



# 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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This is an example of *Spheroidal Weathering* in granite, exposed along the road to the travertine locality, near Globe, that was the destination of a club field trip in May. See the [Geo Mini](#) article in this newsletter, for more information on how spheroidal weathering happens. *Photo by Susan Celestian*



# KAERSUTITE

By Susan Celestian

This month's featured mineral is Kaersutite. You probably have not heard of it, and you won't encounter it very often, but it is known as an associate of olivine in the xenoliths in the basalts (basanite) of San Carlos Reservation and in the San Bernadino Volcanic Field in SE Arizona -- and it occurs as fairly large crystals in a alkaline basalt dike along US 93, about 7 miles east of Hoover Dam.

**Chemical Formula** -  $\text{NaCa}_2(\text{Mg}_3\text{Ti}^{4+}\text{Al})(\text{Si}_6\text{Al}_2)\text{O}_{22}(\text{OH})_2$

**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** - crystalline, granular

**Hardness** - 5-6

**Luster** - Vitreous, resinous

**Streak** - pale brown-gray

**Color** - dark brown to black

**Diaphaneity** - translucent

**Specific Gravity** - 3.20-3.28

**Cleavage** - perfect in one direction

**Fractures** - conchoidal

[Kaersutite](#) is an amphibole, named for the type locality<sup>1</sup> at Qaersut (Kaersut), Uummanaq (Umanak) Firth, Kitaa Province, northern Greenland. It is found most commonly in relatively exotic mafic and ultramafic rocks, such as basanite, camptonite, lugarite, and peridotite.

A classic locality in Arizona is a site where fairly large phenocrysts of kaerstutite can be seen in a camptonite dike. The dike is exposed in a roadcut along State Rte 93, a few hundred yards south of MP8, and about 7 miles east of Hoover Dam. Apparently, there are several of these dikes exposed in the general area. The kaerstutite crystals and basalt originated in the upper mantle, and the dikes were emplaced into fanglomerates (conglomerates deposited by streams associated with alluvial fans) about 4-5 million years ago. See Figures 1-2.

<sup>1</sup> Type Locality - the locality where a mineral is first discovered and formally described.

*Kaersutite continued on 10...*

## BILL FREESE

### ROCKHOUND OF THE YEAR

The American Federation of Mineral Societies (AFMS) has a program whereby they recognize clubs' Rockhounds of the Year. To do so, AFMS prints the nomination letter for one member of each club in the association (or from each club that submits a letter); and awards a certificate to each.

The letter is submitted to the Rocky Mountain Federation of Mineral Societies (RMFMS), and the letter is printed in the RMFMS newsletter, and the RMFMS forwards it to the AFMS.

This year, DMRMC President, Ed Winbourne, nominated Bill Freese, in recognition for all his hard work for our club. The letter is as follows:



*Bill Freese has been a member of The Daisy Mountain rock and Mineral Club for six years. He was first elected Vice President in 2019. Per club By-Laws the Vice President is also the head of our field trip committee. Bill is a*

*perfect fit for the job as he is a long time Arizona rock hound with extensive knowledge of collecting sites in Arizona and neighboring States. The importance of his experience and being the leader of the field trip committee took on great importance during the Covid-19 pandemic. Bill saw that we would be limited to holding our monthly meetings remotely. Our yearly Rock and Gem Show was put on a two-year hiatus after the 2020 Show was cancelled three days before the scheduled opening. The future of our Club was in the balance.*

[Rockhound of the Year](#) continued on 3...

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Bill was not deterred by these setbacks. Our Club was formed with field trips as a central tenant, a principal Bill took that to heart. He began scheduling multiple field trips each month to locations all over Arizona. He would personally scout any location the Club had not been to. Rules for trips were established to ensure members safety. The number of participants on trips was limited. Carpooling was discontinued. He instituted field trips during the week as well as weekends to accommodate as many members as possible who wanted to visit a site with the Club. Additionally, when visitors from out of State visited and asked for help in finding collecting sites Bill generously assisted them as our club has done prior to the Covid-19 epidemic, winning many friends for our Club.

Bill is also an expert in IT. Our Executive Board meetings and our monthly membership meeting needed to be held remotely because of the dangers of Covid-19 transmission. Bill worked to ensure our meetings continued via Zoom. Thanks to Bill we were able to schedule Speakers from across the Country as well as from Guatemala. Thanks to Bill's expertise we enjoyed speakers from the Smithsonian Institute in Washington and the Los Angeles Natural History Museum at our monthly meetings. Because of his actions our Club has grown despite the limitations the Covid-19 pandemic has imposed on all of us. Bill Freese deserves recognition for his initiative, knowledge, and selfless dedication to our wonderful hobby. He should be selected as Rockbound of the Year by the Rocky Mountain Federation of Mineralogical Societies.

