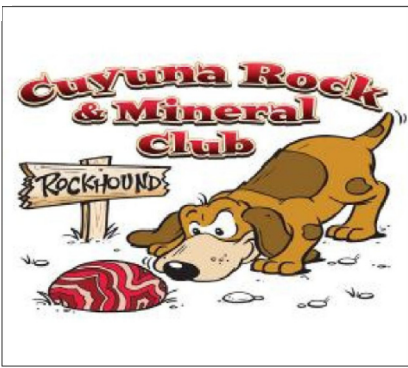


The Agate Explorer

June 2023



Show Volunteer Thank You

Saturday, June 10
Following the meeting
approximately 4:30 p.m.
Four Sea's Supper Buffet
403 8th Ave. N.E., Brainerd
(next to Cub Foods)
Anyone who volunteered at the show will receive a free meal. Volunteers may bring family members who did not volunteer and pay for their meal(s).

Please R.S.V.P. if you plan to attend so we can notify Four Sea's of a total number.
Call or text president, Ed Opatz,
320-250-1363 by Wednesday, June 7th.

A Few Show Stats

3192 people attended
(plus vendors, Club members, etc.)
Vendors: 79; 33 outside & 46 inside
Money from admissions—\$5,091.00
Money from spinning wheel—\$879.00
Money from sluicing—\$720.00
Money from geode cracking/rock cutting
\$498.00



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.

2023 Field Trips

June 24-26 Thunder Bay Canada mining for amethyst.

Things to know:
Need enhanced driver's license or passport to enter Canada. No DWI in last 10 years. Camping and motels are available. Must be 18+ to go into the mine; younger participants may pick from the piles outside the mine. Prices are \$50 per provided bucket for mine finds. \$25 for pile finds. Garden rocks are a separate (often less expensive) price.

July 21 (tentative) Northland Monument Tour and Agate Pick
Things to know:



Free tour of how rock equipment, followed by local agate pick and bring your own picnic lunch. Carpooling may be available.

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.

If you are interested in any of the above trips, please contact Ed Opatz at 320-250-1363 or opatz1@att.net.

Club Calendar

- June 9**—Pebble Pup day camp
- June 10**—Pebble Pup and Club agate pick meet at Franklin at 9 a.m.; Board Meeting at noon, general meeting at 2:00, show volunteer appreciation dinner to follow
- June 24-26**—Field to Thunder Bay for amethyst mining
- July 8**—meeting date
- July 21**— Tentative Northland Monument Tour and Agate Pick
- Approx. August 5-11**—American Federation conference/rockhounding
- August 12**—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, April 1, 2023**

Board Meeting

Call to order: The meeting was called to order at 12:15 pm by President Ed Opatz, Present were Vice-President Lori DuBois, Treasurer Kevin Martini, Secretary Joanie Hanson, and Board members-at-Large Vern Iverson, Judi Laurence, and Jo Schwalboski.

A motion was passed to approve the minutes from the March 2023 Meeting.

Treasurer's report: Kevin gave the report and the board approved and passed a motion to pay the bills for the month. The full report will be posted at the rock club.

A motion was approved to buy a new rock show sign for out front of Franklin Arts Center. Also, to purchase more security vests. Some dates on existing signs need to be changed.

Can the second building be heated? We can't use propane or gas heaters. Options are being looked at.

A new food vendor has been added to the show in addition to the existing food vendor.

Marcia reviewed all of the advertising that

has been done so far for the show. One new item is an ad in Rock & Gem magazine, April issue.

Registrations have now been turned off for the show.

Meeting adjourned 1:03pm.

General Meeting

The meeting was called to order by President Ed Opatz at 2:03 pm. 34 members and 1 guest were present.

Treasurer's Report- Kevin reviewed the report with the members and it will be posted at the rock club.

Ed bought new rock for the members to purchase. Members that came to the meeting today were able to have the first look and option to buy.

