



# 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.

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On a nippy day, about 40 years ago, Stan Celestian took his students to the Salt Mine, near Camp Verde, Arizona. It had rained recently, and the washes held some water. Around the edges, delicate needle-like crystals grew in dense clusters. Anticipating adding a beautiful mineral to their collections, everyone gathered their "fair share". Soon, anticipation turned to trepidation, for right before their eyes, the crystals, once clear and lustrous, were turning white. And before they knew it, they were piles of powder. The mineral? Mirabilite..... *Photo by Stan Celestian*



# MIRABILITE

By Susan Celestian

Also known as Glauber’s Salt, mirabilite forms as an evaporite in sodium-sulfate-rich brines, and is particularly evident when it is cold.

**Chemical Formula** -  $Na_2SO_4 \cdot 10H_2O$

**Crystal System** - Monoclinic (3 axes of unequal length, and one not at 90° to the other two)

Go [HERE](#) and scroll own to see an animation.

**Growth Forms/Habits** - Well-formed crystals, granular, efflorescences (crystals on matrix, formed by transpire-evaporation)

**Hardness** - 1.5-2.5

**Luster** - Vitreous

**Streak** - White

**Color** - Clear, white, yellowish

**Diaphaneity** - Transparent, translucent, opaque

**Specific Gravity** - 1.46

**Cleavage** - Perfect in one direction

**Fractures** - conchoidal

**Associates** - Thenardite, gypsum, halite, trona, glauberite, epsomite

**Uses** - Used to treat constipation, sore throat, red eyes, mouth ulcers, skin ulcers, wounds<sup>1</sup>; a leveller in dyeing (it slows the uptake of dye, ensuring a more even color); it is used to treat drug overdose; and it is used to store heat in low-grade solar applications.

Mirabilite’s chemical composition contains a lot of water. Specimens collected immediately begin to dehydrate and convert into thenardite — and within short order turn into a pile of powder. It is nearly impossible to preserve it in crystalline form.

A few images of mirabilite are in Figures 1-6.

**FIGURE 1  
MIRABILITE IN  
THE WILD**

Images A-C are views of a wash at the Salt Mine in Camp Verde. It was a wet winter — water and cool temperatures — ideal for mirabilite crystal growth.

Photos by Stan Celestian



You can see that the crystals exposed to air are turning white, as they quickly dehydrate. Mirabilite is changing into Thenardite.

[Mirabilite](#) continued on 19...

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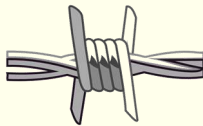
1 [Acupuncture Today](#)

# ANOTHER GREAT MEETING!!!



THE  
RETURN  
OF

WIRE  
WRAPPING



bountiful attendance



SUPER SILENT AUCTION  
& RAFFLES



# ROCKHOUND OF THE YEAR

On behalf of the club, Stan Celestian presented to Bill Freese a certificate from the Rocky Mt. Federation, and a trophy (made by our own Stan Celestian)

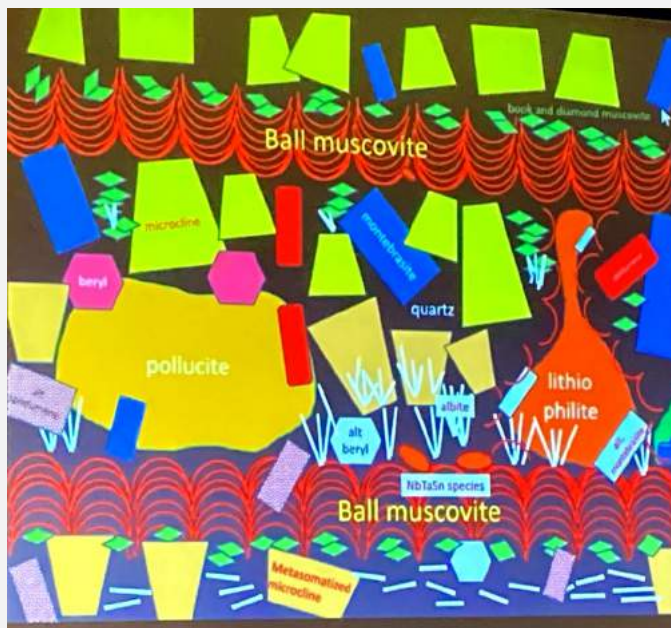


## SEPTEMBER SPEAKER

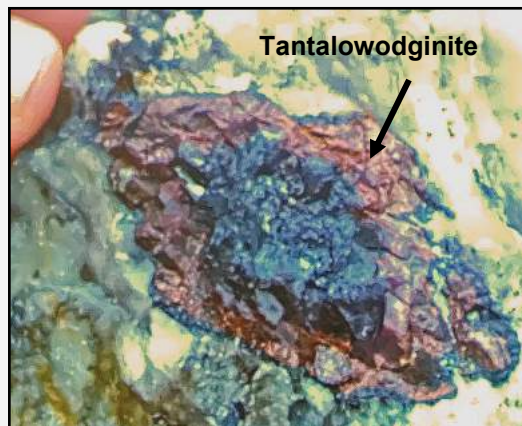
## Mineralogy of the Emmons Pegmatite

Alexander Falster

While working as a scientific research technologist at the University of New Orleans, Alexander Falster began to study the mineralogy of the Emmons Pegmatite in Maine. Since retiring to Bedford, Maine, he continues his study — rain, shine, or snow. He and the other members of his group at the Maine Mineral and Gem Museum have identified 195 different minerals — making it the Maine's most mineral-rich pegmatite; although he postulates that that may be because the pegmatite is so thoroughly studied.



Here is a diagrammatic cross-section of the pegmatite, highlighting the edges of ball muscovite and variety of other minerals.