*Thanks Bill!!!*



Bill's haul of amethyst from one of the DMRMC trips to the Contact Mine.

## SUMMER HIATUS

The June meeting was the last until September. But keep an eye on your email for potential field trip opportunities.

**HAVE A GREAT SUMMER! BE SAFE!!!**



**SEE YOU IN SEPTEMBER, SEE YOU WHEN THE SUMMER'S THROUGH (We wish, huh?!)**

## NEW CLUB CLAIM FILED: Daisy Mountain #2

Claim Chair, Stan Celestian, has officially filed the claim forms for a new club claim. The area is in the vicinity of the popular Mushroom Rhyolite field trip site. On Friday, June 3, 2022, Stan and Sue Celestian went to the site and set the corner posts.

It is a surface claim, with the target materials being mushroom rhyolite, obsidian and chalcedony -- or whatever strikes your fancy.

At this time, the claim is being adjudicated by the State BLM, to determine if it will be granted. This process could take a while. Stay tuned for further news.



**Was it an earthquake?  
No..... It was Stan pounding in a corner post!**

## ZOOM BOARD MEETING MINUTES

June 6, 2022

- In attendance: Bill F., Bob E., Bob S., Deanne G., Don R., Gregg J., Johanna R., Nancy G., Rebecca S., Renee I., Stan C., and Sue C.
- Bill F. called the meeting to order
- May minutes accepted
  - I missed the general meeting, but board meeting notes were sufficient
- This is the last meeting of the season
- Deanne G. discussed the financials
  - Paid out scholarship of \$1,000
  - Paid school invoice of \$2,689
    - Were not charged for janitor services
    - Were charged more hours than contract specified
      - Contract stated 8 hours for 3 days
      - School staff worked more than that overall
    - Will have more specific contract next year
      - Can prevent any discrepancies with anticipated vs. actual invoice
- The board welcomed two new officers!
  - Johanna Raupe
  - Gregg Josey
  - Thank you both for your service
- Claudia M. is creating a new incentive program for volunteers
  - Gas cards were given to some individuals who drove many miles for the 2022 show
  - Claudia M. will discuss future incentives at next meeting
- Tiffany P. discussed membership
  - Almost at 300 members now
  - Online forms are making membership easier than ever
- Stan C. talked about the claim's committee
  - Stan C. put up posts, GPS'ed the location, and submitted paperwork
    - BLM received paperwork Friday June 3<sup>rd</sup>
    - The claim is 19.97 acres N of tank
    - Will have a trip out there in November
    - Has plenty of surface material left
  - Another claim is in the works just S of the tank
    - Has a non-active claim on it
    - Will investigate this matter before purchasing claim
- Wire wrapping class was discussed
  - It was suggested that everyone still meet for classes
    - Have a different person bring in a technique to teach the class every month
    - Would still like to see this class resume without Jennifer G.

...Minutes continued from page 4

- Many successful additional trips in May
- The Globe trip to get travertine (erroneously named onyx) went well
  - Limited parking at location
  - A power drill might be useful for this location
- Lynx Creek done at perfect timing because of weather
- The Lava Tubes are moved to September
- The Rocky Mountain Federation (RMF) convention is June 16-19
  - Any members can go
    - Can vote on federation matters
  - They are our affiliate and cover our insurance
- There will be several small trips throughout the summer
  - Check emails for information and details
- Congratulations to Bill Freese for being awarded the RMF Rockhound of the Year
  - Sent in as the RMF candidate for the National title
    - Will be decided by national board later
  - Good luck Bill – you deserve it for all the hard work you do for the club!
- 2023 show was discussed
  - Will start earlier to recruit volunteers
  - Will keep Anthem Elementary School as location
- Future meetings were discussed
  - Might have a meeting for all the newcomers in September
    - Will be about rockhounding etiquette, equipment, general knowledge, etc.
    - If anyone wants to give 15-minute presentation on the matter
      - they can email [dmmclub@gmail.com](mailto:dmmclub@gmail.com)
- Nametag vendor was discussed
  - 1 week timeframe from order to delivery
  - Ordering in batches is cheaper than individual orders
  - Please wear your nametag to all club events
- The art submissions were talked about
  - 2 submissions were not print ready
  - Stan C.'s design was chosen
    - Unanimously approved design with hammers
    - Check out FB and club website to see new design
  - Will be used for club merchandise
    - Magnets and stickers will be made available first
    - Board is looking into profitable company for other merchandise
      - Members want other goodies with logo
      - Will be used for volunteer incentives as well