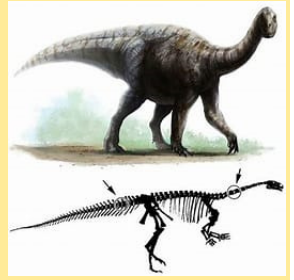
Members that helped with rock sorting for the show were given a 1-pound choice of rock slabs.

We need more volunteers for the rock show- all members are expected to help at the show in some capacity as they are able. Please contact Ed Opatz if you can volunteer.

Door prizes: Lori DuBois, Karen Knierim, Lisa Hughes.

**A New Spinosaurid Species
Discovered in Spain**

Fossil fragments found in Spain are pointing to a new species of dinosaur, researchers said.



Scientists have proposed a new species of spinosaurid after studying the specimen, which includes a right jaw bone, one tooth and five vertebrae, found in the Arcillas de Morella Formation in Castellon, Spain, in 2011, according to a study published in Scientific Reports.

Spinosaurids are often characterized by their large bodies, which stand on two feet. The group of dinosaurs, which include the Spinosaurus and Baryonyx, are also typically carnivorous.

The fossils date to the late Barremian or Early Cretaceous period -- between 127 million and 126 million years ago, the authors said. Based on the remains, the researchers believe the dinosaur was between 10 meters to 11 meters long, or about 32 feet to 36 feet.

After comparing the specimen to other spinosaurids, the researchers determined it as both a new species and a new genus of spinosaurid, naming it Protathlitiscinctoensis, with Protathlitis meaning "champion" in Greek and "sinctoensis" in honor of the town, Sincto, in which the fossils were uncovered, according to the study.

The finding suggests the Iberian peninsula may have been a diverse area for medium to large-bodied spinosaurid dinosaurs, shedding further light on the origin and evolution of the type of dinosaur.

It is believed that spinosaurids may have originated in Europe and then migrated from Africa to Asia, according to the paper. Evidence of their existence in Spain is mostly based on fossilized tooth remains.

The researchers believe this new species may indicate that spinosaurids appeared during the Early Cretaceous period in Laurasia -- a large area of land in the northern European hemisphere -- with two sub-groups of species occupying western Europe, according to the paper.

The spinosaurids may have later migrated to Africa and Asia, where they diversified.

"In Europe, baryonychines were dominant, while in Africa, spinosaurines were the most abundant," Santos-Cubedo said.

<https://abcnews.go.com/International/new-dinosaur-species-spinosaurid-discovered-spain-researchers/story?id=99390195>



**June
Birthstone
Pearl**

Pearls are the only gems found within living creatures, both salt and freshwater mollusks. However, most pearls on the market today are cultivated or cultured, since they now occur extremely rarely in nature. While pearls require special care, they have an enduring appeal for jewelry, particularly as the traditional June birthstone.

The finest pearls display unblemished surfaces with even coloring. Thus, there is a natural association with qualities like honesty, purity, and wisdom. Some cultures associate pearls with the divine, believing that pearls were tears shed from heaven, while others placed pearls in the graves of their loved ones. Ancient Chinese lore claims that pearls represent wisdom and power and are carried by dragons.

While most still think of pearls as white, they are now available in a range of colors including black, green, gold, silver, and various pastels depending on where they were farmed.

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

Wire Jewelry Making Tip

Question:

I want to use some fresh water pearls with sterling silver. Will the aging of the silver damage the pearls?

Answer:

No, silver tarnish will not harm fresh water pearls. Time will eventually cause the sterling silver to tarnish and the way it is cleaned needs to be a careful procedure to avoid damage to the pearls. Several gentle methods will work; use an ionic cleaner such as the Speed Brite, use a baking soda/aluminum foil/hot water bath, or a silver polishing cloth. Do not use toothpaste as it has abrasives that can leave fine scratches on the silver and destroy the nacre on the pearls. Or upgrade the sterling to Argentium to enjoy longer periods of time between cleanings.



<https://www.wirejewelry.com/jewelry-making-blog/464/silver-tarnish-and-water-pearls/>

Mines' Museum of Geology Celebrates 100th Anniversary

On Saturday, May 27, the Museum of Geology at South Dakota Mines commemorated its 100th anniversary. The event was attended by locals and visitors, gathering to honor the museum's rich history and contributions to the field of geology.

