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 6, ISSUE 4 **APRIL 2021**

This exquisite plate of complete crinoid fossils is *Xenocrinus baeri*, from the Upper Ordovician Whitewater Formation of northeastern Warren County in southwestern Ohio.

FOSSILS: PART XVI

Kingdom: Animalia
Phylum: Echinodermata,
Sub-Phylums - Crinoidea, Blastoidea, Cystoidea

By Susan Celestian

Kingdom Animalia **encompasses** 36 phyla -- that's a lot! Most are animals you are unlikely to encounter in the fossil record. This series has been (and continues to be) a discussion of the primary *invertebrate* phyla -- I have no expertise with vertebrates (including Phylum Chordata), beyond being able to recognize a bone as a bone.

The last phylum in this series is Echinodermata, and once again I will only describe a small portion of the potential classes. There are up to 28 classes, however only 5 (Crinoidea, Blastoidea, Echinoidea, Asteroidea, Ophiuroidea) are prominent in the fossil record; plus less prominent Cystoidea, Edrioasteroids, Holothuroidea, and others. This issue will look at Crinoids ("sea lilies"), Blastoids ("sea buds") and Cystoids.

General Echinodermata characteristics are as follows:

- Radial, Pentameral symmetry (star-shaped or 5-armed)
- Exclusively marine
- Spiny-skinned: In fact, the name Echinodermata means "spiny skin"
- Skeleton elements are composed of single crystals of calcite
- Highly organized organ development
- Tube feet, used for walking, pulling open mollusk shells, and for moving food to the mouth.

Crinoid, Blastoid and Cystoid characteristics are as follows:

- The geologic record: Crinoids - Early Ordovician (485 mya) to Recent; Blastoids - Ordovician to Permian; Cystoids - Ordovician to Late Devonian.
- Crinoids, nicknamed "sea lilies" and "feather stars" -- although they are NOT plants:
  - The mouth is on the upper surface, and is surrounded by arms; the anus is not far from the mouth. Every part of a crinoid is composed of fused or articulated plates, and each plate is a single calcite crystal. See Figure 1.

Crinoids/Blastoids /Cystoids continued on page 8...

ULEXITE

By Susan Celestian

Chemical Formula - $NaCa[B_5O_6(OH)_6]\cdot 5H_2O$
Crystal System - *Triclinic (3 axes of unequal length, and no 90°).*
Growth Forms/Habits - *Fibrous, acicular, capillary*
Hardness - *2.5*
Luster - *Vitreous, silky, satiny*
Streak - *White*
Colors - *Colorless, white, light gray (usually due to included clay)*
Diaphaneity - *Translucent to transparent*
Specific Gravity - *1.955*
Cleavage - *One perfect, one good, one poor*
Fracture - *Irregular, uneven, splintery*
Occurrence - *Select evaporating saline lakes & playas; where boron is leached out of pyroclastic rocks; associated with other borate minerals, such as borax and colemanite. Is either a direct deposit, or forms from the alteration of borax.*
Other - *"TV Stone" fiber-optic-like transmission of images from lower to upper surface, along C-axis - fluorescent: SW & LW -- weak yellow-white*
Uses - *Source of Boron (B): See page* ***13***

Named for its discoverer, Georg Ludwig Ulex (chemist), ulexite does not occur in Arizona; but occurs in abundance in the mines of Boron,

Ulexite continued on page 15

ZOOM MEETING
May 4, 2021

BE SURE TO ATTEND

Our speaker will be Leslie Hale, Smithsonian's Rock and Ore Collections Manager. She will give us a tour of the sub-collections and specialties of the National Rock and Ore Collection.

There will be a Show & Tell segment, so be prepared to share with the group, any new or old rock finds. Let's stay involved!

INSIDE THIS ISSUE

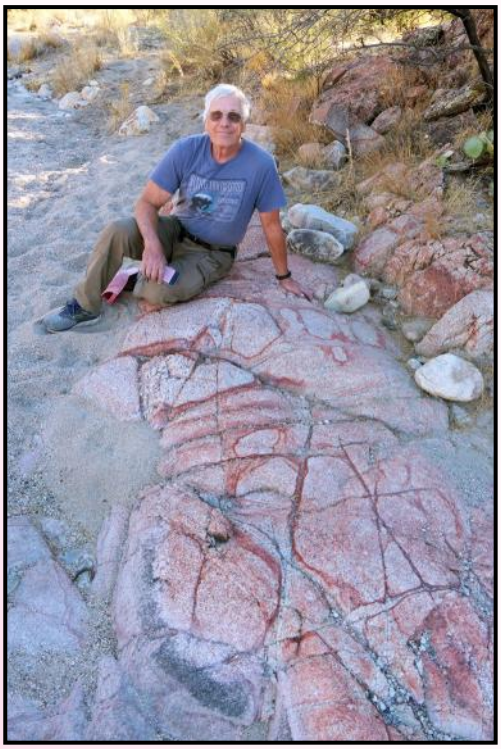
Each item is now hyperlinked to the page on which it is found

APRIL SPEAKER

Rock Candy

STAN CELESTIAN

Stan Celestian (retired Glendale Community College geology instructor, and current adjunct at Arizona State University West Campus), regaled us with some of his favorite igneous, sedimentary, and metamorphic rocks and their geologic stories. To Stan, rocks are interesting on two levels: their fabric or physical appearance, and their geologic significance and context.



Stan poses with a very interesting rock, even if he couldn't take it home. It is granite with rusty rings, due to invasion of groundwater along fractures. *Photo by Sue Celestian*

GRAPHIC GRANITE - a hieroglyphic-like intergrowth of quartz and feldspar, that sometimes forms when they crystallize simultaneously. Buckeye Hills, Maricopa Co., AZ

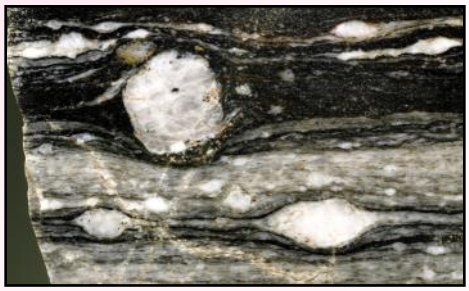
PORPHYRITIC GRANITE - a granite characterized by two distinct grain sizes. In this case the large feldspar crystals within a background of much less coarse crystals of quartz and feldspar. Near Bagdad, Yavapai Co., AZ

MARBLE - a uniquely blue marble, resulting from the metamorphism of a limestone. Washington Camp, Santa Cruz Co., AZ

GYPSUM/ANHYDRITE & CALCITE - a cyclic deposit of evaporites from the Delaware Basin of New Mexico. The very wavy layer probably wrinkled when it swelled with water between non-saturated layers.