Respectfully submitted,

Rebecca Slosarik

...Minutes continued from page 5

## GENERAL MEETING MINUTES

### June 7, 2022

- Open attendance: about 40 attendees
- Bill F. called the meeting to order
- Deanne Gosse and Shirley Cote gave a great presentation on the uniqueness of Newfoundland, Canada
  - It is the second place in the world you can see the Earth's mantle
  - Video shown: Geologic Journeys
    - There is a second video if anyone wants to learn more about Newfoundland for themselves
- The raffle was led by Robin S. and Bill F.
  - Made the club \$67
  - Silent auction made the club \$65
- All newcomers were welcomed into the club
  - Introductions showed google searches and rockhounder referrals brought them in
  - We love to see all the new faces and thank you for joining!
- Deanne G. discussed the financials
  - Club in good standing
  - 2022 show helped the club greatly
- Bill F. discussed the claim's committee
  - Paperwork is in for first claim
    - Can find mushroom rhyolite, chalcedony, green obsidian, and many others at location
  - Will have a trip out there in November
- Bill F. talked about the field trips
  - Check emails for trip information and updates
    - RSVP to email with # of attendees and names
  - RMF conference at Las Vegas, NV June 16-19
  - Congrats again Bill for RMF Rockhound of the Year!
- The club welcomed the new officers to the board
  - Gregg Josey
  - And Johanna Raupe
- Claudia M. discussed the volunteer incentive program
  - Would like to get more volunteers for show
    - Show chair's needed help last year
  - Fill out timesheet to log hours
    - 60 hours gets you a free t-shirt
  - Looking into having a volunteer of the month each month
  - Looking into having a volunteer of the year each year
  - Kids Corner needs help labelling rocks over the summer
    - Contact Claudia M. if you would like to help
      - [cmarek2@cox.net](mailto:cmarek2@cox.net)

Minutes continued on page 7....

...Minutes continued from page 5

- 2022 Scholarship was discussed
  - Check sent out to Grace's school
  - Barely covers books, but hopefully helps her nonetheless
- Tiffany P. discussed membership
  - Currently at 293 members
  - Great increase due in part to online forms
- The logo was voted on
  - Stan C.'s design with hammers was chosen
  - Check out FB and website for new design
- Wire wrapping was discussed
  - Would like to see everyone meet again
  - Use a different person volunteers each month to bring in technique to teach
  - Any comments or would like to volunteer
    - Please email [dmmclub@gmail.com](mailto:dmmclub@gmail.com)
- Thank you to Robin S. and Bill F. for bringing in items for Show & Tell
  - Great blue agate and onyx was brought
  - Any member can bring in items to show off at general meetings
    - We love to see what everyone is rockhounding
- Next meeting will be September 6<sup>th</sup>
  - Enjoy your summer and try to stay cool!

Respectfully submitted,

Rebecca Slosarik



The Sun shines on the Harcuvar Mountains west of Aguila Road, on the way to the Contact Mine in December 2021. *Photo by Susan Celestian*

# FIELD TRIP TO LYNX CREEK

Saturday, June 4, 2022

Photos by Bill Freese & Susan; Text by Bill Freese

Well, there you have it, the last trip of the season to cool pines at Lynx Creek by Prescott. 23 of us ventured up to Prescott in the 75 degree weather before it it gets really hot. There was no water in the creek, so we had to use other means to do a little gold panning. Some found a few flakes. Yes there is still gold up there in Lynx Creek. The trip is more about getting together and having some fun outdoors.



Stan Celestian jumped down into a deep hole, dug by previous prospectors, in the middle of the creek. That allowed him to remove material from some depth. *As stream sediment is suspended by flowing water, gold (with a density of 19 times that of water) settles down farther and farther. Hence, the deeper you go, the more likely you will "hit it rich".*



Look at all the color in that pan. As water is swirled in a pan holding black sand/ gold (density 19) the black sand (density SG 6-ish) will wash away and the gold will lag behind.



This is the total amount of gold that Stan gleaned (out of about 20 pans) on this trip. The black reservoir is 1/2" in diameter.



Within the gold, there were a few grains of amalgam (a mix of gold & mercury) and mercury-covered gold "pickers".

In past commercial operations, mercury was used to isolate gold from sediment. *Mercury will alloy with gold to form amalgam. The gold was reclaimed by heating the amalgam and vaporizing the mercury.*

The trip began with a lesson on how to pan for gold, demonstrated by Stan.

And then.....

