

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 7, ISSUE 2

FEBRUARY 2022



SC²
1 cm



UVA



UVB



UVC



ORTHOCLASE

Karibib, Erongo Mountains, Namibia

Photos by Stan Celestian



FELDSPAR

By Susan Celestian

Feldspar is not actually a single mineral, but a large group of aluminum silicates, that comprise 60% of the Earth's crust. The major rock-forming members are: orthoclase, microcline, albite and anorthite. Within the group, there are two sub-groups: Alkali Feldspars (or K-Feldspars) and Plagioclase Feldspars.

Chemical Formula - Alkali Feldspar: $(K,Na)AlSi_3O_8$
 Plagioclase: $(Na,Ca)[(Si,Al)AlSi_2]O_8$

Crystal System - Depending on the member --
 Monoclinic (3 axes of unequal length, one not at 90° from the others) or triclinic (3 axes of unequal length, and none at 90° to another)

Growth Forms/Habits - Blocky, prismatic, massive

Hardness - 6-6.5

Luster - Vitreous, pearly, adulescent, labradorescent

Streak - white

Color - White, pink, gray, pale yellow, brown

Diaphaneity - Transparent to opaque

Specific Gravity - 2.55-2.76

Cleavage - 2 at 90° (sometimes 3, with one imperfect)

Fractures - Irregular/uneven

Occurrence - Important rock-forming minerals in igneous and metamorphic rocks.

Other - Crystals in the plagioclase feldspar series are striated, due to polysynthetic twinning.

- Adulescence and labradorescence resulting from alternating layers of different feldspar members.

As previously mentioned, feldspars are important rock-building minerals, and are commonly seen in coarse- and fine-grained igneous rocks; in coarse-grained metamorphic rocks, such as gneiss; and in some sedimentary rocks.¹

The Alkali Feldspars consist of primarily the polymorphs² -- sanidine, microcline, and orthoclase -- all potassium (K) feldspars. However, orthoclase is in solid solution³ with albite (the sodium (Na) endmember of the Plagioclase Feldspar series, so albite is also often included in the Alkali Feldspar series.

¹There are several feldspars species, but are probably not minerals you have heard of, nor are you likely to encounter them, so I won't include them in this article.

²Polymorphs: Minerals with the same composition, but different physical properties.

³Solid Solution: Materials with a range of compositions, but the same atomic structure, and marked by end members.

The Plagioclase Feldspars are the most abundant minerals in the Earth's crust. They are a solid solution of minerals, whose end members are sodium-rich (Na) Albite and calcium-rich (Ca) Anorthite. Member mineral species within the series (Na to Ca) are: albite - oligoclase - andesine - labradorite - bytownite - anorthite. Although not all are officially recognized as discreet mineral species by the International Mineralogical Association.

In a cooling generic magma, the first plagioclase feldspar to form is calcium-rich, becoming more sodium-rich as the magma cools, with potassium feldspar forming last. This is depicted as the continuous portion of Bowen's Reaction Series. See Figure 1.

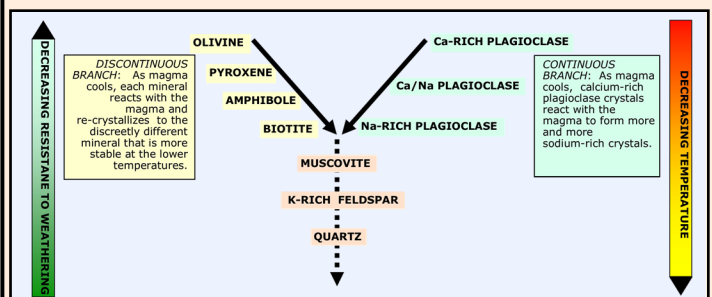


FIGURE 1 BOWEN'S REACTION SERIES (BRS)

Following the continuous branch of BRS, we see that within a cooling magma, the first plagioclase crystals to form are calcium-rich. As those crystals react with the ever-cooling magma, the plagioclase becomes more and more sodium-rich. Note that one of the last minerals to form will be potassium-rich feldspar.

Graphic by Susan Celestian

Feldspar is a mineral that you will encounter nearly every time you go out rockhounding. It might make rocks interesting, might make a specimen for your shelf, and as you'll see it might fluoresce beautifully. See Figures 2-11 for images of feldspars.

Feldspar continued on 13...

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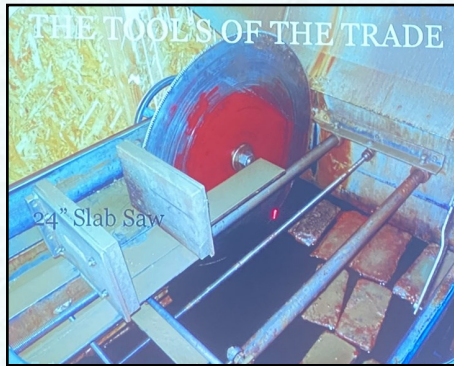
FEBRUARY SPEAKER - Doug Duffy

Doug Duffy has been a lapidarist and silversmith for many years. He has teaches, and has taught, lapidary and silversmithing classes privately, at the now-closed Arizona Mining and Mineral Museum, and currently at the North Mountain Visitor's Center. AND he is a member of the Daisy Mountain Rock and Mineral Club!

He described the Tools of the Trade, and some beautiful and popular rock material.

After Doug's presentation, Stan asked him, "Is there any truth to the rumor that you made a bolo tie for Moses?" Doug smiled and without missing a beat quipped, "No, but I would have, if he'd asked me."

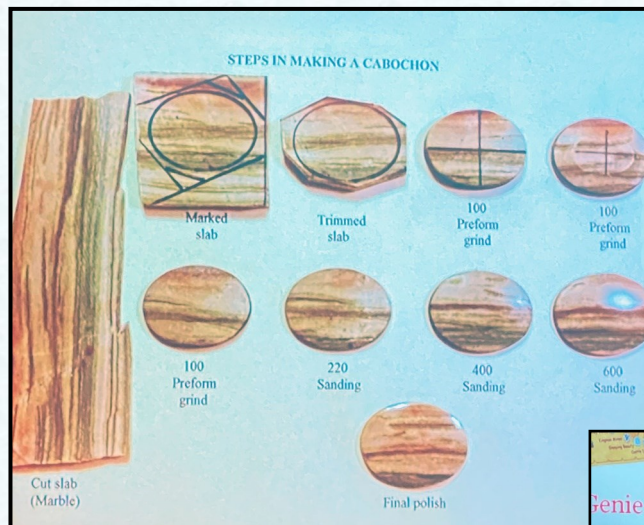
In preparation to polish a prized rock, one must cut it to size -- often into slabs. A saw comes in handy :-). One may use a trim saw, or a nice big one, as the 24" saw above. Bricks in the oil reservoir take up space, raise the oil level, and allow use of less of that expensive oil lubricant.



A sphere machine can be fun. Rough rock must be pre-cut into a cube, and then the edges are trimmed off to form a 26-sided icosikaihexagon, that sits between the 3 grinding cups. Shaping and polishing takes 30-60 days.

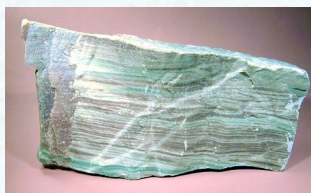


Double-paned templates allow one to put a rock slab in between, to easily mark the desired final cabochon shape on both the front and back. These can be purchases -- or you can make them yourselves by bolting two single templates together with a spacer between.



The patient might want to consider a tumbler -- polish those pretty pebbles!

