

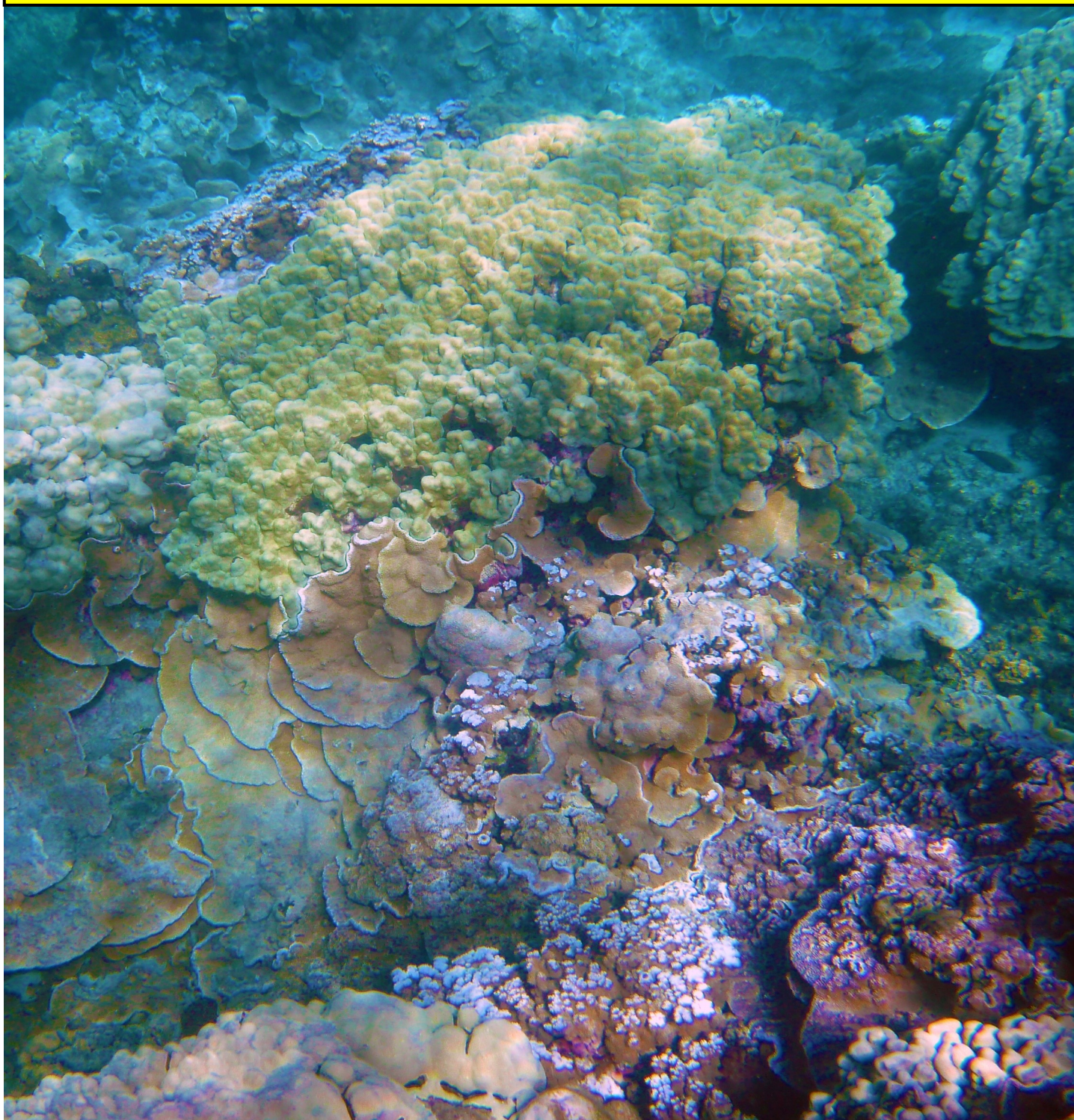
DAISY MOUNTAIN ROCKCHIPS

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 5, ISSUE 3

MARCH 2020

MEETINGS AND FIELD TRIPS CANCELLED UNTIL FURTHER NOTICE DUE TO COVID-19 CONCERNS



A garden of corals in the now-buried (by lava) Kapoho Tidepools, Paho, Hawaii. This photo illustrates the colors missing from the fossil record. And it displays the potential growth forms -- many of which are related to the amount of turbulence in the water. Given species may be robust and massive in turbulent environments, and more delicately branching in quiet.

Photo by Susan Celestian

FOSSILS: PART V

Kingdom: Animalia

Phylum: Cnidaria

By Susan Celestian

More complex than Porifera (sponges), the phylum Cnidaria includes corals, sea anemones, sea pens, jellyfish, box jellies, hydrozoa (which include the Portuguese Man O'War), stalked jellyfish, and other lesser known groups and species. Of these, by far the majority in the fossil record are the corals, because they include species that create a hard calcium carbonate structure; while the others are largely soft-bodied with no hard parts.

The name, Cnidaria, is derived from *knidē*, which is Greek for "nettle". The members of the phylum are distinguished by possessing **cnidocytes** -- specialized cells holding **nematocysts**, which one can liken to a poisoned harpoon on a rope, usually arranged within tentacles. Touching a cnidarian can trigger the release of nematocysts. They shoot out and stab potential prey, releasing venom to stun, paralyze, or kill the target. (See Figures 1-3) Instead of nematocysts, some cnidarians release *spirocysts* (sticky threads that entangle the prey) or *ptychocysts* (threads used to build protective tubes which the organism occupies).

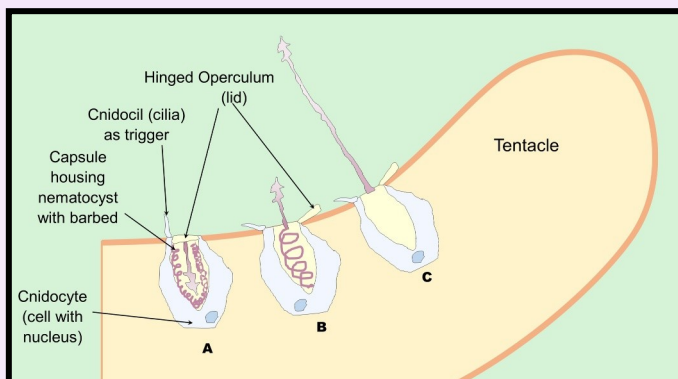


FIGURE 1 NEMATOCYSTS Within the tentacles of Cnidarians, there are specialized cells, called cnidocytes, which house nematocysts, capsules housing poisoned and barbed threads. When nearby cnidocil (cilia or hairs) are disturbed, the operculum (lid) pops open, and the barb is shot out, piercing the prey (the firing of the barb may also require a chemical stimulus in addition to the physical disturbance). In the sequence above, A depicts an undischarged barb, B is a barb discharging, and C is a fully discharged barb. They can be fired only once, and it takes about 48 hours to replace.

Illustration by Susan Celestian

Cnidaria continued on page 6...



GRAPHITE

By Susan Celestian

Graphite was known as plumbago, since 1739, but was named for the Greek *graphein* ("to write") by Abraham Gottlieb Werner in 1789. It is one of four minerals composed of carbon, the others being: diamond, chaoite, and lonsdaleite. *Diamond -- the hardest natural substance known on Earth -- has the same composition (but different crystal structure) as Graphite -- one of the softest natural substances.*

Chemical Formula - C (Carbon)

Crystal System - Hexagonal (4 axes -- 3 of equal length and oriented 120° from each other in a single plane; a 4th axis perpendicular to the other 3.

<https://www.mindat.org/min-1740.html>

(Scroll down to *Crystallographic forms of Graphite*. Putting your cursor on the crystal, you can turn the crystal for 3-D viewing.)

Growth Forms/Habits - Tabular, massive, granular, compact

Hardness - 1-2

Color - Steel-gray to black

Luster - Sub-metallic, greasy

Streak - Gray to black

Specific Gravity - 2.09-2.23

Cleavage - Perfect in one direction

Other - Good electrical and heat conductor, high thermal stability, inert, high lubricity

<https://asbury.com/materials/graphite/>

Most graphite forms during metamorphism, particularly at convergent tectonic plates, where organic-rich limestones, shales, and coal seams experience high heat (on the order of 1400°F) and pressure (75,000 lb/in²), as they subduct to great depths. And so graphite is found disseminated in marble, schist, and gneiss. See Figures A-D.

Graphite continued on page 13...