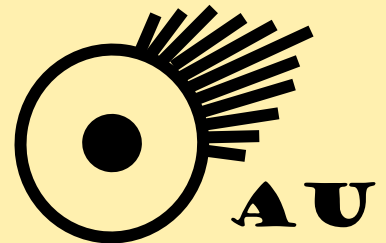
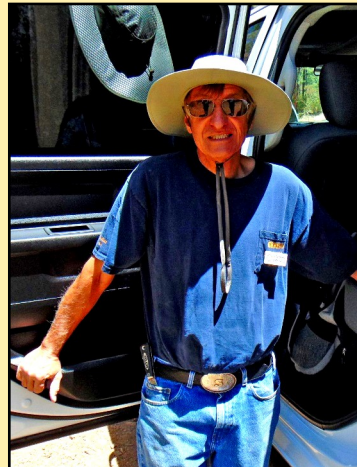
**THE RUSH WAS  
ON!!**



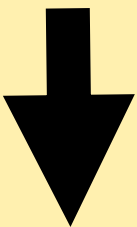
...Field Trips continued from page 8



Unfortunately, there was essentially no water in the creek. Luckily, a couple of attendees had brought water and tubs. Everyone made do!



SQUINT!



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

The "shining" circle symbol is an alchemist's symbol for gold, which is represented by the Sun.

...Kaerstutite continued from page 2



**FIGURE 1 BASALT DIKE NEAR HOOVER DAM**

Here are two versions of a photo of what is left of a dike exposed along State Rte 93, south of Hoover Dam. The image on the left is as it looks in “real life”. The image on the right has been photoshopped to emphasize the red color of the baked zones flanking the black dike. The rocks into which the dike intruded are fanconglomerates (or conglomerates deposited by streams across an alluvial fan).

At intrusion, dike material is quite hot, and that heat will bake the surrounding rocks, into which the dike intruded. That has the general effect of oxidizing iron, resulting a reddish color. In general, the crystals within the dike are larger in the center, and smaller along the edges -- reflecting slower cooling time in the center, and faster cooling time along the edges. (Although, in [USGS Professional Paper 1541 published in 1994](#), Nielsen and Nakata postulate that the larger crystals of kaerstutite found in the center of the dikes, is not due to chill zoning.)

*Photos by Stan Celestian*



**FIGURE 2 KAERSTUTITE** This is a photo of a hand specimen from the dike illustrated in Figure 1. *Photo by Stan Celestian*

Images of additional kaerstutite specimens in Figures 3-4.

*Kaerstutite continued on 11...*

...Kaerstutite continued from page 10



**FIGURE 3 KAERSTUTITE CRYSTALS IN TUFF**

These two crystals are of the amphibole kaerstutite. They lie in a volcanic tuff in the Czeck Republic. *Photo by Marek Novotřák and is licensed under CC-BY-SA 4.0*



**FIGURE 3 KAERSTUTITE CRYSTALS IN LUGARITE**

This exotic alkaline intrusive rock, lugarite, is known from only one locality -- the Early Permian Lugar Sill near Lugar, Scotland. The long black crystals are kaerstutite. *Photo by James St. John, and is licensed by CC BY 2.0*

#### GENERAL RESOURCES FOR KAERSTUTITE

[https://hero.epa.gov/hero/index.cfm/reference/details/reference\\_id/7483411](https://hero.epa.gov/hero/index.cfm/reference/details/reference_id/7483411)

<https://pubs.geoscienceworld.org/msa/ammin/article-abstract/64/3-4/249/104658/Petrogenesis-of-xenolith-bearing-basalts-from?redirectedFrom=PDF>

<https://e-rocks.com/item/shs107776/kaersutite>

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

<https://www.mindat.org/min-2129.html>

<https://www.webmineral.com/data/Kaersutite.shtml>

<https://pubs.usgs.gov/pp/1541/report.pdf>

<https://pubs.geoscienceworld.org/msa/ammin/article-abstract/35/9-10/671/538909/Camptonite-dikes-near-Boulder-Dam-1-Arizona?redirectedFrom=PDF>



The results of the logo contest are in, and the winner is Stan Celestian. The board approved it at the June meeting. The original submission is as seen above; however as you can see below, the colors can be tweaked for optimal contrast on various background colors. According to Stan:

*The daisy is a modern sunburst design, so naturally it needed to be a daisy sunburst sunrise coming up from behind the mountains. The mountains are a profile view of Daisy Mountain taken from a sketch I made from Google Earth.*

*I did a bit of research and found that circular logo designs were very popular and lent themselves to many applications. So the club name had to encircle the daisy and mountain. Fortunately I use MS Publisher and am very well acquainted with its design capabilities. Getting the "Daisy Mountain Rock and Mineral Club" words in an arc was very easy as was the spacing and font size. (It also makes it very easy to change if needed.)*

*Because it was a rockhounding club, I added crossed geopicks to the mix. This bold design element really speaks to the Geological nature of the logo."*



# **GEO MINI**

## *Spheroidal Weathering*

*By Stan Celestian*

The **INSPIRATION** for this short article was a recent club field trip to the Luna Lake area, in search of agate. We decided to take the picturesque route through the Salt River Canyon. Although slower with all of its switchbacks and traffic, it was in our opinion, worth the effort in terms of scenery and **Geology**.

