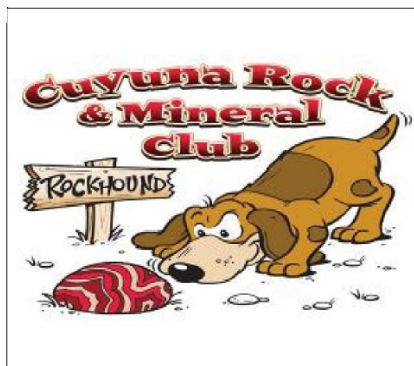


# The Agate Explorer

## February 2023



### Your dues are due!

\$20 per household for January-December.

You may paid online at [www.cuyunarockclub.org](http://www.cuyunarockclub.org) (fill out completely), in person at a meeting (PLEASE put cash in an envelope with your name), or by mailing to: Cuyuna Rock, Gem, and Mineral Society, 1001 Kingwood St., Suite B-40, Brainerd MN 56401.

### February Meeting

Come use the machines, and learn how to use any you aren't familiar with. Starts at 10 a.m.

The general meeting will be at 2:00 p.m. Joanie Hanson will show how to use wire from the rolling mill. Will also have spinning wheel and sluicing rocks to sort.

Bring any rocks you want to work on, and/or purchase something in the rock room.

**Here are the machines available for use:**  
Rolling Mill—for compacting and embossing metal  
Slab Saw—rocks up to 5" diameter  
Trim Saw—rocks up to 2" in diameter  
Genie—for polishing  
CabKing—for polishing  
Geode Cracker



**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!*

### 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](mailto:opatz1@att.net).

### 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.*



*Franklin Art Center*

### Club Information

Website—[www.cuyunarockclub.org](http://www.cuyunarockclub.org)  
Email—[cuyunarockgemclub@gmail.com](mailto:cuyunarockgemclub@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.**

### Club Calendar

**February 11**—10 a.m. Rock Wrappers & equipment usage; noon Board meeting; 2:00 p.m. general meeting

**March 11**—Meeting date

**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



### 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 December 10, 2022**

**Board Meeting/ General Meeting**

Call to Order- The meeting was called to order at 12:05pm. by President Ed Opatz.

Present were: Vice-President Sharon Smith (by phone), Treasurer Kevin Martini (by phone), Secretary Joanie Hanson, Board Members at Large- Vern Iverson, Judi Laurence, Lori DuBois (by phone), Jo Schwalboski (newly elected).

A motion was passed to approve the minutes from the November 2022 meeting.

Treasurer's Report- Kevin will post the full report at the rock club. A motion was passed to pay all of the bills for the month. The 2022 annual audit was completed and a motion was passed to accept all corrections.

A motion was passed to purchase a new large tent for use at the rock show.

A motion was passed to set the 2023 rock show advertising budget at \$2000.00.

The board decided to limit the number of outside vendors to 40 due to vendor response on the vendor surveys from the 2022 show.

We will be setting up committees for specific jobs before, during and after the show to help delegate responsibilities so those in charge have more help.

Business after hours- Franklin: On March Tuesday evening March 14th, 2023. We will need help with this activity. More information to follow.

Summer shows for spinning wheel – sign ups will be available at the February meeting for the summer shows that the club does. We will also be looking for volunteers for Kid's Camp June 9 & 10.

Work room masks- The club has purchased N-95 masks for working on the machines in the rock club.

2023 show cards are available for handout.

Respectfully submitted,  
Joanie Hanson, Secretary

**Cuyuna Rock, Gem,  
& Mineral Society**  
on the Web  
[www.cyunarockclub.org](http://www.cyunarockclub.org)

**12 Million Year Old Whale Fossil  
Skull Found in Maryland**

A whale skull fossil estimated to be some 12 million years old has been found on a beach in the Chesapeake Bay in Maryland, according to a local museum.

The discovery was made in October by a Pennsylvania man, Cody Goddard, who was searching for fossils and shark's teeth, the Calvert Marine Museum said in a statement. "It felt like we had won the World Cup of Paleontology!" said Stephen Godfrey, curator of paleontology at the museum in the



eastern US state.

"We don't yet know what species of Miocene baleen whale this is," he said. "That we will only know once it has been prepared." The museum said that it took two months to extract and move the skull, which was encased in a hardened block of sediment and weighs around 650 pounds (295 kilograms). It is the most complete fossil whale skull ever recovered in the Calvert Cliffs area, according to the museum, and has been christened "Cody" for its finder.

Godfrey said the skull has been moved to the museum's Fossil Preparation Lab and specialized tools will be used to remove the sediment that encases most of it, a process that will take many months.

