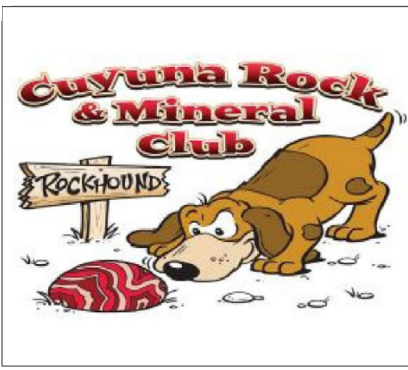


The Agate Explorer

March 2023



Volunteer Needed

The Club is looking for someone to be a field trip coordinator. This person would look for locations to rockhound and organize the trip. It would not be necessary to go on every trip, but have contact information available. Assistance given by Board members. Call/text Ed Opatz, at 320-250-1363.

Possible 2023 Field Trips

Late April Western South Dakota for Fairburn and Scenic agates
Summer—Remer MN Northland Monument Granite Company tour
Late June Thunder Bay Canada for amethyst
Early August Billings MT American Federation's yearly conference, includes rock show and most likely five days of field trips to various locations. Could include Montana moss agate, Bear Canyon agate, Kemmerer fish fossils.

Throughout the spring/summer/fall—any location to pick Lake Superior agates.

On longer trips participants may come or go at any time; no need to attend the entire trip. If you are interested in any of the above trips, please contact Ed Opatz at 320-250-1363 or opatz1@att.net.

March Meeting

- 10:00 Clubhouse open—Machines available for use
Rock Wrappers
Rock room open for business
Spinning wheel rocks need to be sorted.
- 12:00 Board Meeting
- 2:00 General Meeting
Rock room closed during meeting
Speaker Jon Hellerman on Minerals Worldwide & Crystal Formations.

Sign up sheets available for May 13-14 show volunteers.

Sign up sheets available for summer spinning wheel volunteers.

Looking for donations of small, unpolished agates for the show's rock pile for kids.



Rock Wrappers

Open gathering for wire wrappers starting at 10 a.m. on meeting

Saturdays. Hang out with other wrappers, and work on your projects. (Bring all supplies needed.) Learn tricks to make wrapping easier, a new design, or perhaps a new place to find supplies. All skill levels welcome!



Franklin Art Center

Club Information

Website-www.cyunarockclub.org
Email-cyunarockgemclub@gmail.com

Meeting Place

Lower level
Franklin Arts Center
1001 Kingwood St, Brainerd, MN 56401

Directions

.4 mile east of Business Hwy. 371 & Hwy. 210 intersection. (Castle turret water tower.)

Date/Time

the 2nd Saturday of each month at 2 p.m. unless otherwise noted.

Club Dues

\$20/ family

Free /unaccompanied juniors
Membership runs from Jan. 1-Dec. 31st.

Your dues are due!

\$20 per household for January-December.

Member who have not paid will be removed from the mailing list.

Club Calendar

March 11—Meeting date: 10:00 equipment available and Rock Wrappers; 12 noon Board Meeting; 2:00 General Meeting, club member Jon Hellerman speaking on minerals

April 1— meeting date, changed due to Easter

April 29—meeting date, show prep

May 13-14—Annual Show at Crow Wing County Fairgrounds

June 9—Pebble Pup day camp

June 10—Pebble Pup agate pick; meeting date

Information subject to change.



Club Purpose:

To foster an interest (& encourage young & old) to study earth science, enjoy the art of lapidary, hunting for rocks, and semi-precious stones. We also strive to use what we know and acquire to further educate everyone who has an interest in our hobby.

We are a not-for-profit organization.

**Cuyuna Rock, Gem & Mineral Society
Meeting Minutes
Saturday, January 14, 2023**

Board Meeting

Call to Order- The meeting was called to order at 12:00pm by President Ed Opatz (by phone). Present were Vice-President Lori DuBois, Treasurer Kevin Martini, Secretary Joanie Hanson, and Board Members-at-Large Vern Iverson, Judi Laurence, and Jo Schwalboski.