Photos by Stan Celestian

BRECCIA - a sedimentary rock composed of large angular fragments, indicating little to no transportation. Brenda, La Paz Co., AZ



AUGEN GNEISS - a metamorphic rock with highlights of eye-shaped crystals of quartz and feldspar, minerals resistant to compression. Alamo Lake, La Paz Co., AZ

Zoom Board Meeting Minutes
April 5, 2021

- Attendance: Bill F., Bob S., Claudia M., Cynthia B., Don R., Ed W., Howard R., Rebecca S., Stan C., and Sue C.
- Bill F. called the meeting to order
- March meeting minutes approved
  - ◊ Missing board minutes, but general notes covered everything
- Cynthia B. talked about the financials
  - ◊ Mine fee paid
  - ◊ Will ask for show deposits back
    - SW Barricade, In & Out, and table rentals
  - ◊ Diane G. will do another audit this year
- Bill F. discussed new membership
  - ◊ 12+ recently
  - ◊ Will send zoom reminders the day before general meetings
- Stan C. talked about the claim's committee
  - ◊ Considering the Mushroom Rhyolite area
    - Will get latitude and longitude next
  - ◊ Howard R. finished the notice of intent to BLM for the 'Dave Haneline Mine'
    - Will take 30 days to respond
    - Good for 2 years
    - Cannot work June/July/August
    - Up to 70 HP metal track excavator can be used
  - ◊ Mine/tour leaders will be compensated for their services
    - 50% of trip cost, up to $100 max
    - All in favor of change
  - ◊ Non-members will be charged $20/person to visit mine
    - Please email Stan C. if you would like to go
- Jennifer G. has cancelled the April wire wrapping class
- Bill F. discussed the field trips
  - ◊ There are many on the schedule!
    - Please check your emails for updates
      - * If you are not receiving emails, please contact dmrmclub@gmail.com
  - ◊ The field trips committee collected a survey on 3 most wanted locations
    - #1 – Chilito Mine
    - #2 – Red Cloud Mine
    - #3 – Burro Creek
- The scholarship winner has been chosen
  - ◊ Laura Lemon will be featured on the website
  - ◊ Boulder Creek graduate going into Geology at Western Colorado Univ.
  - ◊ She will be receiving $750 to her college account
- Ed W. discussed the next show
  - ◊ Anthem Outlet mall was not responsive
  - ◊ Will hold-off show until March 2022
  - ◊ Outdoor venue will not work

Respectfully submitted, Rebecca Slosarik, secretary

General Zoom Meeting Minutes
April 6, 2021

- Open attendance: 25 zoom participants
- Bill F. called meeting to order
- Bill F. updated the club on the field trips
  - ◊ Many great field trips, tours, and shows coming up
- Jodi Brewster from Rocky Mountain Federation announced some changes
  - ◊ There will be a convention this year at Big Piney, Wyoming
    - Any members of DMRMC are welcome to attend
  - ◊ Jodi will be moving into V.P. position
    - Steve Kaminski will now be our liaison
  - ◊ Any questions? Go to RMFMS.org
    - There is a link on our DMRMC website as well
- Cynthia B. updated the club on the financials
  - ◊ Club is still in good standing
- Stan C. discussed the claims committee
  - ◊ Paperwork was filed with official mine name as 'Dave Haneline Mine'
  - ◊ Hopefully the excavation work will begin soon before it gets too hot
- Tiffany P. talked about the new membership form on our website
  - ◊ Can be filled out with square payments available
  - ◊ New name-tag company takes about 5 days to receive
- The scholarship winner was announced
  - ◊ Laura Lemon congratulations and good luck!
- Ed W. discussed the show
  - ◊ Will be moving to March 2022
    - Must be indoors for vendors, staff, and security
- If you would like a wire wrapping class, please email Jennifer G. jennifer@eliteshuttersandblinds.com
- Do not forget to bring your show and tell gems for the meetings
- May meeting will be over Zoom again
  - ◊ Check emails for link

Respectfully submitted, Rebecca Slosarik, secretary

ANNOUNCEMENT:

Daisy Mountain Rock and Mineral Club has awarded its annual scholarship.

Lauren LInneman
DMRMC 2021 Scholarship Recipient

The 2021 recipient of the Daisy Mountain Rock and Gem Club's $750 scholarship is Boulder Creek High School senior, Lauren Linneman.

Lauren will graduate with a 4.6 GPA, having taken many AP classes, and earning only two B's during her high school career. In addition, she was on the swim team for 4 years, was Swim Team Captain, a member of the National Honor Society, member of the Science National Honor Society, volunteer tutor at the high school, taught under-privileged children to swim, and was an aide for the Special Olympics.

Lauren has been accepted to Western Colorado University AND the Colorado School of Mines. She is likely to attend Western Colorado for her Bachelor of Science degree, and immediately work on her Master's Degree at Colorado School of Mines.

Congratulations and Best Wishes from DMRMC Lauren!

TOOLS OF THE HOBBY

We have a lot of new members, and folks new to the hobby of rockhounding. I thought it might be a good idea to summarize some of the tools, with which one should arm oneself, to maximize the rockhounding experience.

A Rock Pick (hammer) is very helpful. It is hardened steel, is sturdy, and the metal won't chip as readily as a nail hammer. One piece steel is the longest lasting -- & the bigger, the better. Best not to pound on a rock with the pick end!