"Let the diamond do the work -- don't push it too hard!"



There are many styles of grinding machines out there. But they all allow you to shape, sand and polish a cabochon.



ROCK & MINERAL SHOW

GEODES FOR SALE

CALCIT



I can't hear
the ocean!
I must be on
hold...

Laurie '22

Zoom Board Meeting Minutes January 31, 2022

- * In Attendance: Bill F., Bob E., Bob S., Claudia M., Deanne G., Ed W., Nancy G., Rebecca S., Renee I., Stan C., Sue C., and Tiffany P.
- * Bill F. called the meeting to order
- * January minutes accepted
- * Deanne G. discussed the financials
 - ◇ First month as treasurer
 - ◇ Civic building rooms are paid for the next 6 months
 - ◆ Will have to update because the wire wrapping room will not be used for the foreseeable future
 - ◇ Club in good standing
- * Bill F. talked about the board positions
 - ◇ Newsletter is updated with current list of members
- * Tiffany P. discussed the membership
 - ◇ Badges are coming in soon for new members
 - ◇ Being a Facebook member does not make you a member of the club
 - ◆ To officially become a member of the club:
 - * Fill out application – found on website and FB
 - * Pay dues
- * Stan C. gave an update on the claims committee
 - ◇ Scouting a mushroom rhyolite area
 - ◆ Claim would not have a mine on it
 - * Would be cheaper to buy with the BLM
 - ◇ Dave Haneline mine will be sold
 - ◆ All in favor
 - ◆ Liability issue because of undercutting and personal bond needed
 - ◆ Will try to sell to someone else who would use it as a claim
- * Wire wrapping was discussed
 - ◇ Jennifer G.'s last in person meeting in February
 - ◇ Will have zoom meetings moving forward
 - ◇ Watch out for email updates
- * Bill F. talked about the field trips
 - ◇ 19th Dave Haneline trip will continue
 - ◆ Be cautious near the mines

- ◇ The 26th San Carlos trip has a 20-person capacity
 - ◆ \$50/person and \$10/car
- ◇ Please check emails for any updates on trips
- ◇ Please wear your nametag on club outings
- * Ed W. discussed the upcoming show
 - ◇ Preparations going well
 - ◆ Flyers have been given out at other rock shows
- * Still need:
 - ◇ Vendors for outside
 - ◇ Membership display volunteers
 - ◇ Food vendor chair
 - ◇ Security chair
 - ◇ Fluorescent display volunteers
 - ◇ Volunteers to display show signs in town
 - ◇ Volunteers to hand out flyers around town
- * Thank you to the volunteers who helped with the rock donations in January
 - ◇ Your hard work is appreciated
- * Thank you to Bill S., Claudia M., and Ed W. for their STEM night presentation at the New River Elementary School
 - ◇ Great opportunity for the club to give educational information
 - ◆ Check out photos on Facebook

Respectfully submitted,
Rebecca Slosarik, secretary

General Meeting Minutes February 1, 2022

- * Open attendance- about 64 attendants
- * Bill F. called the meeting to order
- * Thank you to our wonderful members Doug Duffy and Shirley Cote for their lapidary presentation (rock cutting and polishing)
 - ◇ Visit their facility at North Mountain Visitor's Center
 - ◆ The club has some equipment there for use
- * The raffle was presented by Nancy G. and Jeannie S.
 - ◇ Made \$204 for the club
 - ◇ Silent auction made \$149
- * Welcome all newcomers to the club
 - ◇ Check out our FB page, Meetup, website, newsletter, and emails for information
 - ◇ Or ask a board member if you need any help

Minutes continued on page 6.....

....Minutes continued from page 5.....

- * Deanne G. discussed the financials
 - ◇ Club had a net income for the month
- * Stan C. talked about the claims committee
 - ◇ There will no longer be personal visits to the Dave Haneline mine
 - ◇ Looking into buying mushroom rhyolite claim
 - ◆ Great option for specimens
 - ◆ No digging required
 - ◇ Will expand further claim research
 - ◆ Might include a gold claim
 - ◆ Have any possible claim locations? Let us know: dmrclub@gmail.com
- * Bill F. discussed field trips
 - ◇ Check out FB and website for photos of previous trips
 - ◇ Please RSVP on field trips
 - ◇ The show will reduce trips in March
- * Board members were introduced at the meeting
 - ◇ That way newcomers know who we are
 - ◇ Thank you to all the hardworking volunteers that keep the club running
- * Ed W. discussed the show
 - ◇ 140 tables sold; Some still available outside
 - ◇ Electrical almost ready
 - ◇ Still need:
 - ◆ Vendors for outside
 - ◆ Membership display volunteers
 - ◆ Food vendor chair
 - ◆ Security chair
 - ◆ Fluorescent display volunteers
 - ◆ Volunteers to display show signs in town
 - ◆ Volunteers to hand out flyers around town
 - ◇ FB advertisement – share with friends
 - ◇ Next show meeting February 23rd 6-7pm at Civic Building
 - ◆ Will need volunteers to come to next meeting
 - ◆ Flyers will be passed out at this meeting (500 flyers)
- * Wire wrapping with Jennifer G. was discussed
 - ◇ Next meeting will be over Zoom
 - ◆ Look for email link
- * Thank you again to Bill S., Claudia M., and Ed W. for their work with STEM
 - ◇ Presentation hits target audience
 - ◇ Part of our 501(c)(3) mission as educators
- * Please wear your name tag to club functions

Third Show Meeting February 23, 2022

- * Open attendance
 - ◇ I (Rebecca) was on the phone and did not get head count
 - ◇ Some items were not clearly heard and might be missing
- * Ed W. called the meeting to order
- * Vendors – Jim R. and Stacy N.
 - ◇ All inside vendors have been with us before
 - ◇ 40% turnover from last show
 - ◇ 33 vendors, 142 tables have been bought
 - ◆ 18 vendors inside – 15 outside
 - ◆ Only a couple vendors have not signed contract
 - ◆ *one vendor alone has signed contract to bring their own table
 - ◇ Stacy N. will finalize contract information soon
 - ◆ This will be used to create lanyards for vendors
 - ◆ If anyone does not sign, we have alternates available
 - ◆ We can add more vendors outside if need be
 - ◇ We have a great diverse group of vendors
 - ◆ Minerals, stones, geode cracking, lapidary, wire wrapping, jewelry, beads, and many more
 - ◆ The vendors are excited to work with us for the show
- * Electrical – Greg J. and Dave H.
 - ◇ The layout with an excel spreadsheet is complete
 - ◇ Passage between buildings is the most complex section
- * Marketing – Jessie C.
 - ◇ Ads out to print media
 - ◇ Posters were handed out at meeting
 - ◆ Map of different locations assigned
 - ◆ Will have more at general meeting if other volunteers want to help
 - * Ask local businesses if you can put up posters near front doors
 - Have tape ready and hang up
 - ◇ Share show post on FB and Instagram
 - ◇ Share leaflets with neighbors and fellow rockhounds

Respectfully

submitted,

Minutes continued on page 7.....

....Minutes continued from page 6....