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<https://phys.org/news/2023-01-12-million-year-old-whale-fossil-skull-maryland.html>

**The World  
of Jasper**

*Big Bang Jasper*




Big Bang Jasper is a recent find from 2020, and originates from the high mountains of Peru.

It was formed during the creation of the earth. This Jasper species is relatively rare. The jasper is variations of cream, subdued orange, brown, and gray, commonly with orb shapes.

<https://www.timmersgems.com/en/big-bang-jasper-from-peru-new-in-2020#:~:text=BIG%20BANG%20Jasper%20is%20a,finely%20crystalline%20variety%20of%20quartz.>

**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.**

**Agates From  
Around  
The World  
Inca Agate**



Like the Condor Agates, Peru agates have to be dug out by hand and hauled down the foothills of the Andes Mountain. As typical of agates coming from the Andes, most agates are fractured from tectonic activities (and some mining efforts).

The colors of the agates are generally watered down red, white and bluish-gray, but some had been found with brighter pink, yellow, red, orange and purple colors. Since many agates are fractured, they're usually best displayed by curvative polishing to preserve their exposed appearances and few minor fractures must be accepted. Some nodules are filled with lamellar pseudomorphs (after calcite) and yellow to red plume inclusions.

Something interesting about the basalt/andesite host which the agates were extracted from is that they contain coarse feldspar crystals which is not seen in any agate bearing basalt rocks often and that will be their characteristic identity mark. That's a sign of the feldspar crystals forming in a magma before it spilled the lava out.

<http://www.sailorenergy.net/Agates/AgatesPeruIncaAgates01.html>



## February Birthstone—Amethyst

Amethyst is crystalline quartz in colors ranging from pale lilac to deep reddish purple. It has a relatively high hardness of 7, which means it's very scratch resistant. The February birthstone makes a fine gem for any kind of jewelry.

As the color purple has long been connected with royalty, amethysts were favored by the ruling class. Over time, amethysts have also come to be associated with spirituality, mental clarity, and healing.

Specifically a purple variety of quartz whose saturation may range from pale to vibrant. Generally speaking, vivid stones are more highly sought-after and valuable than paler ones.

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



**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  
**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  
**MN Lapidary Chick** 15615 46th Ave N,  
Plymouth 763-913-9269  
**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  
**Superior Mineral Co.** 4843 124th St,  
Savage 952-894-0323  
**Twin Pines Trading Post** 31049 Front St,  
Pequot Lakes 218-839-0829  
**West Central RockHounds** 1605 1st Street  
S, Suite D10, Willmar 320-262-3451  
**ZRS Fossils and Gifts** 3018 Lyndale Ave  
S, Minneapolis 612-824-1068



## Kids' Corner

### Pyrite

'Pyrite is also known as "Fool's Gold". It is a very pretty mineral and usually forms interesting crystals.

The word "Pyrite" comes from the Greek words pyrites lithos, meaning "stone which strikes fire". They discovered that when you hit pyrite with iron it would spark. This is why it was used to start fires!



Pyrite was also polished by Native Americans in early times and used as a mirror!

At the University of Waterloo's Earth Science Museum we have a display dedicated to the different crystals of pyrite.

Used in:

- \* Jewelry (Called Marcasite)
- \* Pyrite sparks when you hit it with steel, so it was used in early rifles
- Used in the manufacturing of paper and ink

<https://uwaterloo.ca/earth-sciences-museum/resources/just-kids/minerals-kids>

## What Are The Earliest Traces of Gemstone Cutting?

If we are talking about any type of gemstone manipulation, the practice is extremely old. Some of the earliest bead necklaces, which are made from shells with holes drilled in them, go back about 100,000 years—by comparison, farming is only about 12,000 years old. We can find cabochons in ancient Egyptian jewelry dating back almost 4000 years.

The art of faceting started at the beginning of the European Renaissance in the late 1300s. Faceting is a lot more complicated than cutting cabs. Cutters need very specific tools and technology to be able to create their gems.

If we chart humans progress from the 1400s until now, everything we take for granted today was developed during this time—from the birth of science itself, to optics, mineralogy, manufacturing, electricity, global logistics, cell phones, the internet, and so forth. Every development we have made as a species has a reflection in the art and science of cutting gems. As the human race develops, so, too, does the art of cutting.