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March 3, 2020

Board of Trustees Meeting Minutes

- In attendance: Bob E., Clark L., Claudia M., Cynthia B., Deanne G., Don R., Ed W., Howard R., Jessica C., Jonathan M., Rebecca S., Stan C., Sue C., Tiffany P. and William F.
- February minutes approved
- Cynthia B. discussed our finances
 - ◊ Most vendors have paid
 - ◊ Posters and flyers invoice have not come in yet
- Bob Jones will be the speaker in May
- Corona virus could affect show
 - ◊ If school closes, will have to refund vendors
 - ◊ Will have sanitizer available during show
- Show preparations were discussed
 - ◊ Everything is ready to go
- Stan C. talked about the claims committee
 - ◊ Looking into BLM claim for Contact Mine
 - ◊ A gold claim was suggested
 - * Water could be an issue on the property
 - ◊ After the Bullard Mine trip, they will stop by to check out Contact Mine location again
- GroupWorks sent us an offer for additional platform
 - ◊ We need to keep communication simple
 - ◊ Not many people login to GroupWorks
 - * It was voted against adding the additional platform
- Claudia M. discussed the scholarship for 2020
 - ◊ No one has applied yet
 - * Schools are aware and have all the information needed
 - We are not getting to the students
 - * Other options for where to give the money was discussed
 - Have a showcase of our club in the schools
 - Money could go to educator/s
 - ◊ A subcommittee meeting was established to explore options, discuss the scholarship issues
 - * Took place Friday March 6th
- The vision of the club was discussed
 - ◊ Because of the size change, maybe other things need to be investigated
 - ◊ There should be a clearer, more concise mission statement
 - ◊ What can we do with the earnings of the club?
 - * Lapidary shop
 - * Something the whole club can enjoy and expand our love of gems
 - ◊ There will be a follow up to this
- Thank you so much Nancy G. for creating a club Instagram!!
 - ◊ Check it out @daisymountainrockmineralclub

Respectively submitted: Rebecca Slosarik

March 3, 2020

General Meeting Minutes

- Thank you to Patti Polk for her discussion on agates – Thanks for keeping our rockhounding dreams alive!
- Raffle was led by Robin S. and Deanne G.
- Cynthia B. discussed the financial report
 - ◊ \$199 raised by raffle
- Show & Tell
 - ◊ Stan C.
 - * Coral and sponges
 - ◊ Steven G.
 - * Thundereggs and other specimens
 - ◊ Ed W.
 - * Druzy Quartz and Amethyst, from Contact Mine
- Show preparations were discussed by leaders
 - ◊ Jeanne S. and kid's corner
 - ◊ Robin S. and raffle
 - ◊ Jonathan M. and admissions
- William (Bill) F. updated us on the field trips
 - ◊ DoBell Ranch was moved due to weather
 - ◊ Always look for emails for updates to all trips
 - * Can also look on GroupWorks, our website, or our Facebook page to get more information regarding trips
- Shirley D. announced the Arizona Mining, Mineral and Natural Resources Education Museum open house on March 28th
 - ◊ This place is great for rockhounders
 - ◊ There will be a stamp mill demo during open house
 - ◊ This was postponed on March 15th

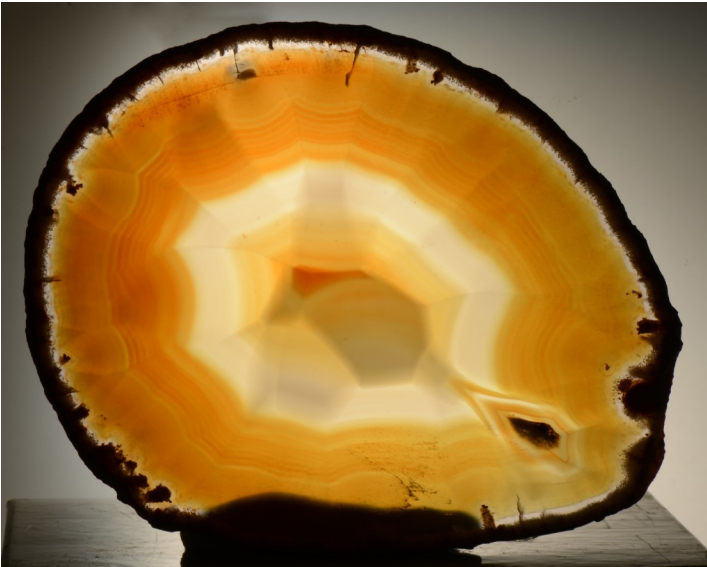
Respectfully submitted by Rebecca Slosarik

March 12, 2020

Emergency Show Meeting Minutes

- In attendance: open meeting, no attendance necessary (13 members were present)
- Albuquerque show was cancelled due to governor issued compliance
- This is becoming a very serious issue
- Pros and cons were discussed on cancelling versus continuing with the show
 - ◊ Pros of continuing the show
 - * This is the vendors livelihoods at stake
 - * We can put in place procedures that minimize interaction
 - * Spent almost \$2000 on the show already
 - Most spent on leaflets/flyers/posters
- Cons of continuing the show
 - ◊ School might cancel anyways
 - ◊ We would not want to be the source of infection
 - ◊ Some vendors and volunteers have already dropped out
 - ◊ There would be poor attendance

Emergency Meeting continued on page 22....



Iris Agate, Brazil Photo by Stan Celestian, Courtesy of Natural History Museum of Los Angeles County



Fortification Agate, Gila Bend Mts, AZ Photo by Stan Celestian

Upcoming Meeting Programs

Thanks to Ed Winbourne for scheduling the following speakers: MAY BE CANCELLED RE: COVID-19

- April - Wayne Helfand AT the Rare Earth Gallery in Cave Creek
- May - Bob Jones

Words of Wisdom

from our very own

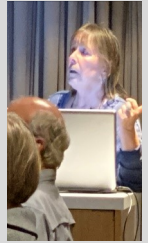
Bob Evans



When you ask me, "Hey Bob, what are you doing?" And I reply, Nothing." It means I am literally doing nothing, not that I am free.

March Speaker - Patti Polk Agates

Patti Polk, a rabid agate collector, author, and victim of 'Rock Pox' spoke about *Agates and Jaspers of the Southwest Arizona, California, and New Mexico*. She showed pictures of many beautiful specimens in her collection, and spoke about how agates are described and classified -- with applied terms that are largely descriptive of the agates' visual characteristics, such as banded, flame, floater, flower, fortification, lace, moss, orbicular, plume, picture, snowflake.....



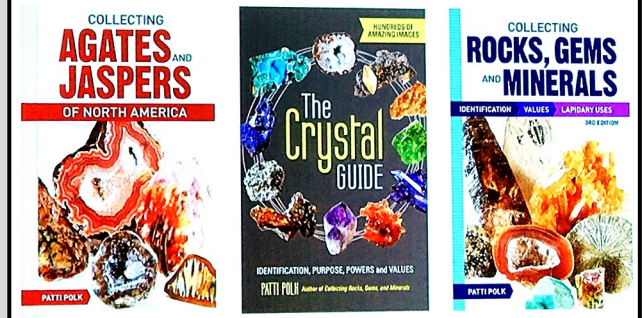
In addition, jasper and agate are classified on the basis of their origin: geode, limb cast, nodule, polyhedral, pseudomorph, vein, sedimentary, thunderegg.....

Some of the localities she highlighted were: the Arizona desert; Cady Mts in California; Guadalupe near Morgan Hill, California (poppy jasper), and Arizona's Mulligan Peak (purple agate - <https://www.mindat.org/loc-131530.html>).



Dot or Orbicular CA

Patti Polk Books



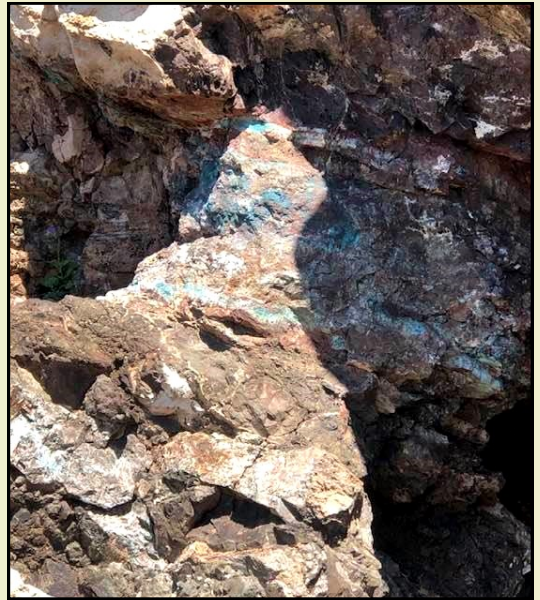
Just a note: There is a beautiful coffee table book written by another Arizona agate collector: *Agates: The Pat McMahan Collection* by Pat McMahan.

FIELD TRIP REPORT BULLARD MINE MARCH 7, 2020

Most Photos by Deanne Gosse



Nothing better than chrysocolla and desert wildflowers!



Trip leader Ed Winbourne doing some armchair rockhounding :-).

Photographer unknown

...Cnidaria continued from page 2



FIGURE 2 NEMATOCYSTS This light microscopy image displays an assortment of nematocysts removed from tentacles of a *Chironex fleckeri* (a box jelly), magnified 400x. Image by Brinkman DL, Aziz A, Loukas A, Potriquet J, Seymour J, Mulvenna J -- and used courtesy of [Creative Commons Attribution-Share Alike 3.0 Unported license](#).

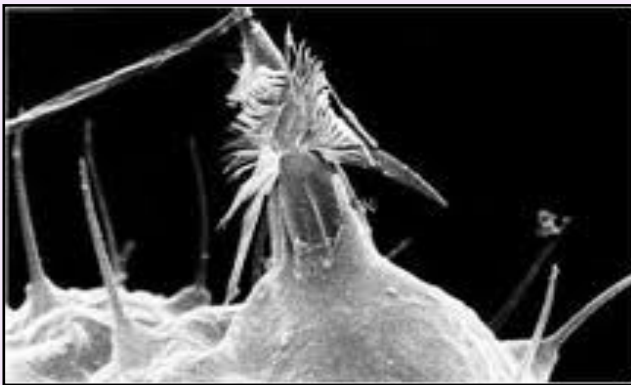


FIGURE 3 DISCHARGED NEMATOCYST Scanning electron image of a barbed nematocyst. Image courtesy of Public Domain via [Creative Commons Attribution-ShareAlike License](#)

Other characteristics of the Phylum Cnidaria are:

- There are two body plans -- both radially symmetrical: medusa and polyp. Medusa are bell-shaped or umbrella-like. They generally have a ring of tentacles around a

central mouth/anus centered on the concave side. Polyps are essentially tubes with a central mouth, surrounded by tentacles. Species may exist only as medusae, as only polyps, or they may undergo both forms during their life cycles. See Figure 4.

- Features that are not always present, but are diagnostic as coralline, are **septa** - radiating vertical walls that divide up the space occupied by a **zooid** (individual coral polyp). See Figures 19, 22-23, & 27-28.