- * Kid's Corner – Bill S. and Jeannie S.
 - ◇ Plenty of prizes ready for the kids
 - ◇ Need 10 volunteers at a time
 - ◆ Will need more help
- * Street signs – no chair
 - ◇ Signs already made by Bill S.
 - ◇ Need to get from trailer Friday
 - ◇ Need 2 more volunteers to put out Saturday and Sunday morning
 - ◆ Bring in Saturday and Sunday night
 - ◆ Put balloons on them from dollar store
 - ◆ Map of where to position signs sketched out
- * Club Display – Tiffany P. volunteered to help chair
 - ◇ Need specimens from club members for display
 - ◆ MUST BE PERSONALLY ROCKHOUSED ITEMS
 - ◆ Have nametag with date, location, and name
 - ◆ Email will be sent out with more information
- * Club specimen sales – Bob E.
 - ◇ 5 tables inside for sales
 - ◇ No wire wrapping table needed now
 - ◆ Can use for membership sign-up
- * Security – still need verification for chair
 - ◇ Will need overnight security
 - ◆ Several hour shifts Friday and Saturday night
 - * To monitor outside material
 - ◆ Have 6 volunteers during the show
- * Food Vendor – no chair
 - ◇ Hot dog vendor is out of business
 - ◇ Still looking for a source
 - ◆ One suggestion was to ask at Restaurant Depot for vendors
 - ◆ Another suggestion was to bring our grill and make food
- * Refreshments
 - ◇ Pizza will be bought Friday for setup
 - ◇ Coffee and donuts Saturday and Sunday morning
 - ◆ Will get coffee pots from trailer before show
- * Admissions – Jessie C.
 - ◇ Have red tickets for admissions

- * Raffle – Rebecca S.
 - ◇ School microphone will be used
 - ◆ Back-up megaphone is available if need be
 - ◇ Blue tickets will be used for raffle
 - ◇ Vendors will be notified of donations before show
 - ◆ Will be collected during setup
- * Fluorescents – Bob E.
 - ◇ 2 tables will be used
 - ◇ Have transilluminators
- * T-shirt sales – Claudia M.
 - ◇ Have enough for sales
- * Setup – Don R.
 - ◇ Tables will be picked up from civic building Friday
 - ◆ Need 2-3 trucks to transfer
 - ◆ Tables donated from Veteran's club (Thanks!)
 - ◆ Need bodies to help move plastic tables
 - ◇ Vendors may or may not want help from volunteers
 - ◆ Bring dollies if you have them to help move material
 - ◇ Trucks needed to get material from trailer
 - ◇ Email will be sent with more information for pick-up truck assistance
- * Final show meeting will be **March 16th 6-7pm at Civic Building**
- ♣ *For those who need to buy material for the show*
 - * *Deanne G. (treasurer) will reimburse you*
 - * *Must have receipt*

Respectfully submitted,
Rebecca Slosarik

Stem Night at New River School

On Thursday, January 27, 2022, Ed Winbourne, Claudia Marek, and Bill Smardo went to the New River School for STEM night. Parents and students had the opportunity to touch rocks, minerals and fossils, look at material with a microscope, gaze upon fluorescent minerals, and ask questions. Thanks guys for sharing your love of everything rock!



“EMERALD STAIRCASE”

Here is a preview of Stan’s talk for the March meeting. AND a chance to practice viewing a stereo pair -- remember to stare until your eyes cross and then concentrate on the center image -- in 3D! Photo by Stan Celestian and used with permission of the Natural History Museum of Los Angeles County Gem and Mineral Hall

Monthly Scramble for Special Selections: Door Prizes, Raffle, Silent Auctions, and Free Stuff



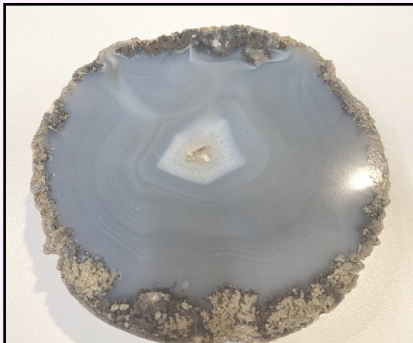
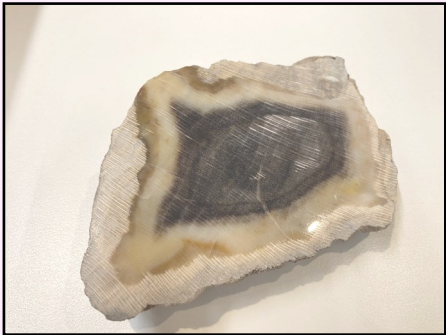
Save your pennies, and come to the meetings ready to add some nice material to your collections!!!! There have been some great mineral specimens, fossils, and quality lapidary material. (cash, check or charge)

Donations are gladly accepted. In order to reduce congestion at any given meeting, please contact Stan Celestian at stancelastian@gmail.com, with a photo and ID ahead of the meeting. It may be necessary to delay the introduction of your donation to the silent auction, or it may be more suitable for the raffle..

February's Silent Auction Items:

Ever-popular RAFFLE -- "where, oh where should I put my tickets!?" Tickets are \$1 each. Check in with Robin or Deanne.

Wear your nametag to qualify for a ticket for the free **DOOR PRIZES**



Sue & Stan brought in books and rocks to give away, at February's meeting. Always check out that back counter! You never know what goodies might be available -- First Come, First Served!!!! Feel free to share your spares....

FIELD TRIP TO BULLARD MINE

Wednesday, February 9, 2022

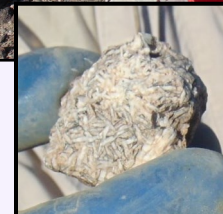
Photos & Text by Bill Freese

Another great day of rockhounding with the DMRMC. Our mid-week trip on Feb 9th was to the Bullard Mine west of Wickenburg. There were 10 people plus me on our trip this time and all found great blue Chrysocolla and other pieces. This location is always a great spot for scenic views as well.

Editor's note: Remember Field Test: chrysocolla will stick to your tongue



G
B
R
L
E
U
E
N



Don't lick it!!



Copyright ©

$(\text{Cu, Al})_2\text{H}_2\text{Si}_2\text{O}_5(\text{OH})_4 \cdot n\text{H}_2\text{O}$
 $(\text{Cu, Al})_2\text{H}_2\text{Si}_2\text{O}_5(\text{OH})_4 \cdot n\text{H}_2\text{O}$
 $(\text{Cu, Al})_2\text{H}_2\text{Si}_2\text{O}_5(\text{OH})_4 \cdot n\text{H}_2\text{O}$
 $(\text{Cu, Al})_2\text{H}_2\text{Si}_2\text{O}_5(\text{OH})_4 \cdot n\text{H}_2\text{O}$



...Field Trips continued from page 10

FIELD TRIP TO BURRO CREEK

Saturday, February 12, 2022

Text and photos by Bill Freese

Hey everyone, the club went to one of our usual spots today, Burro Creek for Chert and other minerals. Even with several people that could not make it, we still ended up with 9 rockhounds on a beautiful in the desert. Everyone in the group were amazed at how much Chert there was at this site. They all made their selections and piled them into the vehicles. Another great trip. See ya next time.



Field Trips continued on page 12....

...Field Trips continued from page 11

FIELD TRIP TO DAVE HANELINE MINE

Saturday, February 19, 2022

Text by and photos by Bill Freese

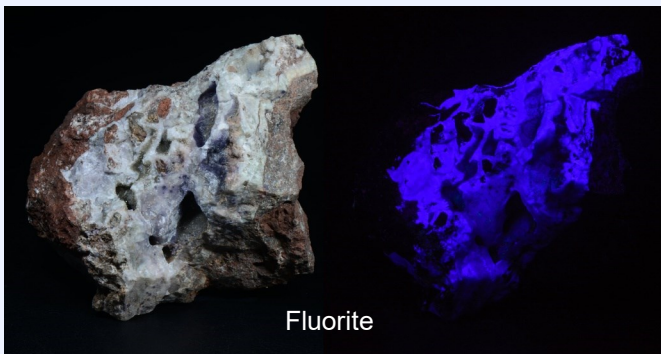
This time of year it is hard to have a bad weather day. Another beautiful day in the AZ desert. A bunch of folks that had never been to our claim yet, all had a chance to find some great stuff. I heard of at least 6 different minerals collected, everyone was excited.