After several unsuccessful attempts to identify this material, a researcher finally cracked the code, the findings were published, and in 2018 Tantalowodginite ( $(\text{Mn}^{2+}_3)\text{Ta}_4\text{Ta}_8\text{O}_{32}$ ) was accepted as a new mineral species, from the type locality — Emmons Quarry, Uncle Tom Mountain, Greenwood, Oxford County, Maine, USA. See [Mindat](#) for more information.



Many of the minerals in the Emmons Pegmatite are white or otherwise light-colored — or only known as micromounts. However, there are several that draw the eye a bit dramatically.

Left: Purple Apatite — color caused by manganese

Middle: Ball Muscovite

Right: Blue Apatite — color caused by iron; the largest discovered is 5.5 cm (over 2")

## ZOOM BOARD MEETING MINUTES

September 5, 2022

In attendance: Bill F., Bob E., Bob S., Claudia M., Deanne G., Don R., Ed W., Gregg J., Johanna R., Nancy G., Rebecca S., Renee I., Stan C., Sue C., and Tiffany P.

- Bill F. called the meeting to order
- June minutes accepted
  - [correction: The minutes stated that anyone who attends the Rocky Mountain Federation Conventions can vote, only 2 delegates from each club can vote on matters for the RMF convention.]
- Deanne G. discussed the financial statement
  - July and August were quiet as always
  - Revenue from lapidary and membership dues
  - Expenses from purchasing the mine, website, and Meetup costs
    - Nancy will investigate the Meetup investment to make sure it is worth it to pay twice a year for the service
    - The website's price has gone up \$200 this year
      - Still a good investment for the club
- The scholarship was discussed
  - A motion was made to raise the 2022-2023 scholarship to \$1,500
    - It passed, 10 yes, 5 no
  - The second motion was made to create a second fund for another scholarship
    - Ed W. proposed that a small committee be formed to discuss the logistics of the proposal
      - This committee will decide:
        - Who shall receive the scholarship
          - We would like to open this up to current college students and past recipients
        - How they will receive the scholarship
        - Where the money will come from
        - When they receive the scholarship
        - How to advertise for the scholarship
      - Once the proposal is written it will be presented to the board
        - Then a decision will be made on the second scholarship
- Convention allowance was discussed
  - The board will be giving out a reimbursement for delegates to travel to the RMF convention each year to represent the club on a rolling basis
    - This was unanimously decided
      - The stipend will depend on the situation
  - The board voted unanimously to reimburse Bill F. for going to the Spring 2022 RMF convention \$600
    - He was awarded Rockhound of the Year at the convention
- The by-laws for the club were discussed
  - In the by-laws the President is also the show chair
  - The board would like to make more official titles
    - Editor, media master, material mas

...Minutes continued from page 5

- The board is larger than necessary for the written by-laws
  - Might make it a percentage of the club instead
- The board will look at the by-laws and come back to discuss changes
  - Bob E. asked to meet Oct. 12 to work on any changes
- Claudia M. talked about the new merchandise
  - T-shirts will be made available in Oct. to buy
    - She will bring some blanks to the meeting so people can get a feel for the fabric and color
      - 5.4-ounce cotton (lighter than previous shirt material)
        - Must be cotton for rockhounding in the heat
    - Will have crew neck and possibly V-neck for men's shirts
      - Royal blue and heather blue
    - Will have crew neck and V-neck for women's shirts
      - Bright aqua and sapphire
    - "Safety yellow" will be given to all volunteers of the show
    - Anyone who volunteers 60+ hours to the club gets a free shirt
  - Stickers with several different phrases available
    - Has the new logo and is oval shaped
    - Given to volunteers as a gift
  - Keychains are now available as well
    - Says "Just one more rock" with the logo on them
    - Also given to volunteers as a gift
  - Bumper stickers will be available soon
    - Will have same sayings as the stickers
    - Board voted on the sayings, the most popular got made
  - Thank you so much Claudia M. for all your hard work on making these new items available to the club!
- Raising dues was discussed
  - Due to inflation, more money would be needed to run the club
  - The motion was made to raise the dues
    - \$25 for a single, and \$35 for a family
      - The motion passed with one vote in opposition
    - The dues used to be \$20 single, and \$25 for a family
- Claudia M. brought up the Christmas party
  - Some cannot make it to the mine to celebrate
  - Another party at the civic center was discussed
    - Board members will investigate cost effective catering
      - Will be further discussed next meeting
  - Ed W. will talk to the civic building to see if it is plausible
- Tiffany P. talked about the membership
  - The online application is working great
  - Had some new members join over the summer
- Stan C. discussed the claim's committee
  - The claim will cost \$610 first time, and \$100/year

Minutes continued on page 7....

...Minutes continued from page 6

- Could pay \$15/year for improvements
    - The improvements have not been decided yet
  - Trips are scheduled to the site January and February
  - If anyone would like to be the claim chair
    - Please email [dmrmclub@gmail.com](mailto:dmrmclub@gmail.com)
- Wire wrapping with Jennifer G. was talked about
  - She is back in town and will lead the class
  - She would like to do zoom when unable to attend in person
  - If anyone would like to lead the class
    - Please email [dmrmclub@gmail.com](mailto:dmrmclub@gmail.com)
- Bill F. discussed the field trips
  - Had a meeting with the field trip committee to create a tentative schedule for the year
  - Watch your email for specifics before each trip
    - RSVP to that email, so he knows you are going to come
  - September is full of trips
  - Nov 4-5 will be an overnight trip
    - Start making accommodations now
  - The RMF convention this year is in Casper, WY
- Bill F. talked about the show dates
  - Will most likely be at the Anthem Elem. School again
  - March 11<sup>th</sup>-12<sup>th</sup> would be the best dates
    - The Anthem days have not been scheduled yet
      - We would like to avoid being on the same days
        - It reduces traffic at the show
    - Spring break is March 13<sup>th</sup>-17<sup>th</sup>
      - Staff must be available for the show
      - The beginning of break is better than the end
    - The gym must be available
      - School sports could interfere with this
  - Ed W. will apply through the school system
    - The contract will state hours needed for a janitor
  - If anyone else would like to be show chair
    - Please email [dmrmclub@gmail.com](mailto:dmrmclub@gmail.com)
- Bill F. discussed upcoming general meetings
  - Speakers are booked through January
    - If you would like to request a presentation
      - Please email [dmrmclub@gmail.com](mailto:dmrmclub@gmail.com)
  - Robin S. will not be at the first meeting to run the raffle
    - Deanne G. and Rebecca S. to fill in
  - Ed W. will make sure the civic building has the room setup correctly for the zoom presentation tomorrow
  - Claudia M. will bring snacks and water
    - Volunteers that typically do it are gone in the summer