The Museum of Geology has a remarkable legacy that extends far beyond its official opening to the public in 1923.

Kayleigh Johnson, assistant director of the Museum of Geology, says, "We open our doors in 1923. We were actually around longer than that. We were founded alongside the School of Mines in 1885 before South Dakota was even a state."

To celebrate its centennial milestone, the museum curated a range of exciting and interactive activities for attendees of all ages. Visitors had the chance to explore a rock and fossil identification booth, participate in the lively Pterodactyl tournament to win prizes and witness the spectacle of a Dinosaur Rodeo, where various mascots competed in rodeo activities using dinosaur replicas.

The museum also fostered educational engagement through booths hosted by its partners, including Badlands National Park, Journey Museum, Rushmore Cave, and Agate Fossil Beds.

As a highlight of the 100th anniversary celebration, the museum granted the public access to its Paleontology Research Lab. This exclusive opportunity allowed visitors to venture behind the scenes and witness the hub of fossil research and study.

Within the PRL, a majority of the museum's extensive collection is housed. "Any museum you go to has about 5% to 10% of their collection on display at any time. But they have spaces that store the 90% of other stuff that. You guys don't get to see," explained Johnson.

While the anniversary festivities have concluded, the Museum of Geology remains open for regular operations.

https://www.newscenter1.tv/news/south-dakota-mines-museum-of-geology-celebrates-100th-anniversary/article_fb910588-fcc1-11ed-bd0c-4f1a0c40340e.html#1

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.

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 specimen
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
New!
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

Granite is the ultimate silicate rock. On average oxygen and silicon account for 75% of the earth's crust. The remaining 25% is split among several other elements, with aluminum and potassium contributing the most to the formation of the continental granitic rocks.

Upcoming Midwest June Rock Show

2-3—SPRINGFIELD, MO: Ozarks Gem & Mineral Society; Prince of Peace Lutheran Church; Fri. 9-5, Sat. 9-5; Free; Website: ogms.rocks

3-4—ONALASKA, WI: Coulee Rock Club of La Crosse WI; Onalaska Omni Center; Sat. 10-5, Sun. 10-4; \$2, under 7 free; Email: rockinbabe@acegroup.cc

9-11—MILACA, MN: Hairy Mosquito Trading Co; Fri. 9-5, Sat. 9-5, Sun. 9-5; Free; Email: dalesrocks_more@outlook.com

17-18—HAMILTON, MT: Bitterroot Gem & Mineral Society; Ravalli County Fair-

ground; Sat. 10-6, Sun. 10-5; Free; Website: www.bitterrootgemandmineral.org/contact-us

17-18—CORVALLIS, MT: Bitterroot Gem & Mineral Society; Ravalli County Fairgrounds, P.O. Box 622; Sat. 10-6, Sun. 10-5; \$3, under 13 free; Website: Bitterrootgemandmineral.org

23-25—BEDFORD, IN: Lawrence County Rock Club; Lawrence County Fairgrounds; Fri. 10-6:30, Sat. 9-6:30, Sun. 10-4; Free; Website: www.lawrencecountyrockclub.org

23-25—ELDON, MO: Osage Rock & Mineral Club; Eldon Community Center; Fri. 2-6, Sat. 9-6, Sun. 9-3; Free; Website: [Osage Rock and Mineral Club \(Facebook\)](https://www.facebook.com/OsageRockandMineralClub)

For Sale: Jen-ken kiln af3p 11x11x4.5. Comes with at least \$400 worth of glass, forms, and supplies. Everything for \$750. Call Kevin Martini at 218-770-8917.



For Sale: 5 spools (10 yards each) of chain in a variety of colors. Includes jump rings and clasps. \$25 for all. Also some sterling silver chain. Please call Marie Israel at 218-924-4017

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

Gem Encyclopedia

Alexandrite



"Emerald by day, ruby by night," alexandrite is well known for displaying one of the

most remarkable color changes in the gem world — green in sunlight and red in incandescent light. However, the modern June birthstone is so rare and expensive few people have seen a natural alexandrite. This variety of gem-quality chrysoberyl makes an excellent jewelry stone (if you can acquire one).