Approve minutes from the December 2022 meeting- Motion passed.

Treasurer's Report- A motion was passed to pay the monthly bills. The full report will be posted at the rock club.

Summer shows- Moose Lake, Outing, Arts in the Park? - signups will be available at the February meeting.

Use of N95 masks- Masks are recommended when cutting and polishing rock. They are available for members when using rock club machines.

Show updates- vendor registrations are open online and via mail. See the website for more information.

We do have enough geodes for the show.

Rock room rules and help- Dan Hammond has volunteered to help Vern with the rock room. The room will be closed during the meeting time. Joanie will work on shopping sales sheets for the rock room.

Need to sort spinning wheel rock.

Meeting adjourned at 1:09pm.

General Meeting

Call to Order- The meeting was called to order at 2:00 pm by Secretary Joanie Hanson. 17 members were present.

Treasurer's Report- posted at the rock club.

Show signups- Volunteer signups are available at the meetings for the rock show. All members are asked to volunteer some time at the show. You can also contact Ed Opatz.

Show cards are available for distribution.

The club is asking for donations of small LSA agates (unpolished), for the rock pile at the show. Contact Ed Opatz.

Summer show signups will be available at the Feb meeting.

Franklin Business after Hours March 14th, 2023- will need volunteers for this.

Erich Ess will demonstrate the metal press.

Joanie will teach how to wire wrap beads to make loops, bails, proper tools.

Door prizes went to: Anne Espeland, Dan Hammond, Lori DuBois, Keith Lorenson.

Meeting adjourned at 3:00pm.
Respectfully submitted, Joanie Hanson, Secretary

**Member Matt Metzler
Wins Prestigious Award**

In conjunction with the 2023 Tucson Gem and Mineral Show (sometimes referred to as the main show), a competitive exhibition is held.

There are a number of exhibit categories, which include Minerals, Micromount Minerals, Educational, and Fossils. Participants can enter in one of five divisions: junior, junior master, notice, advanced, and master.

Matt entered the master level of the micromount minerals division, and was awarded the Yedlin Memorial Trophy for the highest scoring exhibit of micromounts in the Master Exhibitor Class. He was one of the youngest to receive this award in its 35 year history.

Some of Matt's minerals include native gold from Hope's Nose, England, cinnabar from Russia, and tourmaline from California.

The judge for this division was Ron Gibbs, a retired mine geologist, author, and is well known in the mineral world.

Neal Yedlin, who the award was named for, was a remarkable amateur collector with a wealth of mineral knowledge.

Matt graduated from the University of Minnesota—Duluth in 2022 with a BS in Geological and Earth Sciences/Geosciences. He is currently working at Freeport-McMoRan, a copper, gold, and molybdenum mining company, in Safford, Arizona as a geologist.



Photo by Kenny Don.



Photo by Marcia Opatz

Coincidentally president Ed and Marcia (Agate Explorer editor) Opatz happened to be in an RV park approximately 40 miles from Safford just after Matt received his award. The three went out for dinner to celebrate his accomplishment.

**St. Cloud
Agate Swap
2023**

**Sunday March 26th
10a to 4p**

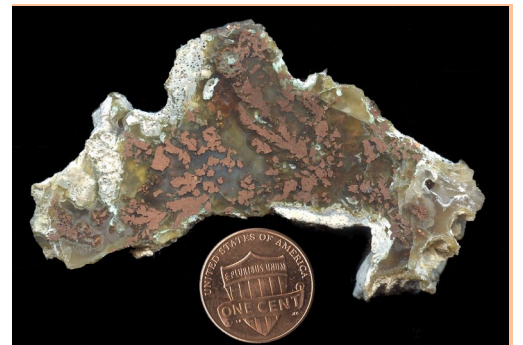
*Rocks, Gems, Crystals,
Agates, Jewelry, Apparel
and More!*

100 4th Ave S
St. Cloud, MN



\$1 Admission

stcagateswap@gmail.com



**Agates From Around The World
Agatized Woods with Copper Plums
Indonesia**

Indonesia is continuing to produce some surprises such as the agatized woods (petrified wood) with plume-like copper inclusions. The agates are somewhat clear with yellow hue and the native copper inclusions are in form of "plumes" similar to those seen in the "Plume Agates". It's not known how limited the quantity is but they're quite pricey.