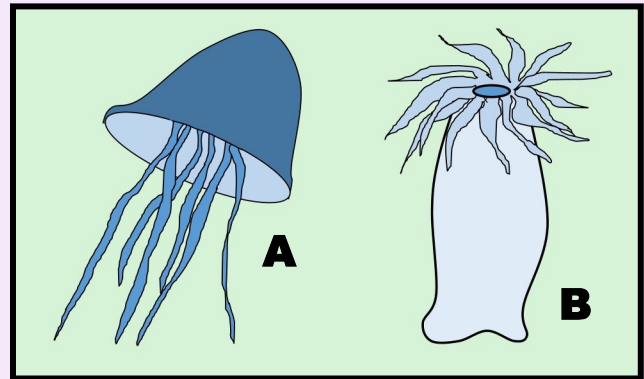


FIGURE 4 CNIDARIAN BODY PLANS The two body plans within the phylum Cnidaria are Medusa (A) and Polyp (B).

Illustration by Susan Celestian

- As stated earlier, Cnidarians are more complex than Porifera. They have more specialized membranes, digestive systems (although the 'mouth' also serves as the 'anus'), a simple nervous system, and in some, sensory organs.
- Reproduction can be sexual or asexual (budding).
- Many Cnidarians are mobile. Medusae can 'swim' by flapping the edges of the bell, and can thusly move vertically within the water column, and exert some control over direction. And of course they drift in currents. Some polyp forms can creep or crawl across the substrate. (Stan and I had a big sea anemone, named Maude, that crawled around its tank -- trampling over whatever didn't get out of the way.) Go to <https://www.youtube.com/watch?v=ysOmq71fcMk> to see another anemone move about. Additionally, polyps may attach to drifting materials, such as wood, seaweed, trash -- or to the shells of mobile animals, such as snails.

Cnidaria continued on page 7....

...Cnidaria continued from page 6

- There are at least 11,000 living species.
- Geologic Range: Precambrian (perhaps as long ago as 741 million years) to Recent
- By far most species are marine, inhabiting depths from tidal zones (exposed at low tide), down to at 6.2 miles. There are freshwater forms.
- Corals are exclusively marine. They may occupy water that is near freezing, but coral reefs are most successful in warm (68°-82°F), bright, shallow (under 150 feet deep) water, where it is easier to deposit the calcium carbonate of their skeletons.
- In addition, many modern reef-building corals harbor symbiotic photosynthesizing algae, called zooxanthellae (*zō-zan-thēl-ē*). Hence the requirements of light and warmth.
- Cnidarian species are carnivorous and obtain nutrition via predation or parasitism, with additional input from symbiotic algae, or by absorbing nutrients dissolved in their surrounding water.
- This phylum is divided into 5 classes:
 - ◆ Class Anthozoa - sea anemones, corals, sea pens
 - ◆ Class Scyphozoa - swimming jellyfish
 - ◆ Class Cubozoa - box jellyfish
 - ◆ Class Staurozoa - stalked jellyfish
 - ◆ Class Hydrozoa - hydroids and siphonophores (example = Portuguese Man O'War)

As mentioned earlier, the fossil record is rife with corals, as they secrete a hard shell of calcium carbonate. Corals are polypoid individuals that may live a solitary or colonial lifestyle. And they are extremely important as reef-builders. The actual organisms are not generally (if ever) fossilized, but their "apartment building" is.

Cnidarians are all soft-bodied (if we exclude coralline structures). And those bodies are mostly water -- a jelly-like substance between two very thin walls. This is not the easiest to fossilize, as upon death, deterioration is rapid and it does not take much in the way of currents, waves,

or other disturbance to demolish the remains. However, in some special circumstances the soft bodies of jellyfish, anemones, and hydroids might be preserved. At the following websites you can see and read about some amazing preservation. <https://www.deepseanews.com/2010/10/new-fossil-anemone-reveals-innard-secrets/>, <https://ocean.si.edu/ocean-life/invertebrates/fossil-jellyfish> and <https://www.livescience.com/1971-oldest-jellyfish-fossils.html>.

Following are images of modern and fossil cnidarians (Figures 5-29):



FIGURE 5 SOLITARY ANEMONE This is a Giant Green Anemone (*Anthopleura xanthogrammica*), a solitary anemone in a tidepool between Reedsport and Yaquina Head, Oregon. Note the orifice in the center, surrounded by stinging tentacles. The great color also highlights a physical characteristic that is not preserved in the fossil record.

Photo by Susan Celestian



FIGURE 6 COLONIAL ANEMONE This is a colonial grouping of the Button Anemone Button (*Zoanthus* sp, hugging rocks of the Pauko Tidepools, on the Big Island of Hawaii. *Photo by Susan Celestian*

Cnidaria continued on page 8....

...Cnidaria continued from page 7



FIGURE 7 CLASS HYDROZOA The most prominent hydrozoan is the Portuguese Man O'War (*Physalia physalis*). This creature is not a single organism, but four inseparable individuals -- one of which is the balloon-like float. This genus has no means of locomotion, other than to sail wherever the breeze (or currents) take it (although it can deflate and sink below the water surface). Tentacle strands can be up to 165 feet long. Image courtesy of *Islands in the Sea 2002*, NOAA/OER and available through [Wikipedia Commons](#).



FIGURE 8 BLUE BOTTLE or Indo-Pacific Portuguese Man-of-War (*Physalia utriculus*) commonly littered the beaches of Western Australia during our trip in 2018. This is not unusual, since they "breeze along with the breeze". But watch your step -- those nematocysts can still fire! (This individual is about 2.5" long.) Photo by Susan Celestian



FIGURE 9 Left: Papuan or Mangrove Jellyfish (*Mastigias papua*) Photo by Stan Celestian at Aquarium of the Pacific, Long Beach, California



FIGURE 10 Right: This White Spotted Jellyfish (*Phyllorhiza punctata*), is a filter feeder. Members of the species have venomous nematocysts, however seldom uses them to capture food. They can filter over 1,766 cubic feet of water a day, in their search for zooplankton. Photo by Susan Celestian at Vancouver Aquarium, Vancouver, BC, Canada

FIGURE 11 Lower Photo - Moon Jellyfish (*Aurelia labiate*), Photo by Stan Celestian, Aquarium of the Pacific, Long Beach, California. Upper photo is a species of Moon Jelly floating at the surface of Horseshoe Bay near Vancouver, British Columbia. See them swimming at [my Flickr site](#). Photo by Susan Celestian



Cnidaria continued on page 9....

...Cnidaria continued from page 8



FIGURE 12 Japanese Sea Nettle (*Chrysaora pacifica*) at the Vancouver Aquarium, Vancouver, British Columbia, Canada.

Photo by Susan Celestian

For a video of various jellyfish swimming, go to <https://www.youtube.com/watch?v=pimlbTqJLZc>



FIGURE 13 Looking like a blob of jelly, this jelly fish is stranded at low tide on a beach in Western Australia. Photo by Susan Celestian

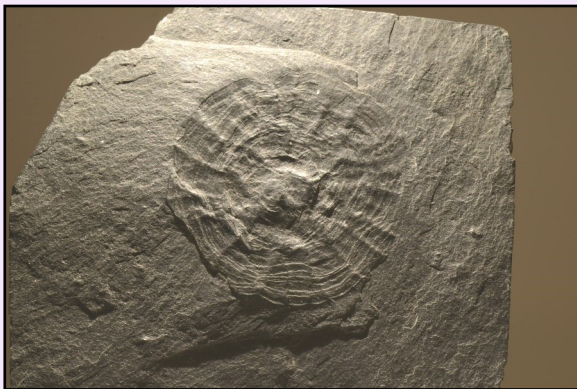


FIGURE 14 FOSSIL JELLYFISH in black shale, from Germany. Fossil is about 1.5 inches in diameter. Photo by Stan Celestian

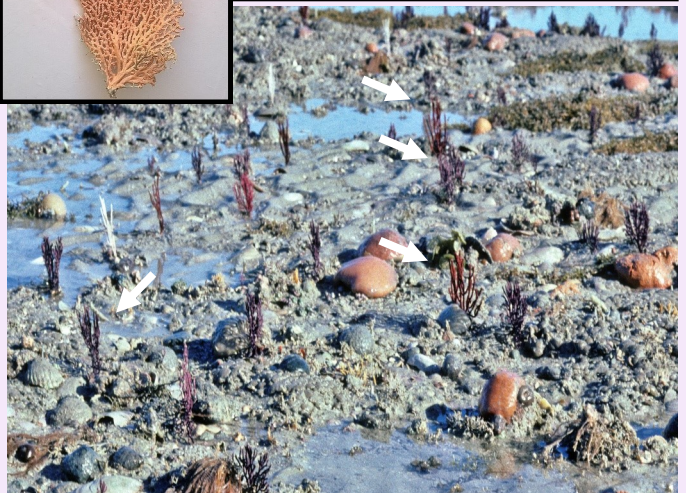


FIGURE 15 SEA PEN A feathery sea pen (a soft coral) from the Gulf of Maine. Most sea pens are more club-like or radiating. But all are colonial. The earliest fossils come from the Burgess Shale (508 mya), although similar fossils occur in the Ediacaran (635-541 mya). Photo by Dann Blackwood and Page Valentine, U.S. Geological Survey, Woods Hole.

