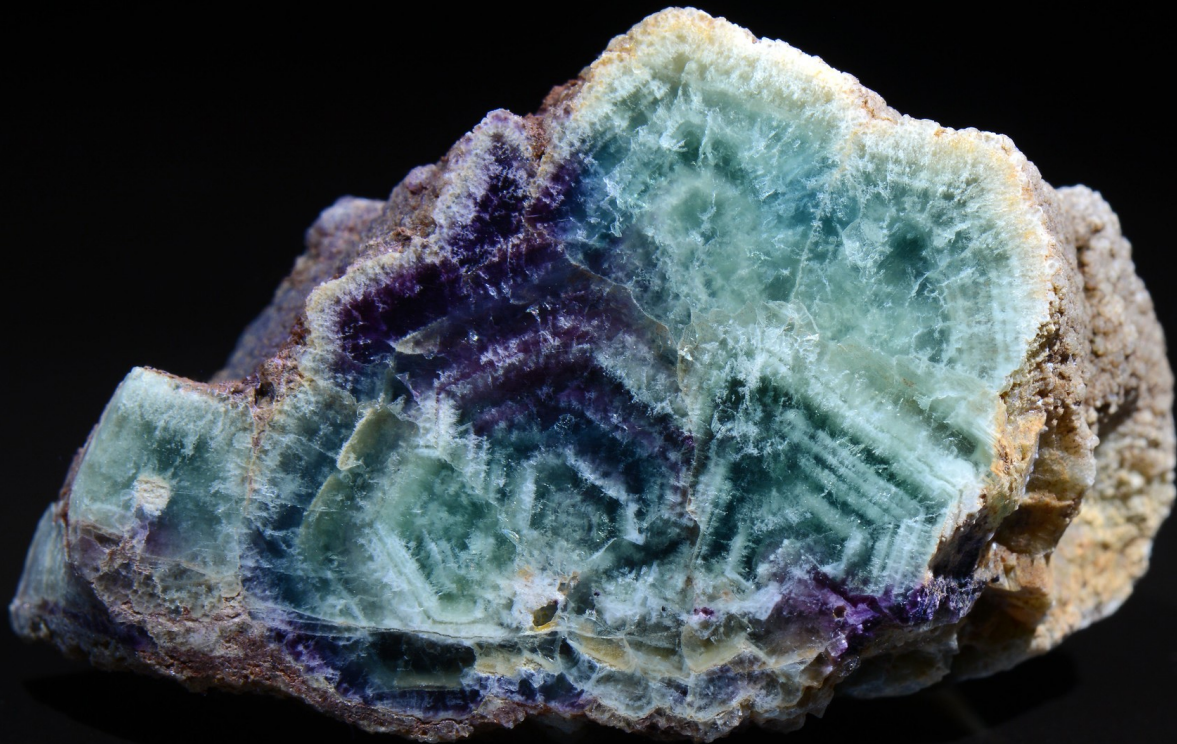


**FIGURE 19' BARITE** is very common in the mine. In most cases, the crystals are covered (or at least lightly coated) with a hematite-rich clay. In a few areas, the barite is very clean and very white. Some specimens, as this one, were durable enough to be collected. *Photo by Stan Celestian*



**FIGURE 20' GALENA** displaying a bright metallic luster, from the north wall of the pit. This galena does not display the typical very good cubic cleavage. This is due, in part, to the presence of silver ions, which tend to disrupt the cleavage planes. This is called argentiferous (silver-bearing) galena. *Photo by Stan Celestian*

## In the Area



**FIGURE 21' BI-COLOR FLUORITE** This specimen was found outside of the claim area, but still on Amethyst Hill, during 2019. There are many small veins of fluorite cutting through the country rock in the area. Most have a strike (orientation) north/south. *Photo by Stan Celestian*

....Blue Owl Mine continued from page 21

# From the Collection of Dave Haneline



**FIGURE 22'** A FINE SPECIMEN OF AMETHYST FROM THE CLAIM AREA  
*Photo by Dave Haneline*



**FIGURE 23'** GALENA A massive chunk of Galena from the vein on the north side of the pit.  
*Photo by Dave Haneline*



**FIGURE 24'** BARITE FROM THE PIT  
*Photo by Dave Haneline*

**UPCOMING FIELD TRIPS & MEETINGS**

**WHERE:** Bronzesmith, Prescott Valley  
**WHEN:** Thursday, October 8, 2020  
**WHAT:** Bronze foundry tour; limit 10  
**MEET:** McDonalds in Prescott Valley at 10:40 (tour at 11)  
**OTHER:** <https://bronzesmith.com/>; fee \$10; Mask needed  
**LEADER:** RSVP to [bfreese77@cox.net](mailto:bfreese77@cox.net)