Toilet paper (TP) makes a great packing and wrapping material -- and of course might come in handy otherwise.

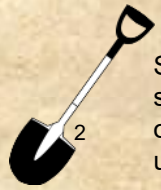
A Bucket for holding your haul -- a must! I like the collapsible canvas ones from Harbor Freight, but any will do.

To protect fragile or special treasures, keep a Lidded Container about. I like to keep some non-Styrofoam take-out ones on hand -- preloaded with soft packing.

OTHER HANDY ITEMS

Hardened steel chisel(s)

Kneeling pad, knee pads, piece of carpet



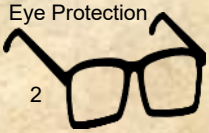
Shovel -- those small folding ones don't take up much room

A garden claw can sometimes help in your search.

If you have the muscles, rocks do yield more easily to a Crack Hammer or Sledge Hammer.

While not always necessary, it is safer to navigate uneven ground with a study pair of shoes.

Eye Protection



SAFETY FIRST!

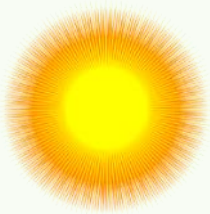
[1]Clipartkey.com, [2]clipart-library.com, [3]line.17qq.com, [4]clipartmax.com

FIELD TRIP TO DATE CREEK

Saturday, March 27, 2021

Photos by Bill Freese

There was a big turn out for the Date Creek Ranch, and ended up with 30 people, plus Bill. There were 3 clubs (DMRMC, Verde Rockhounds, and Gila County Gem and Mineral Society) represented. Everyone had a great time and was able to find a few nice crystals. The weather is getting warm, mid to upper 80's, so this was purposely the last low elevation trip. Still it was a beautiful day and the cacti are starting to bloom.



Hedgehog abloom!
Echinocereus engelmannii ssp engelmannii

Tiffany's Treasures photo by Tiffany Potstch

FIELD TRIP TO AGATE MOUNTAIN

Saturday, April 21, 2021

Photos by Bill Freese

Well, the mid-week trip to Agate Mountain was another successful trip. We had a total of 10 people and we truck-pooled into 4 trucks (1-gray, 3 white?) because not everyone had a 4x4. It was good trip to test your 4x4 skills and all passed with an "A". the last couple miles out to the site get pretty rough. The weather was a good temperature but very windy. There are tons of agate out there all over the ground (hence the name Agate Mtn!). You just need to pick out your favorites. Everyone left with their treasure chests full.















FIELD TRIP TO SYCAMORE CREEK

Saturday, April 24, 2021

Photos by Bill Freese

A beautiful sunny day in the 70's. Could not ask for a better day, weather-wise. We had a total of 21 people including me, attend this trip. As you can see by all of the pictures, everyone found great pieces of red jasper and other specimens. A great day to hike and pick up rocks with your friends.

JASPER

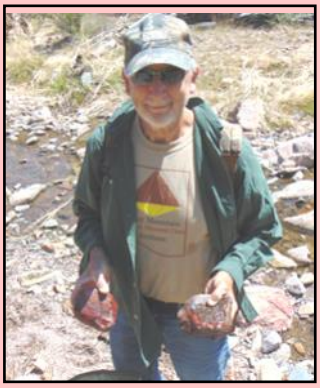
Did this one go to a new home??????? WOW!

Sycamore Creek continued on page 9….

….Sycamore Creek. continued from page 8












….Crinoids/Blastoids/Cystoids. continued from page 2

- Some are stalked, and "rooted" to a substrate ("sea lilies"); some are free-swimming ("feather stars"). Most modern species are unstalked and free-swimming.

- There are 6000 described fossil species; only 600 species are extant.

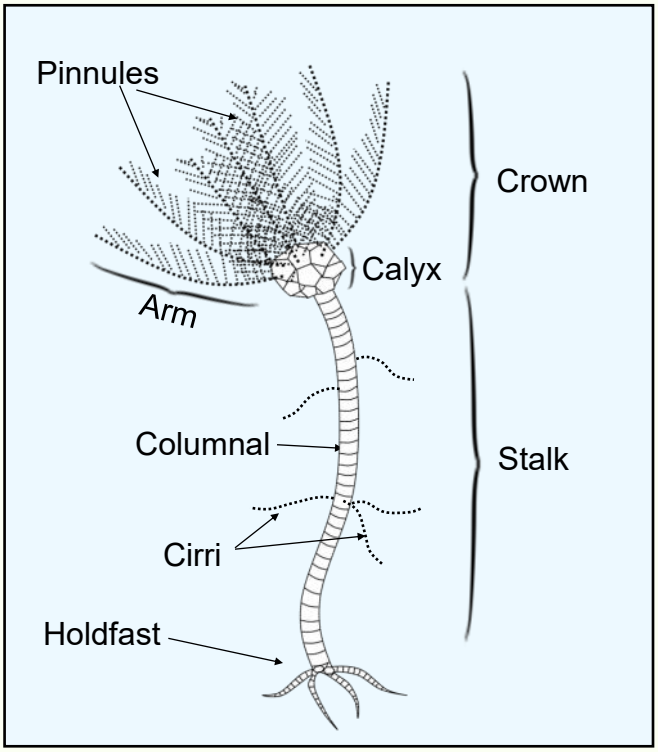


FIGURE 1 BASIC CRINOID BODY PLAN The stalk of crinoids is composed of a stack of disks or columnals, the calyx is composed of fused plates (many of them pentagonal), and the arms and pinnules are composed of many articulate plates. Upon death, unless buried quickly, the crinoid disarticulates, and each plate becomes part of the sediment, to be scattered by currents and scavengers. It is for this reason that whole crinoid fossils are relatively rare.

Graphic by Susan Celestian

► Blastoids, nicknamed "sea buds" -- although they too are NOT plants:

The general morphology is similar to that of crinoids. However, the "arms" surrounding the mouth are called *brachioles*, and were not feathery. See Figures 2 and 3. Some were stalked, and "rooted" to the substrate; others were unstalked, with the holdfast attached directly to the *theca* ("head").

