



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 4, ISSUE 6

JUNE 2019



Cerussite

By Susan Celestian

The name "cerussite" is derived the Latin word 'cerussa' for *white lead*, as the mineral is a lead carbonate and often referred to as white lead.

Chemical Formula - $PbCO_3$

Crystal System - Orthorhombic (3 axes of unequal lengths, and all perpendicular to each other) (<https://www.minerals.net/mineral/cerussite.aspx>) The images at this website can be rotated, using the cursor.

Growth Forms/Habits - Reticulated, granular, snowflake-like, fibrous, dipyramidal

Hardness - 3-3.5

Color - Clear, White, Gray, Blue, Green, Brown

Luster - Adamantine (Vitreous, Resinous)

Streak - White

Specific Gravity - 6.58

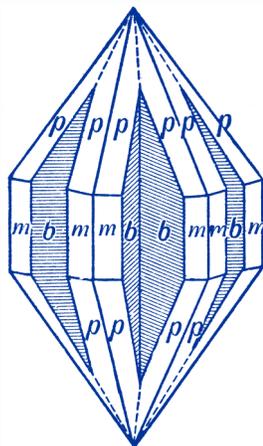
Cleavage - Good in 2 directions

Other: Cyclic or contact **twining** common

Cerussite, aka white lead, is basically isomorphous¹ with aragonite ($CaCO_3$). Consequently, like aragonite, cerussite often exhibits pseudo-hexagonal form, with cyclic twinning ("trillings") of 3 crystals (Figure 1). Additionally, contact twinning forms chevron and reticulated habits.

FIGURE 1 Cyclic Twin of Cerussite

This illustration of a di-pyramidal cyclic twin of cerussite crystals is originally from George Huntington Williams, Ph.D. *Elements of Crystallography for Students of Chemistry, Physics, and Mineralogy* (New York, NY: Henry Holt and Company, 1892). Graphic courtesy of <https://etc.usf.edu/>



¹ *Isomorphous* minerals have similar chemical formulation, and the same basic atomic structure.

Like leaded glass, cerussite has a high index of refraction -- it is sparkly. That, and its intricate and interesting crystal forms, make it an attractive and collectible specimen mineral.

Cerussite forms in the oxidized zones of lead deposits, by the decomposition of the primary ore mineral, galena (PbS - lead sulfide). Other minerals commonly associated with it are: barite, smithsonite, galena, anglesite, pyromorphite, mimetite, linarite, phosgenite, limonite, malachite.

For photos of various forms of cerussite, see Figures 2-7.



FIGURE 2 Three rays of a sixling twin form V's modified by chevron-like crystals overgrowths. Specimen from the Blue Owl Mine, Yavapai Co., AZ Photo by Stan Celestian

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June 4, 2019

Board of Trustees Meeting Minutes

Attended: Clark Little, Claudia Marek, Cynthia Buckner, Deanne Gosse, Ed Winbourne, Howard Roose (by phone), Stan Celestian, Susan Celestian, Tammy Early, Tiffany Poetsch, William (Bill) Freese

Not Attended: Bob Evans (out of town), Don Richardson, Rebecca Slosarik (out of town)

1. Minutes from May meeting accepted. Motion by Clark Little, seconded by William Freese.
2. Bill Smardo donated two large size rock tumblers to the club (currently in our storage unit). Donation receipt/letter issued for est. value of \$300.00. Photos of the tumblers were passed around.
3. Cynthia Buckner presented the financial report. Had one large payment in May to the Deer Valley School District (remaining balance due on gym rental for 2019 show). Motion by Tammy Early to accept report, seconded by Ed Winbourne.
4. New application form for 2019/2020 will have section about photo policy. As a member, you're giving us permission to your photo in our newsletters/social media. Wording TBD.
5. Revised liability waiver for 2019/2020. Will have everyone sign new ones for 2019/2020.
6. Discussed having a field trip signup liability waiver that attendees sign when we get to the field trip site. Other clubs do this.
7. William Freese brought in our new field trip walkie-talkies.
8. Claudia Marek discussed the scholarship.
 - a. 2 applicants: 1 was pre-med., the other had not chosen a field nor had applied/accepted into school.
 - b. Rejection letters were typed & passed around to Board. Approved to send out.
 - c. Stan Celestian made a suggestion that if we don't have a student that qualifies for the scholarship in a particular year, perhaps we donate the funds to a school's Earth Science program or use the funds to help them with something they may need.
 - d. Ed Winbourne suggested we think about this idea over the summer and will address at September meeting.
9. Date determined for Club End of Year Picnic: June 22nd
 - a. Club will provide hotdogs, burgers, soda, water, and plates.
 - b. Ed Winbourne will reserve the spot in the