**WHERE:** Mingus Mountain  
**WHEN:** Saturday, October 17, 2020  
**WHAT:** Banded Iron

**WHERE:** Chilito Mine  
**WHEN:** Saturday, November 7, 2020  
**WHAT:** Chrysocola (beautiful yard rocks)

**WHERE:** Blue Owl Mine  
**WHEN:** Sat/Sun, November 21 & 22, 2020  
**WHAT:** Barite, Cerussite, possible Galena & Amethyst

**WHERE:** Red Cloud Mine  
**WHEN:** Saturday, December 5, 2020  
**WHAT:** Wulfenite

**WHERE:** Cave Creek area  
**WHEN:** Saturday, December 12, 2020  
**WHAT:** Jasper

**WHERE:** Blue Cube & Prism Mines  
**WHEN:** Saturday, December 19, 2020  
**WHAT:** Fluorite

**WHERE:** Burro Creek  
**WHEN:** Saturday, January 9, 2021  
**WHAT:** Jasper, Agate

**WHERE:** Purple Passion  
**WHEN:** Saturday, January 16 (evening), 2021  
**WHAT:** Fluorescents

**WHERE:** Quartzsite  
**WHEN:** Saturday, January 23, 2021  
**WHAT:** Mineral Show

**WHERE:** Tucson Show  
**WHEN:** Saturday, February 6, 2021  
**WHAT:** Show & Shopping!

**WHERE:** Dobell Ranch & Grand Falls  
**WHEN:** Saturday, February 13, 2021  
**WHAT:** Petrified Wood

**WHERE:** Brenda area  
**WHEN:** Saturday, February 20, 2021  
**WHAT:** Jasper

**WHERE:** Safford/Black Hills Rockhound Area  
**WHEN:** Fri-Sun, February 26-28, 2021  
**WHAT:** Desert Roses & Fire Agate

*Field Trips continued on page 22....*

**FACEBOOK**



Visit and join the club page periodically. See what is happening, and boost our visibility on the web. Go to: [The Daisy Mountain Rock and Mineral Club](#). It is set up so you can post photos of outings or related items. Share with friends!

**AWARD-WINNING WEBSITE**

<http://www.dmrmc.com/>

If you have comments, contact Nancy Gallagher.

**INSTAGRAM**



Follow the club on Instagram. Go to <https://www.instagram.com/daisymountainrockclub/> and follow today. Share with friends!

**Officers, Chairpersons, & Trustees**

**President:** Ed Winbourne.....[ewinbourne@gmail.com](mailto:ewinbourne@gmail.com)  
**Vice President:** Bill Freese..... [bfreese77@cox.net](mailto:bfreese77@cox.net)  
**Secretary:** Rebecca Slosarik .. [rslosarik1@gmail.com](mailto:rslosarik1@gmail.com)  
**Treasurer:** Cynthia Buckner....[Cbuckrun1@q.com](mailto:Cbuckrun1@q.com)  
**Publicity:** Jessie Redmond...  
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**Editors:** Susan & Stan Celestian.....  
[azrocklady@gmail.com](mailto:azrocklady@gmail.com)  
**Field Trip:** Bill Freese ... [bfreese77@cox.net](mailto:bfreese77@cox.net)  
**Show Chair:** Ed Winbourne  
**Trustees:**

Cynthia V	Claudia M
Susan C	Tiffany P
Bob E	Jim R
Jennifer G	Witt R
Don R	Howard R
Jessica C.	Rebecca S
Johnaton M	Joe G
Clark L	

Meetings are held the **1st Tuesday of the month** at the **Anthem Civic Building**, 3701 W Anthem Way, Anthem, AZ 85086. General meeting at 6:30 pm. We **do not meet in July or August.**

[DMRMCLUB@GMAIL.COM](mailto:DMRMCLUB@GMAIL.COM)

**Membership Dues:**  
**First year \$30, then \$20.00 Adults per Person**  
**First year \$45, then \$25.00 Family (2 people)**

**Meeting Dates for 2020**

Jan 7, Feb 4, Mar 3, Apr 7, May 5, June 2, Sept 1,  
 Oct 6, Nov 3, Dec 1

**MEETINGS CANCELLED UNTIL FURTHER NOTICE DUE TO COVID-19 RESTRICTIONS**

**WIRE-WRAPPING CLASS**

4:30-6:30 pm

Prior to the meeting

**Bring:** cab or stone, about quarter-sized or larger; 26 and 18 or 20 gauge copper-based wire; round nose pliers and flush wire cutter, beads (optional), little clamps, masking tape, E6000 jewelry glue.

