

# 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 3, ISSUE 10

NOVEMBER 2018

## FULGURITES

By Susan Celestian

Modified from an article originally written while curator of The Arizona Mining and Mineral Museum, Phoenix, Arizona

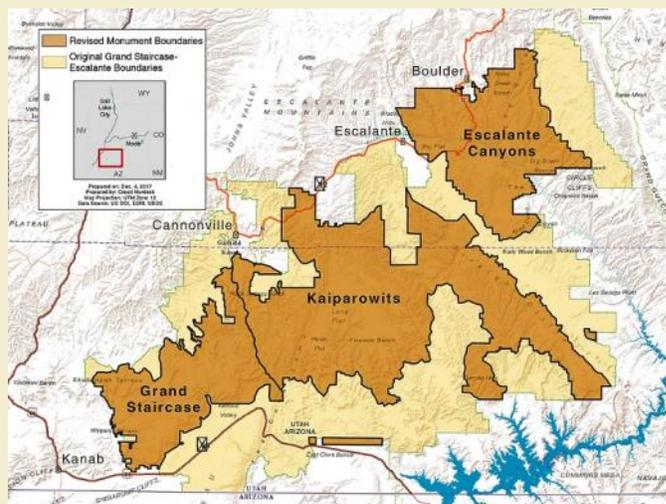
Recent thunderstorms have me thinking about lightning and its related phenomenon. Lightning both frightens and fascinates us, and while most lightning occurs within or between clouds, bolts that strike the ground can produce some interesting phenomena.

Turbulence in a cloud causes ice crystals to collide very energetically. Those collisions result in the buildup of electrical charges -- some positive, and some negative. Like-charged particles will separate from their opposites, and storm clouds tend to become polarized (for example, the cloud is commonly negatively-charged at its base, as heavier particles sink downward; and lighter positively-charged ones congregate across the top and sides. At the same time, a pool of charged particles (usually positive) accumulates on the ground under, and shadows a storm cloud. As an example: negatively-charged electrons at a cloud's base ionize streaming gases. These streams act as 'step-leaders' that branch and stretch groundward -- at the same time positively-charged leaders on the ground stream skyward. When they meet, a conductive path forms between the ground and a storm cloud, and lightning bolts are instantaneously created, running from cloud-to-ground. See Figure 1. This is **negative lightning**, and bolts no wider than an inch can travel long distances, and reach very high temperatures and very high amperages. What appears to be the pathway of a single lightning strike, is actually typically four strikes that occur within nanoseconds. Lightning is VERY powerful!

Fulgurites continued on page 3.....

## CLUB SIGNS PETITION OF SUPPORT FOR CHANGES TO BLM COLLECTING RULES

Hobby collecting (rocks, minerals, pet wood, common invert fossils) may be allowed for the first time in over 20 years (since 1996), in Southern Utah National Monuments, but BLM needs to hear from you by Nov 30. DMRMC Board has added the club's endorsement to a letter drafted by the Southern California Paleontological Society, support of these proposed changes. <https://goo.gl/Vj3zp4> Southern California Paleontological Society



The Grand Staircase-Escalante & Kanab-Escalante Planning Areas is area under consideration

If you want to write your own letter: By Mail: 669 S Hwy 89 Kanab, UT 84741 Attn: Matt Betenson OR online: ePlanning: <https://goo.gl/EHvhbc> Be sure to include a reference to a specific page or section of the Draft EIS/Draft RMP in your comment. [http://www.sdmg.org/articles/201809/Public Comment Period Open on Southern Utah monuments.pdf](http://www.sdmg.org/articles/201809/Public%20Comment%20Period%20Open%20on%20Southern%20Utah%20monuments.pdf)

### INSIDE THIS ISSUE

Fulgurites	1, 3-4
Club Registers Support for Changes to BLM Rules	1
Minutes - Board Meeting (No Meeting Minutes)	2
Wire-wrapping Class, Christmas Party	2
North Mountain Visitor Center Monitors	4
Demolition of Magma Smelter Stack	4
Field Trips	5-21
Show list, Club Information	22-26

**Board of Trustees Meeting Minutes —  
November 6, 2018**

Call to Order: Ed W., Claudia M., Howard R., Sue C., Stan C., Tammy E., Tiffany P., Cynthia B.

Approval of October 2018 Minutes

- Nothing to approve/No minutes taken

Financial Report

- Income for October 2018: \$128.63
- Expenses for October 2018: \$904.38
- Total Cash/Assets for October 2018: \$23,376.82

Old Business

- Christmas Party
  - ◊ Clark L. has found a location (details to follow)
  - ◊ Party date currently slated for December 14th
  - ◊ December 7th as backup if December 14th is not available

Executive Committee Openings

- Currently 2 general vacancies (JG & BS)
- Secretary vacancy
- Will not fill as nominations for 2019 are in December

North Mountain Visitors Center

- Claudia M., Ed W. and Howard R. will be monitors; approved by NMVS/Doug D.
- \$5.00 per hour to use equipment + fee per inch on slab cut
  - ◊ Members get discount on slab fee
  - ◊ DMRMC will provide NMVS list of current members
  - ◊ DMRMC made \$28.05 for October 2018 on slab fees
- DMRMC has Mondays mornings (9am-12pm) as designated time for club members

DMRMC Show

- Albuquerque show is same weekend
  - ◊ Handful of our vendors will be @ that show; instead of ours
  - ◊ Will offer the available space to wait list
  - ◊ First show meeting will be November 20th @ 7:00pm (ACC)

November Field Trip

- No coalition trip/field trip on November 10th
- Yellow Pine Trip still on schedule
  - ◊ Bullard Mine trip November 24th (Ed leading)

*Continued...*

Minutes continued....

December Meeting

- Rattlesnake Solutions still scheduled to talk about snake safety
- Possible silent auction (item/s approved by Stan/Sue)
- Misc.
- Agreed to purchase Bob's UV light/box for \$250.00
  - ◊ Tabletop model; doesn't require room lights to be turned off.
- Possible San Diego area trip for 2019
- Club letter of support for BLM proposal on opening Utah land for rec. digging.

Meeting adjourned at 6:00 pm

Respectively Submitted by Tiffany Poetsch, temporary secretary

*Upcoming Meeting Programs*

Club President, Ed Winbourne has been working hard to schedule great programs for this season's club meetings. Below is a list of the current program offerings:

December: Rattlesnakes by Elizabeth Hughes AND Mid-Season Swap/Sale

February: Australia by Susan Celestian

**NO NO NO**  
**SAVE THE DATE**  
**CLUB CHRISTMAS PARTY**  
**FRIDAY, DEC 14TH**  
**WATCH FOR AN EMAIL WITH THE DETAILS**

**WIRE-WRAPPING CLASS**

**4:30-6:30 pm**

**Prior to the meeting on  
Tuesday, December 4, 2018**

- Bring: cab or stone, about quarter-sized or larger; 20 gauge or higher round dead soft wire; Round nose pliers and wire cutter.