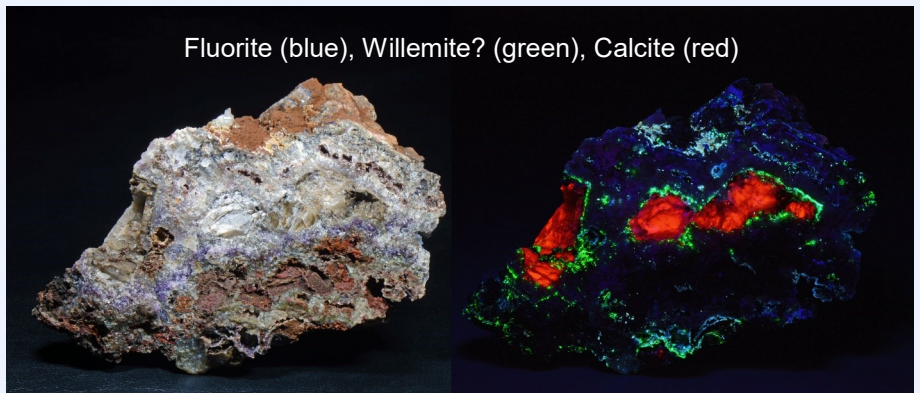
Nice Bladed Barite



Sam found some pretty little purple fluorite crystals!



Fluorite



Fluorite (blue), Willemite? (green), Calcite (red)

...Feldspar continued from page 2

FIGURE 2 CRYSTAL OF ORTHOCLASE

This beautiful 1/2" monoclinic crystal is from Goodsprings, Nevada -- site of a past club field trip. Photo by Stan Celestian

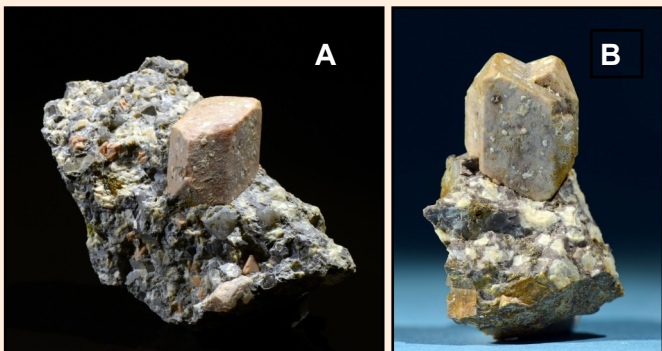


FIGURE 3 ORTHOCLASE CRYSTALS Both of these specimens are from a site near Bagdad, AZ. They are 1" crystals nestled in the smaller background of granite -- a porphyritic granite. (B) is a twinned crystal, called a Carlsbad Twin. Imagine cutting a crystal in half along the long axis, turning one half 180°, and gluing them back together.

Photo by Stan Celestian

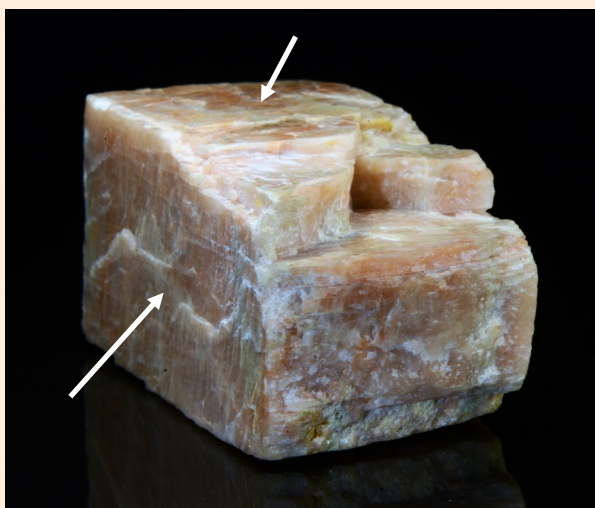


FIGURE 4 ORTHOCLASE CLEAVAGE

Feldspars have two directions of perfect cleavage at 90o to each other. (Arrows in the diagram are pointing to the cleavage planes.) This distinctive cleavage creates very blocky fragments when feldspar is broken.

Photo by Stan Celestian



FIGURE 5 ORTHOCLASE Here are a couple of chunks of orthoclase from Sycamore Creek, just off the Bush Highway, Maricopa Co, AZ. Note how blocky they are, due to the cleavage. And, on the right, those same chunks under short wave UV light. Pretty! Photo by Stan Celestian



FIGURE 6 PEGMATITE Here Stan Celestian stands in front of a great exposure of the pegmatite at the McDonald Mine -- a feldspar mine -- in Hasting Co., Ontario, Canada. The pink masses are feldspar (probably microcline and albite), and the white mass is quartz. Note the smoky halos around the feldspar masses. This is color change caused by low-grade radioactive decay of some of the potassium in the feldspar. Review this in the July-August issue of Rockchips (available on the DMRMC website). Photo by Sue Celestian

...Feldspar continued from page 13



FIGURE 7 SCHORL on ALBITE The rosettes of cleavelandite, a variety of albite, contrasts beautifully with the black schorl crystal, from Brazil.
Photo by Stan Celestian



FIGURE 8 MICROCLINE A beautiful K-feldspar is microcline, aka Amazonite. The color is thought to be due to the presence of trace amounts of lead. This microcline and smoky quartz specimen is from the Tree Root Pocket, Two Point Mine, Teller Co., CO *Photo by Stan Celestian and used with permission of the Natural History Museum of Los Angeles County Gem and Mineral Hall*

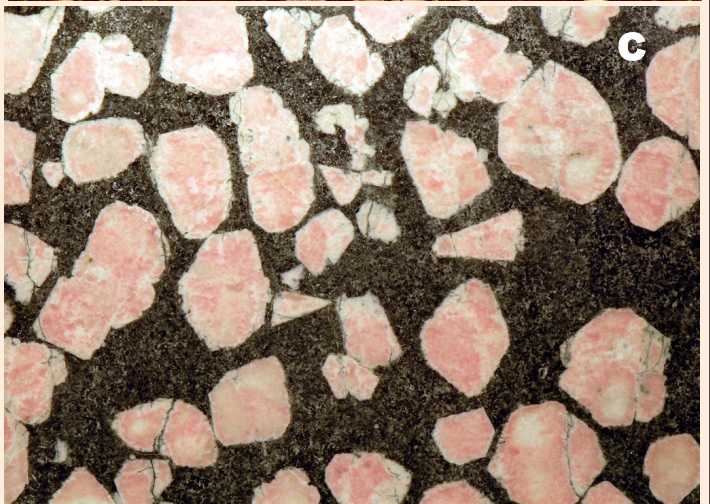
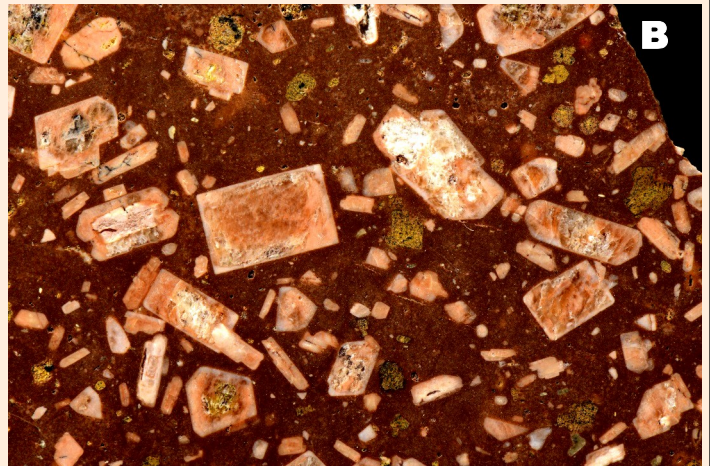
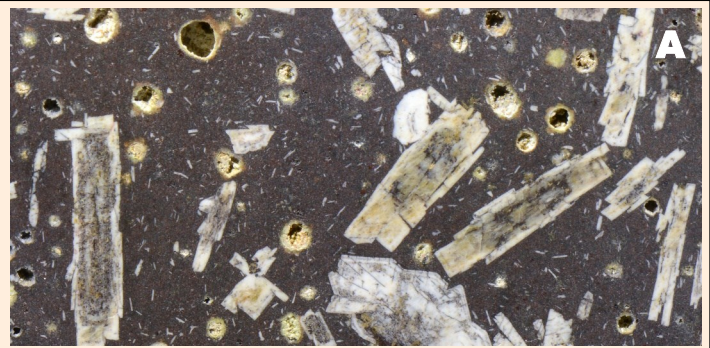