Board Minutes continued on page 3.....

June 4, 2019

General Club Meeting Minutes

- Speaker: Jay Yett spoke about Anorogenic Granites. Jay is founding member of the DMRMC and was a geology professor at Orange Coast College, in Costa Mesa, CA.
- Stan Celestian brought in a slide sample of some of the gold he panned on our field trip to Lynx Creek.
- Door prizes & raffle prizes given out after break.
- Cynthia Buckner went over May's finances.
- Ed Winbourne highlighted some of the clubs accomplishments & key moments:
 - a. Increase club membership
 - b. Increase in educational outreach. 2 STEM/STEAM nights this year, will be up to 3 next school year.
 - c. Our 6th show this year was the most profitable.
- Picnic announced: June 22nd – Anthem Community Park
- Final field trip announced: June 29th – New River, Banded Iron

Respectfully submitted, Tiffany Poetsch



Photo by Stan Celestian

Banded Iron Formation (or BIF) from Mingus Mt., Arizona. While not fully understood, BIFs are almost all PreCambrian (2.5-1.8 bya) in age, and are alternating red layers of iron oxides (magnetite, hematite) and black layers of iron-rich silica. One predominate thought has been that on an anoxic Earth, iron accumulated in the oceans. Once cyanobacteria began to pump oxygen into the water, layers of iron oxides formed, lowering oxygen levels in the ocean (or hi oxygen levels were toxic to cyanobacteria and they died off). These red layers are separated by siliceous black layers, deposited during low-oxygen periods. Once oceans were fully oxygenated, BIFs no longer formed -- a cessation that continues to this day.

....Board Minutes continued from page 2

- Anthem Community Park.
 - c. Email will be sent out once confirmed.
- 10. Stan Celestian and the field trip committee are working on locations for next year.
 - a. William Freese handed out the Field Trip Survey sheet, we'd like trip participants to complete, so we can get an idea of what the members are looking for and/or expecting.
- 11. Ed Winbourne presented an end-of-year summary:
 - a. Increase in field trips & trip attendees.
 - b. Increase in educational outreach. 2 STEM/STEAM nights this year, will be up to 3 next school year.
 - c. Our 6th show this year was the most profitable.
 - d. Thank you to Bob Evans & Clark Little for their work on obtaining our storage trailer.
 - e. Thank you to Stan Celestian and the other Field Trip Committee folks for all the effort put into the trips.
 - f. Thank you to Bill Smardo, Claudia Marek and to those who helped with the Bone Yard cleanup and obtaining/moving all the rocks that we donated to us for our educational outreach.
 - g. Thank you to Susan Celestian for creating our newsletter.
 - h. Thank you to Jennifer Gecho for heading up the wire wrapping classes.
 - i. Highlighted some of guest speakers: Sami's Jewelry, Rattlesnake Solutions, Susan & Stan Celestian, Jay Yett.
 - j. Highlighted partnership with North Mountain Visitors Center.
- 12. Discussion on possibility of club lapidary shop. Survey will go out to members on whether they would use a facility like this? Est. to send survey out in August for discussion at September meeting.
- 13. Committees that need to be possibly built/expanded out in 2019/2020:
 - a. Education
 - i. Can more be done?
 - ii. Additional STEM/STEAMs?
 - b. Show committees:
 - i. Some longtime committee heads have informed us they are stepping down or moving to a smaller role.
 - ii. Setup/Tear down for show.
- 14. Final Field Trip for 2018/2019: New River for banded Iron on June 29