Free, but donations are appreciated. Questions? Contact Jennifer at [Jennifer@eliteshuttersandblinds.com](mailto:Jennifer@eliteshuttersandblinds.com)

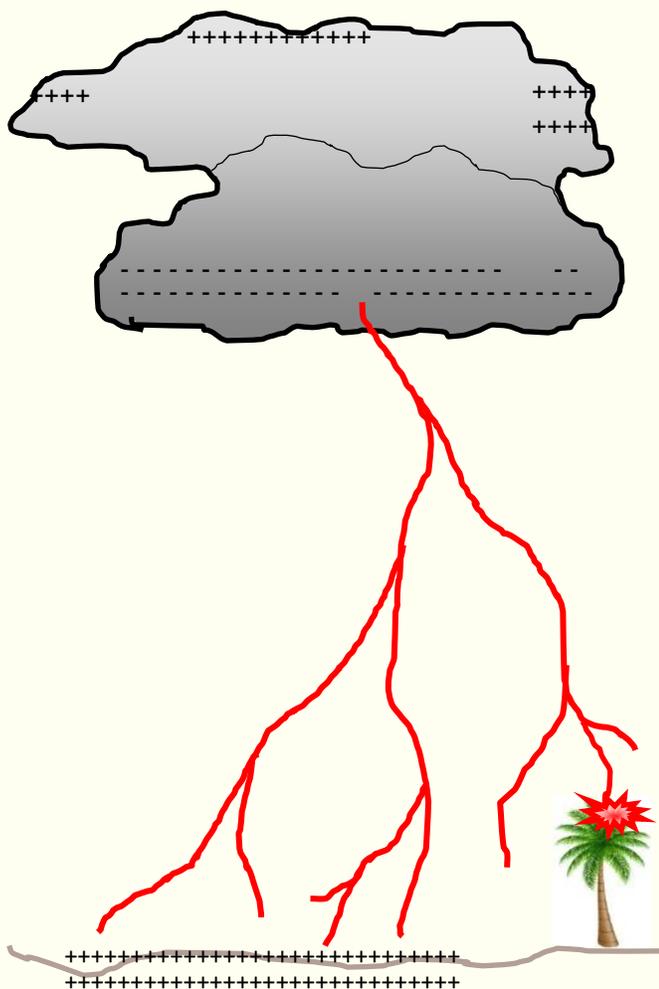
...Fulgurites continued from page 1

**Distances travelled** -- up to 5-10 miles from storm

**Temperatures** -- 25,000° to 250,000°F, averaging 50,000°F

**Amperage** -- peaking at 20,000 amps

- average households electric circuits are 20-30 amps
- 0.2 amps can kill a person



**FIGURE 1 The Formation of a Lightning Bolt** As a conductive path between the positively-charged ground and the negatively-charged cloud, a branching and powerful bolt of lightning streaks groundward. *Graphic by Susan Celestian*

About 5% of the time, lightning flows between negative charges on the ground and positive charges very high up in a storm cloud, as **positive lightning**. With a longer path to follow (**up to 25 miles from precipitation**), these bolts are about 10 times stronger than negative lightning, with currents up to **1 BILLION volts and 300,000 amps!** Usually these strikes consist of only one bolt.

During any moment, an estimated 1500-3000 thunderstorms are ravaging Earth. These produce 50-100 lightning strikes every second. And when the Earth is struck, a record of the event **MAY** be produced -- in the form of a **FULGURITE** (see Figure 2). Whether or not a fulgurite forms is a function of the composition of the Earth materials, and the moisture content of that material.



**FIGURE 2 Fulgurite**

This fulgurite is one of many that formed along a buried wire that lay across a property in Queen Creek, Arizona. It is very vesicular and glassy, although there is a lot of sand and many rocks embedded in that glass. The yellow arrow points to a hollow center in a branch. Notice in the upper image how dendritic the form, and how small some of the branchlets are. The whole fulgurite is pretty fragile, and breaks fairly easily (although it isn't difficult to repair). This is probably because of the abundance of inclusions, which diminish the density of the glass. *Photo by Stan Celestian*



...Fulgurites continued from page 3

The word "fulgurite" derives from *fulgurate*, Latin for lightning. They can be recognized by their dendritic or rootlike structures created when, at temperatures exceeding 3200°F, sand and rock fuse to form a glassy amorphous silica material (lechatelierite). The center is generally a smooth, glass-glazed hollow, as the very high temperatures vaporize the sand, leaving bubbly or vesicular walls, rough with inclusions of sand and rock.

Fulgurites have formed as much as 49 feet below the Earth's surface. Additionally, fulgurite branches may be many feet long, and they become smaller with depth. The longest excavated fulgurite is a discovery in northern Florida. One branch is 16 feet long, and the other is 17 feet long. Had the lightning bolt not reached the water table, where the current was dispersed, it very probably would have been longer.

During Arizona's Summer and Fall storms, lightning strikes occur often. When out and about, look under power lines, areas of dry-ish sand (dunes, playa lake beds, washes, beaches). A local collector discovered a fulgurite group along a popular trail near Seven Springs. Like gold, fulgurites are where you find them. But be sure to wait until the storms pass. Remember, lightning typically strikes the highest point around!

## DEMOLITION OF HISTORIC MAGMA SMELTER SMOKE STACK

On Saturday, November 10th, the Magma Smelter

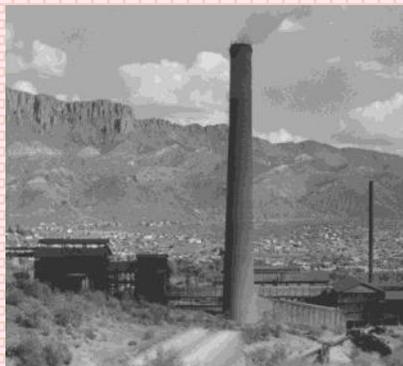


Photo Courtesy of AZGS

smoke stack, built in 1924, was demolished. The stack had not been used since 1971, and the crumbly iconic structure was felled for safety reasons, at a cost of about \$2 million, as

Resolution Copper works to establish the mining of copper in a very deep new mine (still in the permitting, planning, development phase).

Watch the demolition on [Facebook](#) or [YouTube](#)

## CLUB VOLUNTEERS EXTEND SHOP TIME AT NORTH MOUNTAIN VISITOR'S CENTER

Three DMRMC and one MLS/MSA member have volunteered to rotate as lapidary shop monitors at North Mountain Visitor's Center. As a result, the shop will now be open on Mondays.

Those brave DMRMC souls are Claudia Marek, Howard Roose and Ed Winbourne, .The fourth is Nelson Duarte. Thanks to everyone.