Alexandrites have two primary value drivers. First, the closer the colors to pure green and red, the higher the value. Second, the more distinct the color change, the higher the value. Alexandrites can exhibit everything from 100% to just 5% color change. Thus, the most valuable gems would have a 100% color shift from pure green to pure red. Blue-greens and purplish or brownish reds hold less value.

Clarity also plays a significant role in grading. As is the case with a majority of gems, most naturally occurring alexandrite isn't clean, facetable material. Most is best suited for cabbing. However, an alexandrite's color change has more effect on its value than its clarity. For example, take two alexandrites of equal size. One gem is eye clean, with a 50% greenish blue to brownish red color change. The other is an opaque cabochon with a 100% green to red color change. The opaque cab would be considered more valuable.

Size always affects alexandrite value. In sizes up to one carat, top-quality natural gems can sell for up to \$15,000 per carat. Over one carat, the prices range from \$50,000 to \$70,000 per carat!

Alexandrite was discovered in the Ural Mountains of Russia in the 1830s. Noted mineralogist Nils Gustaf Nordenskiöld was the first to realize this unusual green, color-changing gemstone was something new. In 1834, Count Lev Alekseevich Perovskii named the stone in honor of the then future Czar of Russia, Alexander II. This connection to the Czars likely helped the gem gain prestige by association. In the 19th and early 20th centuries, as historian David Cannadine notes, the Czars were widely considered the standard for royal pomp. (More recently, the British Royal Family has enjoyed this position). A combination of beauty, celebrity, and rarity helped create a mystique around this gem in the public imagination.

By the 1950s, alexandrite joined the list of birthstones as the modern alternative to June's traditional pearl.

If not for alexandrite's popular associations, the circumstances necessary for its formation, combined with its mining history, might have

ensured the gem would be little known as well as extremely rare. To form, alexandrite requires both beryllium (Be), one of the rarest elements on Earth, and chromium (Cr). (Emerald also requires these two elements). However, Be and Cr rarely occur in the same rocks or in geological conditions where they interact. Furthermore, the original source of alexandrites was almost exhausted after only a few decades of mining.

Since the 1980s, more sources have emerged. Nevertheless, alexandrite remains one of the rarest gemstones.

Alexandrite is a variety of the gem species chrysoberyl, well-known for its chatoyancy or "cat's eye" effect when cabbed. As members of this species, alexandrites can also show a cat's eye effect. However, such gems are quite rare.

A considerable market exists for lab-created alexandrite, first synthesized in the 1960s. Manufacturers can grow alexandrites through melt, hydrothermal, or flux methods. These synthetic stones have the same chemical and physical properties as natural alexandrites. They are real alexandrites but not natural. Although the synthetics cost far less than their natural counterparts, they still rank among the most expensive synthetic gemstones available.

Gemologists can sometimes identify synthetic alexandrites by inclusions caused by various growth procedures. Melt techniques, like the Czochralski method, can create curved striae. Hydrothermal growth can create bubbles and liquid inclusions. Flux methods can leave inclusions of platinum or other seed materials.

A considerable market also exists for look-alikes or simulants. These can range from synthetic corundum with alexandrite-like color change (produced very inexpensively) to actual, natural color-change chrysoberyl stones. Although alexandrite is a variety of chrysoberyl, not all color-change chrysoberyls are alexandrites. These gems also command a high price, but, again, not nearly as high as alexandrites. (Editor's note: No gemological consensus exists for restricting the definition of alexandrite to color-change chrysoberyl gems with a limited, "classic" range of color shift).

Buyer beware. If you find an alexandrite at a relatively bargain price, it's likely not natural and possibly not an alexandrite. A professional gemological laboratory can make a determination.

Natural alexandrites usually don't receive any treatments.