<https://www.jewellerybusiness.com/features/the-history-of-the-lapidary-historian/>

## 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.**

### For Sale:

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



**Rocks Gems Fossils Minerals**  
**JON'S GEM EMPORIUM**  
Call Or OPEN FRI AND 218-  
Text To SAT 10-6 SUN 12-5 640-  
Shop Off Hours Motley, MN 1047

**Be patient with geologists — they all have their faults.**

## Gem Encyclopedia

### Kyanite



Kyanite is an aluminum silicate mineral that's notoriously difficult to facet because of its perfect cleavage and variable hardness, even within the same crystal. When cut parallel to its (long) c-axis, it has a hardness of 4 to 4.5. When cut perpendicular to its c-axis, it has a hardness of 6 to 7.5.

Kyanite is polymorphous with andalusite and sillimanite. These gems share the same chemistry but have different crystal systems.

Faceted kyanites as display pieces or jewelry stones should appeal to collectors of unusual gems or aficionados of the art of gem cutting. If faceted by expert gem cutters, kyanites can make beautiful gemstones. However, they will typically contain many flaws and inclusions, especially in larger sizes.

Blue kyanites are popular with collectors, but these gems can occur in many other colors, including green, pink, yellow, and orange.

Some stones may have color zones. Color change in some stones, from greenish blue in daylight to purple under incandescent light, has also been reported. In rare cases, cabbed kyanites may display chatoyancy.

Due to their variable hardness, kyanites in rings should have protective settings. These gems make great options for other jewelry uses, such as in earrings, pendants, and brooches.

Some kyanites have been presented as blue

sapphire lookalikes. Although some specimens do display comparable colors, gemologists can readily distinguish these gems. Sapphire and kyanite have

different refractive indices, optic character, and specific gravity values. Of course, kyanite's hardness values also distinguish it from sapphire. However, scratch testing isn't recommended on finished gemstones.

If you're considering a kyanite as a sapphire substitute, please keep in mind that kyanite is less durable than sapphire (but also much less expensive).

In the 1970s, scientists successfully synthesized kyanites for research into their coloration. However, the challenges kyanite poses to gem cutting make the chances for a viable jewelry market for a synthetic version very improbable. Furthermore, kyanite isn't a rare mineral. It has many industrial uses, in fields such as abrasives, automotive brake materials, ceramics, and electronics.

Nevertheless, you might find so-called "synthetic kyanites" for sale online, especially as beads. Most likely, these are just lookalikes rather than lab-created kyanites. These may be instances of the term "synthetic" being used in the popular sense of "not real."

Heating pale blue kyanites to 1,200° C may cause them to lose their color.

Many localities around the world produce kyanites. Some of the most notable sources of gem-quality material include the following: United States: Connecticut; Georgia; Massa-

chusetts; Yancy, North Carolina (deep blue or green crystals up to 2 inches long, some facetable); Vermont; Virginia.

Brazil: large blue and blue-green crystals.

Kenya: fine blue color, facetable;

Machakos District (large blue crystals, banded with green; also colorless).

Mozambique: dark blue, chromium and titanium-bearing.

Switzerland: with staurolite in schist.

Austria; India; Italy; Madagascar; Myanmar; Namibia; Nepal; Tanzania; Zimbabwe.

Faceters have cut gems up to about 20 carats. Stones over 5 carats are seldom completely clean. Many of these stones are Brazilian; some are African.

Smithsonian Institution (Washington, DC): 10.7 (blue, Brazil); 9.1 (green, Brazil); 4.9 (blue, Tanzania).

Private Collection: 6.57 (blue-green, North Carolina).

Devonian Group (Calgary, Alberta, Canada): 14.0 (blue, Africa); 8.55 (blueish, Africa).

Royal Ontario Museum (Toronto, Ontario, Canada): 40.26, 12.38 (rectangular step-cut, Brazil).

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

## The "Living Rocks" Of Romania Appear To Grow, Move, and Spawn Others

The tiny Romanian town of Costești is home to a bunch of rocks like none other. Not content with the typical sedentary life of rocks, these bulging boulders slowly ooze their innards and can even appear to grow and move as if they were alive. Known as trovants, it's no surprise the geological oddballs are also known as "living rocks".

Little-to-no scientific studies have investigated trovants, but the strange stones have attracted the attention of plenty of geologists and tourists over the years. They can be found in numerous odd locations dotted in the area north of Romania's capital Bucharest.

There's some debate around this, but it's thought that trovants are sandstone concretions with tough outer layers of sand, a bit like an M&M. These concretions are harder than the rocks around them, so when the surrounding softer bedrock is eroded away they can emerge out of the Earth.

When it rains upon the rock, rainwater reacts with the mineral content of the concretions, causing its innards to leech out and resulting in the appearance of the rock expanding. Alternatively, this may form large bubble-like growths, which almost look as if the rock is spawning an offspring.