<http://www.sailorenergy.net/Agates/AgatesIndonesiaCopperPlumeAgates01.html>



February Birthstone—Aquamarine

Aquamarine is the blue to blue-green member of the beryl family. Readily available and moderately priced, the March birthstone makes an excellent jewelry stone.

The name "aquamarine" comes from the Latin for "seawater", and the stones were thought to protect seafarers. Some associate aquamarines with marital happiness and superior intellect.

These stones can be found in both blue and blue/green hues. Aquamarine stones will always have light color saturation and tone so you will not see any dark blues or greens.

<https://www.gemsociety.org/article/birthstone-chart/#mar>



We're on Facebook!
Cuyuna Rock, Gem & Mineral Society

is a closed group, so you must ask to join. After being approved you can follow the members' posts and add your own information.

Sunshine Requests



If you know someone who could use a little sunshine—birth, illness, surgery, family death—please contact Joanie Hanson at 218-831-2665.

Minnesota Rock Shops

- Agate City** 721 7th Ave., Two Harbors 218-834-2304
- AM Rock Shop** 710 E River Rd, Anoka 763-421-2807
- Art & Soul** 5124 202 Main St Stillwater, 651-275-0255
- Beaver Bay Agate Shop** 1003 Main St., Beaver Bay 218-226-4847
- Christy's Crystals** 407 N Riverfront Dr, Mankato 507-720-1061
- Designed In Stone** 841 Forest Ave E Suite 110, Mora 651-248-8768
- Dream in Jasper Crystal Shop** 107 N Meridian St, Belle Plaine 763-301-1058
- Enchanted Rock Garden** 1228 E 66th St, Richfield 612-866-1140
- Jon's Gem Emporium** 184 North Hwy 10, Motley 218-640-1047
- Magic Mushrooms in the Crystal Garden** 171 Lake St N, Big Lake 612-805-7111
- MO'R Designs** 2100 Snelling Ave N Suite 13, St Paul 651-294-3069
- Naturally Unique** 137 Western Ave N, Park Rapids 701-429-0409
- Rocks and Things** 201 N Rum River Dr, Princeton 763-389-0979
- Rocks & Tools SeashellsbyShelly Rock and Crystal Shop** 2625 County Rd 37 NE, Monticello 763-295-2440
- Sacred Sage and Crystals** 118 Broadway E, Little Falls 320-360-3611
- Sample's Agates Gem and Mineral Shop** 18581 MN-371, Brainerd 218-821-6623
- Taylor's Falls Bead Store** 364 Bench St, Taylor's Falls
- Twin Pines Trading Post** 31049 Front St, Pequot Lakes 218-839-0829
- ZRS Fossils and Gifts** 3018 Lyndale Ave S, Minneapolis 612-824-1068

The Club is always looking for places to pick Lake Superior agates or other Minnesota rocks. If you know of somewhere that we can get permission a group to pick, please call Ed Opatz at 320-250-1363.

A stipend is paid to the landowner.

NASA's Curiosity Rover Discovers Opal-Gemstone On Mars

A research team using new methods to analyze data from NASA's Curiosity, a rover operating on Mars since 2012, was able to independently verify that fractures in the bed-rock contained opal, on Earth a gemstone formed by the alteration of silica by water. Unlike common crystals, opal is an amorphous mineral consisting of layers of microscopic silica-spherules with water filling the gaps between them. Light is scattered along the surface of the spherules, giving common opal colors ranging from white to yellow to red. The most valuable "noble opal" display a glittering array of rainbow colors.