FIGURE 16 SOFT CORALS As we segue into the stony or hard corals, lets take a look at more soft corals. The lower photo is an overview of the sandy/muddy tidal flat in Cholla Bay near Puerto Peñasco, Mexico. The arrows point to "sea fans" that populate some areas (the orange blobs are sponges). They are flexible, and waft in the currents that carry to them sustenance. The branches are occupied by many tiny polyps. Lower Photo by Stan Celestian



The photo to the right is a close view of a similar coral. Photo by Kvr.lohith / CC BY-SA (<https://creativecommons.org/licenses/by-sa/4.0>)



...Cnidaria continued from page 9



FIGURE 17 LIVING CORAL This coral (*Porites evermanni*) -- Kapoho Tidepools, Paho, Hawaii -- has a soft, fuzzy look because the individual coral organisms (**zooids**) are all extended above the habitat. (When disturbed, they retract into their calcite domain, for protection.) You will be seeing photos of fossil corals. Imagine an anemone-like creature living within each hole (**corallite**) in the colony's (or individual's) 'skeleton'.

Photo by Susan Celestian



FIGURE 18 Thamnopora sp. This branching coral, from the Devonian Martin Formation is replaced by quartz, so is easily extricated by acid, from the rock. You can just imagine the intertwined branches standing as a bulwark against currents and waves. The branches are

about 3/8 inch in diameter, and every hole on the branches housed a polypoid zooid. *Note that a young horn coral has attached to a branch -- either before or after the death of the host. Although it happened just by chance, that relationship provides a stable substrate for the young horn.* Photos by Stan Celestian



FIGURE 19 AGATIZED CORAL, Montastrea sp., from the Withlacoochee River, Florida. This Late Oligocene-Early Miocene (24-16 mya) coral has been replaced by agate (quartz variety chalcedony), and is essentially a coral geode, which is typical of this and related deposits. The specimen stands about 4 inches tall.

Note the radiating septa (vertical walls) dividing up each corallite. Photo by Stan Celestian



FIGURE 20 FAVOSITES sp. aka Honeycomb Coral from the mid-Paleozoic of the Midwest. Photo by Stan Celestian



FIGURE 21 Pachypyllum woodmani, a "brain"-style coral (about 2 inches across) from Arizona's Martin Formation (Devonian). The zooids were not as crowded together as those in Figure 17. Photo by Stan Celestian

...Cnidaria continued from page 10

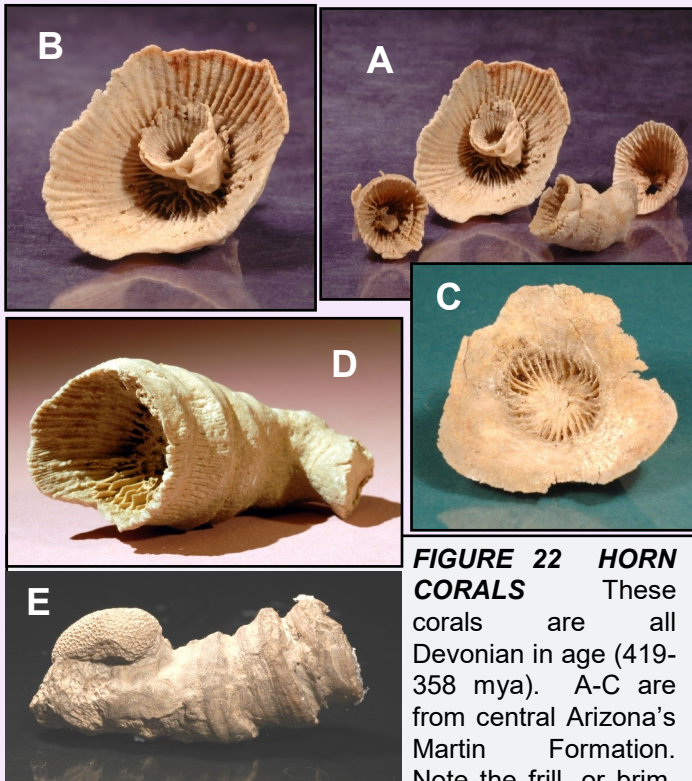


FIGURE 22 HORN CORALS These corals are all Devonian in age (419-358 mya). A-C are from central Arizona's Martin Formation. Note the frill, or brim,

around the edge of C -- probably a strategy to keep from sinking into the soft sediment. A/B and E illustrate commensal relationships between several corals. In A/B, after death a juvenile horn coral attached to the larger skeleton. Again, it happened just by chance, but that would keep the small coral off the soft substrate, affording protection from displacement and possible smothering, thus reinforcing its survival. In E, a couple different colonial corals have taken advantage of the hard substrate of the horn coral. Horn corals are solitary -- only one zooid occupies the skeleton.

As in Figure 18, septa divide up the corallites.

Photos by Stan Celestian

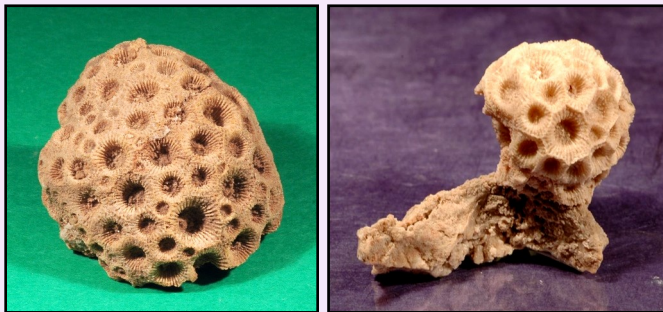


FIGURE 23 Hexagonaria occidentis Another mounded coral from Arizona's Devonian, this one about 2.25 inches diameter. The 1-inch Hexagonaria specimen on the right is yet another example of one coral encrusting onto another. Field trip!!!
Photos by Stan Celestian



FIGURE 24 Aulopora sp., a delicate coral (Devonian Martin Formation). In this case, each zooid occupies an individual, undivided tube. Photo to the left, displays Aulopora encrusting on Thamnopora.

Photos by Stan Celestian

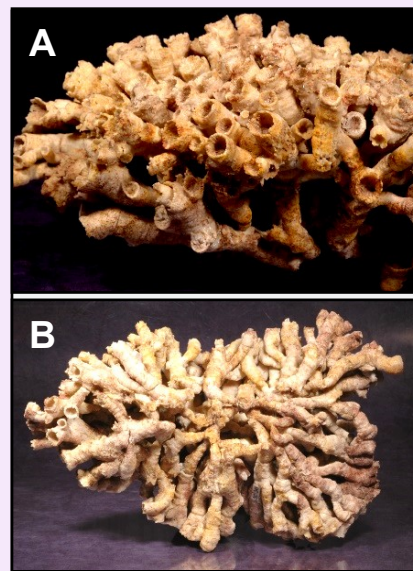


FIGURE 25 Disphyllum sp., a Martin Formation coral, with a form similar to, but larger than that of Aulopora -- unsegmented and separated tubes. View A is of the top of the colony, view B is of the base. The field of view is about 7 inches. Photos by Stan Celestian



FIGURE 26 HORN CORALS These horn corals (and associated brachiopods) have been replaced by jasper, lending them some beautiful color, even as ancient fossils. They are in the Pennsylvanian-aged Naco Formation, Gila County, Arizona. The large coral is about 2.5 inches long.

Photo by Stan Celestian

...Cnidaria continued from page 11

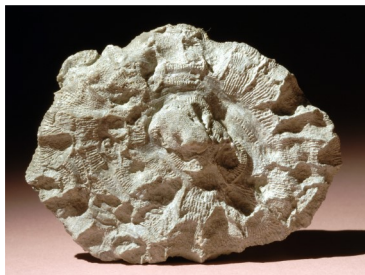


FIGURE 27
Hexagonaria sp.
With both top and bottom views, this coral is the same genus as that in Figure 22, but the corallites are larger and shallower. The colony is about 4 inches wide. Photos by Stan Celestian

the corallites are larger and shallower. The colony is about 4 inches wide.

Photos by Stan Celestian

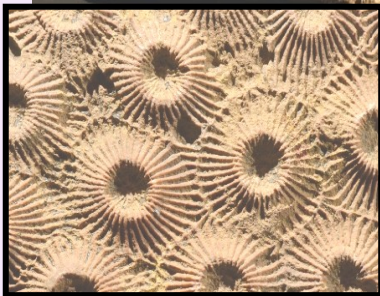
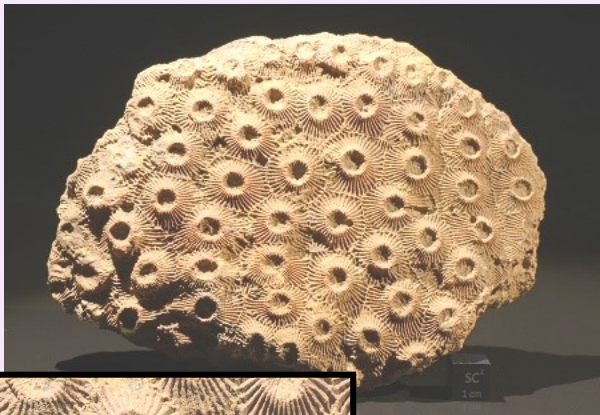


FIGURE 28
Arachnophyllum sp.
From the Smara area, West Sahara, Morocco. The colony is about 5.5 inches

wide. Photos by Stan Celestian

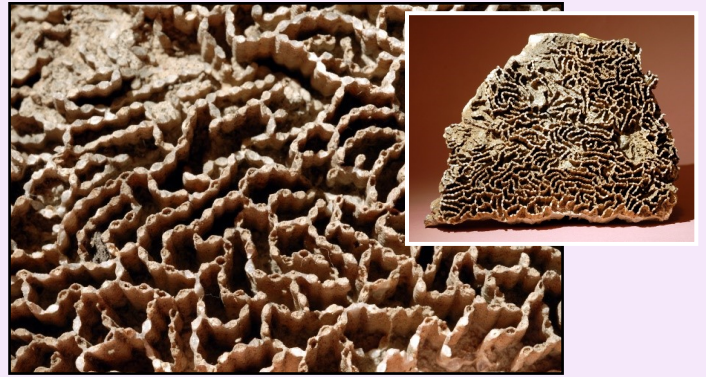


FIGURE 29 **Halysites sp** (likely *occidens* or *louisvillensis*), aka “chain coral”, from the Louisville Limestone (Early-Mid Silurian), Clarkdale, Indiana. In this case, the corallites are attached like a chain of tubes, with minimal contact. The specimen is about 6 inches across. Photo by Stan Celestian