FIGURE 9 FELDSPAR IN PORPHYRIES Here are 3 potential lapidary rocks -- all porphyries. (A) is a Basalt Porphyry collected in the Gila River bed, (B) is a Rhyolite Porphyry collected in the Gila River bed; and (C) is a Diorite Porphyry from Mindoolah near Cue in Western Australia

Attractive, but interesting also. Both (A) and (B) have feldspar crystals that are zoned. Remember Bowen's Reaction Series (Figure 1)? Crystals that remain in a melt, continue to react with the melt. Plagioclase crystals form early, and as they remain in the melt, their composition changes. So the crystals are calcium-rich in their cores, and become more sodium-rich toward their outer rims.

Photos by Stan Celestian

...Feldspar continued from page 14

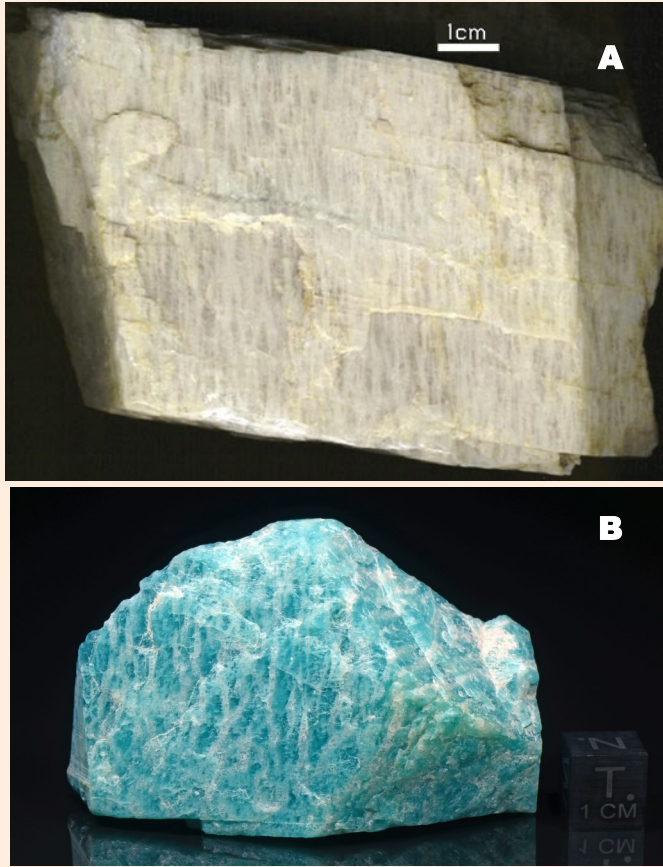


FIGURE 10 PERTHITE Notice that these two feldspar specimens are “striped”. This is the texture of a perthite. A host feldspar crystal -- usually orthoclase or microcline, with a composition somewhere between orthoclase/microcline (K- silicate) and albite (Na silicate) -- cools slowly, or to a temperature at which both orthoclase/microcline and albite can remain separate.⁴ The white stripes are albite, the gray stripes are orthoclase or microcline, and the green stripes are microcline, in the above images. (A) is from the Dan Patch Pegmatite Mine, Keystone, SD*, and (B) is from Brazil.

Photo (A) is by Jstuby and used as Public Domain; Photo (B) is by Stan Celestian

⁴This is a process, called exsolution. A crystal composed of the mixed components, of more than one species in solid solution, separates into two or more different minerals -- usually upon cooling. The “stripes” of different minerals are called exsolution lamellae.

*Actually (A) may technically be an antiperthite, as it is likely that albite is the host feldspar. Crazy, huh?



FIGURE 11 GRAPHIC GRANITE This another rock texture that is dominated by feldspar -- and which you may encounter often in Arizona. In the images above, the white is feldspar and the gray is quartz. The texture forms from the interleaving of single crystal of quartz and one of feldspar, co-crystallizing in such a way as to create a cuneiform-like texture -- hence “graphic” granite. Photo by Stan Celestian

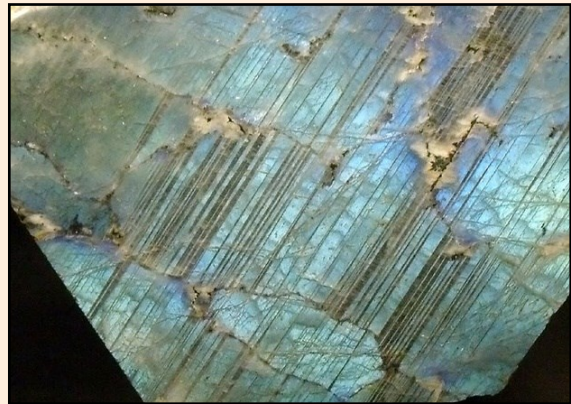


FIGURE 12 POLYSYNTHETIC TWINNING So you have found a chunk or outcrop of feldspar. Is it K-Feldspar or Plagioclase Feldspar? Look closely at a cleavage surface. If you see striations that look like the grooves on a record, it is plagioclase. (Some twinning striae will be thin, some wider, depending on the species.) This is labradorite, however it is present in the entire series. It is the result of polysynthetic twinning (picture a loaf of bread, and rotate every other slice 180°) -- twinning to which plagioclase is very prone! Photo by Mike Beauregard and used under license [CC BY 2.0](https://creativecommons.org/licenses/by/2.0/).