Mines in the Urals have re-opened but only produce a few carats of gem-quality material each year. In 1987, alexandrite was discovered in Brazil and later in Madagascar, Myan-

mar, Sri Lanka, and Zimbabwe. However, none of these sites produce as rich and vivid a color change as the original Russian source. The main source of large, natural alexandrite gems today is actually antique jewelry.

The largest known faceted alexandrite, a 65.7-ct green/red color change stone from Sri Lanka, resides at the Smithsonian Institution. The largest Russian gems weigh about 30 carats. However, the vast majority of alexandrites weigh under one carat. Stones over five carats are very rare, especially with good color change.

Other alexandrites of notable size include in the following:

British Museum of Natural History (London): 43 and 27.5 cts (Sri Lanka).

Institute of Mines (St. Petersburg, Russia): cluster of three crystals, 6 x 3 cm (Urals).

Fersman Museum (Moscow, Russia): crystal group, 25 x 15 cm, crystals up to 6 x 3 cm (Urals).

Private Collections: stones up to 50 cts have been reported.

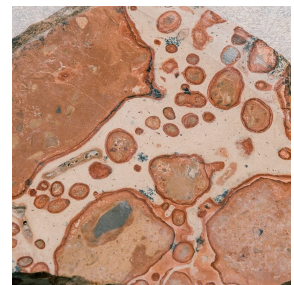
With a hardness of 8.5, alexandrite makes a very durable stone suitable for any jewelry setting. Nevertheless, take care when faceting the stone. Alexandrite is still sensitive to knocks and extreme heat.

These gems have no special care requirements. You can clean them mechanically, per the instructions of the system used. Of course, you can also wash them with warm, soapy water and a brush.

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

The World of Jasper

Big Bang Jasper



Big Bang Jasper is a type of jasper originating from the high mountains of Peru, and is relatively rare. Classic colors are rusty beige, cream, and blue gray, with pops of those colors throughout the stone.



Paleontologist and Nat Geo Explorer Steve Brusatte became obsessed with dinosaurs as a kid when he realized that actual dino discoveries contradicted what he had seen in outdated books. “The dinosaurs they were finding and describing at the time were so different from the dinos that were in all the tired old books in the library,” Brusatte says. “And we’re finding out even more information right now.”

Baby Tyrannosaurs were probably really cute. Kids likely know that this dino king stomped and chomped its way through what’s now western North America. But a Tyrannosaurus rex hatchling? Unexpectedly adorable, according to recreations from the American Museum of Natural History in New York City.

No bigger than a skinny turkey with a super-long tail, the duckling-like T. rex baby would’ve hatched covered in a layer of fuzzy, downy feathers. As it grew, the older, not-so-cute teenage dino would gain almost five pounds a day, eventually topping out around 40 feet long at age 20.

Many adult dinos were feathered, too. Toss out the idea that all dinos were covered in scaly skin—those recreations might be like drawing a tiger without its fur. “A lot of dinosaurs had feathers,” Brusatte says. “Some species used them for display—sticking out their arms to attract mates or intimidate rivals.”

The largest known fully feathered dino—a 30-foot-long T. rex cousin called Yutyrannus huali—likely used its feathers to keep warm. But other species had flight feathers. These early birds were the only dinosaurs to survive the asteroid that killed the rest of these animals 66 million years ago. That warbler in your backyard? Turns out it’s a T. rex cousin, too.

They were colorful. Most pictures kids see of dinosaurs depict them as gray or brown reptiles. But new research techniques in the last few decades have revealed a colorful prehistoric world. For instance, a turkey-size dino called Sinosauropteryx likely had an orange-and-white striped tail. And experts think a dinosaur named Caihong juji might’ve had rainbow-colored, iridescent, shiny feathers on its neck and chest.

To figure this out, scientists examined the remains of a part of a cell that once contained melanin, the same pigment that gives humans our hair, eye, and skin color. “We never thought we’d be able to learn what colors the dinosaurs really were,” Brusatte says.