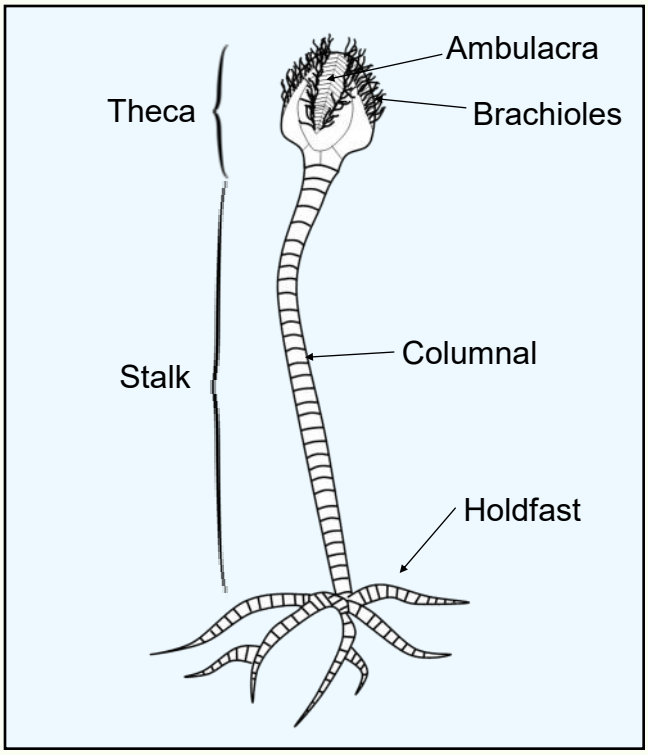


FIGURE 2 BASIC BLASTOID BODY PLAN
Like crinoids, all components of a blastoid were composed of fused plates of calcite. Rarely, is a complete blastoid preserved. Usually only the sturdy theca is found in the fossil record.

Graphic by Susan Celestian

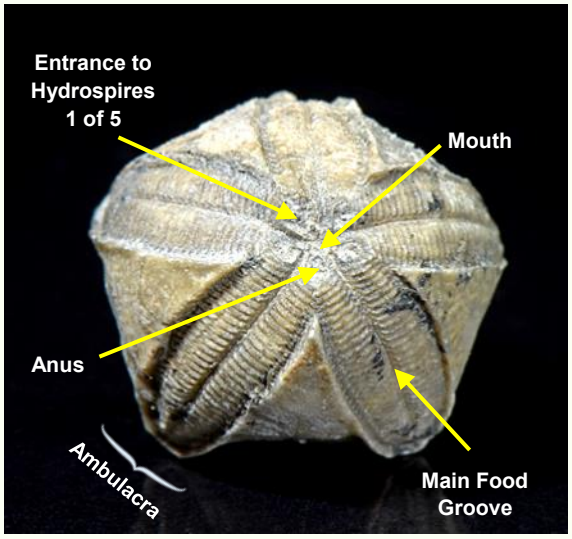


FIGURE 3 BLASTOID THECA ANATOMY
Some of the body parts are labelled: the *ambulacra* (including *food groove*) support arms that guide food to the mouth); *hydrospires* are internal respiratory organs.

Photo by Stan Celestian

Crinoids/Blastoids/Cystoids continued on page 11….

….Crinoids/Blastoids/Cystoids. continued from page 10

► Cystoids

- The general morphology is most similar to that of blastoids. However, the "arms" surrounding the mouth were less regular; and the anus was on the side of the body. See Figure 4.
- They are more primitive than crinoids and blastoids.
- They are distinguished by having triangular pores, sometimes clustered and sometimes widely distributed over the body.
- Their body plates were generally very irregularly arranged.
- Most were stalked.

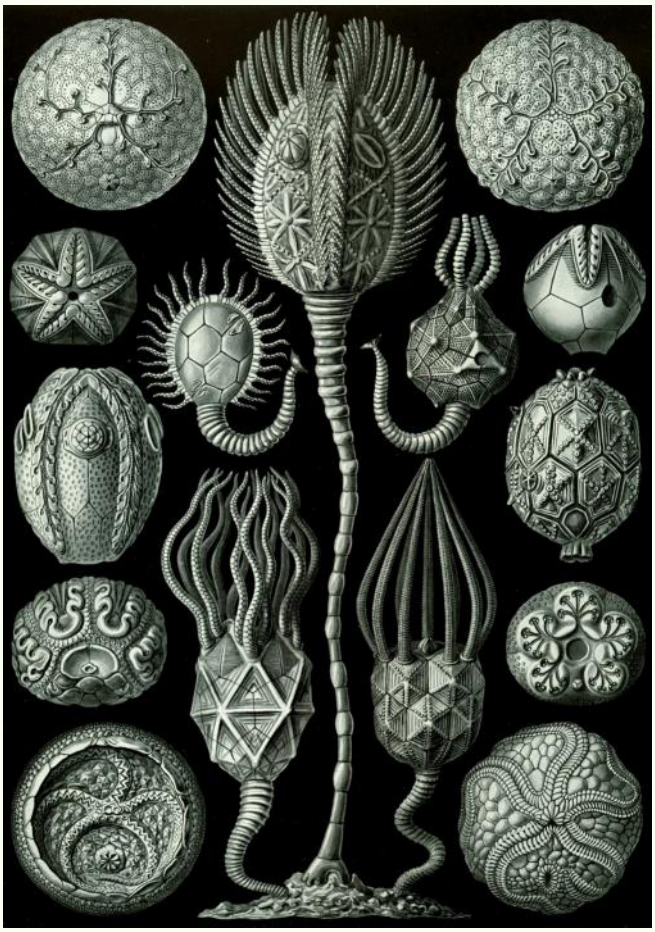


FIGURE 4 CYSTOIDS This diagram is from "Cystoidea" out of Ernst Haeckel's *Kunstformen der Nature*, 1904. *Public Domain due to age.*

Crinoid, Blastoid and Cystoid habitat:

► Based on the limestones in which crinoid fossils are found, during the Paleozoic, "gardens" of stalked crinoids lived in shallow sea. (Today, stalked crinoids tend to occupy deeper water; while free swimming crinoids dominate in shallower water.)