Of course, we're talking about geology here, so this is happening really, really slowly. It's estimated that the rocks "grow" less than 5 centimeters (2 inches) in 1,200 years. Don't expect to catch this phenomenon in a time-lapse video.

"Trovants are basically ovoid or spherical in shape, although they may occur in a large variety of shapes," Florin Stoican, co-manager of the Buila-Vantururita National Park, told Radio Romania International in 2010.



"Their history is rather simple. Seven million years ago there was a delta where the present-day stone quarry is. This delta contained sediments, sandstone and siltstone in particular, amassed and transported from across the continent by a prehistoric river. Subsequently, various mineral substances dis-

solved into solutions that circulated over this basin of gravel and sand," he added.

"These minerals acted as cement and glued together various sedimentary particles. Today, there are trovants with diverse compositions. Some are made from sandstone, others from gravel. In geological terminology, they are made from gritstone and conglomerates," continued Stoican.

<https://www.iflscience.com/the-living-rocks-of-romania-appear-to-grow-move-and-spawn-others-67129>



## Monthly Mineral

### Aragonite

Calcium carbonate forms as both Aragonite and Calcite, and these two minerals only differ in their crystallization. Calcite, the more common mineral, forms in trigonal crystals, whereas Aragonite forms orthorhombic crystals. On occasion, crystals of Aragonite and Calcite are too small to be individually determined, and it is only possible to distinguish these two minerals with optical or x-ray testing. The true identity of microcrystalline forms of Aragonite or Calcite may also not be known without complex testing, and this can also cause a confusion between these species.

Most large Aragonite crystals are twinned growths of three individual crystals that form pseudo-hexagonal trillings. Although Aragonite crystallizes in the orthorhombic system, most prismatic crystals are hexagonally shaped due to the twinning. Trillings can be identified by their multi-directional basal striations from each individual member crystal.

Other minerals may form pseudomorphs after Aragonite. A peculiarity of the mineral world is Calcite after Aragonite, which is a pseudomorph after an existing paramorph. Some Aragonite crystals available to collectors are actually Calcite pseudomorphs after Aragonite. A rare but popular pseudomorph is Copper after Aragonite. Aragonite may also contain sand inclusions, which give a specimen a brown color.

A particularly interesting formation of Aragonite is as a deposition product of hot, mineral-rich springs. The water releases calcium upon emerging from the spring, and forms growing mounds and thick crusts around the springs. When these are banded, they may be carved and given trade names such as "Onyx Marble", and "California Onyx".

Aragonite is the main component of many organic substances, such as pearl and coral. The iridescent surface of Pearl and mother-of-pearl is actually a layer of Aragonite secreted by mollusks and related invertebrates. Some forms of Aragonite, especially the Flos Ferri variety, are brittle and very fragile, and may easily break when touched. Such specimens need to be much care.

Aragonite was named by Abraham Gottlieb

Werner after Molina de Aragón, Spain, the type locality where this mineral was first described.

### Varieties



**Alabaster** - Massive, fine grained variety of Gypsum. Occasionally may also refer to a translucent, banded type of Aragonite in the form of Travertine or Tufa.



**Flos Ferri** - Filiform variety of Aragonite composed of wormlike intergrowths resembling branching coral.



**Mossottite** - Strontium rich variety of Aragonite, or mixture of Aragonite and Strontianite.  $(Ca,Sr)CO_3$ . Also known as Strontian Aragonite.



**Nicholsonite** - Zinc rich variety of Aragonite.  $(Ca,Zn)CO_3$ . Also known as Zincian Aragonite.



**Onyx Marble**—Travertine or Tufa in the mineral form of Aragonite or Calcite that exhibits color banding.



**Satin Spar**—Fibrous variety of Gypsum. May occasionally also describe a fibrous form of Calcite or Aragonite.



**Tarnowitzite** - Lead rich variety of Aragonite, or mixture of Aragonite and Cerussite.  $(Ca,Pb)CO_3$ . Also known as Plumboan Aragonite.



**Travertine** - Mounds of calcium carbonate formed from hot springs that contain calcium-rich water that bubbles up to the earth and cools down, and its capability to hold calcium is reduced. The water eliminates the calcium, and the calcium forms a growing mound of

calcium carbonate, which is porous. Travertine is usually Aragonite, although it may also be Calcite.



**Tufa**—Aragonite (or Calcite) formed from precipitating water that traps in organic matter, such as leaves, twigs, and moss.

Also calcareous mounds formed from deposition of hot springs that trap in organic matter.