You drink the same water as dinosaurs. Water on Earth arrived billions of years ago—perhaps as ice on meteorites that slammed into the still-forming planet. And the water molecules have been evaporating, condensing into clouds, and precipitating in a cycle ever since. That means your kids are drinking the same water that the dinos did.

Some dinosaurs were tiny. Your kids might assume that all dinosaurs were as big as a highway truck. But one of the smaller known dinos, Microraptor, was little enough to hold in an adult’s hands. Weighing about two pounds, this compact carnivore had flight feathers on both its front and rear legs, likely allowing it to glide from branch to branch.

They sometimes got the sniffles. Can your kid imagine snot dripping from gigantic nostrils and hacking coughs shaking a superlong neck? In 2022, paleontologists found the first evidence of a non-avian dinosaur with a respiratory illness. The scientists made the discovery based on broccoli-shaped growths in the hollows of the dino’s fossilized neck bones similar to those in living birds and reptiles. “Having details like this makes these dinosaurs relatable,” Brusatte says. “It helps us see them as not just petrified bones but as actual animals that lived.”

These giant reptiles were snugglers. Around 70 million years ago, three young oviraptoro-

saurus died close by, leaving their fossilized skeletons huddling together. Paleontologists suggest that might be the first example of dinosaurs roosting together—like modern crows and bats—for protection or warmth. And one 2020 report theorizes that this dinosaur brooded its own eggs. “They were taking care of their eggs,” says Louise Bodt, a biology and paleontology educator at the American Museum of Natural History. “That really brings them to life for me.”

Some dinos moved like human babies. Humans are the only animals known to transition from walking on all fours to two legs—except dinosaurs. According to a 2019 paper, a one-pound hatchling dinosaur called Mussaurus patagonicus likely walked on all fours. As it grew—eventually weighing over a ton—its tail became heavy enough to allow the animal to balance on two legs.

When T. rex roamed, Stegosaurus was already a fossil. “Some people have this misconception that all dinosaurs lived together at the same time in a prehistoric tropical paradise,” Brusatte says. But for about 180 million years, dinosaur species emerged and went extinct at different times. “When T. Rex was living, every Brontasaurus and Stegosaurus that ever lived were already fossils underneath its feet,” Brusatte says.

We haven’t found all the dinosaurs. “Somebody is finding a new dinosaur species on average once a week,” Brusatte says. “And we’re finding more right now than we ever have before.” (Kids can check out the latest dino news here.) As new dino species emerge, scientists are also debating things we assume about fossils in museums. Like, is the most famous T. rex fossil, Sue, not really a T. rex after all? “That’s what’s so cool about science,” Bodt says. “It’s what we know up until now, but it’s always changing as we get new evidence.”

<https://www.nationalgeographic.com/family/article/10-dinosaur-facts-that-will-blow-your-kids-mind>

Agates From Around The World

Snakeskin Agate

Snakeskin agate is a rare variegated form of chalcedony found in parts of the United States, India, Morocco, Czech Republic, Brazil, and Africa.

It is semi-translucent and has unusual inclusions that give its surface a snake-like or scaled appearance.



www.etsy.com

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.

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.



**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 Seashells by Shelly 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
- Those Blasted Things** 924 Kniss Ave., Luverne 507-283-4027
- 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 "Impossible" Rocks Found On Top Of A Volcanic Island

In the southwestern Indian Ocean, the volcanic island of Anjouan is home to a strange geological mystery. On the island, residents and geologists keep finding a type of rock that shouldn't be there.



an abundance of it up along the ridge.

"This is contrary to plate tectonics," Class said in a Columbia University press release. "Quartzite bodies do not belong on volcanic islands."

The island formed on an ocean basin, when tectonic plates shifted away from each other and magma moved up and cooled to form basalt, of which the island is made. On Anjouan you should not expect to find the sedimentary rock quartzite, a type of sandstone made from quartz sand grains that have been compressed into quartzite over time. The island's basalt does not contain any quartz, and the island itself is too young to have formed a sizeable river delta. And yet, on the island geologists have reported for perhaps over a century that they have found quartzite in abundance.