Respectfully submitted, Tiffany Poetsch



**SATURDAY, JUNE 22, 2019
1:00 PM**

**BRING: Side Dish to share,
chair, hat**

**CLUB PROVIDES: Hot Dogs,
Hamburgers, Soda, Water,
Plates, Utensils, Napkins**



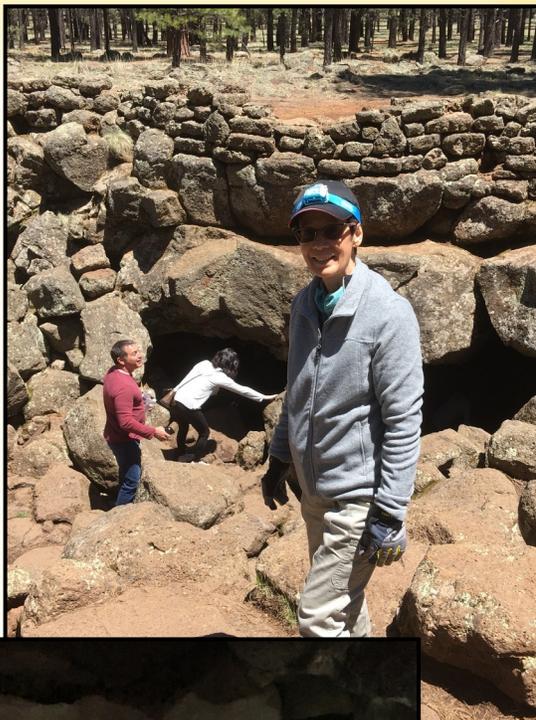
For complete details on specific Ramadas: Online@Anthem.com/ramadas

**FIELD TRIP
MAY 25, 2019
FLAGSTAFF
FOR: OBSIDIAN, LAVA TUBE**

Club President, Ed Winbourne, led this trip to the cool woods of Flagstaff. Obsidian collecting was followed by a picnic at a nearby Lava River Cave, a lava tube -- and at 0.75-1 mile in length, it is the longest in Arizona. (Lava tubes form when a channeled lava flows beneath the upper crust, and continued cooling results in the formation of walls. The walls act as insulation, and the lava retains its fluidity, acting as a conduit for lava outward from the source. Ultimately, the lava flow will become less restricted, will fan out, and the flow will drain from the tube. Lava tubes can have smooth floors, or can be extremely rugged (i.e. sharp and pointy!). *These pictures were submitted by Rick and Lorraine Botello, new club members.*



A sharp chip of obsidian, clearly exhibiting the conchoidal fracture of a volcanic glass.



The entrance of Lava River Cave. The adventure begins!



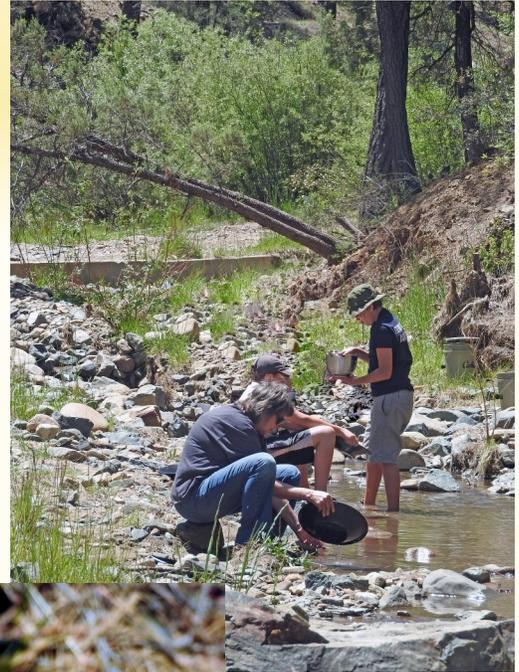
Slabs of the tube's roof have fallen over the ages, making the pathway rugged and strenuous. Remember, if you walk the near-mile to the end, you still have to walk back, if you want to get out! ☺



Snowmelt has seeped into the cave and frozen, during the recent winter. Rock insulates well enough that the ice persists for a while. Some lava tubes support ice year-round, elsewhere have provided "mine-able" ice for locals to use, even into the summer.