...Feldspar continued from page 15



FIGURE 13 MOONSTONE Sometimes, when orthoclase and albite are intergrown (*exsolution lamellae* - see *perthite*), the exsolution lamellae act as a diffraction grating. Diffraction separates light's different wavelengths⁵; and in this, case the spacing is such that it results in a dominant color -- blue -- called *adularescence*. That feldspar with that milky to blue early/opalescent schiller (shine or twinkle) is called Moonstone. In this case, the feldspars are peristerite (several intergrown varieties of albite) and oligoclase. Locality: near Chupa Bay, Karelia, Russia. Photo by [James St John](#) and used under license [CC BY 2.0](#)

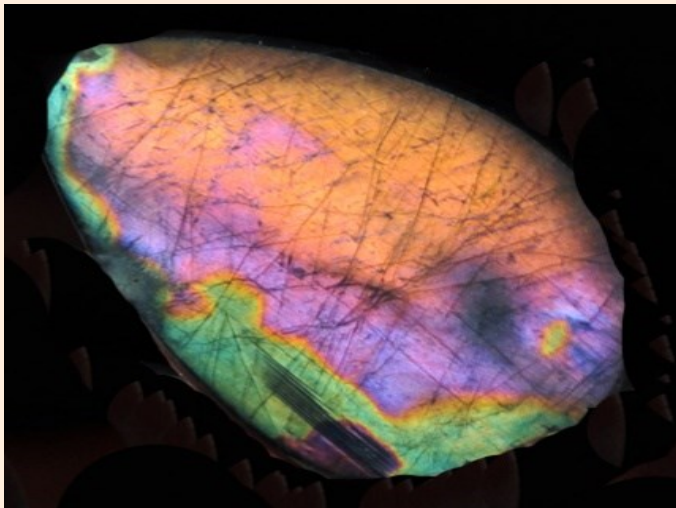


FIGURE 14 LABRADOESCENCE This cabochon of labradorite is a particular variety of Finnish labradorite, with the trade name of Spectrolite. When orthoclase is interlayered with labradorite (*exsolution lamellae*), diffraction off that lamellae spacing separates light's different wavelengths to produce a brilliant play of colors, called *labradorescence*. Other occurrences of labradorite are usually also colorful, but not as spectacularly so. (For further explanation, see Figure 13) Photo by [Different Seasons Jewelry](#) and used under license [CC BY 2.0](#)

⁵ For a fuller description of diffraction, refer to pages 15-16 in the July/August issue of *Rockchips*, available on the DMRMC website.



FIGURE 15 BYTOWNITE The image to the left is an alluvial crystal of the feldspar species bytownite, from Dorado Mine, Casas Grandes, Chihuahua, Mexico. Note how transparent and gemmy is this specimen. Below are two faceted bytownite stones. Most feldspars do occur as gem quality crystals. Right photo by [Rob Lavinsky](#), [iRocks.com](#) and licensed under

[CC-BY-SA-3.0](#); photo below by [Don Guennie](#) ([G-EmpireTheWorldOfGems](#)) and licensed under [CC BY SA 4.0](#)



FIGURE 16 SUNSTONE According to Mindat, Sunstone, from Oregon, is a variety of labradorite with inclusions of copper. Other sunstones are varieties of microcline, oligoclase, or labradorite with inclusions of hematite. They come in shades of light to dark orange and reddish orange. Photo by [Stan Celestian](#)

Feldspar continued on page 17...

...Feldspar continued from page 16

GENERAL RESOURCES FOR FELDSPAR

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

<https://www.mindat.org/min-118.html>

<https://www.mindat.org/min-1624.html>

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

<https://www.gia.edu/gia-news-research/optical-effects-phenomenal-cabochoons#:~:text=This%20phenomenon%20is%20called%20play,the%20phenomenon%20known%20as%20labradorescence.>

https://en.wikipedia.org/wiki/Plagioclase#Plagioclase_series_members

<https://www.gia.edu/gia-news-research/optical-effects-phenomenal-cabochoons#:~:text=This%20phenomenon%20is%20called%20play,the%20phenomenon%20known%20as%20labradorescence.>

<https://www.mindat.org/glossary/labradorescence>

<https://www.gemselect.com/gem-info/labradorite/labradorite-info.php#:~:text=Labradorite%20Colors&text=It%20may%20come%20as%20a,a%20result%20of%20mineral%20impurities.&text=Most%20Labradorite%20have%20a%20dark,color%20to%20be%20on%20display.>

<https://www.mindat.org/min-10984.html>

[https://en.wikipedia.org/wiki/Orthoclase#:~:text=Orthoclase%2C%20or%20orthoclase%20feldspar%20\(endmember,also%20known%20as%20K%2Dfeldspar.](https://en.wikipedia.org/wiki/Orthoclase#:~:text=Orthoclase%2C%20or%20orthoclase%20feldspar%20(endmember,also%20known%20as%20K%2Dfeldspar.)

GOING ON A ROCKHOUDING TRIP OUT OF STATE? TRY CHECKING OUT SOME SITES AT

<https://rockhoundresource.com/state-by-state-rockhounding-location-guides-maps/?fbclid=IwAR0XNoGslhwQrGsq5o1QBWNA8pae6vSJbpFEMLWSdkJLPrPRHzBOt5pH7z4>

CARE OF METEORITES

Meteorites should be kept dry and not water-washed or handled with sweaty hands. Avoid storing in plastic bags. Even if you keep an eye on them, sometimes humidity or other moisture causes rusting, especially to iron meteorites. There are steps to take to prevent this (repeat periodically) -- or to repair it.

- * Remove rust with CLR (Calcium, Lime, Rust remover)
- * Clean meteorite with alcohol (with the least amount of water possible; you can usually find 95% ethyl alcohol at a hardware store or 99% isopropyl alcohol at a grocery or drugstore).
- * Dry thoroughly. Iron meteorites can be heated in an oven at 200°F for an hour (pallasites at 150°F). It will be HOT!
- * While still hot, soak in something like gun grease (Rig, Rig2, Sheath) or WD40. Cool and wipe clean.

NEW DONATION

In late January, a cadre of club volunteers, armed with dollies and trailers, hauled a trove of lapidary rocks from the backyard of an avid rockhound. All that material is now stored at "the trailer". A couple batches of material were offered at February's silent auction -- look for material to show up at future silent auctions.



GEO MINI

Diamonds Can Tackle Climate Change

By Aaron Celestian, as posted on Instagram
under [nhmla_gems](#)

Yes, you read that right. As crazy as it sounds, diamonds can pack in enormous amounts of carbon into a tiny single crystal.

Since about 2015, scientists have been able to convert CO₂ in the atmosphere into diamonds. It takes about 2 metric tons of air to have enough CO₂ to produce a one-carat diamond (calculation is super rough), which is about 10x less than the amount of CO₂ that the average American produces each year.

Companies like Aether Diamonds and Sky Diamonds work to separate CO₂ from atmospheric gases and use chemical vapor deposition techniques to grow the diamonds.

About 70% of all mined diamonds are used for industrial processing, so these synthetic diamonds can reduce mining impacts on Earth and strip greenhouse gases from the atmosphere.

These advanced manufacturing techniques could also help with other technologies, like replacing silicon chips with diamond-based materials for faster electrical conduction, better heat tolerance, reduced energy use, and enhanced material stability.

They can also be used as a catalyst to break down toxic organic molecules (boron-doped diamonds) to disinfect water sources, or thin-film diamonds can reduce friction on engine metal parts like those on wind turbines.

Or, they can be turned into gems.

AND in response to a question about the amount of energy it takes to create these diamonds, Aaron says, "... if you read their websites, they claim they are already using renewable energy." Read their stories at the links below:

<https://aetherdiamonds.com/pages/story>
<https://skydiamond.com/our-process>

See Figures A-C.



**FIGURE A
DIAMOND
CRYSTAL**

This modified cubic diamond crystal is from the Democratic Republic of Congo. Photo by Stan Celestian and used with

permission of the Natural History Museum of Los Angeles County Gem and Mineral Hall Collection NHMLA 55030

**FIGURE B
DIAMOND
CRYSTAL IN
KIMBERLITE**

This octahedral diamond crystal is from Kimberley, Cape Province, South Africa. Diamonds can form under



various regimes, but all require very high temperatures and pressures. Kimberlite is an igneous rock that forms 90 miles or more below the Earth's surface. Somehow, the material is mobilized and rockets violently to the Earth's surface in what are called "pipes". It is from these kimberlite pipes that most commercial diamond deposits originate.