**SPHEROIDAL WEATHERING** is a chemical/physical weathering phenomena that ultimately breaks down rocks near the surface. The concept involves the chemical breakdown of a fairly homogenous rock type that has been fractured by a series of joints/joint sets. Jointing, or fracturing, a rock is a process of physical weathering (simply making little rocks out of big rocks). The network of joints produces rocks that have sharp, distinct edges and corners. Of equal significance, the joints are avenues for fluid migration. For spheroidal weathering to take place, these fluids must break down the minerals in the rock. This is a process of chemical weathering (chemically altering the composition of the original minerals that make up the rock). These fluids begin the weathering process with the rock surfaces exposed along the joints, and work their way in toward the center of the rock. Where joints intersect (as at a corner) there is a concentration of the weathering fluids and the breakdown of the host rock is faster. The result is that the corners become weathered faster. As this process of chemical weathering continues, the unaltered rock becomes smaller and more rounded. Different stages of the chemical weathering process are seen in **Figure A**.

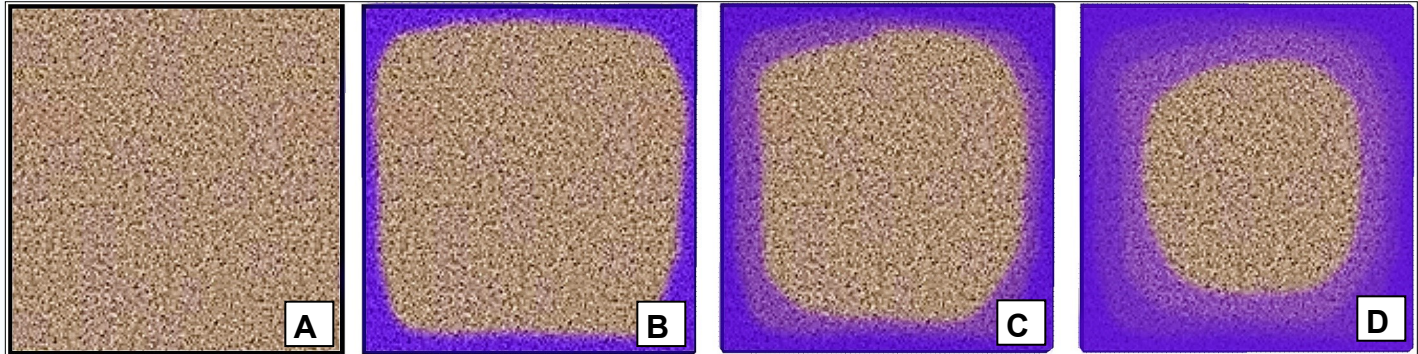


**FIGURE A** Spheroidal Weathering in a diabase sill along Route 60/77 in the Salt River Canyon, Arizona.

*Photo by Stan Celestian*

...Spheroidal Weathering continued from page 12

**Figure B** illustrates this spheroidal weathering process. It shows a cubic block bound by joints on all sides. The joints allow water to migrate all around the block and begin the process of chemical weathering, as indicated by the progression of the purple color. Note that the block is becoming more rounded and smaller through "B", "C", and "D". This illustration shows a cubic block, but a similar progression takes place for all shapes. The end result is that the parent rock becomes smaller and more rounded by the process.



**FIGURE B** The progression of spheroidal weathering in a homogenous rock, like granite or diabase.  
Illustration by Stan Celestian

One of the best places to observe spheroidal weathering in Arizona can be found acting on an intrusive igneous rock body, a diabase sill, along Routes 60/77 in the Salt River Canyon as shown in **Figure C**.



**FIGURE C** This is a view looking westward along the south side of the Salt River Valley Canyon from one of the many scenic overlooks provided. The two horizontally-trending cliffs are the diabase sills. The roadcut on the left cuts through one of these sills. The picture was taken from a large (safe) viewing area.

Photo by Stan Celestian

...Spheroidal Weathering continued from page 13

About 1.145 billion years ago sandstones and limestones (now known as the Apache Group) were intruded by fluid magma. The magma was injected between the sedimentary layers, and as it slowly cooled, it became a diabase sill. (Diabase is a coarser-grained variety of basalt. Basalt cools at, or very close to, the surface; and as a result forms very fine crystals that are not visible to the unaided eye. Diabase cools more slowly and also produces small crystals, but large enough that they are visible.) This diabase consists of plagioclase feldspars (labradorite and bytownite) along with augite, hornblende, and magnetite.