GENERAL RESOURCES FOR CNIDARIA

- <https://en.wikipedia.org/wiki/Cnidaria>
- <https://www.bgs.ac.uk/discoveringGeology/time/Fossilfocus/coral.html>
- <http://tolweb.org/Cnidaria>
- <http://www.oceanicresearch.org/education/wonders/cnidarian.html>
- <https://www.noaa.gov/stories/beauty-in-motion-jellyfish-thats-turning-heads>
- <https://www.nationalgeographic.org/media/white-spotted-jellies/>
- <https://www.fisheries.noaa.gov/feature-story/curious-relationship-between-acadian-redfish-and-sea-pens>
- https://www.nefsc.noaa.gov/press_release/pr2017/features/sea-pens/
- <https://www.mnn.com/earth-matters/animals/stories/portuguese-man-war-facts>

...Graphite continued from page 2

Minor amounts of graphite occur as hydrothermal veins, and as primary deposits in pegmatite, basalt, syenite, and meteorites.

World production of graphite in 2019 were led by: China, Mozambique, Austria, Madagascar, Canada and India. However, Tanzania, Turkey and Vietnam have significant reserves; while several other countries have important potential reserves.

Graphite's historic use goes back to 4000 BC, when it was used as a ceramic paint for pottery.¹ In the early to mid 1500s the English used it to mark sheep.² And between 1583-1603, the English used graphite to line cannonball molds, resulting in round, smooth balls that would fly further -- a plus in a naval confrontation!³

For a broader list of the uses of graphite, see page 14.



FIGURE A SHEETED GRAPHITE This classic graphite specimen is from the Old Beneis Farm, Marlborough, Cheshire County, New Hampshire. Photo courtesy of Rob Lavinsky, iRocks.com – CC-BY-SA-3.0, Public Domain [Wikipedia Creative Commons](https://commons.wikimedia.org/wiki/File:Graphite_Sheeted.jpg)

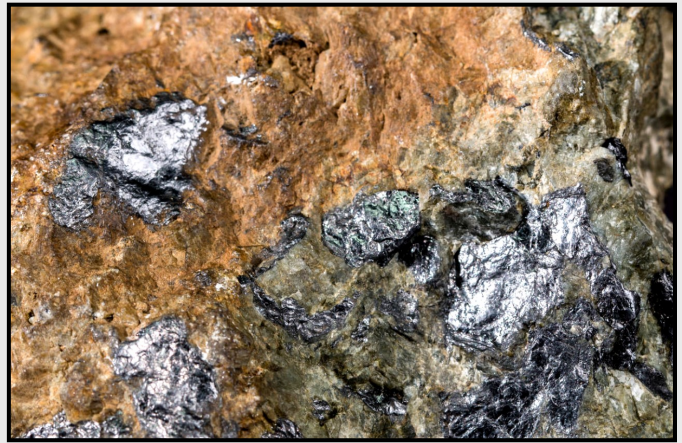


FIGURE B GRAPHITE IN PEGMATITE Scattered crystals of graphite mined in Ticonderoga, New York. Photo by Scott Horvath, USGS Public Domain



FIGURE C GRAPHITE IN CALCITE from Saint-Sauveur, Les Pays-d'en-Haut RCM, Laurentides, Quebec, Canada. Look closely and you can see hexagonal outlines of some of the crystals. Photo courtesy of Rob Lavinsky, iRocks.com – CC-BY-SA-3.0, Public Domain [Wikipedia Creative Commons](https://commons.wikimedia.org/wiki/File:Graphite_in_Calcite.jpg)



FIGURE C GRAPHITE IN BLUE CALCITE from Mount Saint Hilaire, Rouville RCM, Montérégie, Quebec, Canada. Photo courtesy of Rob Lavinsky iRocks.com – CC-BY-SA-3.0, Public Domain [Wikipedia Creative Commons](https://commons.wikimedia.org/wiki/File:Graphite_in_Blue_Calcite.jpg)

^{1,2,3} <https://en.wikipedia.org/wiki/Graphite#Occurrence>

USES OF GRAPHITE

Graphite (both natural and synthetic) is an excellent conductor of electricity and heat, and it is highly stable at high temperatures. Additionally, it is inert and exhibits high lubricity (it acts as a lubricant). Its lubricity may be due, at least in part, due to the easy planar cleavage; although a condition called superlubricity (a loss of friction related to shifts in the orientation of the atomic structure). All of these characteristics make graphite highly sought for the following uses:

- ▶ Pencil “lead” (in 2011 this accounted for 7% of graphite use)



- ▶ Lubricants - gears of mining machinery, locks

- ▶ Crucibles

- ▶ Paint



- ▶ Blast furnace linings (such as steel and cement industries)

- ▶ Stove polish

- ▶ Batteries: electrodes (ex: Nissan Leaf lithium-ion battery contains 88 pounds of graphite)

- ▶ Steel making (carbon steel)

- ▶ Brake linings (although other non-asbestos substitutes are increasingly used)

- ▶ Mold wash (increases ease of separation of item cast)

- ▶ Fire retardant/heat shield - graphite foil can be used in computers as lightweight heat sink; firestop around fire door; collars around plastic pipe to resist fire damage; heat-resistant gaskets

- ▶ Heat resistant oil/grease

- ▶ Superconductors, when layered with other ions like potassium, calcium

- ▶ Carbon fibers: fishing poles, golf clubs, car bodies, plane fuselages, bicycles, walking sticks.....

- ▶ Smokeless powder for guns (prevents static charge)

- ▶ Radar absorbent tiles and other materials

- ▶ Conductive ink

- ▶ Absorbs high energy particles: neutrons in nuclear reactors,

[Large Hadron Collider](#)



Images by Karen Arnold from Pixabay

To the Purple Passion and **BEYOND**

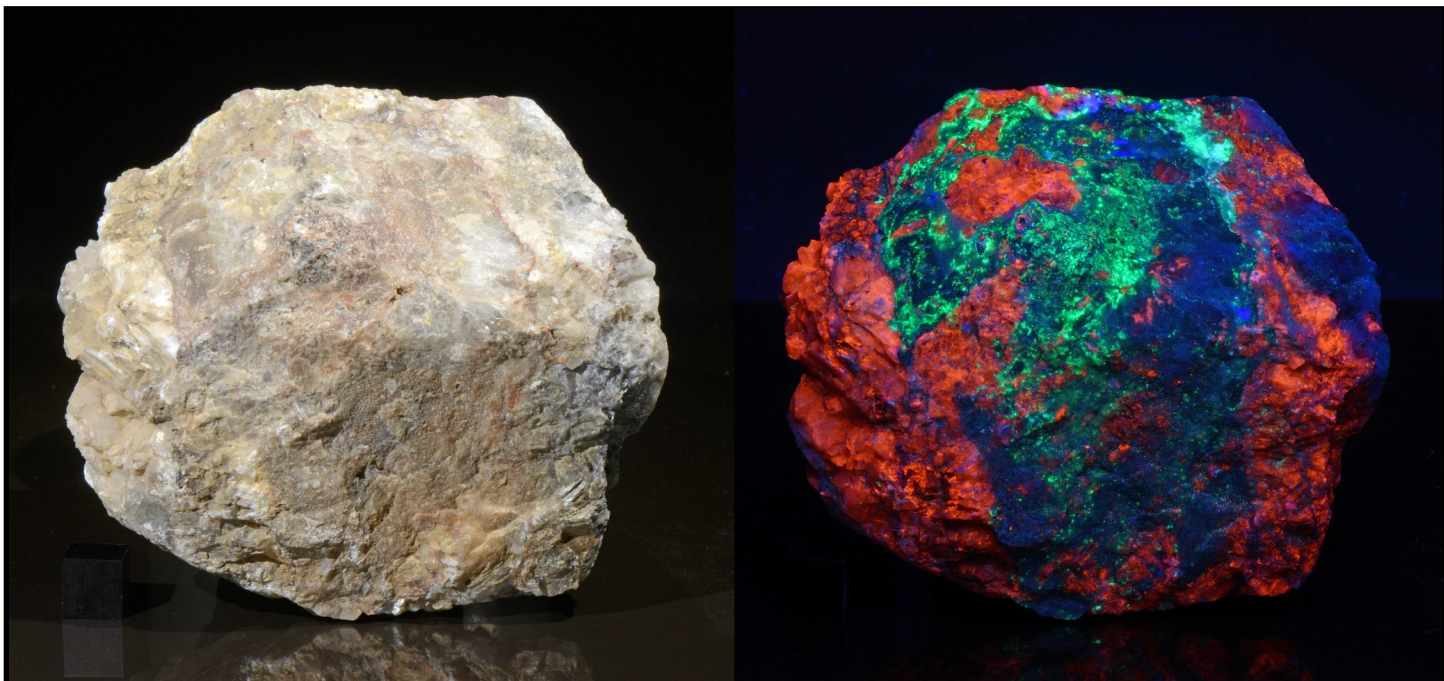
By Stan Celestian

As Daisy Mountaineers well know, from our numerous field trips, the Purple Passion Mine is a great place to collect colorful fluorescent minerals. This locality is fairly easily accessed and has produced high quality fluorescent specimens even for the novice fluorescent aficionado. **BUT THERE IS MORE...** a lot more.