Minutes continued on page 8...

...Minutes continued from page 7

- Will be back in November
    - Bill F. will get recognition for being the Rockhound of the Year!
- Monthly recognition was discussed
  - The board liked the idea of having a rockhound of the month
  - Bill F. will create the criteria for the award
    - The winner would get a prize
- Club guides were discussed
  - They would be members with 1+ year membership
  - They would get a badge that states they are a guide
  - Will help welcome new members to the club
  - Will need to be able to identify the board members
    - Can guide members to help needed
- The badges given out will now have the new logo on them
  - PLEASE wear your nametag to all club events
- Bill F. discussed a kid's program
  - Will investigate more kid friendly trips
  - The club is still looking into ideas for youth
  - Will have a kid's display for the show
    - They can show off their collected specimens
- The silent auction for the general meeting was sent out
  - Available on FB, the newsletter, and in an email
- Proposals were brought up to spend more money on charitable expenses
  - \$100 are given to each monthly speaker for their service
  - A scholarship is given each year
  - Some would like us to give to food banks for holidays
    - Will be investigated in a future date
- Nancy G. talked about the website
  - The new logo is available – check it out
  - Egg carton labels are accessible
    - Through Flickr account, link available on website
    - <https://www.dmrmc.com/>
    - This gives detail about all the rocks given out to kids at the kid's corner for the yearly DMRMC rock show
      - They are put into egg cartons with numbered labels
- The board discussed continuing zoom meetings
  - Would like to meet once a quarter in person
  - Ed W. will discuss schedule with civic building
    - The in-person board meetings will be before the general meeting
      - This was the schedule before the pandemic

Respectfully submitted,

Rebecca Slosarik



...Minutes continued from page 8

## GENERAL MEETING MINUTES

### September 6, 2022

In attendance: open attendance, about 65 people attended

- Thank you to everyone for flexibility with the date change
  - The conflict came about because of miscommunication with the civic building
- Bill F. called the meeting to order
- Alexander Falster had an exciting zoom presentation
  - Presented his finding from Maine on the Emmons pegmatite outcropping
  - Discovered 195 species in the studied location
    - Found a new mineral called tantalowodginite
- The raffle made the club \$188
- The club welcomed 8 new members to the club
  - They found out about the club from fellow rockhounds, FB, YouTube, and one did a google search on geologic clubs in the area
    - Check out the AZ Rockhound Expeditions YouTube page
- Deanne G. talked about the financials
  - The club is in good standing
  - The show really helps bring revenue to the club
- Stan C. discussed the claim's committee
  - The paperwork to the BLM had to be redone several times
  - The site was officially purchased just before the meeting
  - The claim is located NW of Aguila, AZ
    - Can find mushroom rhyolite, quartz, geodes, amethyst, desert rose, and many more at the site
    - 4x4 is not necessary for the site
      - Medium clearance is needed though
    - Called Daisy Mountain #3
  - Other sites will be investigated as well
- Bill F. talked about field trips
  - Please check your emails for updates
    - The tentative schedule has already changed
  - The diamond point trip is hosted by MSA
    - Members must RSVP on MSA website
  - The Bronzesmith tour has changed to Oct. 27<sup>th</sup> due to availability
  - Overnight to Red Cloud by Yuma will be in November
  - Overnight to Luna Agate by Yuma will be in April
  - RMF 2023 convention will be in Casper, WY July 7-9
- Claudia M. presented the new t-shirts
  - Showed blanks to club so they could get a feel for the new shirts
  - Light colors were chosen due to the heat in AZ
  - They will be available for pre-order online
    - Get yours now!

Minutes continued on page 10....

...Minutes continued from page 9

- Can also order at October general meeting
- Stickers will be available for sale in October
  - You can earn some by volunteering for the club
- Keychains will also be available
  - Have the logo and say “Just one more rock”
- Claudia M. and Jeannie S. wrote thank you cards
  - This was for all the summer volunteers who helped label the rocks for the kid’s corner egg cartons
- Bumper stickers are coming soon
  - Will also help when following cars on field trips
- If you volunteer for the club 60+ hours
  - You will receive a free t-shirt
- If you would like to see a specific saying on the merchandise
  - Please email [dmmclub@gmail.com](mailto:dmmclub@gmail.com) with option
- Bill F. was presented with several gifts for being the Rockhound of the Year
  - Got a new nametag with Rockhound of the Year on it
  - Stan C. gave him a placard with a volcanic bomb stating he is the bomb!
    - Thank you so much for all your service for the club
    - He dedicates so much time to the field trips and being vice president
- Tiffany P. talked about membership
  - At the time of the meeting, membership stood at 310
  - If you need a nametag, please see her at the meeting
    - Or email [dmmclub@gmail.com](mailto:dmmclub@gmail.com)
- Bill F. discussed the show dates
  - Tentatively looking at March 12<sup>th</sup>
  - Will most likely be at Anthem Elementary school
- Bill F. talked about the new programs the board is looking into
  - Youth program – in the works
  - Monthly recognition – TBD
  - Club guide will be indicated with a special nametag
    - They will greet newcomers
    - Be a guide for any questions about the club
- Wire wrapping with Jennifer G. was discussed
  - She will do zoom classes when available
  - Anyone can volunteer to lead in person classes this year
    - Please email [dmmclub@gmail.com](mailto:dmmclub@gmail.com) if you would like to volunteer
- Show and tell was discussed
  - Anyone can bring interesting rocks to the meeting
  - You can discuss and show off your rockhounded findings as well
- The silent auction made the club \$255
  - Please wear your nametag to all club events, including field trips