Photo by Stan Celestian and used with permission of the Natural History Museum of Los Angeles County Gem and Mineral Hall Collection NHMLA 12196



FIGURE C FACETED NATURAL DIAMOND This beautiful stone is currently on display in a temporary exhibit titled "Brilliance" at the Natural History Museum of Los Angeles County. The exhibit runs through 2/21/2022. The photo was taken on an iPhone, so the resolution is low, but it is still "brilliant". Photo by Dr. Aaron Celestian and used with permission.

UPCOMING FIELD TRIPS

Here is a general list of upcoming trips, for the next 3 months. Details will be emailed to the general membership.

February

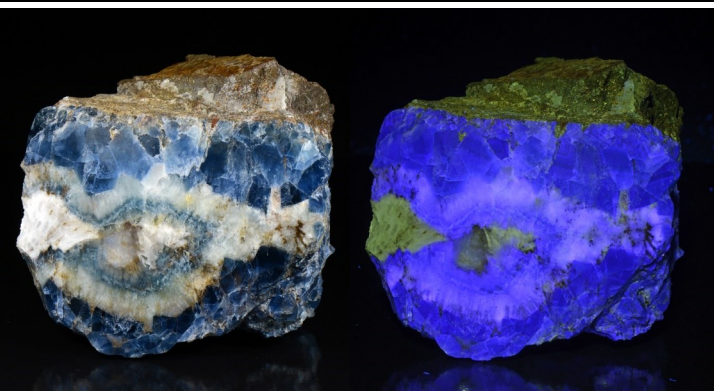
Tucson show - 5th Sat
 Bullard Mine - 9th Wed
 Burro Creek area -12th Sat
 Dave Haneline Mine (Wickenburg) - 19th Sat
 Peridot (San Carlos) - 26th Sat FEE -- See [article](#) on page 21

March

Blue Cube/Prism/Spectrum - 2nd Wed FEE
 Saddle Mtn (Tonopah) - 5th Sat
 Reserve Bank Mine - 9th Wed
 Miami Museum and Halloween Jasper - 12th Sat
 Dave Haneline Mine (Wickenburg) - 23rd Wed

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



FLUORITE FROM SPECTRUM MINE in plain and long wave ultraviolet light.

Photo by Stan Celestian

FUTURE SPEAKERS

March - Stan Celestian: Hidden Treasures at NHMLA (Natural History Museum of Los Angeles County)



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/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@gmail.com
- Publicity:** Jessie Redmond...
- Membership:** Tiffany Poetsch tnpoetsch@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

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

Geo Mini 2: Peridot Mesa: a review before the trip

By Susan Celestian

February will be ending with a field trip to Peridot Mesa -- home to world-famous peridot. I thought it might be of interest to review the geology of the area.

The mesa at San Carlos, Arizona is capped by a very special lava flow. It was emplaced by a single, violent, volcanic fountain eruption. In 1978, it was dated at 0.93 myo (although I did find an unreferenced date of 580,000 years). Within the flow are many nodules of olivine (specifically forsterite) -- aka peridot, much of it gem quality. These nodules are *xenoliths* -- pieces of rock that originated outside the magma that cooled to form the rock in which they are found. In fact, the nodules contain mostly olivine, but also other minerals, such as chromite, chromium spinel, chrome diopside, lherzolite, and biotite. See Figure AA.



FIGURE AA PERIDOT AT PERIDOT MESA The objective of the upcoming field trip is to fill a bucket with the prettiest rocks and biggest

crystals of olivine you can find! As you might be able to tell from these photos, there will be no dearth of olivine!!! Photos by Susan Celestian

In fact, the xenoliths are chunks of the upper mantle, a layer of the Earth's interior thought to be composed of primarily olivine. The upper limit of the upper mantle is between 3 and 30 miles; and it extends to a depth of about 400 miles. See Figure BB.

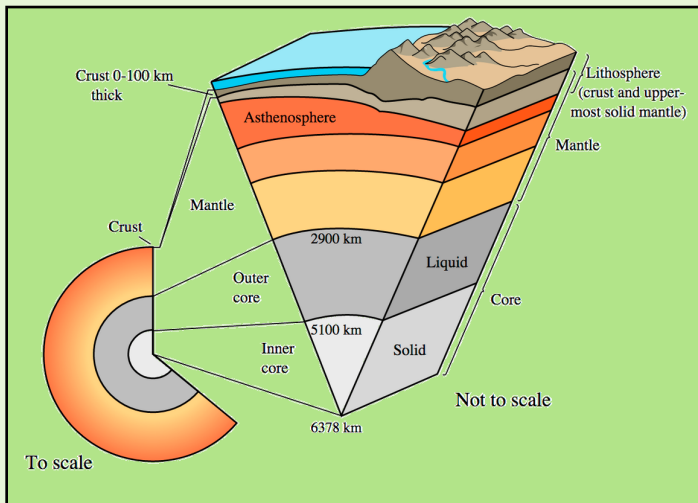


FIGURE BB STRUCTURE OF THE EARTH The Earth is many-layered, and the bulk of it is called the Mantle. However, the Upper Mantle is only the uppermost 350 miles (563 kilometers) or so. Graphic courtesy of the USGS

It is thought that the magma that brought the olivine xenoliths to the surface was moving exceptionally rapidly. A slow ascent would have allowed the olivine to react to the changing temperatures and pressures, and alteration would have occurred. This gives geologists a rare-ish glimpse into the chemistry and geology of areas of the Earth unreachable by physical means.

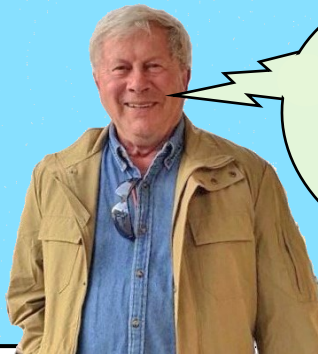
ATTENDANCE FOR THIS FIELD TRIP IS LIMITED, BY THE MINE OWNER. IF YOU HOPED TO GO, BUT WERE UNABLE TO, BE SURE TO LET BILL FREESE KNOW. A FUTURE TRIP MAY BE SCHEDULED, IF THERE IS A DEMAND.



Words of Wisdom

passed along by our own

Bob Evans



**Expect Nothing;
Appreciate
Everything**

UPCOMING AZ MINERAL SHOWS

January 1-February 28 - Quartzsite, AZ There are several shows going on during this time: Desert Gardens, Tyson Wells, PowWow, Gold Show. Go [HERE](#) & [THERE](#) to see show schedules. See [flyer](#) on page 22.

February 25-27 - Clarkdale, AZ Mingus Gem & Mineral Club; Clark Memorial Clubhouse Auditorium, 19 N 9th St; Fri-Sat 9-5, Sun 9-4; Admission: Free. See [flyer](#) on page 23.

March 5-6 - Mesa, AZ Apache Junction Rock & Gem Club; Skyline H.S., 845 S Crimson Rd; Sat 9-5, Sun 10-4; Admission: Adults \$3, Students \$1, under 12 free.

March 12 - Coolidge, AZ Pinal Geology & Mineral Museum, 351 N Arizona Blvd; 10-3; Admission: Free. See [flyer](#) on page 24.