Mardy Zimmermann is a well known collector of fluorescent minerals and will be delivering her presentation "*The Joy of Fluorescence*" at this year's "Minerals of Arizona Symposium" in April. She will emphasize her Arizona fluorescent specimens. I had the opportunity to help her by photographing many of her specimens. Presented here are a few of my favorites. Unfortunately, precise locations are not available for all of the specimens and some were collected many years ago. I have captioned the images with **ALL** of the information I was provided. At the end, I have augmented this article with a few of my favorite, self collected, Arizona fluorescent minerals.

(The 2021 Tucson Gem and Mineral Show theme will be "**Rocks that Glow in the Dark**".)

So, if the UV "bug" (virus/flu?) has struck you, grab your UV light and start looking! (Remember to wash your hands frequently... with soap.)



Calcite, Fluorite and Willemite from the Purple Passion Mine

.Fluorescent continued on page 16...

...Fluorescent continued from page 15



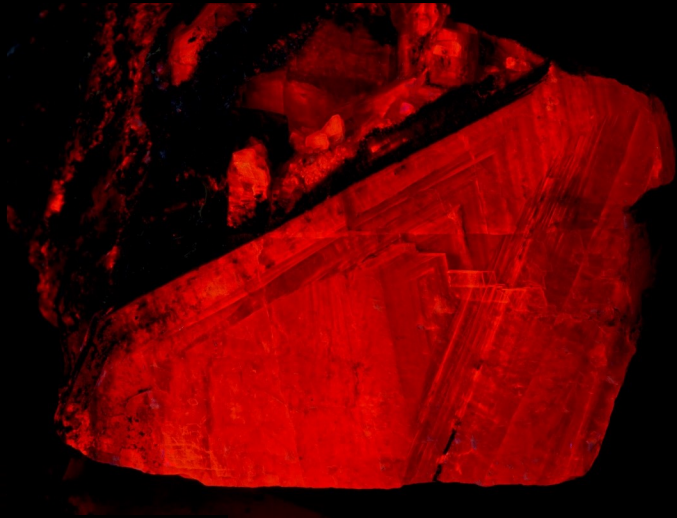
Hemimorphite from Tex/AZ Mine, Dragoon, Arizona



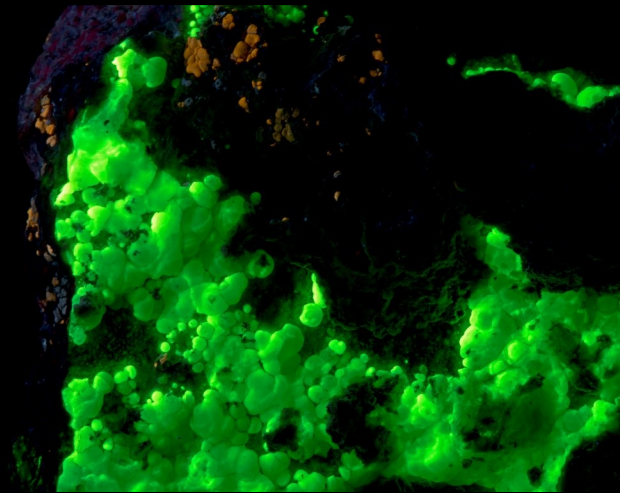
Coals of Fire from near Ruby, Arizona

.Fluorescent continued on page 17....

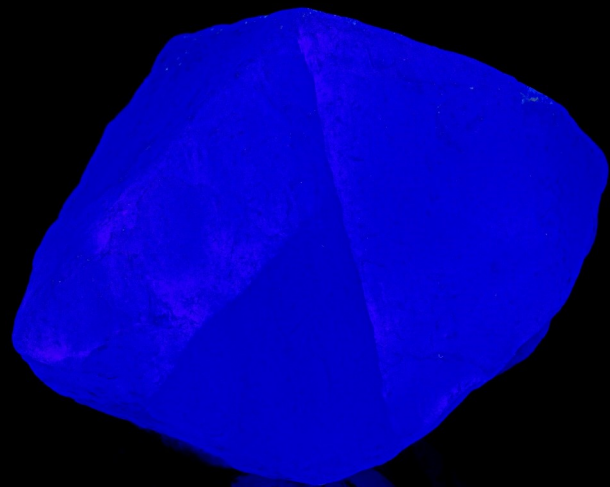
...Fluorescent continued from page 16



Calcite from Safford, Arizona



Common Opal from Wickenburg, Arizona



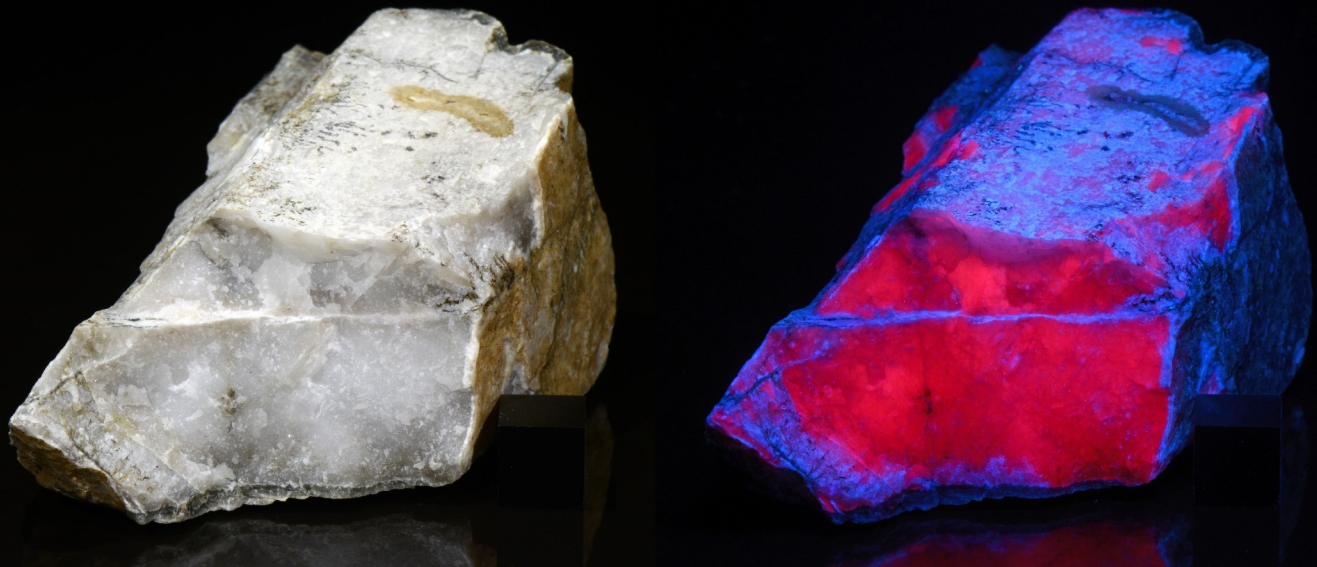
Fluorite from Castle Dome, Arizona

.Fluorescent continued on page 18...

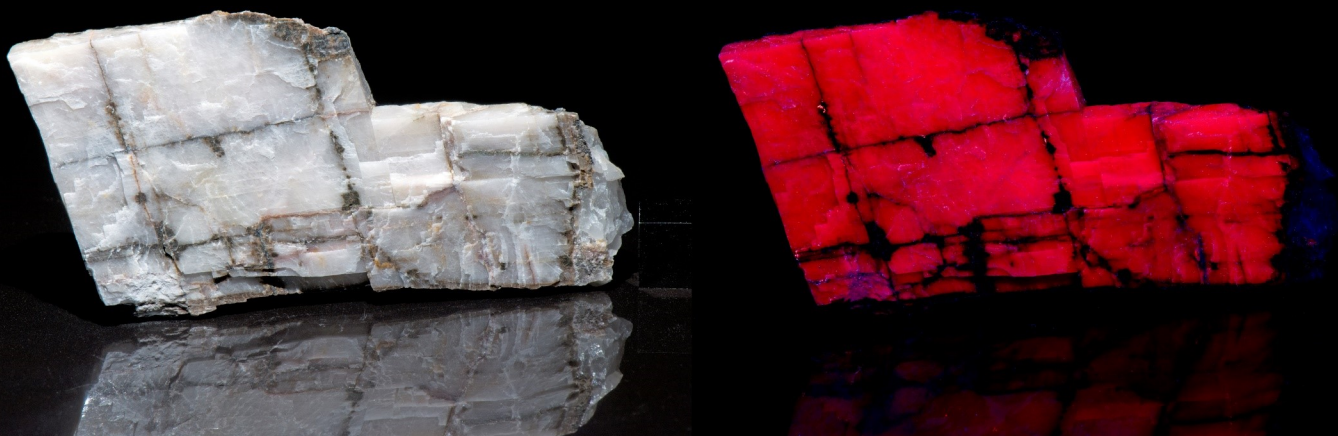
...Fluorescent continued from page 17



Calcite from Arizona



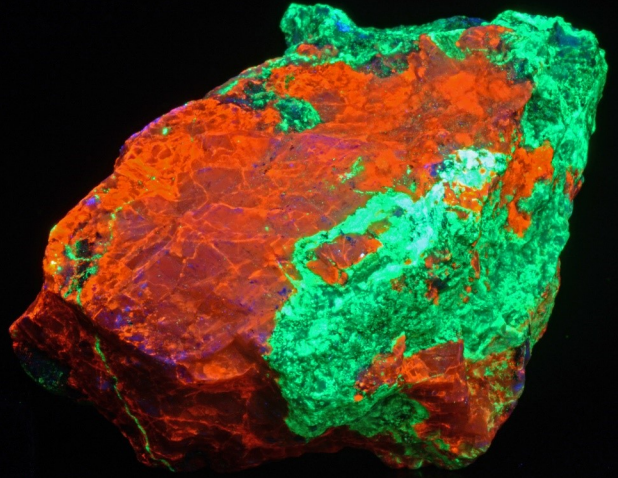
Eucryptite from the Midnight Owl Mine



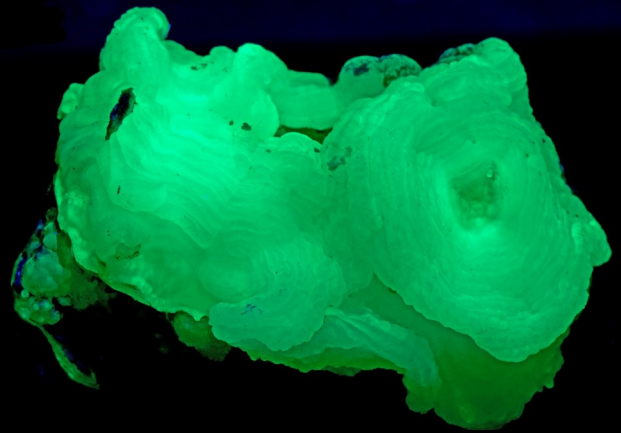
Calcite from Wickenburg area

.Fluorescent continued on page 19...