The diabase sills developed a series of joints (cracks) that were later to become avenues for water migration. Much of that water was meteoric, that is derived from the atmosphere in the form of rainwater. Rainwater is not pure water. It contains dissolved gases, most notably nitrogen and oxygen that it absorbs directly from the atmosphere. But the atmosphere also contains a small amount of carbon dioxide. When water combines with carbon dioxide it produces a weak acid called carbonic acid. Here is the chemistry:



**FIGURE D** The disintegration of the diabase results in a very friable coating around the, as yet, unaltered parent rock. *Photo by Stan Celestian*

More CO<sub>2</sub> can be picked up as the water passes down through soils on top of the diabase. This simple acid reacts with minerals that make up the diabase. In particular, plagioclase feldspars (like labradorite and bytownite) that are rich in calcium and sodium. The chemical weathering of these feldspars results in the creation of clay minerals. With the transformation of these minerals to clay, the diabase crumbles very easily. **Figure D** (on left) nicely shows the result of this chemical weathering process.

The process of chemical weathering continues as long as acid is carried by groundwater to the diabase. The diabase is transformed into a granular mixture of feldspar (not all of it is weathered away), magnetite, augite, hornblende and, of course, clay (produced by the chemical weathering of the plagioclase feldspars).

**Figure E** (on lower left) shows the disintegration process as a series of layers. Each successive layer is the result of further chemical weathering on the parent rock, diabase, in this case.

Eventually, all of the parent rock will be transformed into this friable, partially decomposed state. However, if the chemical weathering process takes place along a valley wall (or roadcut) the decomposed diabase can simply fall away. This exposes the entire process that is at work deeper within the sill. Shell upon shell of decomposing rock surround the unaltered parent rock. With each successive wetting (acidic fluids), new weathering shells are created that eat into the parent rock.

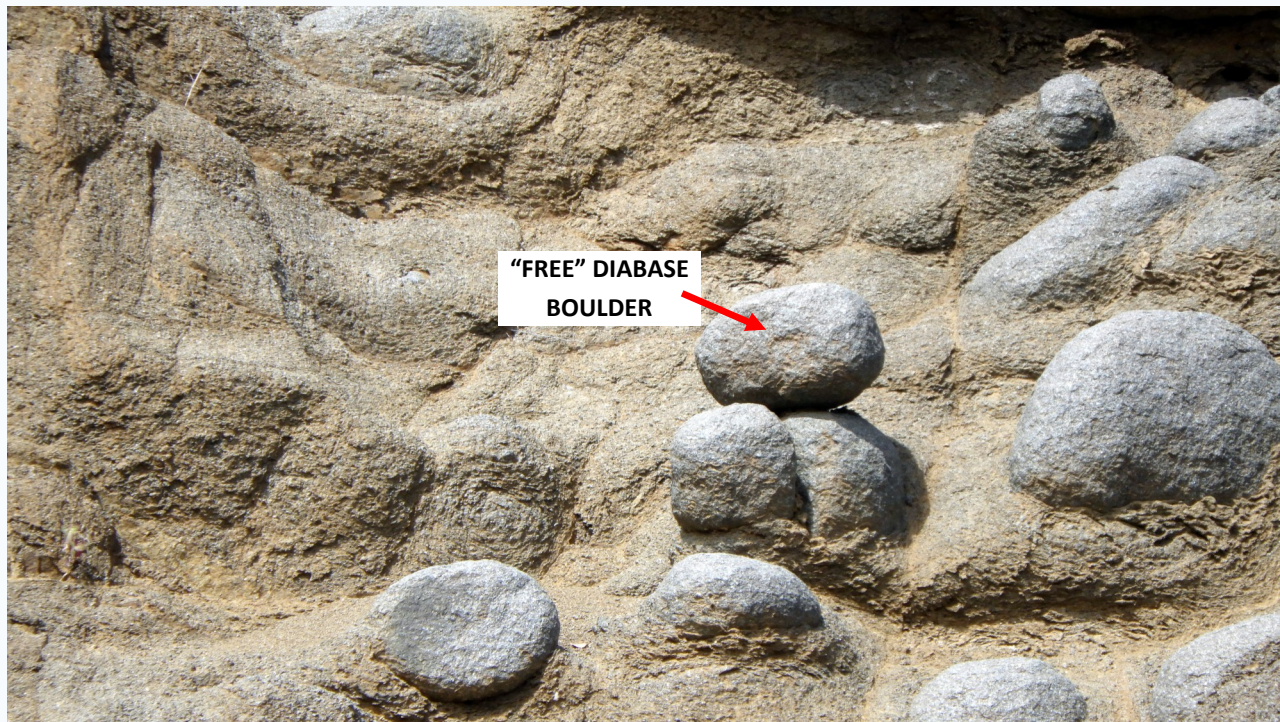


**FIGURE E** A close up view of the decomposition of the diabase. *Photo by Stan Celestian*

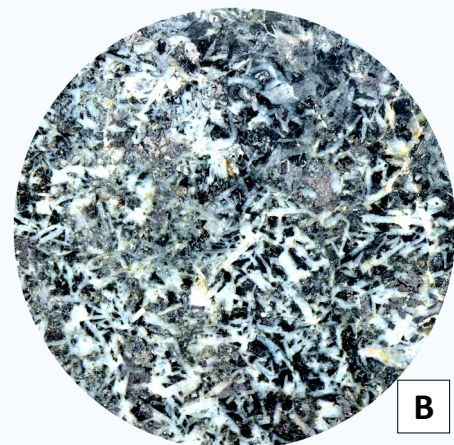
...Spheroidal Weathering continued from page 14