FIELD TRIP
JUNE 1, 2019
LYNX CREEK
FOR: GOLD PANNING

Stan Celestian introduced club members to gold panning at Lynx Creek. The creek was flowing, so finding a panning hole was easy, and the current cleared the mud washing out of the pan. It was a beautiful day, very cool in the shade. *Photos by Susan Celestian*



Balkan Toadflax (*Linaria dalmatica*)



Yellow Saisify (*Tragopogon dubius*)



Stan's Haul of Gold (circle is 1/2 inch in diameter) *Photo by Stan Celestian*

...Cerussite continued from page 1



FIGURE 3 Cerussite Snowflakes These two complex crystals, from the Blue Owl Mine, Yavapai Col, AZ exhibit the very common reticulated crystal habit, quite reminiscent of snowflakes. *Photos by Stan Celestian*

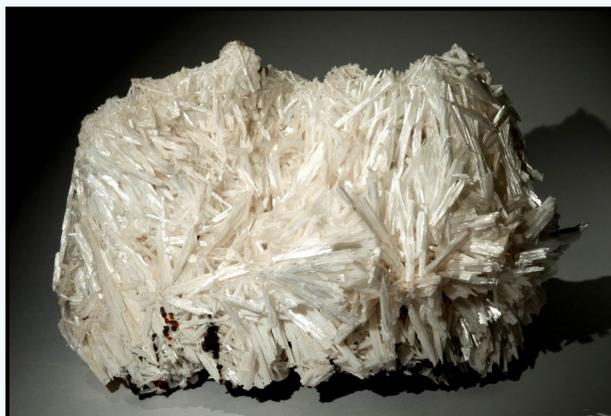


FIGURE 3 This fibrous habit of cerussite is referred to as Jack Straw. This specimen is from the Flux Mine, Santa Cruz Co., AZ. *Photo by Stan Celestian*



FIGURE 4 A delicately reticulate cerussite from Vein #5, 200 meter level, Nakhlak Mine, Anarak District, Iran. *Photo by Stan Celestian*



FIGURE 5 Another reticulated specimen typical of cerussite from the Mammoth Mine, Tiger, Pinal Co., AZ *Photo by Stan Celestian*

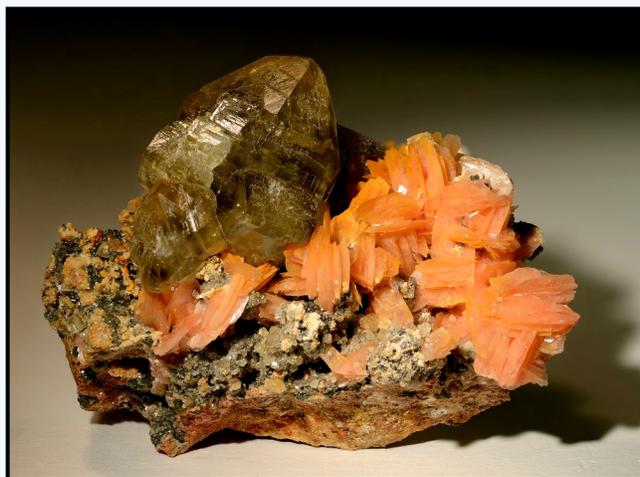


FIGURE 6 A single stubby crystal of cerussite sitting on a next of orange barite, from Mibladen, Morocco. *Photo by Stan Celestian*



FIGURE 7 Another Moroccan cerussite, although this time it is a cyclic penetration twin. Compare it to the image in the website linked at the beginning of the article. *Photo by Stan Celestian*

MINERALS IN OUR EVERYDAY LIVES

USES OF CERUSSITE

- ▶ Ore mineral for Lead
- ▶ Once used as source of *white lead*, used in white pigment; even used in cosmetics (discontinued in Western countries)
- ▶ Rarely faceted as a gemstone
- ▶ Collectible mineral specimens

SPHEROIDAL WEATHERING

By Susan Celestian

During Jay's talk at the June meeting, he showed photos of the large rounded boulders in the Carefree/ Cave Creek area. There seemed to be some interest in the origin of these boulders, so I thought I'd address that here. They are the result of *spheroidal weathering*, and in fact the phenomenon has produced many of the landscapes in Arizona, and the Southwest in general. See Figures 1-4.

