

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 8, ISSUE 6

JUNE 2023



June 2023



Vermiculite is a hydrous phyllosilicate (sheet silicate), in the same mineral group as muscovite, biotite, chlorite, talc, clays, and so on. The name derives from Latin *vermiculare* ("to breed worms"), for the way it exfoliates when heated. See it happening <u>here</u> and <u>here</u>.

Chemical Formula - Mg_{0.7}(Mg,Fe,Al)₆(Si,Al)₈O₂₀(OH)₄ · 8H₂O Crystal System - Monoclinic (Go to https:// www.minerals.net/mineral_glossary/monoclinic.aspx for interactive images.) Growth Forms/Habits - Platy, scaly, clay Hardness - 1.5-2 Luster - Vitreous-dull, greasy Streak - Greenish-white **Color** - Brown, bronze-yellow **Diaphaneity** - Translucent Specific Gravity - 2.3-2.7 Cleavage - One perfect direction Fractures - Uneven Occurrence - Weathering or hydrothermal alteration of biotite or phlogopite in mafic rocks. Other - Expands 8-20x when heated. Uses - See Page 7



FIGURE 1 VERMICULITE CRYSTALS This is an aggregate of platy crystals of brownish vermiculate, from Aakkila, Tuusniemi, Eastern Finland Region, Finland. *Image by Leo Hupperichs and licensed under* <u>CC BY-SA 3.0</u>.

Vermiculite continued on page 7....

WIRE WRAPPING

Photos by Rebecca Noel & Susan Celestian





Colleans)



Watch your emails for the summer schedule. The class meets in July and may meet in August, even though there are no club meetings those months.



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

Vermiculite	2, 7
Wire Wrapping	2
June Meeting: Dr Aaron Celestian, Natural History Museum of CA	3
Safety Zone First Aid by Gregg Josey	4
Field Trips: Lynx Creek, Arizona Natural History Museum	5-6
Geo Mini: Allende Meteorite	8-9
Board & General Meeting Minutes and Silent Auction	10
Club Information, Field Trip Schedule; Upcoming Speakers	11
Announcements, Show List, Words of Wisdom	12-18

2

JUNE SPEAKER

USING MINERALS & GEMS TO ILLUMINATE ART & SCIENCE

By Dr. Aaron Celestian, Curator, Natural History Museum of Los Angeles County Gem Hall



This brooch is made of all nearly all Montana sapphires, with accents of moonstone and rubies. Created by Paula Crevoshay and owned by Gail Spann. Photo used with permission of NHMLA



This is a brilliant spessartine garnet from California's Little Three Mine. Photo used with permission of NHMLA



There is a new and very unique occurrence of emerald in California. It will undoubtedly provide some illuminating mineralogy! Photo used with permission of NHMLA



Recently, the NHMLA Gem Hall staff has teamed up with famous jewelry designers and famous jewelry wearers to create some exciting temporary exhibits. There are many components to a successful and scientific exhibit:

- Connections
- **Object selection**
- Design: people flow, security, science, arrangement, lighting, ADA compliant labelling
- Fabrication
- Installation
- Marketing

In Summary, Aaron says he is :

- Finding opportunities to share science and establish trust (including exhibits, social media presence, publications in respected open science publications)
- Building links between art, science and the people around me
- Working with local partners and the community leaders
- Making new connections/discoveries that interest my audience



SAFETY

ZONE

June 2023

FIRST AID

By Gregg Josey

A well-stocked first aid kit is handy and essential for each and every rockhounding trip.

First aid kits come in many shapes and sizes. You can purchase one already stocked and ready to go or prepare and customize your own. Whether you buy a first aid kit or put one together, make sure it has all the items you might need.

- 1. Include any personal items, such as medications, emergency numbers or items your health care provider may suggest.
- 2. Make a list of items included in the kit and check it regularly.
- 3. Check expiration dates and replace any used or out-of-date contents.

This is a list of items I keep in my first aid kit and is brought on every field trip:

Emergency first aid manual	Flexible splint 36in x 4.3in
Tweezer set (4)	Tourniquet
CPR Mouth Barrier	1 in cloth tape
Roll 2in gauze	Small nail clippers
Alcohol prep pads	Scissors
Assorted Band-Aids	Flashlight
2x2 gauze pads	2 pk Chest Seal
3x3 gauze pads	lbuprofen 200 mg
4x4 gauze pads	Pen and paper
Q-tips	3 in self-adhering elastic bandage
Space blanket	Israeli 6 in bandage

Josey First Aid Kit

If you are ever involved in any situation where an injury is involved, please notify the trip leader or any other board member that is available.