But once exposed at the surface the chemical weathering process is interrupted. Those exposed shells are weak and mini-rockfalls takes place. The shells fall away to expose deeper and deeper shells, eventually revealing the unaltered parent rock.

Sometimes the repeated rockfalls can completely expose an unaltered piece of diabase that is totally free of its weathering rind. An example of this is shown in **Figure F**. All of the decomposed diabase has fallen away, revealing a solid piece of diabase. Eventually this will fall from the cliff face. Many of these rounded, spheroidally weathered pieces of diabase have been removed from the base of the cliff at the shoulder of the highway, and relocated to a safer area away from traffic. One of these was collected, cut in half, polished and then photographed. It is shown in **Figure G A**.



**FIGURE F** A football-sized piece of diabase has been freed from its weathering rinds and now sits atop two other partially exposed boulders. *Photo by Stan Celestian*



**FIGURE G** This is one of the diabase boulders that weathered free of the cliff and fell to the road. It was cut in half and polished as shown in "A". A close up view "B" shows the igneous texture of the rock in its unaltered condition. *Photos by Stan Celestian*

...Spheroidal Weathering continued from page 15



**FIGURE H** An unaltered diabase boulder is exposed as the weathered debris falls away and accumulates at the base of the cliff. The chemical weathering process on this surface is dramatically reduced because the acid-bearing fluid does not remain in contact with the fresh rock surface for an extended period of time. The parts of the diabase that are still surrounded by weathering shells (sides and back of boulder) continue to chemically break down, due to the continued contact with the acid-bearing fluid.

*Photo by Stan Celestian*

The rate of chemical weathering has many controlling factors. These include the surface area

of the rock that is being weathered, and the amount and concentration of the acid that is being brought into contact with the fresh rock surface. As a general rule, little rocks weather faster than bigger ones. This is due to the relatively larger surface area compared to the volume in small rocks. In **Figure I** the larger blocks (top left) are somewhat rounded, but the smaller rocks are generally much more spherical. The smallest diabase fragments have already been transformed into the weathered granular mass.

Also, the larger the fracture in the diabase, the more fluids can be transmitted and chemical weathering can proceed at a higher rate. Conversely, small fractures can transmit only a very limited amount of the chemically active weathering fluids.

#### CONCLUSION:

The spheroidal weathering of diabase sills exposed in the walls of the Salt River Canyon is the result of both physical and chemical weathering processes that have taken place over thousands of years. These rounded boulders are certainly worth a short stop to view and appreciate the Geological processes that formed them.



**FIGURE I** Different stages of diabase exposure are evident in this image. The unweathered surfaces of the boulders are apparent where the weathered products have fallen away. In some areas the diabase has weathered completely to the granular weathered material. *Photo by Stan Celestian*



**UPCOMING FIELD TRIPS**

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

**July**

Bisbee & Tombstone (mine tours) - 23rd-24th

*This is a joint trip with MSA. If you think you might like to go on this trip, it is advisable that you make lodging reservations asap. Sierra Vista is close enough to be a convenient place to get a motel, if you'd like.*



Fern-like manganese oxide dendrites growing on the surface of a chrysocolla-stained rock, at the Chilito Mine, Gila County, Arizona. *Photo by Stan Celestian*

**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*

***FUTURE SPEAKERS***

***No information at time of publication***



is on hiatus. Watch your email for potential zoom or video lessons.

**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/daisymountainrockclub/). 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@gmail.com
- Publicity:** Jessie Redmond...
- Membership:** Tiffany Poetsch tpoetsch@gmail.com
- Editors:** Susan & Stan Celestian..... azrocklady@gmail.com
- Field Trip:** Bill Freese ... bfreese77@cox.net
- Mine Steward:** Stan Celestian .....stancelastian@gmail.com
- Show Chair:** Ed Winbourne
- Trustees:**

Cynthia V	Claudia M
Susan C	Tiffany P
Bob E	Jim R
Don R	Howard R
Jessica C	Rebecca S
Renee I	Bob S.
Nancy G	Yolanda & Gregg J
	Johanna R

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)**

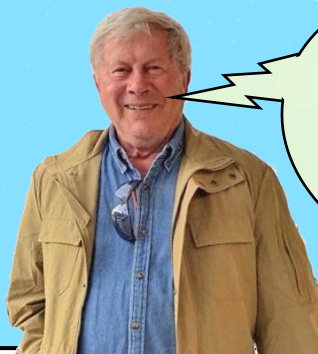
**Meeting Dates for 2022**

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

## Words of Wisdom

passed along by our own

**Bob Evans**



We never really grow up; we only learn how to act in public.