Photo by Shirley Cote

**WHERE:** North Mountain Visitor's Center,  
12950 N 7th St, Phoenix, AZ 85022  
602)343-5125

**WHAT:** Lapidary Shop

**WHEN:** Mondays - DMRMC Day

**FEE:** \$5 per hour plus special club saw fee of \$0.20 per inch (for DMRMC members -- wear your badge); non-members \$0.25 per inch.

The shop is also open for lapidary/silversmithing on Thursdays. Additionally, if there is no silversmithing class, then there is open studio on 1st, 3rd, and 5th Saturdays. Call to verify.



Photo by Tiffany Poetsch

**WHAT:** Silversmithing Classes

**WHEN:** Saturdays (4 weeks beginning first of month) -- There is a waiting list, so if interested be sure to sign up.

**WHAT:** Lapidary Classes

**WHEN:** Wednesdays (4 weeks beginning first of month) -- There is a waiting list, so if interested be sure to sign up.

## UPCOMING FIELD TRIPS

**WHEN:** COALITION TRIP - December 15, 2018

**WHERE:** Camp Verde

**WHAT:** Pseudomorphs -- calcite, aragonite & gypsum after glauberite crystals

**MEET:** 9:00 a.m. at Burger King just off I-17 at exit for Camp Verde Hwy 260. Leaving at 9:30.

**LEADER:** Nelson Avery, Verde River Rockhounds, 928-301-7147

**OTHER:** The road can get pretty rough in spots. Shouldn't need 4-wheel drive, but will need high clearance. Will be required to sign a Notice of No Insurance - Field Trip Practices - Safe Practices

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**WHEN:** December 16, 2018

**WHERE:** Burro Creek

**WHAT:** Jasper, Agate

**MEET:** TBA

**LEADER:** TBA

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**WHEN:** January 12, 2019

**WHERE:** Planet Mine

**WHAT:** Specular Hematite, Chrysocolla

**MEET:** TBA

**LEADER:** TBA

**WHEN:** January TBA, 2019

**WHERE:** Black Pearl Mine on Aguila Rd.

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**WHAT:** Fluorescent Minerals

**MEET:** TBA

**LEADER:** TBA

**OTHER:** This will be an evening/after dark trip. Prior to dark, there will be a potluck. Sounds like fun! Portable UV lights will be coming along for the ride.

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**WHEN:** February 9, 2019

**WHERE:** Dragon Mine

**WHAT:** Tourmaline, Purple Mica, Thundereggs

**MEET:** TBA

**LEADER:** TBA

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**WHEN:** March 19, 2019

**WHERE:** Peridot Mesa

**WHAT:** Olivine var peridot

**MEET:** TBA

**LEADER:** TBA

**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). We encourage topic suggestions also.

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

**WHEN:** April 6, 2019

**WHERE:** TBA

**WHAT:** TBA

**MEET:** TBA

**LEADER:** TBA

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**WHEN:** May 11, 2019

**WHERE:** Payson area

**WHAT:** Zebra Chert, Pennsylvanian Fossils

**MEET:** TBA

**LEADER:** Ed Winbourne

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**WHEN:** June 1, 2019

**WHERE:** Lynx Creek near Prescott

**WHAT:** Gold

**MEET:** TBA

**LEADER:** Stan Celestian

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**DATES SUBJECT TO CHANGE**

Stan 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 [stancelastian@gmail.com](mailto:stancelastian@gmail.com)

# FIELD TRIP TO YELLOW PINE MINE, NEVADA NOVEMBER 17-18, 2018

At 5:30 p.m. on Friday, November 16, about 10-12 DMRMC members and one guest met for dinner at Mi Casa, in the Silverton Casino, Las Vegas, NV. Lively food and fellowship -- despite the waiter :-)! The next morning attendees met for a foray to the Yellow Pine and Prairie Flower Mines. George and Linda even saw some, either wild or open range, horses!

The Yellow Pine Mine is a former Pb-Zn-Ag-Cu-Au-Hg-Sn (lead-zinc-silver-copper-gold-mercury-tin) mine, that operated between 1906-1928, in Porphyry Gulch. Hydrothermal mineralization took place in fault breccias, fractures, and along bedding planes within the Mississippian-age Yellow Pine Limestone, associated dolomite-sandstone-siltstone. Nearby is the Prairie Flower Mine, that subsequently was owned by, and connected to, the Yellow Pine Mine.

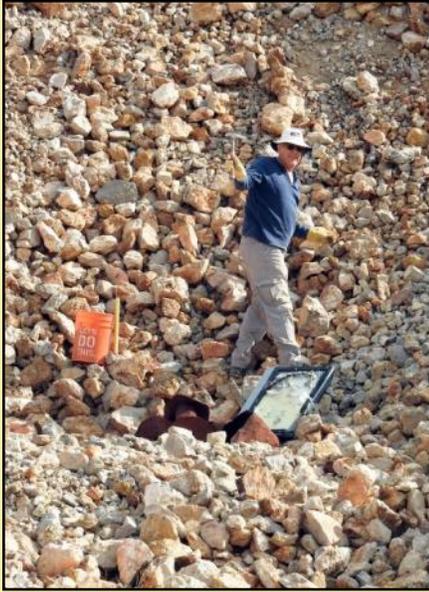


This is a drone's-eye view of the Yellow Pine Mine. *Photo by Stan Celestian*



...Yellow Pine continued from page 6

### Yellow Pine Mine & Prairie Flower Mine



**Thread Leaf Agave  
(*Agave filifera*)**

Chert and/or Goethite nodule in the Yellow Pine Limestone.



All photos by Susan Celestian unless otherwise noted



**Mountain Ball Cactus (*Pediocactus simpsonii*)** According to birdandhike.com, this species can retract into the soil for protection from the summer heat.



Yellow Pine continued on page 8.....

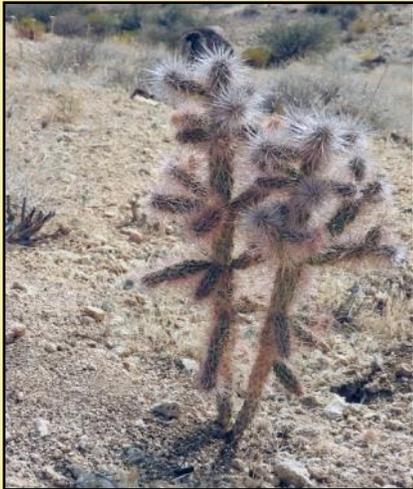
... Yellow Pine continued from page 7



Our fearless leader, Dave Haneline.  
Photo by Robin Shannon



Pb-Zn-Ag-  
Cu-Au-Hg-  
Sn



NOT a volcano!



Deanne has been working out! Love your shirt!!!



Silver-Gold Cholla  
(*Cylindropuntia echinocarpa*)



Dead Joshua Trees stand as evidence of a fire. Often new plants emerge from the roots.  
Photo by Deanne Gosse



Yellow Pine continued on page 9....