Be safe and happy rockhounding.

4

June 2023

FIELD TRIP to LYNX CREEK

Saturday, June 3, 2023

Photos and text by Bill Freese

Hi Everyone. The DMRMC had their last scheduled field trip of the season this past Saturday to Lynx Creek. There were 14 people that went to the public area for gold panning on Lynx Creek in Prescott. It was a beautiful day and a relaxing activity. Everyone found a few flakes but no nuggets. LOL Always a fun end to the season. The busy schedule will start again in September. We a have a couple events over the summer but not a full schedule.



FIELD TRIP TO ARIZONA MUSEUM OF NATURAL HISTORY Wednesday, June 28, 2023

Photos and text by Bill Freese

DMRMC had a local trip to the Arizona Museum of Natural History in Mesa, AZ. My family has been members for 20 years, so we thought we would share with some folks from the club. It was a small group, but there is a bunch of the club members gone this time of year. We all got out of the heat for a while and enjoyed the displays. My son, Colton, helped to lead the tour. (he has only been there hundreds of times - LOL) It was good!





Lots of dinosaurs to be seen! Archaeological displays. Arizona type-mineral exhibit. Arizona in the Movies. Minerals & Meteorites. Venomous Animals of the Sonoran Desert. And more!







Dinosaur Mountain, a 3-story diorama, down which a flash flood roars, every 20-30 minutes. The various animals on the mountain can be viewed from different floors of the museum.

<u>https://</u> www.arizonamuseumofnaturalhistory.org/

...Vermiculite continued from page 2

USES OF VERMICULIT E



June 2023

FIGURE 2 EXFOLIATED VERMICULATE Heated vermiculate expands or exfoliates, creating air pockets. *Photo by Jungle Rebel and licensed under CC BY 2.0.*

Low thermal conductivity, thermal resistance, water content, absorbency, sound dampening, and mixability make vermiculite a versatile industrial mineral.

SOIL ADDITIVE/ADDITIVE TO SOILLESS/HYDROPONIC GROWING MEDIA: Retains

water in potting soils, and can be used as a soil germination medium

ROOT CROP STORAGE: Packed around bulbs and other root crops, vermiculite absorbs water, thus forestalling rot during storage.

MOLDED SHAPES: Mixtures of vermiculite with cement, sodium silicate, or others are pressed into molds that can withstand head up to 1150°C. These molds/molded boards are used in aluminum smelting, fireplaces, acoustic panels, fireproofing around steel & pipes, and as refractory insulation.

AUTOMOTIVE BRAKE LININGS

LOOSE-FILL INSULATION: In house attics/walls, water heaters, safes, stoves/furnaces, and refrigerators, vermiculite increases fire resistance and dampens sound.

REFRACTORY LINING/INSULATION: Mixtures of vermiculite and high alumina compounds (cement, shale, clay, slate, sodium silicate) are used as refractory linings in the iron/steel, cement, and hydrocarbon processing industries..

FIREPROOFING: Added to wallboard, vermiculite extends its fire resistance.

HIGH TEMPERATURE COATINGS: Vermiculite 'paper' is used as coatings or binders for gaskets, specialty papers/textiles, oxidation-resistance for carbon-based composites, and barrier coatings for film.

WASTE TREATMENT: Water retention and ion exchange capabilities make vermiculate useful in wastewater treatment, chemical processing, pollution control of air and gases in mines and industry. Also absorbs liquids, so they can be disposed of as a solid.

PACKING MATERIAL

LIGHTWEIGHT AGGREGATE in concrete, mortar, and like materials. CARRIER FOR AGRICULTURAL CHEMICALS: Facilitates ease of handling and slow

release.