► Blastoids & Cystoids lived in environments similar to that of crinoids; however also successfully occupied deep water carbonate settings.

Crinoid, Blastoid and Cystoid habit:

► Feeding habits: Both crinoids and blastoids are (were) suspension feeders, snagging plankton, or other organic detritus, as they happen by.

The flexible arms (crinoids) or brachials (blastoids & cystoids) set up currents that draw/drew in food particles. Tube feet along the pinnules (crinoids) or ambulacra (blastoids & cystoids) move(d) food particles to the mouth.

► Mobility: As mentioned previously, most modern crinoids are stalkless -- and they crawl and swim. Modern stalked crinoids are capable of crawling, We might surmise that blastoids and cystoids had similar capabilities.

Some fossil crinoids have been found attached to floating wood. And at least one genus had a large float, in place of a holdfast. Both lifestyles allowed the individuals to move with the waves and currents, greatly expanding their range. See Figure 5.

► Reproduction: Crinoid individuals are either male or female. Eggs and sperm are released into the water. Fertilized eggs hatch to free-swimming larvae, that after a few days attach to the substrate, where they metamorphose into adults. (Once again, blastoids and cystoids probably reproduced in the same of similar way.)

Crinoids/Blastoids/Cystoids continued on page 12….

….Crinoids/Blastoids/Cystoids. continued from page 11

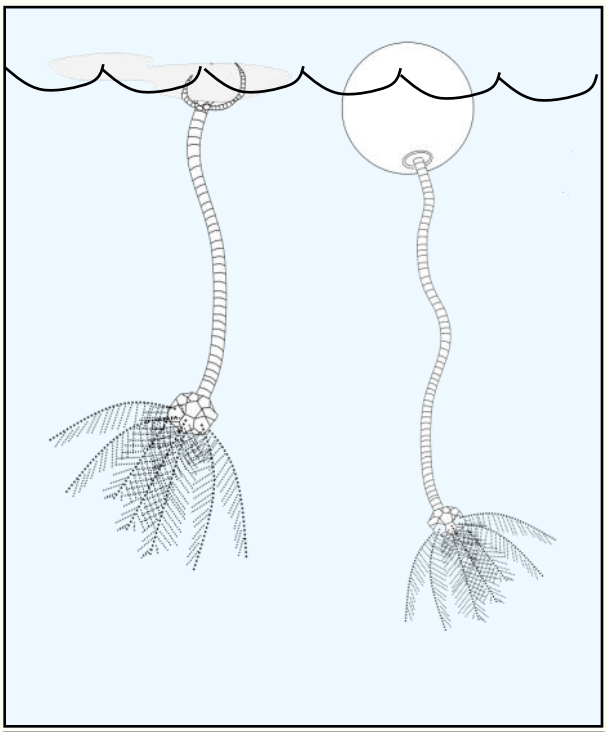


FIGURE 5 FLOATING CRINOIDS Some fossil crinoids enjoyed cruising about the world's oceans, either by hitching a ride on a floating piece of wood or other debris, or by developing a float, called a *lobolith*.

Graphic by Susan Celestian

- Respiration: Crinoids - The thin-skinned tube feet along the arms absorb oxygen, and gas exchange takes place all along the arms. Blastoids - gas exchange took place within pouches called *hydrospires,* straddling the interior surface under the ambulacra,. Folded tissues in the pouches allow increased surface area for absorption of oxygen and release of waste gases, with access to the water achieved at apertures around the center of the theca (head). Presumably, cystoids had gas exchange systems similar to their relatives. (See Figure 3)

Interesting facts:

- Some limestones (especially during the Mississippian) are made up of almost exclusively crinoid plates.
- I some places in England, crinoid stem discs are called "*fairy money*". When I was a kid in Indiana, we called them Indian Beads, and would string them together into necklaces.
- Modern crinoids can detach themselves from their stalks, and crawl away. They can also detach and regrow arms. In fact, in general Echinodermata have the ability to regenerate, even when losing up to 75% of their body.
- The longest fossil stalked crinoid is 130 feet long.

Images of fossil crinoids, blastoids and cystoids follow in Figures 6-20.

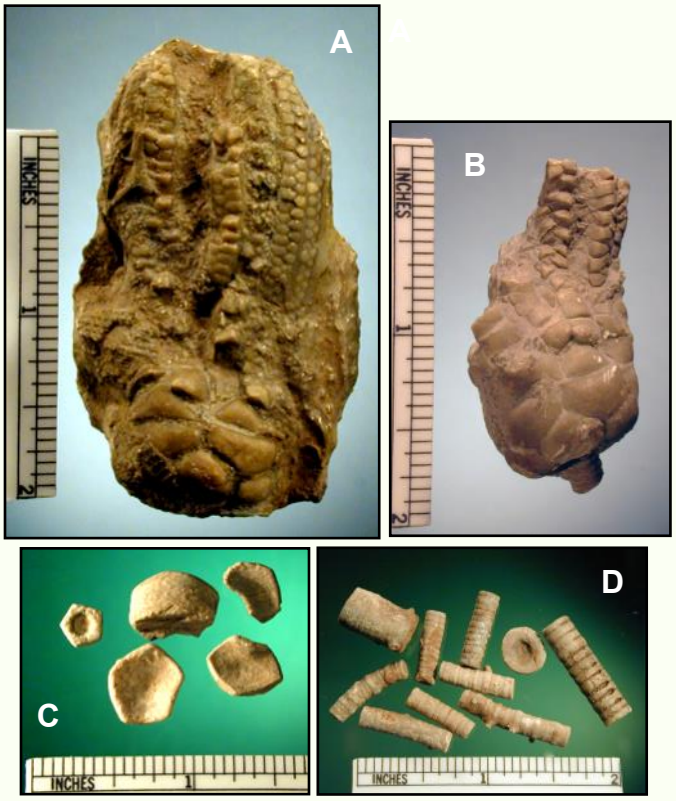


FIGURE 6 AGLAOCRINUS sp. These fossils are out of the Pennsylvanian-age Naco Formation, near Payson, Arizona. Specimens A & B are preserved crowns -- a relative rarity in Arizona. Note the calyx and segmented arms. C & D are individual plates and stem fragments - very common in the Naco.