...Yellow Pine continued from page 8



Club fellows shipping. Right: Photos by Deanne Gosse Left: Photos by Robin Shannon

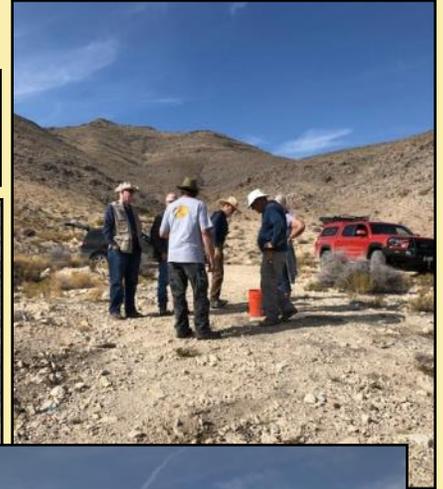


Photo by Robin Shannon



There must be some treasure in all that trash!  
Photo by Deanne Gosse



Club guest hunting the dumps.  
Photo by Stan Celestian

...Yellow Pine continued from page 9



Tilted sediments in the background of the Yellow Pine Mine. Testimony to upheaval.

This marker was discovered by Robin. I looked up 3rd Liberty Loan 1918, and found out that it refers to the sale of World War I liberty bonds. By purchasing the bonds (sold by the Boy and Girl Scouts), U.S. citizens provided money to the war effort. The money provided for medical supplies, weapons, and vehicles. The Third Liberty Load Act specified the issue of war bonds worth \$3 billion, that accrued interest at 4.5% for 10 years -- redeemable after September 15, 1928. (The First, Second, and Fourth acts provided additional crucial funding.

This is a sample of breccia, mineralized with rosasite, galena and others. It is breccia, like this, that commonly acts as a conduit for hydrothermal fluids that create ore bodies.



All mineral photos on pages 11 & 12 are by Stan Celestian.



On the left: Galena, dulled by weather. On the right: Broken, fresh and shiny surface.

Goethite -- a hydrous iron oxide. This specimen is dense enough to qualify as lapidary material. If you picked some up, give it a polish!



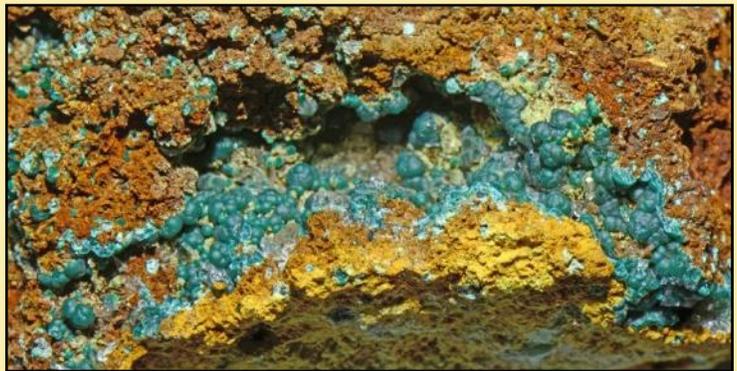
On the left: Hematite (iron oxide); on the right: Limonite: a mixture of various hydrous iron oxides. Both these materials form by the alteration of iron-bearing minerals when rocks are invaded by hydrothermal fluids. They are often indicators of ore deposits.



<http://clipart-library.com/>

Yellow Pine continued on page 11.....

...Yellow Pine continued from page 10



Rosasite (blue-green) is a copper zinc carbonate hydroxide, and is a secondary formed in the oxidation zone of an ore deposit (in other words, it forms by the alteration of the ore minerals primarily deposited in a hydrothermal zone. Look closely at the picture on the left, and you will see clear, lustrous blades of Hemimorphite, a hydrous zinc hydroxide.



This is a massive/botryoidal specimen of Smithsonite (zinc carbonate). Some Smithsonite will fluoresce.



This vug is lined with bladed rosettes of Calcite, calcium carbonate.



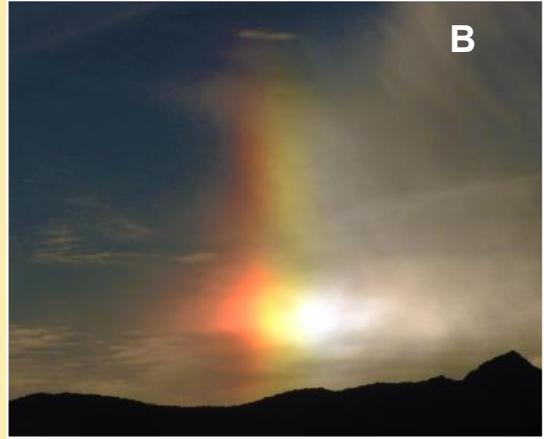
**ore (ôr), a noun: a mineral deposit from which a metal or valuable element can be extracted at a profit**

Treasures of Dave Haneline: A Galena with micros of Hemimorphite & Rosasite PLUS two .50 caliber shells Photo by Dave Haneline

Yellow Pine continued on page 12.....

... Yellow Pine continued from page 11

Seen over Las Vegas the day before the Yellow Pine Mine trip



These meteorological phenomena are haloes and sun dogs (*parhelia*). They form when the Sun's rays are horizontally refracted by ice crystals in the atmosphere. In **A**, there is a 22° halo and two sun dogs flanking the Sun both right and left, at about the same position above the horizon as the Sun. **B** is a close-up photo of one of the sundogs -- note that the rainbow colors

merge from red on the inside, out into the white light of the perihelic circle (visible as the white streak extending out away from the sun dogs). A solar position near the horizon best generally results in the most

conspicuous haloes and sun dogs.

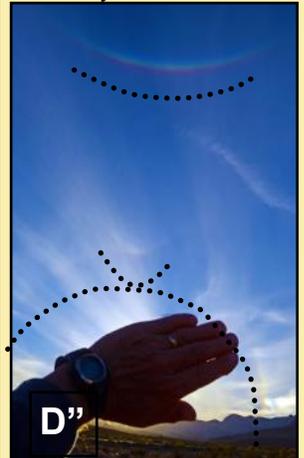


In **C** you can clearly see the circumzenith arc (CZA), or "smile in the sky". This occurs above the Sun, and this upside-down rainbow occurs at a distance of 46° from the Sun.

In **D'**, we can see three of the several potential haloes that form around the Sun in an icy sky. They are outlined in **D''**. They are the circumzenith arc, the 22° arc, and the tangent arc (at a distance of 46° from the Sun).



Photo by Stan Celestian



Scheduled to go 'off exhibit', the art installation, Seven Magic Mountains, remains standing at least through 2018. Near Jean, Nevada. Photo by Susan Celestian

# FIELD TRIP TO BULLARD MINE

## NOVEMBER 24, 2018

This trip was the November Coalition Trip, hosted by our club. Ed Winbourne was the leader.