IN COMMERCIAL HAND WARMERS EXPLOSIVE STORAGE: Mitigates detonation SIMULATES EMBERS IN GAS FIREPLACES MEDIUM FOR EGG INCUBATION OF REPTILE EGGS

GENERAL RESOURCES FOR VERMICULITE

https://en.wikipedia.org/wiki/Vermiculite https://www.mindat.org/min-4170.html http://webmineral.com/data/Vermiculite.shtml https://www.chemeurope.com/en/encyclopedia/Vermiculite.html https://www.cdc.gov/niosh/topics/vermiculite/default.html#:~:text=Vermiculite%20is%20a%20mineral%20that,asbestos%20and%20asbestos%2Dlike%20fibers.

https://savvygardening.com/vermiculite-vs-perlite/



By Stan Celestian

Where were you on Feb 8, 1969? If you were in Pueblito de Allende, Chihuahua, Mexico at 1 AM you would have been rudely awakened by rocks falling on your roof. If you ventured outside you would have seen rocks falling from the sky and wondered if this was the end of the world. Obviously it wasn't, but that is what many of the terrified residents of this small pueblo thought.

The word of the meteorite fall spread rapidly and it is believed that as many as 5 tons of meteorites were collected. The sizes of specimens collected was from 1 gram to 110Kg (240 pounds) Even today, 54 years later, an occasional piece is still found.

The **Allende meteorite** (Meteorites are named after the geographical location in which they were found.) is significant in two main ways. 1st, it was a **witnessed fall**. Meteors can be seen every night and especially during meteor showers. But to see one actually hit the ground is extremely rare. 2nd, it was a *carbonaceous chondrite*. This is a rare type of meteorite and accounts for about only 4% of studied meteorites. Prior to this fall in 1969 only a few were known and they were small and poorly studied. So, you ask, what is the big deal about the Allende meteorite? I'm glad you asked that question.

But first, just a little background.

Meteoroid - a rock floating around in space, minding its own business.

Then, the gravitational pull of the Earth changes its course and it plunges through our atmosphere. The Allende was travelling at about 36,000 mph when it engaged our atmosphere. It quickly heated and exploded in a giant fireball some 30 or 40 miles above the surface. The initial meteor was about the size of a small car and exploded into thousands of bright meteors.

Meteor - a meteoroid that is heated to incandescence by friction as it is quickly slowed by our atmosphere. These are often called "falling stars" or "shooting stars".

This brings up an pet peeve of mine in movies. Many scenes show meteors shooting through the sky leaving a smoke trail and exploding on the surface. They appear to be small, baseball or basketball-sized rocks. HOWEVER, these objects would have been slowed to their "terminal velocity" long before they reached the surface. They would simply have fallen vertically to the ground, no smoke trail and no



FIGURE A ALLENDE This is a piece of the Allende Meteorite in the collection of Sue and Stan Celestian. The lighter gray left side is a fresh exposure. The dark gray front is a **fusion crust** that was created by the heat generated as the meteor plunged through our atmosphere. Fusion crusts are common on stony meteorites.

Photo by Stan Celestian

explosions, at least for small objects. AND investigations of the very, very, very few that have been seen shortly (within minutes) after hitting the ground have shown that they were cold to the touch. Yes (!), even after briefly being heated to incandescence, space is really, really cold, like -450°F. A meteoroid would have to be at least 25 feet across to survive its passage through the atmosphere to make a smoke trail and explosively impact at the surface. The famous Chelyabinsk meteor in 2013 (Siberia, Russia) was estimated to be about 60 feet in diameter. (Stay tuned for more of my pet peeves in future articles.)

Meteorite - once the meteor survives its descent through the atmosphere, it is called a meteorite. The Allende meteor created 10's of thousands of meteorites, many of which are in private collections. See Figure A.

...Allende continued from page 9

So, meteorites are cool, in more ways than one. Of course the Allende is extremely "cool" in scientific ways as well. Specifically:

1. It has what planetary Geologists call a "primitive composition". Some 4.5 to 4.7 billion years ago the solar system was just forming from a cloud of dust and gas. (Where were you on February 8, 4.6 billion years ago? Answer: Dust and gas particles floating around in space.) Some of the earliest fragments that would later coalesce to form planets, moons, meteoroids, comets, etc., were formed at this very early phase in the history of our Solar System. At this time, the carbonaceous chondrites were forming. These are rich in carbon and carbonaceous compounds along with water. This can only happen in areas of low temperatures in the earliest stages of the Solar System. Some of the organic compounds include amino acids which are the building blocks of life.