Photos by Stan Celestian

Crinoids/Blastoids/Cystoids continued on page 13….

….Crinoids/Blastoids/Cystoids. continued from page 12

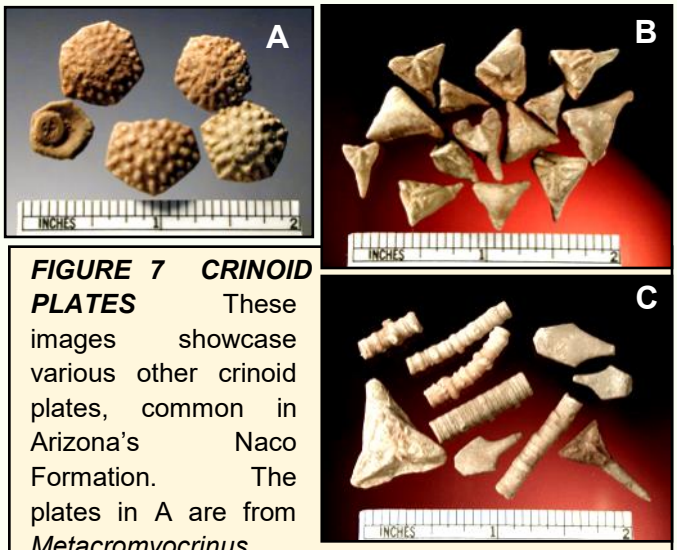


FIGURE 7 CRINOID PLATES These images showcase various other crinoid plates, common in Arizona's Naco Formation. The plates in A are from *Metacromyocrinus* sp.; while B & C are from *Eirmocrinus jeani*. All of these plates are from the calices (plural of calyx). *Photos by Stan*

FIGURE 8 TYPICAL CRINOID FOSSILS These segments of different crinoid fossils are what one typically finds in the fossil record. Note the circular knobs on the right-hand image. These are points at which either cirri or branches were attached. *Photos by Stan Celestian*

FIGURE 9 STAR-SHAPED CRINOIDS Crinoid columnnals are often star-shaped, or have star/flower-shaped central holes. *Photo by John St John licensed by CC BY 2.0*. Go here or here for

FIGURE 10 STAR-SHAPED CRINOIDS These crinoid columnnals are beautifully star-shaped. They come out of Jurassic rocks in Morocco. *Photo used by permission of fossilsbyjosef, an eBay vendor.*

FIGURE 11 BIG SLAB OF CRINOIDS The top image is of a portion of a huge (about15'x9' or 15m^2) slab of shaley limestone, upon which lie many, many very long-stemmed crinoid fossils (*Traumatocrinus guanlingensis sp*). Stems probably range from 15-20 feet long. The lower two images are close-up views, showing the exquisite preservation. This slab is on display at the YiFu Museum in the China University of Geosciences, in Hubei, China. *Photos by Susan Celestian*

The inset at the top is yours truly standing (for scale) beside a smaller slab, at the Tucson Show. The Mississippian sea in China must've been quite the 'garden'!

Crinoids/Blastoids/Cystoids continued on page 14….

….Crinoids/Blastoids/Cystoids. continued from page 13

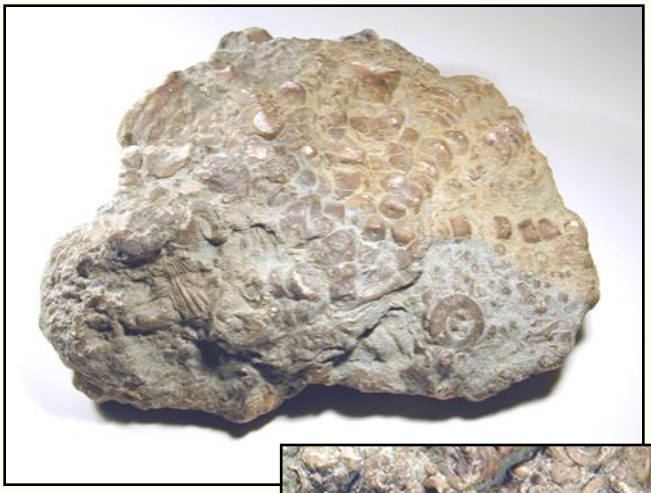


FIGURE 12 STOBO BIOHERM
A bioherm is a mound of organic material. This bioherm is exposed in a roadcut about 5 miles east of Bloomington, Indiana on SR46. It is a silty limestone composed of nearly 100% crinoid fragments, and occurs in the Mississippian Edwardsville Formation. The top photo is of a crinoid "root" base -- segmented roots radiating out from the central stem. It is a bit odd, as by and large the crinoid remains are disarticulated. The deposit was probably accumulated during a high energy event, such as a storm. *Photos by Stan Celestian*

FIGURE 13 MACROCRINUS MUNDULUS
Crawfordsville, Indiana is the site of over 60 identified species of fabulously preserved crinoids -- almost half of the species are known as complete fossils. The formation that has produced the most fossils is the Mississippian-age Edwardsville Formation. During the Mississippian, dense populations of crinoids occupied what is now southern Indiana. Storms caused periodic silt flows or slumping that quickly buried many creatures. Being protected from further erosion, they are beautifully preserved. *Photo by Stan Celestian*

FIGURE 14 UNIQUE CRINOID
These two images are of the crinoid, *Eretmocrinus sp.*, known in the Carboniferous of Canada and the United States. In both cases, the fossil is from Indiana. *The upper image is on display at the Museo Civico di Storia Naturale di Milano and used with permission under the Creative Commons Attribution -Share Alike 3.0 Unported license. The lower image is by Stan Celestian.*

Crinoids/Blastoids/Cystoids continued on page 15….