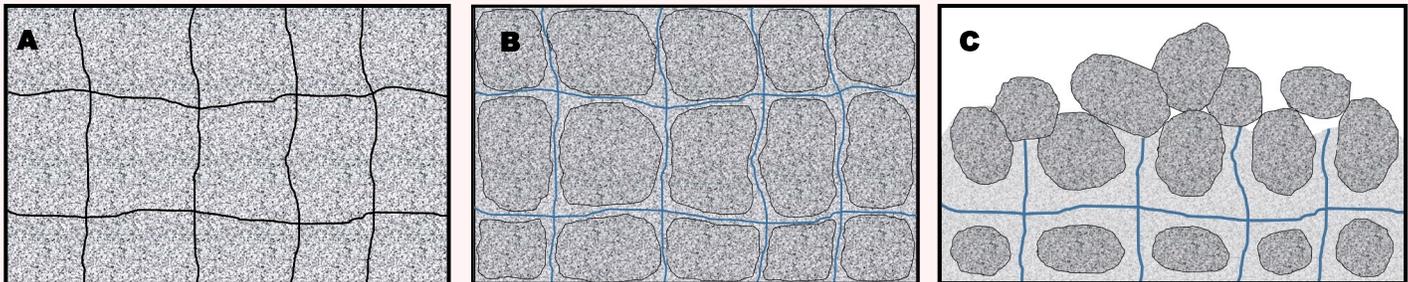


FIGURE 1 Spheroidal Weathering of a Granite In Block A, a mass of granite is broken up by a network of fractures called joints. These act as conduits for surface and ground water. Keep in mind that water is the medium by which chemical weathering acts to break down rocks. In Block B, you can see the blue lines now indicating that water is penetrating deep into the granite mass. As weak acids are introduced into the interior of the rock, chemical weathering begins to break down the vulnerable minerals -- feldspars, micas, amphiboles, pyroxenes. Their weakening/disintegration is indicated by the lightening of the color. A block of rock exposes more surface area at the corners, and therefore chemical weathering occurs more rapidly there, leading to the evolution of angular blocks into more and more rounded (spheroidal) blocks -- i.e. spheroidal weathering. In Block C, the granite has been exposed at the Earth's surface, and erosion has removed the weathered and disintegrating rock between the now-rounded blocks of granite. As that material is removed, the rounded blocks are exposed, and left to rest as large boulders on the surface. *Graphic by Susan Celestian*



FIGURE 2 This is a roadcut at the entrance to the Salt River Canyon. It is a mass of diabase crisscrossed by joints. Note that some blocks are beginning to round at corners. See Figures 1A & 3. *Photo by Stan Celestian*



FIGURE 3 This is the same roadcut as in Figure 2, but in much more weathered area. Within a mass of disintegrated diabase, are rounded blocks. Compare to Figure 1B. *Photo by Stan Celestian*



FIGURE 4 After erosion has freed them, these rounded boulders sit atop the main granite mass in Texas Canyon, along I-10 in Cochise County, AZ. Compare to Figure 1C. *Photo by Stan Celestian*

UPCOMING FIELD TRIPS

WHEN: June 29, 2019

WHERE: New River

WHAT: Banded Iron & Yellow Jasper

MEET: TBA

LEADER: Ed Winbourne

DATES SUBJECT TO CHANGE

SPEND THE SUMMER THINKING ABOUT WHERE YOU WOULD LIKE TO GO!!