Yavapai County's Bullard Mine was an underground copper-gold-silica-silver mine, that was discovered in 1885 (by J.C. Bullard), and in production from 1935-1956. The tabular ore body is hosted by a Miocene-age (15+ mya) andesite. Ore deposits occur as fracture fillings & veins along fault zones. At the Bullard, the primary vein can be up to 2 meters thick, within steeply-dipping mafic volcanics. The common minerals are chrysocolla & brochantite; less common are malachite & chalcopyrite. Native gold also occurs in association with iron oxides. Gangue minerals include: hematite, pyrite, quartz, calcite, barite, & fluorite. The minerals were emplaced by hot basin brines (13-17 weight-percent NaCl at 446°-590° F).

There are about 2000' of tunnels/shafts throughout the 25 (per a June, 2000 report for Canadian Mining Company Ltd.) patented lode mining claims, scattered throughout the 500 acres encompassing the Bullard Mine.<sup>1</sup>

- ◆ 1888-1889 -- Smelter built by Yuma Copper & Silver Co. (shut down due to the fact that coke and anything else needed for the operation had to be hauled from Maricopa, site of the nearest railroad station)
  - ◆ 1895 -- John Bullard acquired the land vacated by the Yuma Copper & Silver Co.
    - ◆ 1907 -- John Bullard establishes patented claims
      - ◆ 1913 -- A.S. & R Co. (now ASARCO) reports Au 0.25% & Cu 2.67%
      - ◆ 1939 & 1941 -- Bullard Gold Mines Inc. shipped about 5500 tons of ore
        - ◆ 1944 - U.S. Bureau of Mines drilled 4 core holes
        - ◆ 1935-1956 -- 64,000 lbs Cu, 3300 oz gold, 5900 oz silver produced
- ◆ 1978 - staking of 166 lode claims, & leasing of mill sites by Michael Sansone (Phoenix real estate developer) in association with John Moore & Gene Pyers, prospectors. Development discontinued in 1979.
  - ◆ 1979-1981 -- shipped 4000 tons of *silica* flux to Hayden smelter
- ◆ 1981-present -- Drill coring and geological evaluations by NRG Resources, Unity Mining Company, Resource Exploration and Development, Freeport McMoRan Gold Co., and Cominco American Resources Inc. Numerous reports noted the economic potential of this area for gold, but no development has been conducted.



*Bullard Mine continued on page 14.....*

...Bullard Mine continued from page 13

# STOP 1



The first stop of the day was near an adit, around which there were thick seams of calcite. Photos by Stan & Susan Celestian

13 cars were in the caravan for this trip -- a good turnout!

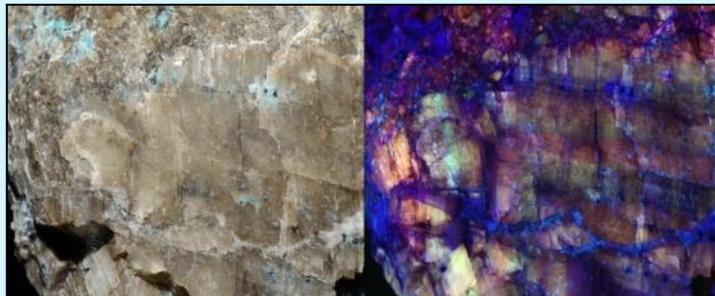
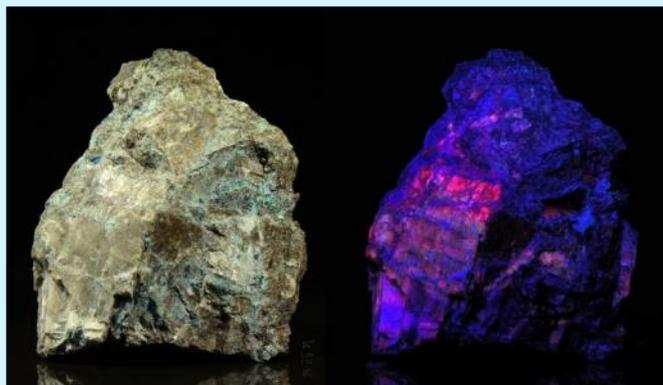


Cynthia's grandson, JR, dug out a nice hunk of cleavable calcite. Good job JR!

Photos by Susan Celestian

Stan photographed a couple chunks of calcite from here, under plain and short-wave UV light.

Photos by Stan Celestian



Bullard Mine continued on page 15.....

...Bullard Mine continued from page 14

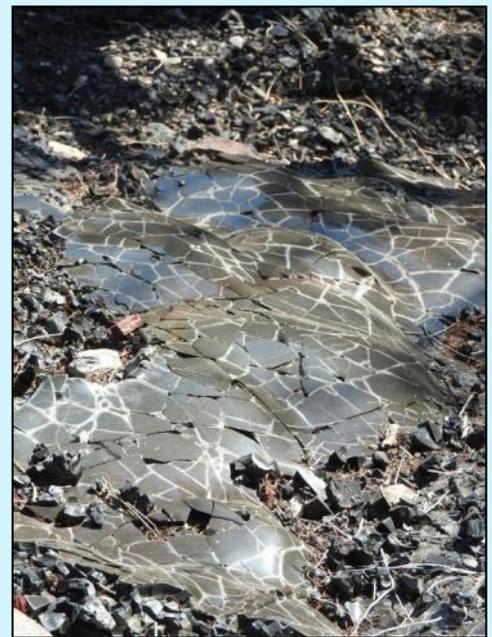
# STOP 2

Footings of a smelter that operated for less than a year in 1888-9. The smelter sat on the banks of a stream.

*Photo by Susan Celestian*



You can see the concrete walls and floor of a water collection basin, built within the creek bed, at the base of the smelter furnace.  
*Photo by Susan Celestian*