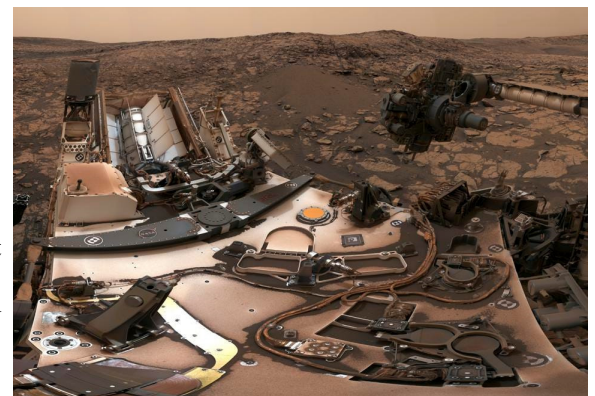
The study finds that the vast subsurface fracture networks would have provided conditions that were potentially more habitable than those on the surface.

In 2012, NASA sent the Curiosity rover to Mars to explore Gale Crater, a large impact basin with a massive, layered mountain in the middle. As Curiosity has traversed along the Mars surface, researchers have discovered light-toned rocks surrounding fractures that criss-cross certain parts of the Martian landscape, sometimes extending out far into the horizon of rover imagery. Recent work finds that these widespread halo networks served as one of the last, if not the last, water-rich environments in a modern era of Gale Crater. This water-rich environment in the subsurface would have also provided more habitable conditions when conditions on the surface were likely much more harsh.

As a member of the Cuyuna Rock Club you are also a member of the Midwest Federation of Mineralogical and Geological Societies. If you are interested in a MWF membership card they are available at the Clubhouse.

As part of a new study published in the Journal of Geophysical Research: Planets, led by former Arizona State University New-Space Postdoctoral Fellow Travis Gabriel, now a research physicist for the U.S. government, archival data from several instruments were examined and showed considerable anomalies near light-toned rocks earlier in the traverse. By happenstance, Curiosity rover drove right over one of these fracture halos many years ago, long before Gabriel and ASU graduate student and co-author Sean Czarnecki joined the rover team.

Looking at the old images, they saw a huge expanse of fracture halos extending far into the distance. By applying new methods for analyzing instrument data, the research team found something curious. These halos not only looked like halos found much later in the mission, in completely different rock units, but were similar in their composition: a whole lot of silica and water.



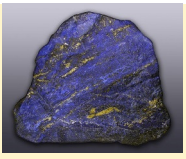
<https://www.forbes.com/sites/davidbressan/2023/01/07/nasa-rover-discovers-gemstone-on-mars/?sh=b3a4ec233591>

**Rocks Fossils
Gems Minerals**

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218-640-1047



Gem Encyclopedia

Lapis Lazuli

This gemstone has been prized for its bright, blue color and used for inlay and intarsia as well as for pigments for cosmetics and paintings. Its contrast and eye appeal is irresistible.

Lapis lazuli value is determined almost exclusively by color. A deep, intense, blue with violet tones would be at the apex. Fine grained, uniform specimens can attain a smooth, highly polished surface not seen in lower grades.

Calcite inclusions almost always lower the value, but pyrite inclusions enhance it in the minds of many. Although enthusiasts may debate how much pyrite is ideal in lapis lazuli, most would agree that the less calcite, the better the stone. Calcite can be seen as streaks or patches within the darker blue or can predominate in the mix, giving the rock an overall lighter blue shade.

The ancient Roman natural historian Pliny the Elder called lapis lazuli "a fragment of the starry firmament," in admiration of its colors, deep blue with twinkling bits of gold. Lapis lazuli (also simply referred to as lapis) is actually a rock composed of lazurite, hauyne, sodalite, and nosean, all members of the soda

lite group of minerals. (Lazurite itself may be considered a sulfur-rich hauyne).

Archeologists have found lapis lazuli beads, jewelry, and carvings at numerous sites, some dating as early as 6,000 BCE. The use of lapis lazuli for art and jewelry probably originated in Afghanistan and spread to Asia, the Middle East, the Mediterranean, and the Roman world. Many of the gemstones referred to as sapphire or sapphirus, "blue stone," in the Latin-speaking world of classical antiquity may have actually been pieces of lapis lazuli.