### UPCOMING AZ MINERAL SHOWS

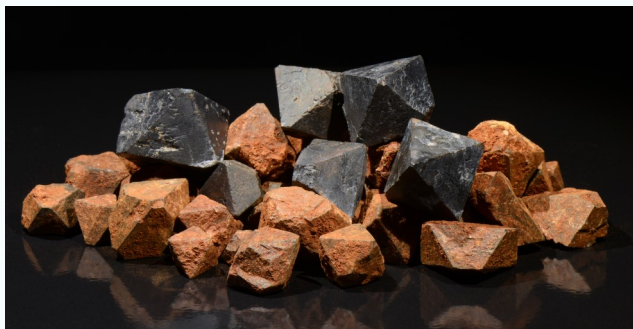
**July 9-10 - Show Low, AZ** White Mountain Gem & Mineral Club; Elks Lodge, 805 E Whipple St; Sat 9-5, Sun 10-4; Admission: Adults \$2, 18 & under free with school ID.

**NEW SHOW: July 30-31 - Phoenix, AZ** Mineralogical Society of Arizona; Radisson Hotel Phoenix Airport, 427 N 44th St.; Sat 9-5, Sun 9-4; Admission: \$1. See [Poster](#) on page 19.

**August 13 - Gilbert, AZ** Gilbert Fine Mineral Sale; Gilbert Historical Society, 10 S. Gilbert Rd; 10-4; Admission: Free. See [Poster](#) on Page 20.

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



Octahedral crystals of magnetite that littered the ground at an old mine in Western Australia.

*Photo by Stan Celestian*

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 - JULY

**You are invited to NMVC Open Studio. Lapidary & Silversmithing on Thursdays and the first, third and fifth Saturdays in a month, 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. Mandatory: wear a mask.**

Please arrive no later than 8:45 a.m. The center may close 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)

**July – Thursday's dates are 7, 14, 21, 28. There is a planned Silversmith Class on Saturdays, if Doug does not fill the class there will be Open Studio on Saturday, June 11, and 25. Will keep you informed.**

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.

We would also like to inquire as to anyone wishing to come in for **Lapidary Only Open Studio on Mondays - 9am-12pm.** Email Shirley at [crystalc17@gmail.com](mailto:crystalc17@gmail.com) Usage fee is \$8/hour.

**July - Monday's dates are 4, 11, 18, 25**

Mineralogical Society of Arizona presents

# 1<sup>st</sup> PHOENIX HERITAGE GEM & MINERAL SHOW

## Get Ready to Rock Phoenix!



Out of this World Exhibit by  
LGF Gallery: Large Masses of Moon,  
Mars & Meteorites  
Honorary Show Chair  
Mr. BOB JONES

### FEATURED VENDORS

Mineralogical Society of Arizona  
Shannon's Family Minerals  
Lucky Muckers  
CWS Fine Minerals  
Headframe Minerals  
The Dusty Gem  
Red Cloud Mine  
Kerry Cooper Minerals  
IC Minerals

De Natura  
ASE Minerals  
Rocky Houndenstein  
Blue Sky Minerals  
Pyrites De Navajun  
Canyon Colors  
Treasures of Darkness  
El Cucuy Minerals  
Color Gems

Saturday Night Program, Dinner & Auction for additional fee. Special Hotel Room Rate

FREE EVENT PARKING

Saturday 9 am – 5 pm  
Sunday 9 am – 4 pm

## JULY 30-31, 2022

### RADISSON HOTEL PHOENIX AIRPORT

427 N 44<sup>TH</sup> ST, PHOENIX, AZ 85008



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

*The show is open to the general public. Admission Donation \$1.00.  
Children 14 years old and younger are free with paying adults.*

GILBERT  
FINE  
MINERAL  
SALE

14th ANNUAL



AUGUST 13, 2022

GILBERT HISTORICAL MUSEUM: 10 S. GILBERT RD, GILBERT, AZ 85296  
10:00 AM - 4:00 PM

BARITE, MALACHITE and QUARTZ on CHRYSOCOLLA, 5.6 cm, Planet Mine, La Paz County, Arizona, USA.  
Michael Shannon Collection. © Malcolm Alter Poster Chris Whitney-Smith