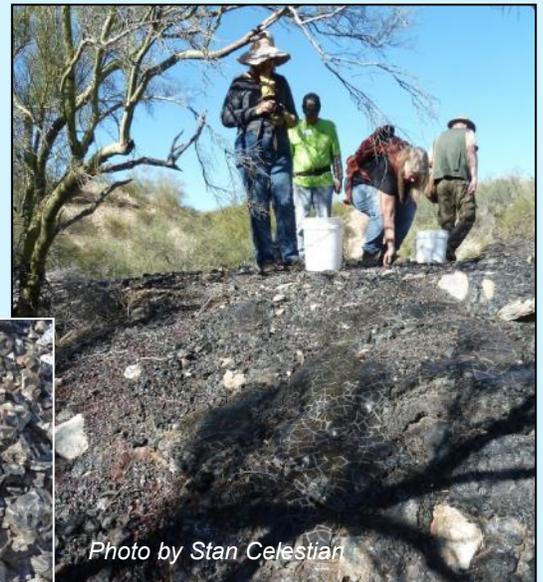


Bubbly, glassy and signs of flow -- classic slag



*Photo by Stan Celestian*

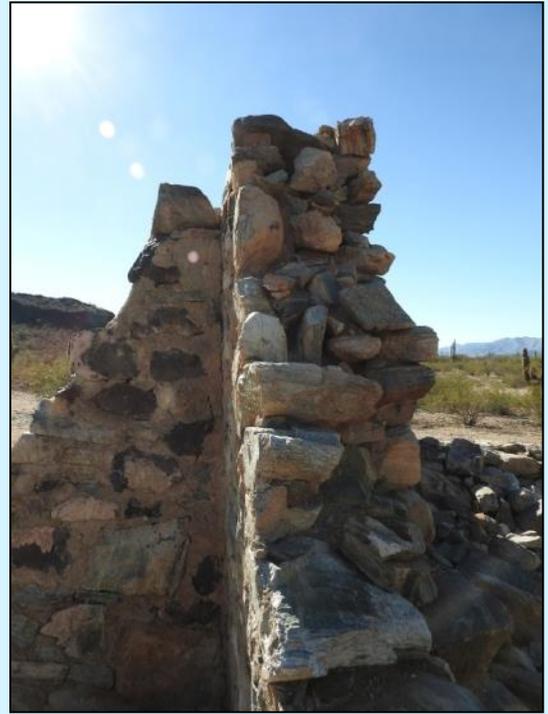
Glassy slag (iron-rich dregs from the smelting process) is enthusiastically collected by trip attendees!



*Photo by Stan Celestian*

Bullard Mine continued on page 16.....

...Bullard Mine continued from page 15



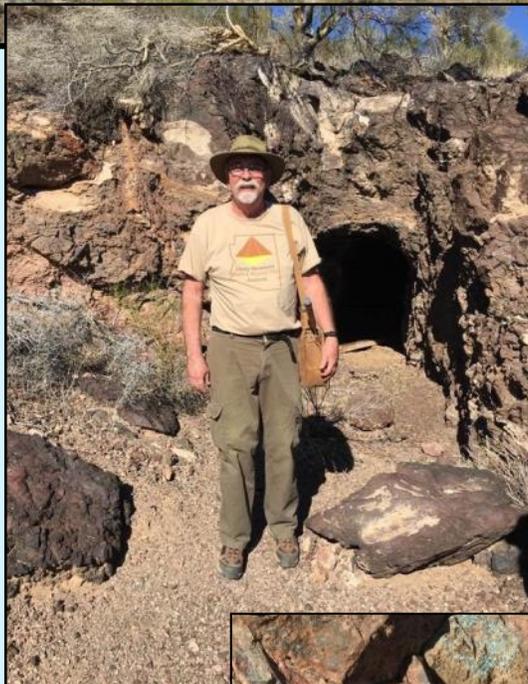
Above the smelter there are a few walls remaining from a building associated with the smelter operation. Nearby, in the creek bed, is a structure of unknown identify -- a well perhaps?  
*Photos by Stan and Susan Celestian*

...Bullard Mine continued from page 16

# STOP 3

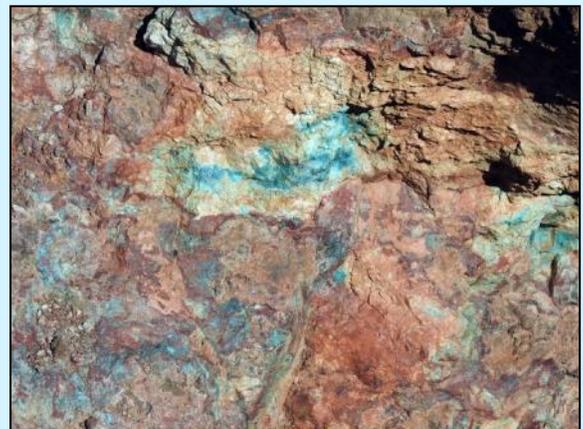
This view of the hill above the 3rd collecting stop demonstrates the fault control on the mineralized zone. The white arrows point to adits poking the hillside. Note that they align roughly along a line (yellow) - not helter skelter. Faulted rocks are porous and allow water to penetrate, plus provide spaces for deposition of minerals. Notice also that the rocks, of the mineralized mountain, are rust-red. This is a sign that the rocks have been hydrothermally altered -- a process that causes chemical changes to iron-rich minerals, such as pyrite and chalcopyrite. A product of those changes is the release of iron oxide ("rust"). So when prospecting, look for rusty rocks!

*Photo by Susan Celestian*



Squint, and you'll spot chrysocolla in the walls around the adit

TRIP LEADER,  
ED WINBOURNE  
*Photo from Ed's  
Facebook page*



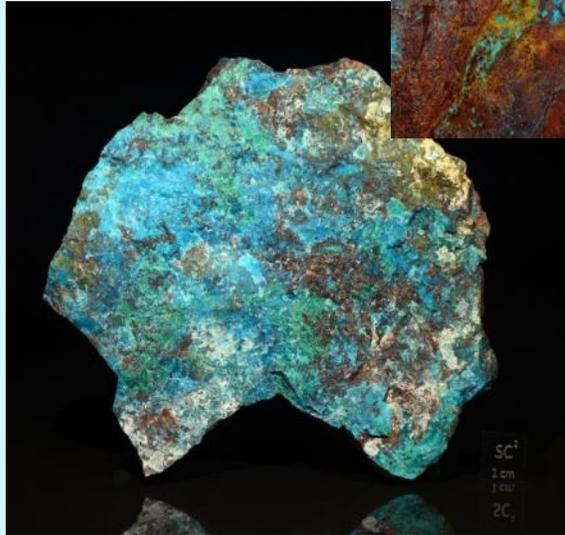
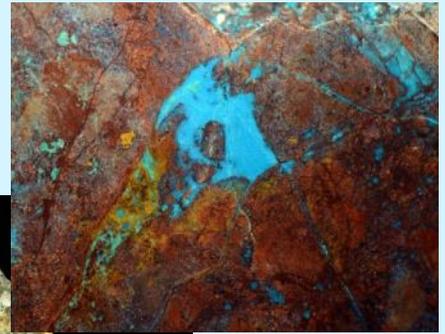
Bullard Mine continued on page 18.....