Lapis lazuli has been successfully synthesized. Although these synthetics are modern inventions, lapis lazuli simulants or imitations go back at least as far as Ancient Egyptian times. Archeologists have discovered artifacts with glass backed with blue paint and blue ceramic materials in lieu of the natural stone. Even the celebrated death mask of King Tutankhamun (1332-1323 BCE), which includes real lapis lazuli inlay for the eyes, has blue-painted glass bands in the nemes or headdress. These imitations are a testament to the ancient demand for lapis.

Modern-era simulants include enamel, glass, plastic, and a variety of dyed gems such as howlite and jasper, which is misleadingly referred to as "Swiss lapis."

Sodalite is the only natural gemstone readily

available in large enough sizes with a deep enough blue to be a convincing simulant.

Acid testing can be used to determine if a lapis specimen is natural. A drop of hydrochloric acid (HCl) on lapis lazuli releases H₂S gas, the odor of rotten egg. Streak testing a natural lapis specimen should leave a light blue streak. Both of these should be done by a professional.

Only *Afghanistan and Pakistan* yield the finest lapis lazuli in commercially interesting quantities. The Colorado material is quite fine but of limited availability.

Badakshan, Afghanistan: among the oldest operating mines in the world (7,000 yrs). Lapis occurs in large blocks & crystals in white matrix, source of the world's finest lapis.

Pakistan: solid, deep blue color with no white calcite spots and just a sprinkling of brassy, yellow pyrite.

Colorado: stringers in limestone, dark color, with much pyrite, from Italian Mountain.

California: blue-gray with white spots. Studyanka River, Mongolia: light blue lapis, with pyrite.

The Chilean Andes: gray and blue mixture, color inferior to Afghan material.

Italy; Labrador, Canada; Mogok, Myanmar.

<https://www.gemsociety.org/article/lapis-lazuli-jewelry-and-gemstone-information/>

Former gold mine to host largest underground caverns in history

The former Homestake mine, the biggest and deepest gold mine in North America until its closure in 2002, is set to become one of the largest underground caverns in history and house the largest physics experiment in the study of neutrinos.

The site, located under the Black Hills of South Dakota, is expected to host the Deep Underground Neutrino Experiment (DUNE) project being de veiled within the Sanford Underground Research Facility (SURF) by the US Department of Energy's Fermi National Accelerator Laboratory.

The DUNE caverns are mind-bogglingly big. There is no question about it," Joshua Willhite, one of the engineers leading the Dune excavation and a graduate of the University South Dakota Mines, said in a media statement.

According to Willhite, two of the main caverns are seven stories tall, one football field and a half long, and 64 feet wide. A third utility cavern is three stories high, two football fields long, and 64 feet wide.

Even though there are other caverns of similar or larger size on the planet, they are closer to the surface. This means that nothing the size of DUNE has ever been done at depths of 4,850 feet below ground.

Willhite noted that the engineering challenges of construction this far below the surface are formidable.

"Every bit of air that is underground has to come down through one shaft and go back out another shaft, and this requires management of air movement," he said.

At the 4,850-foot level of SURF, the natural temperature of the surrounding rock walls is 95 degrees, so ventilation for air conditioning is key.

Water, on the other hand, cannot be taken for granted in the DUNE construction. Installing a bathroom, for example, requires pumping water between the surface and the construction site which, in turn, would require almost 2,200 psi of pressure. Thus, engineers have broken down the plumbing that supplies water into a series of stepped segments to reduce the pressure needed by individual pumps.

Heavy equipment, like excavators and front-end loaders, and construction materials like long steel beams that are normally a part of any construction operation, are also hard to come by at DUNE.

"These massive caverns take huge equipment, but we are supplied by mine shafts that are not that much bigger than a normal elevator, and there is no piece of excavation equipment that will fit in an elevator, so we have to disassemble the equipment at the surface and

reassemble it at depth," Willhite said.