Stan and the field trip committee will be actively looking for productive spots for field trips. If you have any suggestions, you are encouraged to contact him at stancelastian@gmail.com



These two photos are from Kodachrome Basin State Park, near Cannonville, Utah -- and only about 20 miles from Bryce National Park. Above is one of about 67 spires found in the park, They are thought to be sedimentary pipes, where springs introduced columns of water that brought minerals to cement the sediment. Below is Shakespeare Arch, the only arch in the park.

Photos by Stan Celestian



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

NOTE FROM THE EDITORS

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

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

Mail or Email submissions to:

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

SEE YOU IN SEPTEMBER!**WIRE-WRAPPING CLASS**

4:30-6:30 pm

Prior to the meeting on
Tuesday, September 3, 2019

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

Free, but donations are appreciated.

Questions? Contact Jennifer at
Jennifer@eliteshuttersandblinds.com

SPEND THE SUMMER COLLECTING PRETTY ROCKS, CABS, FOSSILS, OR OTHER OBJECT YOU'D LIKE TO WIRE WRAP. MAYBE A MEMORY OF A SUMMER TRIP.



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

UPCOMING AZ MINERAL SHOWS

July 6-7 - Pinetop, AZ White Mountain Gem & Mineral Club; Hon-Dah Casino and Resort, 777 Hwy 260; Sat 9-6, Sun 10-4; Admission: \$2 adults, free for children under 16.

August 2-4 - Prescott Valley, AZ Prescott Gem and Mineral Club; Findlay Toyota Center, 3201 N Main St.; Fri-Sat 9-5, Sun 9-4; \$5 adults, \$4 seniors, vets, students, free for children under 12 (cash only).

August 2-4 - Rocky Mountain Federation of Mineralogical Societies Convention IN CONJUNCTION WITH PRESCOTT CLUB SHOW.

Convention Headquarters at Prescott Resort & Conference Center, 1500 AZ-69, Prescott, AZ; For information go to <http://rmfms.org/wp-content/uploads/2019%20RMFMS%20Convention%20Packet-final%20v3.pdf>

September 20-22 - Payson, AZ Payson Rimstones Rock Club; Event Center Mazatzal Hotel & Casino, Hwy 87, Milepost 251; Fri 4-8, Sat 9-5, Sun 10-4; Admission: \$3, children under 12 free.

October 12-13 - Sierra Vista, AZ Huachuca Gem & Mineral Club; Cochise College, 901 N Columbo Av; Sat 9-5, Sun 10-4; Admission: free.

October 19-20 - Sedona, AZ Sedona Gem & Mineral Club; Sedona Red Rock High School, Hwy 89A & Upper Red Rock Loop Road; Sat 10-5, Sun 10-4; Admission: \$3, children under 12 free.

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

A good source for a list of Arizona Mineral Clubs and contact information is <http://whitemountain-azrockclub.org/Public AZ Clubs Links.html>

This is a normal fault, within the Jurassic Entrada Sandstone. The left side went down, and the right side up -- the relative offset highlighted by the darker shaley layer. *Photo by Stan Celestian*



FACEBOOK

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

WEBSITE

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

If you have comments, contact Nancy Gallagher.

GROUPWORKS

As a DMRMC club member, your name should be available at <https://app.groupworks.com/#/login>, and you should receive an email linking you to registration. Create an account and receive reminders about club events, meetings, and important club information. You may post pictures and information -- all seen only by club members.

Upcoming Meeting Programs

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

Officers, Chairpersons, & Trustees

- President:** Ed Winbourne.....ewinbourne@gmail.com
- Vice President:** Stan Celestian
- Secretary:** Rebecca Slosarik .. rslosarik1@gmail.com
- Treasurer:** Cynthia Buckner
- Publicity:** Howard Roose
- Membership:** Tiffany Poetsch tnpoetsch@gmail.com
- Editors:** Susan & Stan Celestian.....
azrocklady@gmail.com
- Field Trip:** Stan Celestian... stancelestian@gmail.com
- Show Chair:** Ed Winbourne
- Trustees:**

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

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

DMRMCLUB@GMAIL.COM

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

Meeting Dates for 2019

Jan 8, Feb 5, Mar 5, Apr 2, May 7, June 4, Sept 3,
 Oct 1, Nov 5, Dec 3