2. Many of the elements in the Allende are of a little different form than what we see today (4.6 billion years later). These "little differences" are the number of neutrons in the nucleus of the elements. To astronomers this signifies how the various elements were created during star formation, and how they may have evolved over time.

3. The Allende contains many calcium/aluminum inclusions (CAI's). These are small and somewhat spherical grains incorporated in the meteorite. These CAI's are among the oldest known solid objects to have formed from the gas and dust cloud that created the solar system. (See Figures B-C below.)

4. Studies of the elemental composition of the Allende meteorite at the California Institute of Technology has indicated that the calcium, barium and neodymium could only have been formed from a source **outside** of the gas and dust cloud that became our Solar System. Their research also showed that a rare form of aluminum indicated that it was created by a supernova explosion about 2 million years before the formation of our Solar System. *AMAZING*! This supports the idea that a shock wave from a nearby supernova was an important "trigger" for the formation of our Solar System.

HOW does this all work? **How** did our Solar System form? **How** did Earth and the other planets form? All good questions and, believe it or not, this is the topic of a talk I will be giving to the DMRMC in November.



FIGURE B CHONDRULES This is a close up view of the fresh surface of the Allende Meteorite. It shows numerous chondrules (somewhat spherical mineral grains). The lighter colored chondrules are rich in calcium and aluminum.

In all, there are about 70 elements that have been identified in this meteorite. The significance of having so many elements in one rock is that the area that formed this rock was VERY undifferentiated, that is the separation of heavy elements from the lighter ones had not yet began to take place. It is an indication that large gravitational fields (like the Earth's) had not yet come into existence. *Photo by Stan Celestian*



FIGURE C ALLENDE STREWN FIELD The image on the right shows the "strewn field", the area where the Allende meteorites were found. The shape of the strewn field is used to determine the direction of meteor was travelling when it exploded in our atmosphere. For the Allende strewn field it was determined the meteor was traveling towards the north east. Also, the largest fragment (240 pounds) was found at the farthest northeast part of the field. This is typical of meteorite strewn fields. *Image by Bennoro at the English Wikipedia, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php? curid=10424493*



Daisy Mountain Rockchips 10 **June 2023 BOARD and GENERAL MEETING MINUTES** June 6, 2023 Not Available at this Time The SILENT AUCTION of June SILENT AUCTION SILENT AUCTION !!! POLISHED AGATE NODULE MOTHER OF PEARL BRAZIL PENDANTS 1 SILENT AUCTION !!! PHYSICAL GEOLOGY TEXTBOOK SILENT AUCTION !! 2020 EDITION POLISHED THUNDER EGG DRAGON MINE, AZ GEODE WITH FLUORESCENT COMMON OPAL SILENT AUCTION !!! PLUS POLISHED GEODE Board DMRMC CLAIM PARTS Another fabulously polished piece of BID AMOUNT BIDDER'S NAME petrified wood, donated by Bill Smardo.



UPCOMING FIELD TRIPS

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

July

Bisbee

August

Alfie Norville Museum UofA

DATES AND DESTINATIONS SUBJECT TO CHANGE

Bill and the field trip committee will be actively looking for productive spots for field trips. If you have any suggestions, you are encouraged to contact him at bfreese77@cox.net

INSTRUCTOR — Rebecca Noel

CLASS DATE: on the 1st Tuesday CLASS TIME: 4:30-6:15 CLASS PLACE: Anthem Civic Center, 3701 W Anthem Way

Bring a cabochon or other stone, 20 and 26 gauge copperbased wire, round nose pliers, flush cutters, and any other tools you might use.

*If you want to try it out, the club has 4 sets of tools and wire that you may borrow during a class. If you like it, you can then purchase your own supplies.

FUTURE SPEAKERS

September - Susan Emberley of the Four Peaks Mining Co. : Tentative October - Evan Jones: TBA November - Stan Celestian: TBA December - Christmas Party January - Dr. Barbara Johns, U of Wyoming: Deep Sea Drilling in the Atlantic

Material in *Rockchips* may be reprinted by nonprofit organizations (unless permission is denied in the article or item), provided proper credit is given to the Daisy Mountain Rock and Mineral Club and the author, and that one copy of the publication containing the reprinted material is sent to the editor at azrocklady@gmail.com. Reproduction in whole or part by any other organization or publication without the permission of the publisher is prohibited.