….Crinoids/Blastoids/Cystoids. continued from page 14

FIGURE 15 FLOATING CRINIOD This tangle of arms is *Antedon pinnulate* was a free-swimming crinoid from the Upper Cretaceous of Haqel, Lebanon The slab is about 3.5" across.

Photo by Stan Celestian

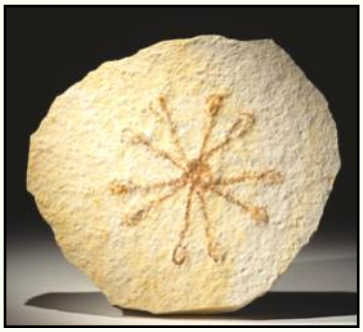


FIGURE 16 FLOATING CRINOID This is *Saccocoma pectinatus* -- thought to be a floating crinoid from the Jurassic Solnhofen of Eichstatt, Bayern, Germany.

Photo by Stan Celestian

FIGURE 17 MOROCCAN CRINOID This is the beautifully preserved crown of *Scyphocrinites sp. aff. Elegans,* from the upper Silurian of Djebel Issoumour, Alnif, Morocco. The plate is 10" x 8".

Photo by Stan Celestian

FIGURE 18 CRINOID LOBOLITH Here are views of different floats or *loboliths,* probably from now-extinct *Scyphocrinites* (or related genus) crinoids, like the one in Figure 16. Attached to this float, the crinoids would go where the currents took them. In the lower images, you get a glimpse into the internal structure -- gas bladders that cause the floatability.

Photos by Stan Celestian

Crinoids/Blastoids/Cystoids continued on page 16….

....Crinoids/Blastoids/Cystoids. continued from page 15

FIGURE 19 BLASTOID
To the right, is an unusually complete blastoid fossil. It is *Pentremites godonii*, from the Upper Mississippian Indian Springs Formation, near Sulfur, Indiana. Enlarge the image, and you will be able to see the brachioles, extending up from the calyx. *Photo by James St. John is licensed under CC BY 2.0*

Below are images of individual blastoid calyxes from the same locality, in Indiana, collected by Stan and Sue Celestian. *Photos by Stan Celestian*

FIGURE 20 CYSTOID
This is *Caryocrinites ornatus* out of the Lower Silurian Massie Shale /Osgood Shale, Ripley County, Indiana *Photo by James St John is licensed under CC BY 2.0*

Source: https://cliparts.zone/clipart/88666

GENERAL RESOURCES FOR CRINOIDEA, BLASTOIDEA & CYSTOIDEA

https://en.wikipedia.org/wiki/Echinoderm
https://courses.lumenlearning.com/wm-biology2/chapter/phylum-echinodermata/
https://en.wikipedia.org/wiki/Crinoid#Fossil_crinoids
https://geokansas.ku.edu/crinoids
https://oneworldoneocean.com/blog/blue-zoo-crinoids/
http://www.fossilcrinoids.com/
https://www.bgs.ac.uk/discovering-geology/fossils-and-geological-time/crinoids/
https://www.youtube.com/watch?v=nlPtPEiNaeo
https://biocyclopedia.com/index/general_zoology/class_crinoidea.php
http://coo.fieldofscience.com/2010/02/beginners-guide-to-blastoids.html
https://en.wikipedia.org/wiki/Blastoid
https://isgs.illinois.edu/outreach/geology-resources/cystoids
https://www.britannica.com/animal/cystoid
https://en.wikipedia.org/wiki/Cystoidea
www.flickr.com

Crinoid

A gentle ocean
Swaying the animal
In the watery breeze,
Jointed stem
Bending slightly
Under the flutters
Of its feathery head feeding.
A beautiful chalk flower of
the sea.
I hold in my hand
And ancient bone
A stone
A circle
Beautiful
A ring in a ring.
All that remains of the sea lily
In the ocean
That once was.

By Troy Camplin

...Ulexite continued from page 2

Kern County, California. The visitor's center at the mine is quite interesting, and there is usually a pile of rocks in the parking lot, through which you may scour for interesting specimens.

Other significant localities are Desert Valley, Inyo Co., Nevada; Dagget, San Bernadino Co., California; Bigadic, Turkey, Atacama Desert, Chile; and Kazakhstan.

See Figures A-**E**

FIGURE A ULEXITE NODULE This knobby nodule is composed of thin fibers of ulexite, from Boron, Kern Co., CA. *Photo by Robert M Lavinsky, and by permission Creative Commons Attribution-Share Alike 3.0*

FIGURE B ULEXITE In this specimen, acicular needles of ulexite grow on a base of colemanite, mined from the U.S. Borax Boron Pit, Boron, Kern Co., CA. *Photo by Rock Currier and by permission Creative Commons Attribution 3.0*

FIGURE C ULEXITE NODULE This is a very typical specimen of fibrous white to clear ulexite. *Photo by Andrew Silver, USGS, Public Domain*.

FIGURE D ULEXITE This unusual growth form of ulexite is called, *clamshell*, and is uncommon in the mine at Boron, Kern Co., CA, where it was found. *Photo by Robert M Lavinsky, and by permission Creative Commons Attribution-Share Alike 3.0*

FIGURE E OPTIC ULEXITE In a mass of parallel ulexite fibers, each fiber acts like a fiber optic cable. The light bounces back and forth along the c-axis within each fiber, and images below are transferred to the surface -- you are not looking through a transparent material to see the image beneath the specimen. (**a**) *Photo by Dave Merrill, by permission Creative Commons Atribution-Share Alike 2.0* **(b)** *Photo by Zeichner, Public Domain*

Ulexite continued on page 18..