...Bullard Mine continued from page 17

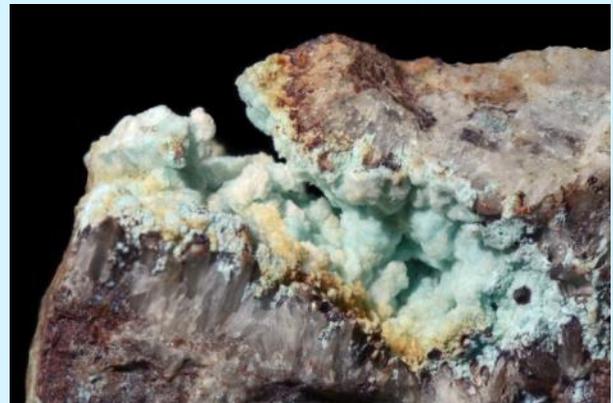


Malachite Photo by Stan Celestian

Chrysocolla and Malachite  
Photo by Stan Celestian



Pistachio-green Epidote  
Photo by Stan Celestian



Probably Chalcalumite Photo by Stan Celestian



Another big yard rock for Deanne Photo by Deanne Gosse



Porphyritic Andesite, often a host rock at the Bullard Mine Photo by Stan Celestian

**Chrysocolla -**  
 $Cu_{2-x}Al_x(OH)_4 \cdot nH_2O$  or  $(Cu, Al)_2H_2Si_2O_5(OH)_4 \cdot nH_2O$   
**Malachite -**  $Cu_2(CO_3)(OH)_2$   
**Chalcalumite -**  $CuAl_4(SO_4)(OH)_2(HP)_3$   
**Brochantite -**  $Cu_4SO_4(OH)_6$

Bullard Mine continued on page 19.....

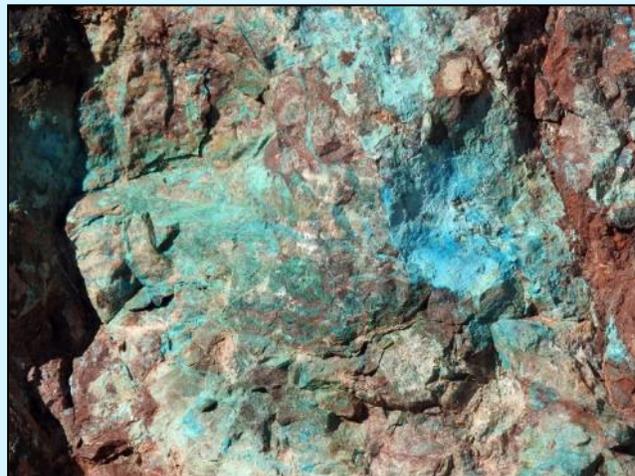
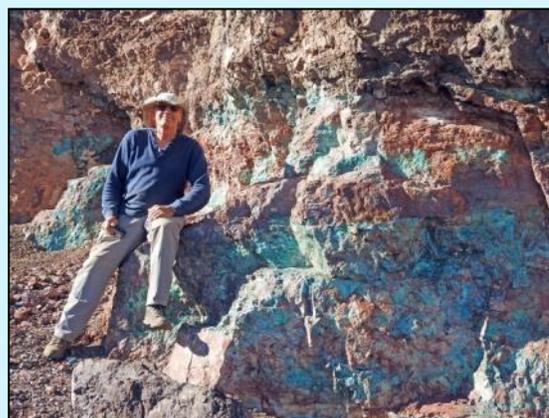
...Bullard Mine continued from page 18

### ...in case you are curious

In case you didn't make it to the top of the ridge, here is what you would have seen:



Beware the strong odor of cat -- big cat...



...Bullard Mine continued from page 19

# ...in case you are curiouser

Toward the end of the day, Stan and Sue decided to drive around to the north side of the mountain, where the primary Bullard opening and ore chute are located. Here is what they saw:

There is an ore chute right outside a significant adit. In the report to the AZ Dept of Mines & Mineral Resources, this is the view used for the Bullard Mine. *Photos by Susan Celestian*



There were numerous inclined workings, as miners followed inclined mineralized fault zones. *Photos by Susan and Stan Celestian*



Bullard Mine continued on page 21.....

...Bullard Mine continued from page 20

# ...Nature at the Bullard



Deanne's first Tarantula. This is a male (males are black) Arizona Blonde Tarantula (*Aphonopelma chalcodes*). Males live 10-12 years; females 20 or more!  
*Photo by Deanne Gosse*



Red-tailed Hawk (*Buteo jamaicensis*)  
*Photo by Susan Celestian*



This is a Tarantula Hawk (*Pepsis* sp.). These wasps paralyze tarantulas, and drag them to their nest, and lay an egg in the 'carcass'. They are fairly docile to humans, but their sting is the second most painful in the world -- eclipsed only by the Bullet Ant. *Photo by Deanne Gosse*



Desert Mallow  
(*Sphaeralcea ambigua*)  
*Photo by Susan Celestian*



Teddy Bear or Jumping Cholla  
(*Cylindropuntia bigelovii*)  
*Photos by Stan Celestian*



Footprint of Javelina or Collared Peccary (*Tayassu tajacu*)  
*Photo by Susan Celestian*

**UPCOMING AZ MINERAL SHOWS**

**November 17-18 - Payson, AZ** Payson Rimstones Rock Club; Payson H.S., Longhorn Gym, W. Longhorn Rd & N. McLane Rd.; Sat 9-5, Sun 10-4; Admission: Adults \$2, children under 12 free. See Poster page 8

**November 17-18 - Mesa, AZ** Apache Jct Rock and Gem Club; Skyline High School, 845 S Crimson Rd.; Sat 9-5, Sun 10-4; Admission: \$3 adults, \$1 students, children 12 and under free.

**November 24-25 - Wickenburg, AZ** Wickenburg Gem and Mineral Club; Wrangler Event Center, 251 S. Tegner St.; Sat 9-5, Sun 10-4; Admission: free.

**December 1 - Cornville, AZ** Verde River Rockhounds; Windmill Park, 9950 E Cornville Rd.; Sat 9-4; Admission: free See Poster on page 9

**January 1 - February 28 - Quartzsite, AZ** Various shows: Desert Gardens, Tyson Wells; For more information go to: <https://www.desertusa.com/cities/az/quartzsite.html>

**January 4-6 - Mesa, AZ** Flagg Gem & Mineral Show; Mesa Community College, Dobson north of Rte 60; Fri-Sun 9-5; Admission: Free. See Poster page 10

**January 11-13 - Globe, AZ** Gila County Gem & Mineral Society; Gila County Fairgrounds, 900 E Fairgrounds Rd.; Fri-Sat 9-5, Sun 10-4; Admission: adults \$3. See Poster page 11

**March 16-17 - Anthem, AZ** Daisy Mountain Rock and Mineral Club; Boulder Creek High School Gym, 40404 N Gavilan Peak Pkwy; Sat 9-5, Sun 10-4; Admission: \$3 adults, \$2 seniors and children, children 12 and under free.

**April 5-7 - Tempe, AZ** Flagg Mineral Society 2019 Minerals of Arizona Symposium; Drury Inn & Suites, 1780 W Ranch Rd, Tempe, AZ; Fri 3-5 Micro-mineral Session, 5-10 Mineral Sale, Sat 8-4 and 6 p.m. banquet; Sun 9-11; Registration required. <http://flaggmineralfoundation.org/home/minerals-of-az-symposium/>

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



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.