June 2023

FACEBOOK

Visit and join the club page periodically. See what is happening, and boost our visibility on the web. Go to: <u>The Daisy</u> <u>Mountain Rock and Mineral Club</u>. 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 <u>https://www.instagram.com/</u> <u>daisymountainrockclub/</u> and follow today. Share with friends!

Officers, Chairpersons, & Trustees

President: Ed Winbourne.....ewinbourne@gmail.com Vice President: Bill Freese..... bfreese77@cox.net Secretary: Rebecca Slosarik .. rslosarik1@gmail.com Treasurer:...Deanne Gosse deanne.gosse@outlook.com Publicity: Jessie Redmond... Membership: Tiffany Poetsch tnpoetsch@gmail.com Editor: Susan Celestian.....azrocklady@gmail.com Field Trip: Bill Freese ... bfreese77@cox.net Claims: Jeff Blosdale Safety: Gregg Josey Show Chairs: Ed Winbourne, Claudia Marek Trustees:

Susan C
Stan C
Bob E
Nancy G
Renee I
Gregg J
00

Claudia M Tiffany P Don R Howard R Jeff R Johanna R 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: Juniors (under 18) - Membership is free; one time fee of \$10 for name badge Adult - First year \$35, then \$25 per Person Couple - First year \$55, then \$35 per Couple

Meeting Dates for 2023

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

June 2023

JNTAIN GEM & MI

24TH GEM, MINERAL, AND FOSSIL SHOW

13



JEWELRY, GEMS, MINERALS, FOSSILS, BEADS LAPIDARY EQUIPMENT/SUPPLIES, ROCK DISPLAYS, SILENT AUCTION, RAFFLES, WHEEL OF FORTUNE, CHILDREN'S ACTIVITIES, FOOD CONCESSION

FRIDAY JULY 14, 9:00AM—5:00PM SATURDAY JULY 15, 9:00AM—5:00PM SUNDAY JULY 16, 10:00AM—4:00PM ADMISSION: Adults \$4.00 Children FREE With Adult

SHOW LOW ELKS LODGE 805 E. Whipple Street, Show Low

SHOW COORDINATOR: Cathy Cargile Phone: 714-348-9162 (Text OK)







Beads Slabs Cabochons Fossils

Demos Kids Activities Geode Cutting



FINDLAY TOYOTA EVENT CENTER

3201 N Main St - Prescott Valley (Corner of Glassford Hill & Florentine)

FRI & SAT 9-5, SUN 9-4 Admission is Cash Only - ATM Available

FREE PARKING! \$5 Adults \$4 Seniors 65+, Vets, Students Children under 12 FREE w/paid Adult www.PrescottGemMineral.org

June 2023

15

GILBERT FINE MINERAL SALE

AUGUST 12, 2023

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

AZURITE, MALACHITE, 6 cm, Czar Mine, Bisbee, Cochise County, Arizona, USA. Chris Whitney-Smith Collection, 2023 Tucson Gem & Mineral Show® Bideaux Trophy. © Jeff Scovil Poster Chris Whitney Smith

Payson Rimstones Rock Club Gem & Mineral Show

Sept 15-17, 2023 Fri 1-6 Sat 9-5 Sun 10-4 Mazatzal Hotel and Casino

Vendors Rocks and Slabs Polished Rocks Fossils Jewelry & Art

Education & Kids Area Fluorescents Auctions, Raffles Demonstrations

\$5 Adults \$3 Friday Kids under 13 are FREE

Red Jasper with Epidote Rye Creek, AZ

16

17

Rock, Gem & Jewelry Show

October 21 & 22 Sat 10-5 / Sun 10-4

Sedona Red Rock High School – 89A at Upper Red Rock Loop Rd, W. Sedona

Hourly Raffles Grand Prize

Admission - \$ 5 Children 12 & under Free

For more information go to: www.sedonagemandmineral.org

SEDONA Mineral Club

Wickenburg Gem & Mineral Society 23rd Annual WOWW Show

gemclub.info



9am -5pm Sat 10am 4pm Sun

Wrangler Event Center

Round Gym 251 S Tegner St

Vendor/Show Information: gemclub.info

Over 40 Vendors

Gems Minerals Beads Jewelry Rocks Fossils Kid's Room Door Prizes Food and More.....

Free Admission