Respectfully submitted,

Rebecca Slosarik

# FIELD TRIP TO MINGUS MT

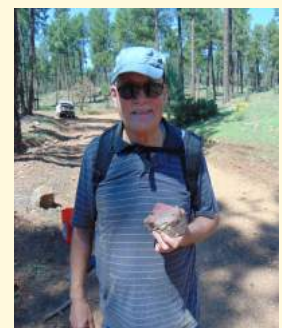
## Wednesday, September 7, 2022

Photos and text by Bill Freese

Here we are in a new rockhounding season and our first trip is to Mingus Mtn for Jasper/Hematite, otherwise known as a Banded-Iron-Formation. We ended up with 17 folks from DMRMC and MSA clubs, out on a beautiful day at 7000 feet. The temperature got up to about 83, but still much better than 106 in Phoenix. Everyone found some great treasures and enjoyed the great location in the woods.

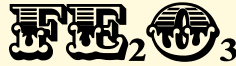


# Bill



Claudia loads up a bucket for the Kids' Corner

...Field Trips continued from page 11



*BIF or Banded Iron Formation -- in this case the Precambrian (about 1.8 billion years old) Pike's Peak Iron Formation, on Mingus Mountain. For More Information refer to Rockchips June 2019, May 2020, or September 2021 — or visit the club [Flickr](#) site.*

**FOR MORE PHOTOS OF THIS TRIP, CHECK OUT THE [DMRMC FACEBOOK PAGE](#)**

Field Trips continued on page 13....

...Field Trips continued from page 12

# FIELD TRIP TO DOBELL RANCH

## Saturday, September 10, 2022

Photos and text by Bill Freese

Hey everyone, DMRMC had their first trip of the season to DoBell Ranch for petrified wood. We will probably end up there 2 more times by the end of the season. We invite other clubs to go with us and this was well attended by the Payson Rimstones also. Rhonda and her family are great hosts. Everyone found great pieces of petrified wood and then enjoyed lunch provided by Rhonda. The weather was warm and breezy. Very nice trip.

**R**  
**E**  
**D**

red



**RED**

**r**  
**e**  
**d**



**r**  
**e**  
**d**

**RED**

**RED**



**R**  
**E**  
**D**



**RED**

**RED**



**RED**

Field Trips continued on page 14...

...Field Trips continued from page 13



# HAPPY FALLS



Field Trips continued on page 1....

...Field Trips continued from page 14

# FIELD TRIP TO PARKS

## Saturday, September 17, 2022

Photos and text by Bill Freese

Hey Everyone, DMRMC had a field trip to Parks, AZ for obsidian. This is a cool place in many ways. The scenery is incredible, and at 7500 feet in elevation it was only in the low 70's. The perfect spot for hunting some obsidian. I little bit of a workout, but worth it. We had 17 happy rockhounds, including a couple little ones, that all came away with treasures.



Great Conchoidal Fracture



Black AND Mahogany Obsidian



# Obsidian

# GEO MINI: Obsidian

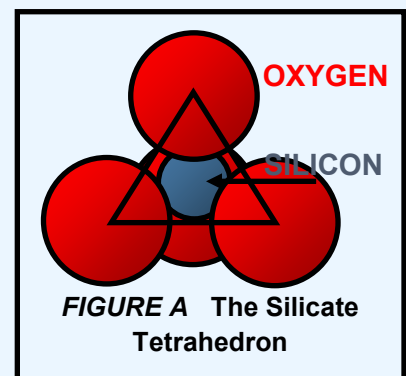
By Stan Celestian

This article was inspired by the recent Daisy Mountain Rock and Mineral Club field trip to Obsidian Tank near Flagstaff, AZ.

**OBSIDIAN** is **VOLCANIC GLASS**. The consensus among Geologists is that it is a result of rapid cooling of silica-rich liquid rock. Rapid cooling means the liquid rock cools to form obsidian in a few minutes up to a few days. Silica-rich means the composition is at least 60% silica, to as much as 80%. So how does **OBSIDIAN** form? I'm glad you asked that question.

Obsidian starts off as liquid rock, typically at or very close to the surface. Once liquid rock makes it to the surface (as lava) it rapidly loses its heat to the atmosphere. Rapid cooling hinders the growth of crystals, because there is simply not enough time for the atoms to fall into a proper alignment to create the geometry of a crystal. While still hot lava, the various atoms have electrical charges, but can't bond with other atoms because of the high heat. They may bump into other atoms to try and bond; however their movement is so high they simply bounce off, and no bonding takes place. On the opposite extreme, if the cooling is very rapid the atoms can not move fast enough to reach other atoms to create bonds, and as a result, crystal growth is prevented. So, as it turns out, lava (hot liquid rock at the surface) and obsidian (volcanic glass with no crystals) have something in common. They are both liquid. *Believe it or not, glass is considered a liquid -- a super-cooled liquid.*

To complicate the growth of crystals in lava even further, large amounts of silica tends to slow the movement of atoms through the liquid. Silica in lava is in the form of tetrahedrons, that are like little 3-sided pyramids with an oxygen atom on top and 3 more oxygen atoms making up the base. A silicon atom is right in the middle as shown in this diagram. These tetrahedrons are "sticky", they tend to bond together and slow the movement of all of the atoms in the liquid rock. The more silica ( $\text{SiO}_4$ ), the thicker and slower the atoms move. This retards the growth of crystals, simply because other atoms can't plow through these masses of tetrahedrons to find their place to develop crystals.