On top of this, rock being excavated from these large caverns must be placed back on conveyances and moved to the surface.

Inside DUNE, the US Department of Energy is building a facility that will hold massive tanks of liquid argon that will detect the neutrinos coming in from a beam generated at Fermilab in Illinois. At least two of the tanks are the size of a five-story building, and each will hold 17,000 tons of -300F liquid argon.

"Aside from the ridiculously cold temperature, when these liquids boil they expand over 700 times their volume. There is nothing inherently hazardous about argon gas except it displaces any oxygen. We have to ensure that this expansion is minimized, controlled, and ventilated properly for work safety."



<https://www.mining.com/former-gold-mine-to-host-largest-underground-caverns-in-history/>

The World of Jasper

Copper Ore Jasper, also known as Cuprite (Copper), is a deep green Jasper gemstone with natural copper inclusions. Some 'Copper Ore Jasper stones have tiny but vibrant blue spots, which are formed during the finishing process when copper mineral reacts to high heat.

Cuprite, this stone's alternate name, originates from the Latin word "cuprum" meaning "copper."

Most Copper Ore Jasper is found in China, Australia, and Namibia.

<https://cherrytreebeads.com/beads/gemstone-beads-pendants/copper-ore-jasper-cuprite/>



Cuyuna Rock, Gem, & Mineral Society on the Web

www.cyunarockclub.org

Rock Room

This Club is unique because it has its own rock store. Here is an inventory of what is available for Club members to purchase. Stop in when you come to the Clubhouse!

Grit and Polish
Oregon Geodes
Chalcedony
Desert Rose
Plume Agate
Yellow Jasper
Bruno Jasper
Owyhee Picture Jasper
Brazilian Agates
Amethyst
Obsidian
Mineral specimens
Dinosaur bone
Condor Agate
Hauser Bed Agate
Thundereggs
Mexican Geodes
Montana Petrified Wood
Montana Moss
Tee Pee Canyon Agate
Slabs of all sizes and types
Septarian Nodules—Utah
79 Bed Geodes—Oregon



Moroccan White Agate
Mexican Luna Lace Agate
Staurolites (Cross Rocks)
Small Botswana Agate
Smokey Quartz crystals - Colorado
Snowflake Obsidian
Utah Petrified Wood
African Blue Lace Agate
Carnelian Agate
Tiger Eye—red and blue
Coming Soon!
Tiger Eye—gold & blue variegated Obsidian
Condor Agates
Agua Nueva Agates
Polychrome Jasper
Tabasco Agate Pairs
Sunset Jasper
Noreena Jasper
Tiger Iron
Kumerha Jasper
Swazi Agate
Calandria Agate (Mexico)
New Moroccan Agate

Paleontologists Find Fossil of 119-Million-Year-Old Beaked Bird

Confuciusornis shifan lived in what is now China during the Early Cretaceous epoch, some 119 million years ago.

The new species belonged to Confuciusornis, a genus of extinct crow-sized beaked birds in the family Confuciusornithidae.

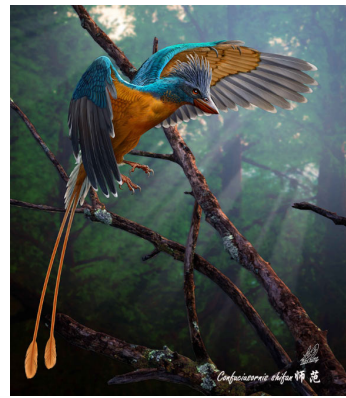
Confuciusornis shifan weighed less than 200 grams and was smaller than most other confuciusornithid species.

"Confuciusornithidae is a clade of Early Cretaceous pygostylian birds known from the Jehol Biota of East Asia, and represents the earliest known toothless, beaked birds," said Shenyang Normal University paleontologists Dongyu Hu and Xing Xu and their colleagues from China and Canada.

"Five genera and eleven species, recovered from the Dabeigou, Yixian and Jiufotang formations, have been described and assigned to this family, though the validity of some species is questionable."