March 17-20 - Anthem, AZ Daisy Mt Rock & Mineral Club; Anthem Elementary School, 41020 N Freedom Way; Admission: Adults/Seniors \$3, students \$2, 12 and under free. See [flyer](#) on page 25.

March 10-13 - Deming, NM Deming Gem & Mineral Club; SW New Mexico Fairgrounds, 4100 Raymond Reed Blvd; Th-Sun 9-5; Admission: Free. Field Trips offered. See [flyer](#) on page 26.

May 7-8 - Kingman, AZ Mohave County Gemstoners; Kingman Academy of Learning, 3420 N Burbank St; Sat 9-5, Sun 8

June 17-19 - Las Vegas, NV Southern Nevada Gem & Mineral Society (in conjunction with Rocky Mt. Federation & Mineral Society Conference; Orleans Hotel & Casino; Fri-Sat 9-4, Sun 9-2; Admission: Adults \$5. See [flyer](#) on page 27.

NEEDED: QUALITY MINERALS (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 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 - MARCH

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 11:45.

NMVC requires that everyone wear a mask while in the building. (Other NMVC requirements will be sent in a later email or on premises.)

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

**March – Thursday's dates are 3, 10, 17, 24, 31
March – Saturday's dates 5, 19**

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 - 9-12.** Email Shirley at crystalc17@gmail.com Usage fee is \$8/hour.

March - Monday's dates are 7, 14, 21, 28



DESERT GARDENS ROCK GEM & MINERAL SHOW



DESERT GARDENS ANNUAL INTERNATIONAL ROCK, GEM AND MINERAL SHOW

January 1 – February 28

9:00 am – 5:00 pm

(Seven Days Weekly)

1055 Kuehn Street

Quartzsite, AZ 85346

Clarkdale Rocks Gem & Mineral Show 48th Show

Show & Sale



February 25-27, 2022
Clark Memorial Clubhouse Auditorium
19th N. Ninth Street, Clarkdale, AZ 86324
FRI & SAT 9am-5pm, SUN 9am-4pm
Free Admission

Mingus Gem & Mineral Club
www.mingusgem.club

Saturday 10am-3pm
March 12,
2022

Free
Admission

Pinal Geology
and Mineral Museum
& Society Present

Fun for All!

Meteorites and Dinosaurs!

Touchables, Vendors,
Fossil Dig, Kids Activities

351 N. Arizona Blvd
Coolidge, AZ
next to Coolidge Chamber of Commerce.

more information
pinalgeologymuseum.org

Free
Admission

**Masks Required
Inside the Museum
Over 5yo.**



2022 DAISY MOUNTAIN GEM AND MINERAL SHOW

SATURDAY MARCH 19 9 AM - 5 pm
SUNDAY MARCH 20 10 PM - 4 PM

ANTHEM SCHOOL
BRING THE KIDS !

41020 N. FREEDOM WAY, ANTHEM
KID'S CORNER: LOTS TO DO
EGG CARTONS, GAMES, PRIZES, HANDS-ON

VENDORS

JEWELRY, GEMS, MINERALS, FOSSILS, BEADS,
WIRE WRAPPING, GEODES AND MORE

RAFFLES & DOOR PRIZES

SPECIAL ULTRA VIOLET DISPLAY

EXPERTS WILL IDENTIFY YOUR ROCKS

ADULTS \$3, SENIORS AND STUDENTS \$2
KIDS 12 AND UNDER ARE FREE

SPONSORED BY

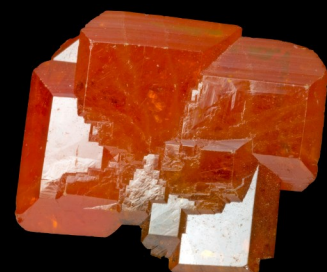
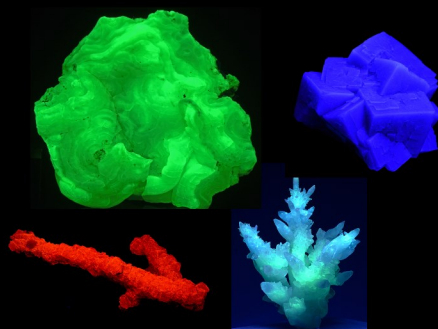
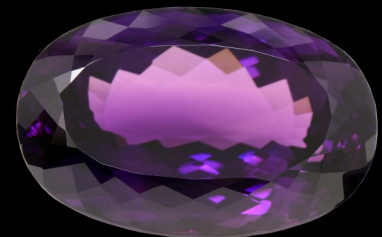
DAISY MOUNTAIN ROCK AND MINERAL CLUB

FOR MORE INFORMATION CONTACT:

ED WINBOURNE (978-460-1528)

EMAIL: ewinbourne@gmail.com

Website: <https://www.dmrmc.com/>



PHOTOS BY STAN CELESTIAN



Deming Gem & Mineral Society's

57th Annual

ROCKHOUND ROUNDUP

Gem & Mineral Show

March 10-13, 2022 9 a.m. - 5 p.m.

At the SW NEW MEXICO FAIRGROUNDS

4100 Raymond Reed Blvd.—Deming, New Mexico

Public Invited Free Admission Free Parking

- Metal Detecting Contest • Jewelry & Rock Related Items • Buyers Market
- Lapidary Equipment • Displays and Demonstrations
- Guided Field Trips • Auctions • Coffee, Donuts, Breakfast & Lunch Vendors

FIELD TRIPS

Trips leave 8:00 a.m. from the Fairgrounds
Public Invited on field Trips to
our club's claim, Big Diggins, and others.
Materials found: Onyx, agate, geodes & other gem stones.
Bring suitable clothing & shoes, lunch, water, and tools.

DAILY DOOR PRIZES - 11 a.m. & 3 p.m.

CASH RAFFLE DRAWING - Sunday at 3 p.m.

AUCTIONS

Friday Night - 6:30 p.m. Silent Auction
Rockhounds mark bids on auction forms. Items are
donated by dealers and members. Available are cutting
materials, slabs, geodes, crystals, gem stones, etc.

Saturday Night - 7:00 p.m. Live Auction
Fine specimens, jewelry, etc. will be auctioned, which
have been donated by dealers and members.

Email: thedgms@gmail.com

WEBSITE: www.thedgmsclub.com

FOR MORE INFORMATION CALL: Marilyn Page—575-544-9019



VIVA LAS VEGAS ROCKS

June 17 - 19, 2022 at the Orleans Hotel



Rocks, Gems & Jewelry Show

Presented By

Southern Nevada Gem & Mineral Society



Hosting The Rocky Mountain Federation & Mineralogical Society Conference

Daily

Admission 5.00

Children Under 12 Free

Tickets Entered in Drawing

Orleans Hotel & Casino

Reservations

800 675-3267

ID: ASN2C06

Exhibition Hours:
Friday 9am to 4pm
Saturday 9am to 4pm
Sunday 9am to 2pm

50 + Vendors

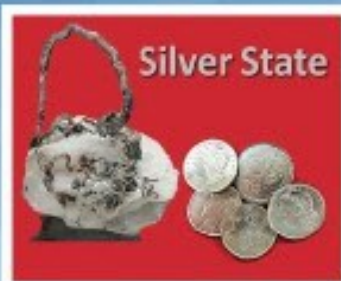
Displays

Speakers

Raffles

Kids Activities

Door Prizes



SNGMS Contacts:

sngmspresident@gmail.com

sngmsshowchair@gmail.com

www.snvngms.org