The end result is that the liquid mass cools, but develops no crystals - it is a glass. A glass is defined as an amorphous mass — it has no crystal structure. The amorphous nature of obsidian (or any glass) gives it a few unique properties. But first, a bit of information about Obsidian Tank on the flanks of Government Hill, Arizona.

Northern Arizona is home to a dense field of volcanic cones. Most are composed of basalt, however some have a more silica-rich component. Government Mountain is one such silica-rich volcano, and is part of the San Francisco Peaks Volcanic Field, which consists of hundreds of volcanoes. Based on chemical analysis (K-Ar dating), Government Hill erupted about 2.7 million years ago. The obsidian here is very high in silica content, but there are also other elements present. Here is a table (modified) from an article about the volcanoes of the San Francisco Volcanic Field (<http://swxrflab.net/sfvold.htm>)

	$\text{SiO}_2$	$\text{Al}_2\text{O}_3$	$\text{CaO}$	$\text{Fe}_2\text{O}_3$	$\text{K}_2\text{O}$	$\text{MgO}$	$\text{MnO}$	$\text{Na}_2\text{O}$	$\text{TiO}_2$
Government Hill	75.87	13.431	0.7936	0.9335	4.317	<.001	0.0809	4.43	<.001

Most commonly, large masses of obsidian form as lava flows. Some Geologists speculate that the lava that formed the obsidian may be "flat"; that is with a very low amount of dissolved gases. Somewhat similar to how carbonated beverages become "flat" when left open to the atmosphere, the gases simply leak away. Gas content in lava is one of the important controls on the explosive nature of a volcano. The greater the gas content, typically the more explosive the eruption. Obsidian flows would therefore be what are called "quiet" eruptions.

Obsidian continued on page 17....



....Obsidian continued from page 16



**FIGURE B** Flow Patterns in Obsidian from Newberry Crater, Oregon. Photo by Stan Celestian

To provide evidence of the flow of obsidian, many fragments of obsidian have flow lines. These are observed as impurities in the liquid, and moved along by currents in the lava. Figure B is a sample of obsidian from Newberry Crater, Oregon. It is not too difficult to see how these lines formed, as the obsidian flowed.

But, this obsidian is probably not the “classic” black obsidian with which you are familiar. Figure C has more of the classic look, with smooth, black, curved surfaces with razor sharp edges. This obsidian is shown backlit in the right image. In that view, flow lines can be easily seen.

In fact, deviations from the classic black obsidian are often some of the most interesting forms. Here are some examples: (Figures D - G)



**FIGURE C** Black Obsidian, with Backlit View on the Right. Note the flow lines in the backlit view. Photos by Stan Celestian



**FIGURE D** Mahogany Obsidian from Aguila, AZ. The black is most likely due to an abundance of magnesium oxides, and the red is due to excessive amounts of iron oxides. Small pieces of mahogany obsidian were also found at Government Mountain. Photo by Stan Celestian

Obsidian continued on page 18....

....Obsidian continued from page 17



**FIGURE E Golden Sheen Obsidian from California**

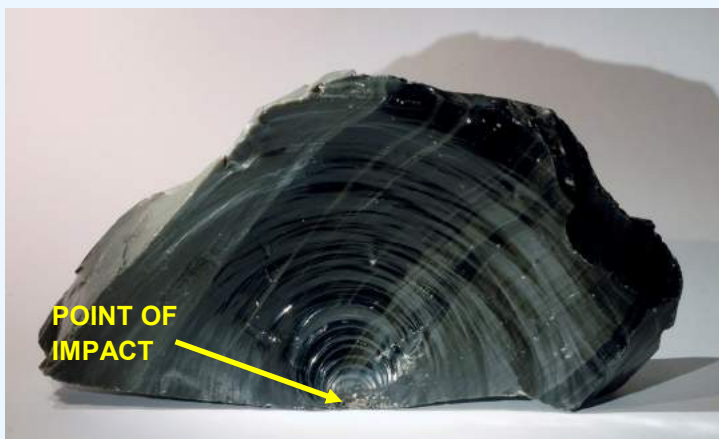
The color here is produced by microscope gas bubbles that were trapped in the obsidian, as it cooled.

*Photo by Stan Celestian*



**FIGURE F Rainbow Obsidian from Northern California.** These colors are due to the interference of light, created by very thin layers (flow lines) that contain nanometer-sized magnetite crystals. The colors associated with oil spills on a wet road, or the colors seen in fire agate, are of a similar origin.