...Ulexite continued from page 17

GENERAL RESOURCES FOR ULEXITE

https://en.wikipedia.org/wiki/Ulexite#:~:text=Ulexite%20is%20a%20structurally%20complex,polyhedra%20and%20massive%20boron%20units.

https://www.mindat.org/min-4085.html

http://webmineral.com/data/Ulexite.shtml#.YGoOha9Kg2w

http://www.galleries.com/Ulexite

https://www.minerals.net/mineral/ulexite.aspx?img=/image/8/142/ulexite.aspx?ver=mobile

https://commons.wikimedia.org/wiki/Main_Page

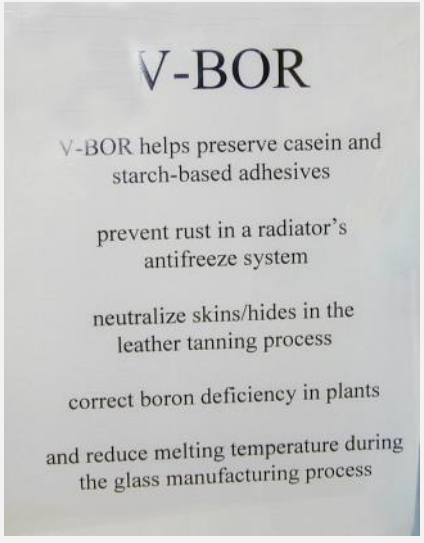
USES OF BORON

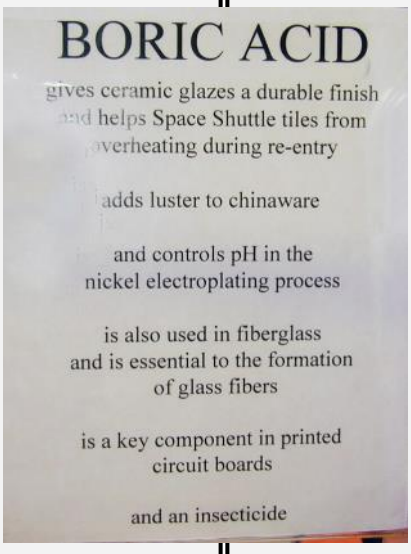
* Fuel igniter for rockets, flare guns and pyrotechnics.
* Green color in fireworks.
* Manufacture of borosilicate glass, such as Pyrex, fiberglass textiles, insulation.
* Medicines: eye drops, washing powder, tile glazes.
* Flame retardant (sodium oxaborate)
* Regulate nuclear reactions & as neutron detector.
* Compound in detergent, water softeners, soap, detergent, pest control, and agriculture.

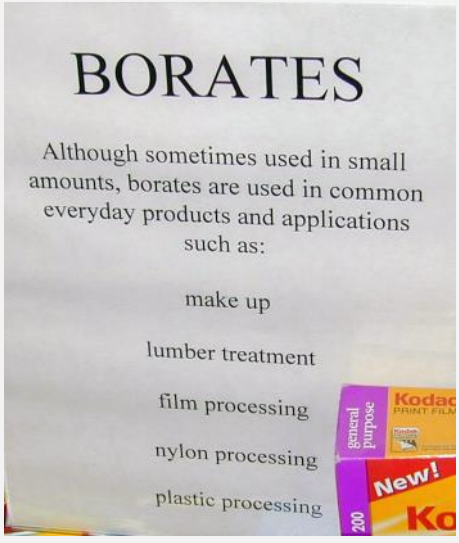
5 B

Boron
10.811

Some of the many products that include boron in their production. *From an exhibit at Trona, California; photos by Susan Celestian*







15....

UPCOMING FIELD TRIPS & MEETINGS

WHERE: Date Creek
WHEN: Saturday, April 10, 2021
WHAT: Quartz Crystals, Hematite ps Pyrite

WHERE: Tucson Shows
WHEN: Saturday, April 17, 2021
WHAT: Minerals, Rocks, Fossils, Jewelry, Meteorites….

WHERE: Agate Mountain
WHEN: Wednesday, April 21, 2021
WHAT: Agate

Polished agate from Agate Mountain *Photo used with permission of safossils*

Quartz after Pyrite from Agate Mountain *Photo by Stan Celestian*

WHERE: Sycamore Creek
WHEN: Saturday, April 24, 2021
WHAT: Red Jasper

Photos by Susan Celestian

WHERE: Lynx Creek
WHEN: Wednesday, May 5, 2021
WHAT: Gold Panning

WHERE: Christopher Creek area & Fossil Site
WHEN: Saturday, May 15, 2021
WHAT: Zebra Chert, Naco Fm. Fossils
Go to Sue Celestian's Flickr album for photos and 2 pages of photos of common fossils, that you may download and print.

DATES 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

WIRE WRAPPING

Watch for an email announcing the resumption of the wire wrapping group

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. 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: Cynthia Buckner….Cbuckrun1@q.com
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Membership: Tiffany Poetsch tnpoetsch@gmail.com
Editors: Susan & Stan Celestian…… azrocklady@gmail.com
Field Trip: Bill Freese ... bfreese77@cox.net
Mine Steward: Stan Celestian……. stancelestian@gmail.com
Show Chair: Ed Winbourne
Trustees:

Cynthia V	Claudia M
Susan C	Tiffany P
Bob E	Jim R
Jennifer G	Witt R
Don R	Howard R
Jessica C.	Rebecca S
Johnaton M	Joe G
Clark L	Bob S.

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

DMRMCLUB@GMAIL.COM

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

Meeting Dates for 2021

Jan 5, Feb 2, Mar 2, Apr 6, May 4, June 1, Sept 7, Oct 5, Nov 2, Dec 7

MEETING VIA ZOOM ON TUESDAY, APRIL 6. Look for an email with the link.

Words of Wisdom

passed along by our own

Bob Evans

UPCOMING AZ MINERAL SHOWS

NOTHING SCHEDULED
FOR A WHILE.

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

Believe it or not, this is a cluster of lab-grown Smoky Quartz. It was grown in Cleveland, Ohio, by Vlad Klipov, of R & D XTALS, Inc)

The large crystal in the back is part of a Japan Law twin. *Photo by Stan Celestian*

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 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

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 - MAY

You are invited to return to NMVC Open Studio. Lapidary & Silversmithing on Thursdays and the first, third and fifth Saturdays in a month, from 8:30 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.

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

May – Thursday's dates are 6, 13, 20, 27
May – Saturday's dates are 7, 21

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.** Email Shirley at crystalc17@gmail.com

May - Monday's dates are 3, 10, 17, 24, 31