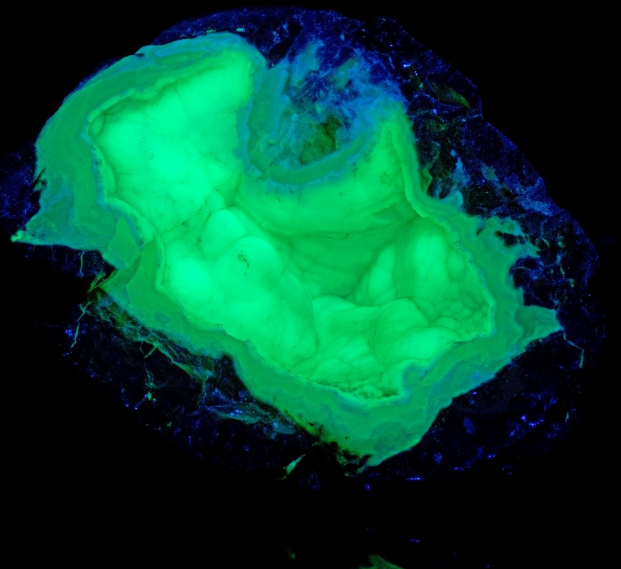
...Fluorescent continued from page 18



Calcite and Willemite from Arizona



Chalcedony Roses, near Lake Pleasant



Chalcedony Lined Geode from Pott's Canyon

.Fluorescent continued on page 20....

...Fluorescent continued from page 19

From the Collection of Sue and Stan

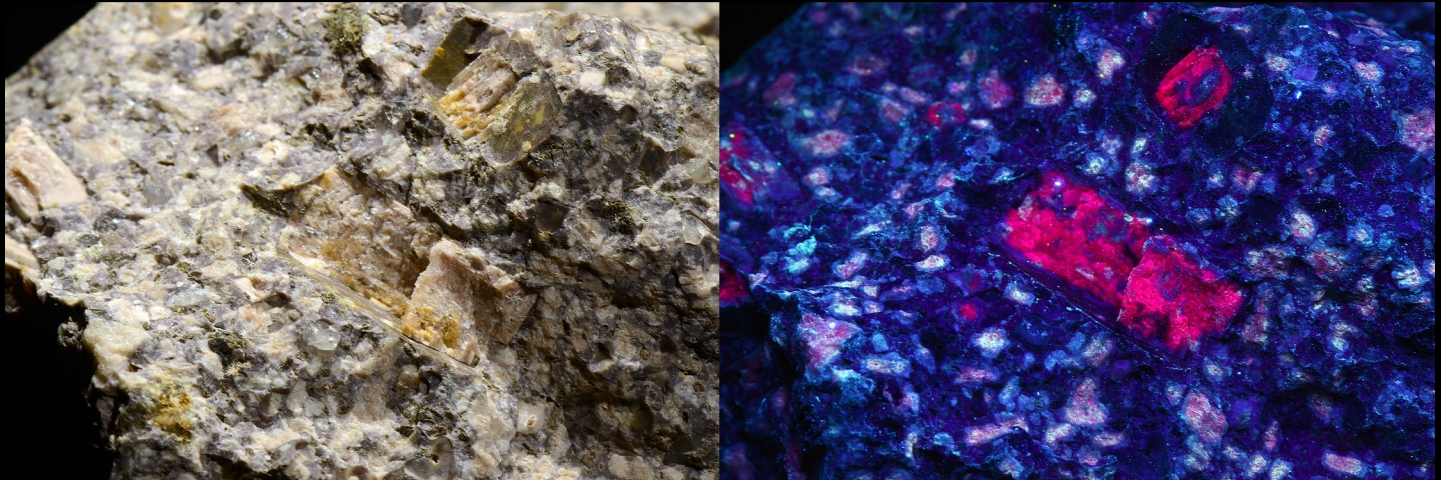


"Funky Lumps" Chalcedony nodules from the Anderson Mine



Chalcedony filled Thunder Eggs from near the Dragon Mine

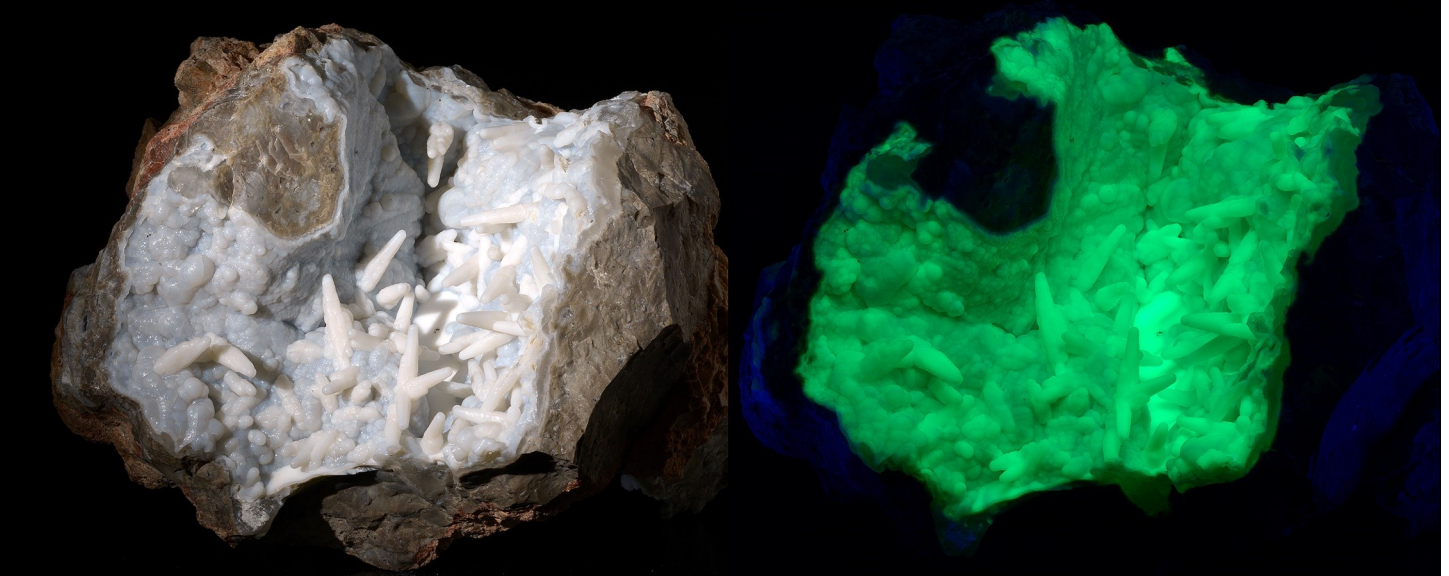
...Fluorescent continued from page 20



Orthoclase Crystals in a Porphyritic Granite from near Bagdad, Arizona



Calcite, Fluorite and Willemite from the Purple Passion Mine



Chalcedony Lined Geode from Pott's Canyon

UPCOMING FIELD TRIPS & MEETINGS

WHEN: Saturday, March 28, 2020

WHERE: DoBell Ranch

WHAT: Petrified Wood

MEET: 9:45 (leaving) at Jim Gray's Petrified Wood Co. in Holbrook

FEE: \$40 per 5-gallon bucket

OTHER: Bring lunch; optional side-trip to Grand Falls

LEADER: Bill Freese

WHEN: Saturday, April 4, 2020

WHERE: Prism & Pinnacle Mines

WHAT: Petrified Wood

MEET: TBA

LEADER: Dave Haneline

WHEN: Saturday, April 11, 2020

WHERE: Chasm Creek & Pinnacle Rocks

WHAT: Fossils, Cottonwood Basin Fumaroles

MEET: TBA

LEADER: Stan Celestian

WHEN: Friday-Sunday, May 8-11, 2020

WHERE: Topaz Mountain, Utah

WHAT: Topaz, Beryl, Bixbyite

MEET: TBA

LEADER: Stan Celestian

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

...Emergency Meeting continued from page 3

- A vote was taken
 - ◊ 3 yes to postponing the show
 - ◊ 8 yes to cancelling the show
 - * Majority vote won to cancel the show, no more voting needed
 - Jim R. will send out email to vendors about cancellation
 - ◊ Email will then be sent out to members, and posted on social media
 - ◊ Vendors will get full refund
 - ◊ All advertising of the show needs to be cancelled
 - Health and safety of the public is higher priority at this point
 - There is the possibility of a Fall show
 - ◊ A search committee will be made for this
 - * A new location would be great
 - * November, December, or January possible
 - * Jim R. will ask vendors which month would be ideal for them
- *Canceling when we did give the vendors a week's notice and would have been cancelled anyway, due to the closing of all schools and large gatherings. Please everyone be safe and healthy.*