Free, but donations are appreciated.

Questions? Contact Jennifer at  
Jennifer@eliteshuttersandblinds.com

MEETINGS ARE ON HIATUS FOR THE SUMMER NOW. HOPEFULLY, WE WILL BE ABLE TO RESUME IN THE FALL -- BUT WATCH FOR A SPECIAL SESSION SOON

BRING PAPER & A PEN TOO!

Looking for something to practice while you hunker down at home? Browse YouTube and Pinterest for tutorials. They are great resources -- no substitute for the personal attention of Jennifer, of course.

**NEEDED: QUALITY MINERAL (or OTHER) DONATIONS WITH LABELS** -- for monthly raffle prizes; and for raffle, door prizes, and sales tables at the annual show. If you have specimens to donate, please see Robin Shannon. The Daisy Mountain Rock and Mineral Club is a 501(c)(3) non-profit organization, and will gratefully acknowledge your donation with a Tax Deduction Letter. Thank You!

**NOTE FROM THE EDITORS**

Have a geological interest? Been somewhere interesting? Have pictures from a club trip? Collected some great material? Send us pictures -- or write a short story (pictures would be great).

Deadline for the newsletter is the 22nd of the month.

Mail or Email submissions to:

Susan Celestian  
6415 N 183rd Av  
Waddell, AZ 85355  
azrocklady@gmail.com



Visit <http://rmfms.org/> for news about conventions, events, and associated clubs. If you are travelling, you might want to contact a club local to your destination. Maybe they have a field trip you could join, while in town.

**UPCOMING AZ MINERAL SHOWS**

**October 9-11 - Buckeye, AZ** West Valley Rock & Mineral Club; Buckeye Arena, 802 N 1st St; Fri-Sat 9-5, Sun 9-2; Admission: adults \$3, children under 13 free. See Poster on page 16.

**October 10-11 - Sierra Vista, AZ** Huachuca Mineral & Gem Club; Cochise College, 901 N Colombo Av; Sat 9-5, Sun 10-4; Admission: free.

**November 28-29 - Wickenburg, AZ** Wickenburg Gem & Mineral Society; Has-sayampa Elementary School, 251 S Tegner St; Sat 9-5, Sun 10-4; Admission: Free.

If you are travelling, a good source of shows AND clubs is <http://the-vug.com/educate-and-inform/mineral-shows/> or <http://www.rockngem.com/ShowDatesFiles/ShowDatesDisplayAll.php?ShowState=AZ> For out-of-the-country shows: <http://www.mindat.org/shows.php?current=1>

*This schedule could change due to pandemic-driven policies. Check The Vug (URL above) for announcements, phone numbers, or club websites to*

...Field Trips continued from page 21

**WHERE:** Harquahala Mine  
**WHEN:** Saturday, March 13, 2021  
**WHAT:** Misc Minerals

**WHERE:** Bullard Mine  
**WHEN:** Saturday, March 20, 2021  
**WHAT:** Copper Minerals, Slag

**WHERE:** Camp Verde  
**WHEN:** Saturday, March 27, 2021  
**WHAT:** Glauberite Pseudomorphs

**WHERE:** Date Creek  
**WHEN:** Saturday, April 10, 2021  
**WHAT:** Quartz Crystals, Hematite ps Pyrite

**WHERE:** Sycamore Creek  
**WHEN:** Saturday, April 24, 2021  
**WHAT:** Red Jasper

**WHERE:** Christopher Creek area & Fossil Site  
**WHEN:** Saturday, May 15, 2021  
**WHAT:** Zebra Chert, Naco Fm. Fossils

DATES SUBJECT TO CHANGE

Bill and the field trip committee will be actively looking for productive spots for field trips. If you have any suggestions, you are encouraged to contact him at [bfreese77@cox.net](mailto:bfreese77@cox.net)