"They are represented by thousands of exceptionally preserved specimens that collectively provide rich information on confuciusornithid morphology, taxonomy, flight ability, growth, diet, and ecology."

The nearly complete and mostly articulated skeleton, preserved on a single slab, of Confuciusornis shifan was recovered from the Jiufotang Formation near Xiaotaizi



village in the Chinese province of Liaoning.

"Compared to other confuciusornithids, this new species and the recently reported Yangavis confucii both show evidence

of stronger flight capability, although the wings of the two species differ from one another in many respects," the researchers said. "Our aerodynamic analyses under phylogeny indicate that varying modes of flight adaptation emerged across the diversity of confuciusornithids, and to a lesser degree over the course of their ontogeny, and specifically suggest that both a trend towards improved flight capability and a change in flight strategy occurred in confuciusornithid evolution."

"Confuciusornis shifan differs most saliently from other Mesozoic birds in having an extra cushion-like bone in the first digit of the wing, a highly unusual feature that may have helped to meet the functional demands of flight at a stage when skeletal growth was still incomplete," they concluded.

"The new find strikingly exemplifies the morphological, developmental and functional diversity of the first beaked birds."

<https://www.sci.news/paleontology/confuciusornis-shifan-11528.html>

Looking for Volunteers

For the Pebble Pups Day Camp on Friday, June 9—all day, at the Clubhouse.

The day consists of stations that small groups of kids rotate through approximately every 45 minutes. Volunteers have a curriculum sheet to follow for each station, with the materials provided by the Club. Possible topics this year may include: Magnificent Minerals and Sluicing. Usually there are seven topics. Volunteers can suggest topics or select from the full list when it becomes available.

A few volunteers can be used for other activities, such as signing in participants, prepping simple snacks, and taking photos.

If you are interested in helping, please contact Marcia Opatz at 320-250-8120 or theisma@hotmail.com.

**Do you have any suggestions for speakers, class ideas or instructors?
Contact a Board member.
Board member contact information is on the last page of the newsletter.**

2023 Show Volunteer List

Show Set up—Friday p.m.

Vern Iverson
Lilly Peterson
Joanie Hanson
Jo Schwalboski

Set up Display Cases Fri p.m.

Security Back Gate

Saturday, 6-9

Saturday, 9-12

Saturday, 12-3

Sunday, 8-12

Sunday, 12-4

Vendor Survey/Forms

Door Admissions

Saturday, 9-12
Vern Iverson
Keith Lorensen

Saturday, 12-3

Saturday, 3-5

Sunday, 10-1
Vern Iverson

Sunday, 1-4

Club Table

Saturday, 9-1
Lilly Peterson

Saturday, 1-5

Sunday, 10-1

Sunday, 1-4
Lilly Peterson

Security Exit Gate

Saturday, 9-12

Saturday, 12-3

Saturday, 3-5

Sunday, 10-1

Sunday, 1-4

Security—Walk Around

Saturday, 9-12
Dan Hamond

Saturday, 12-3

Saturday, 3-5

Sunday, 10-1
Dan Hammond

Sunday, 1-4

Rock Saw/Geode Cracker

Saturday, 9-12
John Krebs

Saturday, 12-3

Saturday, 3-5

Sunday, 10-1

Sunday, 1-4

Rock Pile

Saturday, 9-11

Saturday 1-5

Sunday, 10-1

Sunday, 1-4

Spinning Wheel

Saturday, 9-12
Kathee Stanwood
Mike Stanwood

Saturday, 12-3

Saturday, 3-5

Sunday, 10-1
Kathee Stanwood
Mike Stanwood

Sunday, 1-4

Sluice Box

Saturday, 9-1

Saturday, 1-5

Sunday, 10-1

Sunday, 1-4

Rock Wizard

Saturday, 10:30-1

Saturday, 1-3

Saturday, 3-5

Sunday, 10-1

Sunday, 1-4

Show Tear Down

Lori DuBois
Joanie Hanson

Monday Clean up—a.m.