Residents told Class that they find the rocks all the time, and use it to sharpen their knives, pointing them in the direction of yet more quartzite. Mapping it out, Class found that the amount of quartzite was "almost half a mountain".

As yet, there isn't a definitive explanation for the quartzite. A chunk of quartzite from continental crust must have found itself deposited in the ocean basin, and then raised up 4,000 meters (13,120 feet) above the seabed by the igneous basalt, yet Class told Live Science that the chemistry of the island's basalt rocks don't show an association with continental crust, calling the find "something we consider impossible, but then we find it, and once we find it, we have to explain it."

In 1900 geologists reported unusual rocks that could have been quartzite, though the documentation was too poor to know for sure. In 1969, geologists found a large formation of "sandstone" on the island near the town of Tsembehou, which was later found to be quartzite. Then in 2017, French geologist Patrique Bachelery found more quartzite at a nearby ridge. Setting out a few years later, geochemist at Columbia University's Lamont-Doherty Earth Observatory Cornelia Class started to investigate. Sure enough, she and her team found quartzite within minutes, and

Aging the quartzite will help determine when it was deposited, and hopefully how it came to be the only volcanic island in the world with a chunk of continent – possibly from the breakup of ancient continent Gondwana – sitting on it.

<https://www.iflscience.com/the-impossible-rocks-found-on-top-of-a-volcanic-island-69154>

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.



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For questions, call/text 320-250-1363.

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BLM Proposed Rule

The Bureau of Land Management (BLM) proposes new regulations that,

pursuant to the Federal Land Policy and Management Act of 1976 (FLPMA), as amended, and other relevant authorities, would advance the BLM's mission to manage the public lands for multiple use and sustained yield by prioritizing the health and resilience of ecosystems across those lands. To ensure that health and resilience, the proposed rule provides that the BLM will protect intact landscapes, restore degraded habitat, and make wise management decisions based on science and data. To support these activities, the proposed rule would apply land health standards to all BLM-

managed public lands and uses, clarify that conservation is a "use" within FLPMA's multiple-use framework, and revise existing regulations to better meet FLPMA's requirement that the BLM prioritize designating and protecting Areas of Critical Environmental Concern (ACECs). The proposed rule would add to provide an overarching framework for multiple BLM programs to promote ecosystem resilience on public lands.

According to the Midwest Federation and the Blue Ribbon Coalition if the proposed rule passes it could lead to massive restrictions (rockhounding) for public land access across all lands managed by the Bureau of Land Management.

Please submit comments on this proposed rule on or before June 20, 2023. The BLM is not obligated to consider comments made after this date in making its decision on the final rule.

Mail, personal, or messenger delivery: U.S. Department of the Interior, Director (630), Bureau of Land Management, 1849 C St. NW, Room 5646, Washington, DC 20240, Attention: 1004-AE92.

Federal eRulemaking Portal: <https://www.regulations.gov>. In the Searchbox, enter "1004-AE-92" and click the "Search" button. Follow the instructions at this website.

More information is available at:

<https://www.regulations.gov/document/BLM-2023-0001-0001>
www.blm.gov
sierraclub.org
sharetrails.org

How to Flat Lap Stones



These basic lapping procedures are based on using the Rocirolap lapping machine.

Start by adding 3 tablespoons of size 80 abrasive grit for a 20" unit or 4 tablespoons for a 24" onto the lap plate. (80 grit is for hard material like agates, jaspers, etc.)

Start the machine and pour in enough water to create a slurry (wet enough to levitate the grit but dry enough to minimize splashing).

A simple drip system can be made so that you can leave the machine unattended for hours. (Five gallon bucket with valve and plastic tubing.)

Stop the machine and add material to be lapped. A rubber ring is placed around the outer edge of the lap to prevent chipping from the bumping action.

If lapping more than one piece, encircle each

item with a rubber ring. (Rings: use water heater hose and a 2" piece of a wooden dowel of the same thickness as the inside diameter of the heater hose and then use rubber cement to seal and keep the grit from getting into the ring.)