**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.

**WEBSITE**

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

Here you will find photos highlighting field trips, activities/classes and our show, links to rockhounding regulations, newsletter archive, geologic articles, and links to geologic resources.

If you have comments, contact Nancy Gallagher.

**GROUPWORKS**

As a DMRMC club member, your name should already be available at <https://app.groupworks.com/#/login>. If you have not done so already, create an account and you will receive reminders about club events and meetings, and any important club information. You may also post pictures and information -- all seen only by club members.

**Officers, Chairpersons, & Trustees**

- President:** Ed Winbourne.....[ewinbourne@gmail.com](mailto:ewinbourne@gmail.com)
- Vice President:** Stan Celestian
- Secretary:** Victoria Peterson .....  
[g.victoriapeterson@yahoo.com](mailto:g.victoriapeterson@yahoo.com)
- Treasurer:** Cynthia Buckner
- Publicity:** Howard Roose
- Membership:** Tiffany Poetsch [tnpoetsch@gmail.com](mailto:tnpoetsch@gmail.com)
- Editors:** Susan & Stan Celestian.....  
[azrocklady@gmail.com](mailto:azrocklady@gmail.com)
- Field Trip:** Stan Celestian... [stancelestian@gmail.com](mailto:stancelestian@gmail.com)
- Show Chair:** Ed Winbourne
- Trustees:**

- |            |           |
|------------|-----------|
| Cynthia V  | Claudia M |
| Susan C    | Tiffany P |
| Tammy E    | Jim R     |
| Bob E      | Witt R    |
| Jennifer G | Howard R  |
|            | Bob S     |

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

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

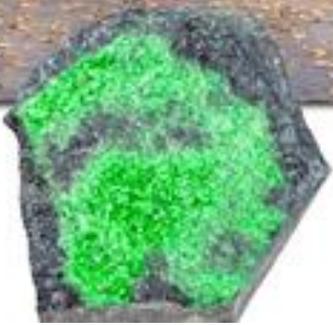
**Membership Dues:** \$20.00 Adults per Person  
\$25.00 Family (2 people)  
\$ 5.00 Additional children

**Meeting Dates for 2018**

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



Verde River Rockhounds   
Present  
“Rocks in the Park III”  
Rock and Mineral Sale  
Saturday December 1, 2018  
9 A.M. - 4 P.M.  
Windmill Park, Cornville Road  
Cornville, AZ 86325



# 47<sup>TH</sup> ANNUAL FLAGG GEM & MINERAL SHOW

Petrified Forest National Park - Navajo and Apache Counties, Arizona  
Based on a photo by Bill Yedowitz



Chromium Petrified Wood, Winslow, Arizona  
Mike Fleeman collection - PHOTO: Mike Fleeman



Brachiopod, Macrospirifer - Pennsylvanian Naco Formation, Arizona  
PHOTO: Stan Celestian



Pachyophylam woodmani, Devonian Martin Formation, Arizona  
Stan Celestian Collection - PHOTO: Stan Celestian



Dorothyia crassa - Pennsylvanian Naco Formation, Arizona  
PHOTO: Stan Celestian



Gastropod Internal Cast - Kaibab Limestone, Flagstaff, Arizona  
Bill Yedowitz Collection - PHOTO: Bill Yedowitz



Hesperized brachiopod,  
Pennsylvanian, Tonto Village, Arizona  
PHOTO: Jeff Langford

## FOSSILS OF ARIZONA

**JAN 4-6**  
**2019**  
**MESA COMMUNITY COLLEGE**  
NE CORNER OF US 60 & DOBSON ROAD 9AM - 5PM

THE TAILGATE SHOW TRADITION CONTINUES!  
FREE ADMISSION FREE PARKING FREE SAMPLES FOR KIDS

FOR MORE INFORMATION  
**WWW.FLAGGSHOW.INFO**  
FLAGG MINERAL FOUNDATION P.O. BOX 41834 | MESA, AZ 85274



**FLAGG  
MINERAL  
FOUNDATION**

# 62nd ANNUAL GILA COUNTY GEM & MINERAL SHOW

**Donations: \$3.00 Per Person  
\$5.00 Per Couple**



**Students & Children -- FREE**

Crack Open "Dinosaur Eggs" and "Geodes"

Join in the Fossil Dig

Lots of Children's Activities, Demonstrators and Vendors, Lapidary Equipment/Tools, 40+ Specimen Displays, Hourly Door Prizes, and Much, Much More!!!

January 11th & 12th: 9am—5pm

January 13th: 10am—4pm

## Gila County Fairgrounds



FOR MORE INFORMATION:

Jodi Brewster

*President*

(623) 810-9780

OR

Jerry Kastner

*Vendor Chairman*

(520) 401-6715

[www.gilagem.org](http://www.gilagem.org)



# 2019 ANTHEM GEM & MINERAL SHOW

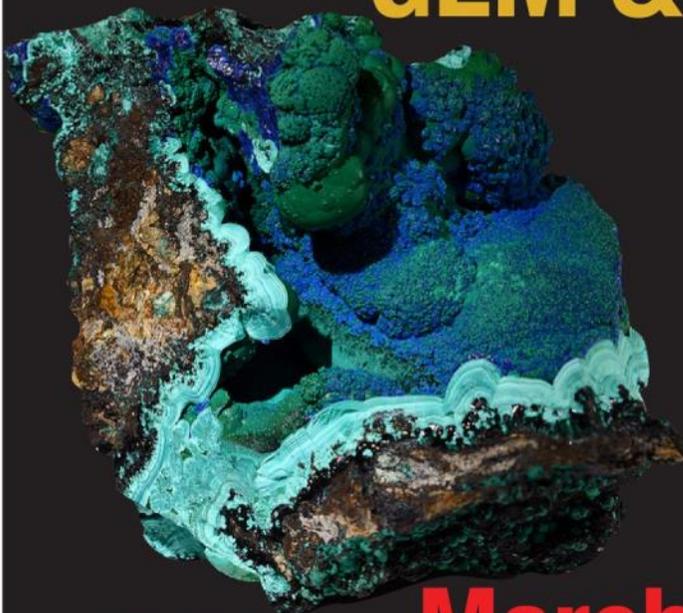


Photo by Stan Celestian

**March 16th-17th**

**@ Boulder Creek High School  
40404 N. GAVILAN PEAK PKWY  
ANTHEM, AZ**

**SATURDAY MARCH 16 9am—5pm**

**SUNDAY MARCH 17 10am—4pm**

**[www.dmrmc.com](http://www.dmrmc.com)**

Find us on 

**Kids Activities, Jewelry, Gems, Minerals, Fossils,  
Fluorescents, Beads, Wire Wrapping, Geodes, Raffles**

**Adults \$4, Seniors and Students \$2, and Kids 12 and under are FREE**