Cabochons Sizing

In most cabochon measurements, the height comes first, then the width.

Remember, there are 10 millimeters in 1 centimeter, so a 40 x 30mm cab can also be measured as 4 x 3 centimeters. Most rulers in the U.S. have one side for centimeters.

For comparison, a U.S. quarter is 24.26mm in diameter (across); a quarter is nearly the same size as a 25mm round cabochon. A U.S. penny is 19mm in diameter, or 3/4" across, very close to an 18 x 13mm cab.

https://www.wirejewelry.com/pages/jewelry_measurements.html

ROX BOX

A place to advertise rock items to sell or trade and to inquire about items to purchase.



The Cuyuna Rock, Gem, and Mineral Society accepts no responsibility for any dissatisfaction that may occur by either party, sell or buyer. The Society does not profit in any way by sales transactions.

Wanted: Rock Saw, 14-16 inch blade and tumbler, 20+ pounds. Contact Mike Stanwood at 218-821-4775.

For Sale:

New 15 lb. barrel tumbler \$300.
Call John Krebs 320-260-7349.



FOR SALE: Canopy top 10 foot New; I bought it and it does not fit. My tent has too much of a peak on top. \$25.00
Ed Opatz 320-250-1363 or opatz1@att.net

2023 Cuyuna Agate & Mineral Show

Saturday, May 13 9-5 Sunday, May 14 10-4

Crow Wing County Fairgrounds

2000 S. E. 13th St., Brainerd, Minnesota



Adults \$2.00 Under 12 \$1.00 Mothers free on Sunday!

Sanitizing station available; current Covid rules will be followed.

**Agates from around the world ♦ Handcrafted Jewelry ♦ Fossils
Crystals ♦ Unique Décor Items ♦ Prizes ♦ Specimens ♦ Fluorescents
Displays ♦ Spinning Wheel ♦ Knappers ♦ Rough Rock
Equipment & Lapidary Supplies ♦ Minerals ♦ Agate rock pile for kids
Slabs & Cabochons ♦ Rock Cutting ♦ Geode Cracking ♦ Sluicing
Ask the Wizard of Rocks ♦ Concessions ♦ ATM Available**

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Mineralogical &
Geological Societies



Member
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of Mineralogical
Societies



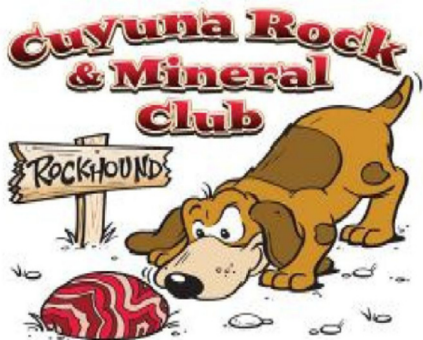
Buy Sell Trade

For more information call /text Ed Opatz at 320-250-1363 or email at opatz1@att.net

www.cuyunarockclub.org

Marcia Opatz, Editor
Cuyuna Rock, Gem
& Mineral Society
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FIRST CLASS MAIL



The Agate Explorer

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Notes from the President

Is anyone interested in going to South Dakota in late April? Personally, I don't think I'd be able to go, but I can help organize a trip if there are people interested. I'm not going to waste my time if no one wants to go.

Marcia and I have been organizing for our show, which is May 13 and 14. That seems like a long way off, but not in terms of advertising, getting porta potties ordered, food vendors, and helping vendors get registered. It's a good thing I have good cell phone and internet service almost all the time. You can still get a lot done away from home.

We will be having the Pebble Pup day camp on June 10th. It's a full day of rock-related activities for a couple dozen kids. Are you interested in helping? We still could use some people to man an activity station.

Club member, Matt Metzler lives in Arizona now, so I invited him to go to my (agate) claim with me. Since Matt is a geologist that sure was educational! A couple of days later I could apply some information he gave me about the best places to look for agates in host rocks. So an old dog CAN learn new tricks!



Ed Opatz