*Photo by Stan Celestian*



**FIGURE G Conchoidal Fracture in Obsidian.**

This figure shows another great feature displayed by obsidian — its conchoidal fracture. Because obsidian is not solid, it has no preferred directions of strength or directions of weakness. Hitting a chunk of obsidian with a hammer produces shock waves that travel outward from the point of contact. They move out as a compressional wave, equally in all directions (circular). But rocks are strong in compression, and weak in tension. The actual break (and the formation of the conchoidal fracture) is created after the compressional wave passes. The rock is squeezed by the compression, but springs back. That “springs

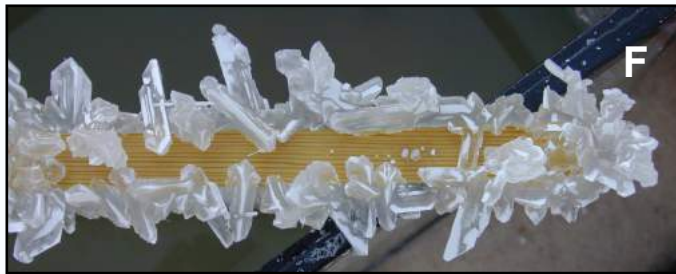
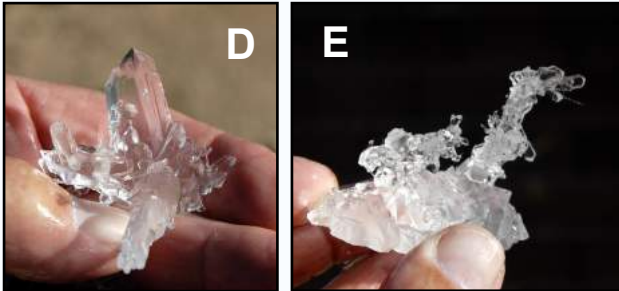
back” is the tensional part of the wave, and is what causes the rock to break. Notice that the rock breaks along the concentric, circular path of the compressional/tensional wave. Because obsidian (or glass in general) is very uniform in its make-up, that concentric circular break pattern is the rule, and it is called *conchoidal fracture* — named after the smooth, curved surface of a conch shell. This property of obsidian lends itself to the production of very sharp, thin edges. It is ideal for arrowheads, spear heads and knife blades. *Photo by Stan Celestian*



An ORIGINAL cartoon, by our own ©Laurie Manifold — artist extraordinaire!  
(Reproduction denied without permission of the artist)

...Mirabilite continued from page 2

After



**FIGURE 2 HOMEGROWN MIRABILITE** Another cold night — this time in Waddell — and beautiful mirabilite crystals grew in a tub at the Celestian residence. Photos by Stan Celestian

**FIGURE 3 FROST-LIKE MIRABILITE**

Here is another beautiful cluster of homegrown mirabilite. Image H, was taken shortly after removal from the solution, in which it grew.

Image I, is the same cluster, after about 1 hour exposure to the air. It has turned white. That reflects the dehydration, and recrystallization to thenardite. The specimen in I is a *pseudomorph*: the crystal form of mirabilite is occupied by the mineral thenardite — thenardite after mirabilite.

Photos by Stan Celestian



**FIGURE 4J MIRABILITE** Here is a single homegrown crystal of mirabilite, just removed from the solution — relatively clear.



**FIGURE 4K MIRABILITE** This is the same crystal as 4J, but after about 1 hour exposure to air.



**FIGURE 4L MIRABILITE** After a couple of hours the crystal from 4J has completely dehydrated, and is now many tiny crystals of thenardite.



**FIGURE 4M MIRABILITE** As mentioned in 4L, the once-solid mirabilite crystal has dehydrated and is now composed of many tiny thenardite crystals, making it very fragile. This is the crystal from 4L, after it was gently squeezed. All those tiny thenardite crystals have separated and are scattered about.

...Mirabilite continued from page 20



#### FIGURE 5 MIRABILITE MOUNDS AT GREAT SALT LAKE

During the Falls and Winters of 2019 and 2021, a series of mirabilite mounds formed on the flats of the South Shore of the Great Salt Lake. These mounds formed at near-freezing temperatures, where sodium sulfate-rich groundwater comes to the surface at springs. Mirabilite crystallized as masses and rills, the mounds rising to heights of about 3 feet, and being several yards in diameter. Once temperatures rose to about 50°F, the mirabilite became unstable, and was replaced by thenardite.

Mounds, such as these, are fairly common in other saline areas around the globe, but not so at Great Salt Lake; although, a 3-6 foot layer of mirabilite exists at a depth of about 30 inches.

*Photos used with permission by and courtesy of the Utah Geological Survey.*



#### FIGURE 6 THENARDITE AFTER MIRABILITE

Both of the images above are pseudomorphs of thenardite after mirabilite, from Boron, Kern Co., California. These hopped crystals grew in the settling ponds at the borax mine there. These were collected, allowed to dry, and coated with Krylon plastic to keep them from falling into powder. *Photos by Rob Lavinsky, irocks.com and licensed under CC-SA-BY-3.0.*

#### GENERAL RESOURCES FOR MIRABILITE

<https://www.mindat.org/min-2725.html>

<http://webmineral.com/data/Mirabilite.shtml#.YxIKWXZKg7c>

<https://en.wikipedia.org/wiki/Mirabilite>

<https://geology.utah.gov/popular/great-salt-lake/mirabilite-spring-mounds/>

<https://epod.usra.edu/blog/2022/03/great-salt-lakes-mirabilite-mounds.html>

<https://www.sltrib.com/news/2021/01/14/rare-salt-formations/>

[https://www.youtube.com/watch?v=qhyHG2GNo\\_U](https://www.youtube.com/watch?v=qhyHG2GNo_U)

<https://www.acupuncturetoday.com/herbcentral/mirabilite.php#:~:text=Mirabilite%20is%20used%20to%20treat,ulcers%20and%20help%20wounds%20heal.>

## SILENT AUCTION ITEMS FOR THE **OCTOBER** 2022 DMRMC MEETING

by Stan Celestian, Silent Auctioneer

THIS MONTH'S SILENT AUCTION ITEMS ARE FROM THE GENEROSITY OF  
OUR OWN CLUB MEMBER MICHAEL P. **THANK YOU MICHAEL!**



In all of these photographs a 1 cm cube has been included for scale.