Chipping creates scratches and must be prevented. 80 grit breaks down quickly so add a tablespoon of grit each hour for this operation.

It is IMPORTANT that the flat you are lapping weigh 1/2 lb. per square inch in diameter. Weights may be needed. Make lead weights by melting lead shot or wheel weights. Melt the lead outdoors with plenty of fresh air and NEVER USE THE CONTAINERS ASSOCIATED WITH MELTING THE LEAD FOR ANYTHING ELSE. VERY TOXIC!

For a mold form, an old stainless steel measuring cup can be used, which is slightly tapered and the weight is easily removed when cooled. These can be attached using duck tape, double back carpet tape, dop wax or placed in a Plaster of Paris mold.

After 3 or 4 hours wash off the bottom of the flat and draw lines in 1/2" squares with an aluminum marking pencil. Check in 10 minutes and see if the lines are removed. When the lines are gone, the piece will be flat.

Use straight grade abrasive grit for all lapping operations.

Thoroughly clean rocks, laps, rings, etc. upon completion of each grit stage. One speck of grit, not removed, will scratch your rock.

The next grit step will be 220 grit. Use 3 or 4 tablespoons as before with water. No need to

add additional grit per hour from this lapping stage on. Lap your piece for about 4 hours.

Thoroughly clean everything before going to the next grit stage. Some recommend going to 400 grit but try skipping to 600 grit although the process will take longer.

Examine your rock after four hours, but it may take up to eight hours. Should you want to leave the rocks in the lap overnight, pick up each rock and lay it on top the of ring so it won't get stuck to the bottom of the lap plate. Should the piece get stuck to the plate, add water and turn on the lap. It should shake loose. If not, bump the piece with a block of wood.

For polishing, use a Neoprene polishing pad or a good felt pad such as felt indoor/outdoor carpeting. Make sure the pad is a little larger (1" or so) then the bottom of the lap or your pad will float. Sprinkle 3 or 4 tablespoons of Tin Oxide on the pad and enough water to make a slurry. Add your flats and encircle them with the rubber rings. About 5 hours is required for polishing, but sizes and or weights will be a factor.

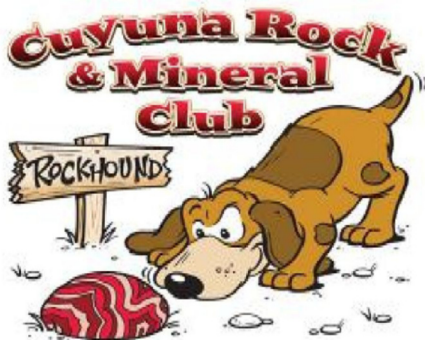
Keep your polishing pad clean by washing thoroughly occasionally. Remember not to lap using a rusty plate or the rust will scratch your material. If the lap will not be in used for a day or so, place a thin layer of oil on the lap plate to keep it from rusting.

TIP: If you are LAPPING CRYSTAL LINED GEODES, pack the center with wet soap chips to keep grit out of the centers. Thoroughly clean your flat and change the soap before each new grit step by using water from a garden hose.

<https://stoneageindustries.com/product/basic-lapping-procedures/>

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FIRST CLASS MAIL



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Members of AFMS & MWF



Notes from the President

Another show is in the rearview mirror. I am relieved that everything went pretty well, with decent weather and no catastrophes. You can see a few numbers on the front page about how we did financially. The bills have not been finalized yet.

In appreciation for all the hard work the volunteers put in there will be a dinner following the June meeting at the Four Sea's. The volunteers' meals are paid for by the Club. We hope all of you can make it.

If you are interested in going to Thunder Bay June 24-26, PLEASE CALL/TEXT ME SOON at 320-250-1363 to get on the list.

We are hoping to be able to do an agate pick on Saturday, June 10 with the kids from the day camp. We need to find a spot for a group within a short drive of Brainerd. We have someone looking, but if you know of any where we REALLY need to find out as soon as possible.



Ed Opatz

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