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. Search for [daysymountainrockclub](https://www.instagram.com/daysymountainrockclub) 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
Publicity: Jessie Redmond...
Membership: Tiffany Poetsch tnpoetsch@gmail.com
Editors: Susan & Stan Celestian.....
azrocklady@gmail.com
Field Trip: Bill Freese ... bfreese77@cox.net
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	

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.**

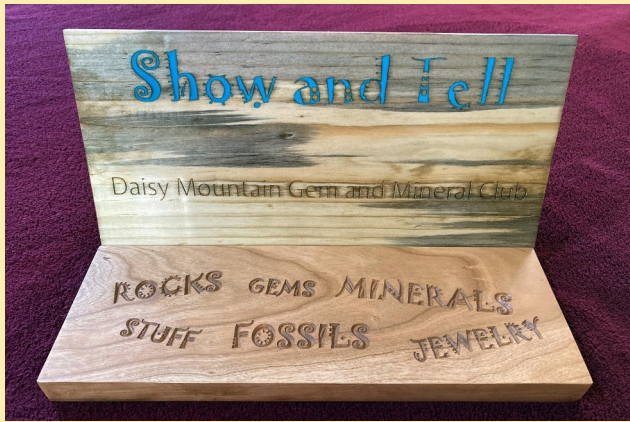
DMRMCLUB@GMAIL.COM

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

Meeting Dates for 2020

Jan 7, Feb 4, Mar 3, Apr 7, May 5, June 2, Sept 1, Oct 6, Nov 3, Dec 1

MEETINGS CANCELLED UNTIL FURTHER NOTICE DUE TO COVID-19 RESTRICTIONS



Share!

Part of the fun of being in a rock club is sharing with members. Have you found a cool rock -- recently or in the past? Have you made something out of a rock or mineral?

Bring an item in to the monthly and tell its story.

Everyone who brings in something for Show & Tell will get an extra ticket for the attendance/nametag raffle.

ROCKY MOUNTAIN FEDERATION SUMMER MULTI-FEDERATION FIELD TRIPS JUNE 13-16, 2020

The RMF Show & Convention is being held in Big Piney, Wyoming June 19-21. Prior to the event, there will be collecting trips available. Planned already is Blue Forest for petrified wood (<http://blueforestpetrifiedwood.com/about-us/>) and Green River Formation for fish fossils (\$fee). Others are in the works.

Interested in the field trips? Contact Doug True dtruefossils12@yahoo.com
Interested in the Show? Contact Jim Gray jimgray@wyoming.com

For more information/registration go to:

https://mcusercontent.com/a2ce2966ec6188e041bd58c21/files/ab24fc42-f110-4286-b2c5-b5af797e2fca/2020_RMFM_S_Convention_in_Wyoming_Packet_REV_1.pdf. If you think you'd like to

attend, you might want to start making campground or motel reservations. The closest facilities will fill up fast -- there probably aren't any motels closer than 20-25 miles away, and you'll want to get a spot as close as you can.

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

WIRE-WRAPPING CLASS

4:30-6:30 pm

Prior to the meeting

Bring: cab or stone, about quarter-sized or larger; 26 and 18 or 20 gauge copper-based wire; round nose pliers and flush wire cutter, beads (optional), little clamps, masking tape, E6000 jewelry glue.

Free, but donations are appreciated.

Questions? Contact Jennifer at Jennifer@eliteshuttersandblinds.com

FOR APRIL

**SEE YOU WHEN MEETINGS RESUME!
STAY WELL!!!!**

BRING PAPER & A PEN TOO!



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

April 18 - Cornville, AZ Verde Valley Rockhounds; Windmill Park, 9950 E Cornville Rd; Sat 9-5; Admission: free. *See poster on page 25.*

May 2-3 - Kingman, AZ Mohave County Gemstoners; Kingman Academy of Learning HS, 3420 N Burbank; Sat 9-5; Admission: free.

May 29-31 - Flagstaff, AZ Coconino Lapidary Club; Fort Tuthill County Park Fairgrounds - Commercial Building, 2446 Fort Tuthill Loop; Fri-Sat 9-5, Sun 9-4; Admission: free.

June 19-21 - Big Piney, WY Wyoming State Mineral & Gem Society PLUS Rocky Mt Federation Convention; Sublette County Fairgrounds, 10937 Hwy 189; Fri-Sat 9-5, Sun 9-4; Admission: adults \$2, children free. *See poster on page 26.*

July 11-12 - Lakeside, AZ White Mountain Gem & Mineral Club; NEW VENUE Country Court Event Hall, 3369 W White Mountain Blvd.; Sat 9-6, Sun 10-4; Admission: adults \$2, children under 16 free.

July 31-August 2 - Prescott Valley, AZ Prescott Gem & Mineral Club; Findley Toyota Center, 3201 N Main St; Fri-Sat 9-5, Sun 9-4; Admission: adults \$5, seniors, vets, students \$4, children under 12 free.

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> For out-of-the-country shows: <http://www.mindat.org/shows.php?current=1>

THE CORONAVIRUS (COVID-19), THAT HAS SPREAD GLOBALLY, IS PROMPTING WARNINGS TO SOCIALLY DISTANCE OURSELVES FROM EACH OTHER.

AS A RESULT, IN THE FORESEEABLE FUTURE, CLUB MEETINGS, SHOWS, AND OUTINGS ARE CANCELLED. WATCH YOUR EMAIL FOR CLUB ANNOUNCEMENTS -- AND READ THEM!

STAY WELL AND HOPE WE CAN ALL GET TOGETHER SOON!

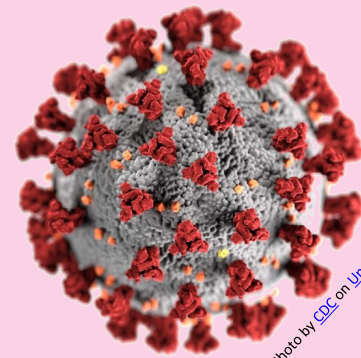


Photo by [GDP](#) on [Unsplash](#)

YOU ARE INVITED...

TO THE AZ MINING, MINERAL AND NATURAL RESOURCES EDUCATION MUSEUM'S SECOND ANNUAL ROCK EVENT!

Join us on March 28th for st... (sponsored by...), kids mineral giveaways, and public meet and... site at ammnre.arizona.edu.

SATURDAY
3.28.2020
10:00am - 2:00pm

Arizona Mining, Mineral and Natural
Resources Education Museum
1502 W. Washington St.
Phoenix, AZ 85007

CANCELLED

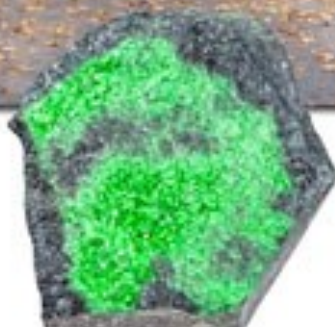
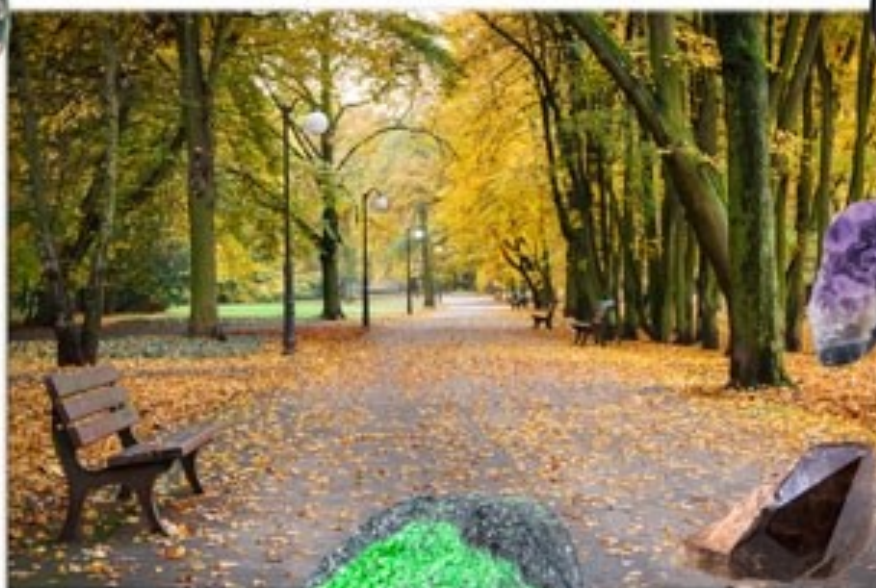


Verde River Rockhounds
Present
“Rocks in the Park V”
Rock and Mineral Sale



Saturday April 18, 2020
9 A.M. - 5 P.M.

Windmill Park, Cornville Road
Cornville, AZ 86325



Rocky Mountain Federation of Mineralogical Societies convention
&
Wyoming State Mineral & Gem Society show

Gem & Mineral Show

2020

Theme

*ROCK & ROLL WITH
WYOMING ROCKS*

Hosted by the Sublette County Rock Hounds

June 19th, 20th, & 21st

at the Sublette County Fairgrounds
10937 Hwy 189, Big Piney, Wyoming

Friday & Saturday 9-5, Sunday 9-4

*Dealers, lectures, demonstrators, exhibits, field trips, Mr. Bones, Fossil
Butte National Monument walking fish fossil, fluorescent mineral
display, kids' activities, food concession & more!*

Admission: \$2.00 adults, kids free



and a funding contribution made by Pinedale Travel & Tourism Commission www.VisitPinedale.org

Contact: jimgray@wyoming.com