**ITEM 1.** This is an attractive cluster of FLUORITE cubes that are a very dark purple color. Attached to the bottom right of the FLUORITE it is a small group of CALCITE crystals. My best guess as to the locality is the Cave-in-Rock area of southern Illinois.

It stands at just over 4 inches tall.

It will fade in sunlight.



**ITEM 2.** This is one of those "WOW" PYRITE crystals from Navajun, La Rioja District, Spain. Many people think that they have been cut or polished to this shape. But, this is the way they come out of the ground. At the "open pit" mine they are sticking out of the walls of a hardened clay. Who is up for a collecting trip to Spain?

This one is very nice and is about 1.5 inches on a side. Imagine the hours of fun you will have arguing with your friends that this indeed is how it comes out of the ground.



**ITEM 3.** Picture JASPER from Oregon is always popular. People love to imagine various objects or southwestern scenes in the patterns of the jasper. To me it looks like a scene out of a Roadrunner's cartoon scene (minus the roadrunner and coyote). What do you see?

This specimen is polished on one side and mounted on a piece of foamboard.

*Silent Auction continued from page 21*



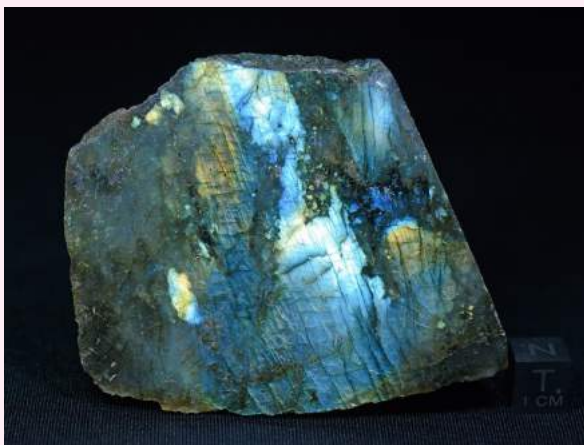
**ITEM 4.** AMETHYST, the purple variety of quartz is next up for auction. This beauty is about 3 inches wide, and at that size it will fit in just about any little niche, that needs a spot of color, in your home . This specimen is probably from Brazil.

*(DISCLAIMER - You may need to dust/rinse it off once in a while to keep it sparkly.)*



**ITEM 5.** Here is another AMETHYST (maybe from Brazil). This cluster of AMETHYST crystals is attached to a thin plate of quartz crystal (white). The AMETHYST cluster displays a parallel growth structure.

This specimen comes with its own sheet of bubble wrap and Ziplock bag...



**ITEM 6.** Last but not least is this beautiful polished specimen of LABRADORITE. LABRADORITE was first described from Ford Harbour, Paul Island, Labrador, Canada. (Field trip anyone?) It is a type of plagioclase feldspar, and forms as an igneous rock component. It can also (but not always) display a spectacular play of colors called iridescence that is so pronounced in LABRADORITE that it is called "labradorescence". However, LABRADORITE is not unique to Labrador, Canada and massive amounts have been produced in Madagascar.

Bring plenty of **cash or checks (Tiffany can probably take a credit card)** to bid on these items.

Observe proper silent auction etiquette. Write your name so that I can read it (or print clearly, no initials). Write your name and bid amount below the last bidder's bid. No arrows pointing to your previous, but revised bid. The highest bidder and amount should be on the bottom of the bidding sheet. Also, **HAVE FUN!** (PLEASE, no crying if you lose, and that goes for the ladies too.)

**UPCOMING FIELD TRIPS**

**Here is a general list of upcoming trips. Details will be emailed to the general membership.**

Check your email of August 14, 2022 for the complete general field trip calendar.

**October**

Roberts Mesa (Payson Area) - Sat 15th -- Agate  
 Geode Hill-Payson - Wed 19th -- Geodes, Fossils  
 Bronzesmith (Prescott Valley)- Thur 27th -- Tour of Foundry

**November**

Red Cloud (Yuma)- Fri/Sat 4th & 5th -- Wulfenite, Vanadinite, Fluorescents  
 Purple Passion (Wickenburg) - Wed 9th Wed -- Evening trip for Fluorescents  
 Chilito Mine (with ???) (Hayden) - Sat 19th -- Copper Minerals (chrysocolla, azurite, malachite, cuprite)  
 Hewitt Canyon - Wed 30th -- Pink/green Banded Marble

**December**

Blue Cube/Prism/Spectrum - Sat 3rd -- Fluorite, Amethyst  
 Saddle Mtn (Tonopah) - Wed 7th -- Chalcedony Roses  
 Christmas Party at Anthem Civic Center - Sat 10th

**January**

Mushroom Rhyolite (new claim) - Sat 7th  
 Quartzsite Club Day - Sat 21st -- Mineral Shopping  
 Oatman area - Fri-Sun 27th-29th -- Travertine, Lizardstone, Fire Agate, Oatman

*DATES AND DESTINATIONS 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*

**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](https://www.facebook.com/daisyMountainRockandMineralClub). 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
- Vice President:** Bill Freese..... bfreese77@cox.net
- Secretary:** Rebecca Slosarik .. rslosarik1@gmail.com
- Treasurer:**....Deanne Gosse deanne.gosse@outlook.com
- Publicity:** Jessie Redmond...
- Membership:** Tiffany Poetsch tnpetsch@gmail.com
- Editor:** Susan Celestian.....azrocklady@gmail.com
- Field Trip:** Bill Freese ... bfreese77@cox.net
- Mine Steward:** Stan Celestian.stancelestian@gmail.com
- Show Chair:** Ed Winbourne
- Trustees:**

- |         |           |
|---------|-----------|
| Susan C | Claudia M |
| Stan C  | Tiffany P |
| Bob E   | Don R     |
| Nancy G | Howard R  |
| Renee I | Johanna R |
| Gregg J | Bob S     |

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

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

**Meeting Dates for 2022**

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

***FUTURE SPEAKERS***

**OCTOBER:** Jay Yett, on The Colorado River Compact. He is a club member, and retired geology instructor from Orange Coast College, Costa Mesa, CA

**NOVEMBER:** Stan Celestian, club member and retired geology instructor from Glendale Community College, Glendale, AZ.

**APRIL:** Robert Hazen - Carnegie Institution, Washington D.C., via Zoom. He is a geologist and will speak on Mineral Evolution.



## WORDS OF WISDOM

passed along by our own **Bob Evans**



I miss the 90s, when bread was good for you and no one knew what kale was.

### UPCOMING AZ MINERAL SHOWS

**October 7-9 - Buckeye, AZ** West Valley Rock & Mineral Club; Buckeye Arena, 802 N 1st St; Fri-Sat 9-5; Admission: Adults \$3, under 13 free.

**October 8 - Cottonwood, AZ** Verde River Rockhounds; Old Town Activity Park, 187 E Pima St; Sat 9-5; Admission: Free?

**October 8-9 - Sierra Vista, AZ** Huachuca Mineral & Gem Club; Sierra Vista Mall, 2200 El Mercado Loop; Fri-Sat 9-5; Sun 10-4; Admission: Free.

**October 15-16 - Sedona, AZ** Sedona Gem & Mineral Club; Sedona Red Rock HS, 995 Upper Red Rock Loop Rd; Sat 10-5, Sun 10-4; Admission: \$4, 12 & under free.

**November 5-6 - Phoenix, AZ** Mineralogical Society of Arizona; Radisson Hotel, Phoenix Airport, 427 N 44th St; Sat 9-5, Sun 9-4; Admission: \$1, 12 & under free. SEE [POSTER](#)

**November 26-27 - Wickenburg, AZ** Wickenburg Gem & Mineral Club; Wrangler Event Center at Hassayampa School, 251 S. Tegner St; Sat 9-5, Sun 10-4; Admission: Free. SEE [POSTER](#)

**January 5-6 - Mesa, AZ** Flagg Mineral Museum; Mesa Community College, NE corner of US 60 and Dobson Rd; 9-5; Admission: Free. SEE [POSTER](#)

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> OR <https://www.rockandmineralshows.com/Location/?displayShows=true>

**NEEDED: QUALITY MINERALS (or OTHER) DONATIONS WITH LABELS** -- for monthly raffle and silent auction; 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 EDITOR

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.

### NORTH MT OPEN STUDIO - OCTOBER

*You are invited to NMVC Studio -- there are some changes in the schedule this Fall. Lapidary Classes every Wednesday & Silversmithing Classes on Saturdays. Lapidary Open Studio every Monday & Silversmithing Open Studio every Thursday. TIMES: from 9:00 to noon with cleanup starting at 11:50.*

**Face masks are now optional.**

Only four people can sign up, and must do so for the full three hours that the shop will be open each day. First come, first served. Usage fee is \$8/hour.

**Notice: Please bring your own towels, polishing compounds and buffing wheels as they will no longer be provided.**

Please arrive no later than 8:45 a.m. The center may closed to the public at 10.

**Email your request for the day(s) you are interested in participating ASAP. Email Shirley Cote at: [crystalc17@gmail.com](mailto:crystalc17@gmail.com)**

If more than four people wish to participate on the same day, please expect to be bumped or rotated to another day as efforts to accommodate everyone will be taken.

**October – Wednesday dates are 5, 12, 19, 26**  
**October -- Saturday dates are 1, 8, 15, 22**  
**OPEN STUDIO Saturday 29**

**October -- Monday dates are 3, 10, 17, 24, 31**  
**October -- Thursday dates are 6, 13, 20, 27**

Email Shirley at: [crystalc17@gmail.com](mailto:crystalc17@gmail.com)  
Usage fee is \$8/hour.



# The 2nd PHOENIX HERITAGE GEM & MINERAL SHOW



## GET READY TO ROCK PHOENIX!



# NOV 5 and 6 2022

**RADISSON HOTEL PHOENIX AIRPORT**  
427 NORTH 44TH STREET | PHOENIX, AZ 85008

Saturday 9am – 5pm | Sunday 9am – 4pm

**WULFENITE**, "Official AZ Campaign Wulfenite"  
Red Cloud Mine, La Paz County, Arizona, USA  
3.9cm - Evan Jones Collection - Jeff Scovil Photo

Admission: **\$1 CASH**  
ATM Available

**FREE** 12 years and younger

**Larger Show Featuring:** Minerals,  
Kids Activities, Exhibits, Saturday Night  
Dinner with Program and Auctions

[msaaz.org](http://msaaz.org)

# Wickenburg Gem and Mineral Show Nov 26 & 27, 2022



Free Admission

Jewelry

Fossils

Minerals

Gems



Over 40 Vendors    Best Rock Contest    Raffle  
Door Prizes    Kid's Area    Silent Auction

Hassayampa Elementary School

251 South Tegner Street Wickenburg, AZ

9am - 5pm Saturday • 10am - 4pm Sunday

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



GOLD - QUARTZSITE, LA PAZ COUNTY, ARIZONA  
U OF A MINERAL MUSEUM COLLECTION  
PHOTO CREDIT: JEFF SCOVIL  
2.2CM HIGH

**JAN** 6 to 8  
2023



MESA COMMUNITY COLLEGE  
NE CORNER OF US 60 AND  
DOBSON ROAD | 9AM - 5PM



FLAGG  
MINERAL  
FOUNDATION

The Tailgate Show  
Tradition Continues!

FREE Parking  
FREE Admission  
FREE Samples for Kids  
[www.Flaggshow.info](http://www.Flaggshow.info)