The namesake locality for Aragonite is Molina de Aragon, Spain, where excellent trillings occur at the Gallo river. Spain has also produced some of the finest trillings, in locations such as Los Molinillos (Minglanilla), the Retamal Ravine, and the Salt Mine in Cuenca. Excellent Aragonite has also come from the famous Sulfur mines at Agrigento Province in Sicily, Italy

Aragonite has come from Austria in a Siderite mine in Eisenerz, Styria (mainly in the Flos Ferri variety), and in the salt mines of Salzburg. The old iron mines at Frizington, Cumbria, England; as well as the locality of Vitosov, Moravia, Czech Republic; have both been good specimen producers.

A recent producer of specimen-grade Aragonite is Liupanshui, Guizhou Province, China. One of the most prolific occurrences for this mineral, in large trillings and in aggregates of reddish-brown crystals, is the Tazouta Mine near Sefrou, Morocco.

In the U.S., New Mexico has provided many fine Aragonite specimens at the Kelly Mine, Magdalena, Socorro Co.; at Lake Arthur, near Roswell, Chaves Co; and at Las Cruces, Dona Ana Co. Fine Aragonite has also come from Bisbee, Cochise Co., Arizona; the Grand Deposit Mine, White Pine Co., Nevada; and the Northern Lights Mine, Hussman Spring, Mineral Co., Nevada. Other Western occurrences are Morro Bay, San Luis Obispo Co., California; the Oquirrh Mountains, Tooele Co., Utah; and Fort Collins, Larimer Co., Colorado. Midwestern and Eastern localities include Cave-in-Rock, Hardin Co., Illinois; Sterling Hill, Ogdensburg, Sussex Co., New Jersey; and Paterson and Prospect Park, Passaic Co., New Jersey.

<https://www.minerals.net/mineral/aragonite.aspx>

## How to Polish Jewelry & Metal in a Rotary Tumbler with Kim St. Jean

[https://www.wirejewelry.com/jewelry\\_making\\_videos/How-to-Polish-Jewelry-and-Metal-in-a-Rotary-Tumbler\\_38.html](https://www.wirejewelry.com/jewelry_making_videos/How-to-Polish-Jewelry-and-Metal-in-a-Rotary-Tumbler_38.html)

Kim is an award winning instructor, author and jewelry designer. She has written three books; *Mixed Metal Mania*, *Metal Magic*, and *Colorful Wirework Jewelry*. Kim was elected one of the Top Ten Instructors in the country by the attendees of the prestigious Bead & Button Show. She now has 36 instructional videos available and numerous how to videos on YouTube.

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.

## The Worst Job in Lapidary

by James Marburger  
*Lincoln Gem and Mineral Club*  
The Pick and Shovel

I have been in the lapidary hobby for 60 years and have enjoyed all aspects of the hobby, starting with the excitement of finding a rock which has an intriguing outside. Now this rock is a beauty, but it is on to a tumbler to polish its outside. A beauty for sure, but what is inside? Now to a saw. Oh man! I am hooked. Saw-saw-saw.

Whoa, the saw is full of rock dust and oil. This oil must be cleaned up so I can continue the sawing of rocks. Armed with a putty knife, bucket, many rags, and some elbow grease, the cleaning begins. What an unbelievably dirty job that is. I can't tell you how many saw cleanings I have done, from a 6-inch trim saw to the big boy 24-inch saw. There must be a cleaner and easier way to tackle this job.

Fast forward to 2022. I have just found a way to clean the saw with a shop vacuum cleaner.

Now it is not just a shop vacuum; that would introduce saw oil to the filters and foul the shop vacuum. By adding a cyclone dust separator to the shop vacuum, it will collect all the dust or oil before it enters the shop vacuum. Harbor Freight has the Bauer cyclone dust separator kit for a 5-gallon bucket for a cost around \$40.00. Add a 5-gallon bucket and a length of soft tygon one inch tubing to reach the bottom back of the



saw and you have a mean cleaning machine. On the suction tygon tubing, a screen should be added to prevent chunks from plugging the hose. Start the vacuuming with the heavy sludge first, then the "cleaner oil" to flush the tubing of the heavy sludge.



Inline setup



Oil moved to recycler

With the shop vacuum setup, I now can clean the saw in about 15 minutes instead of hours of dirty work with oil to the elbows. One side note is knowing how much oil is in the saw since the bucket is only 5-gallons. I suggest emptying the bucket after 3 gallons to prevent overfilling. This is my dirty saw My saw after cleaning Inline setup Oil moved to recycler Once the oil has been vacuumed, the oil sludge can be filtered by placing it in a brown paper bag that is placed in a bucket with holes in it. This bucket is placed over another bucket to catch the filtered oil. I use a plastic plant pot to hold the paper bag which is a bit larger than a paper lunch bag. The oil will filter and the sludge will stay in the bag. I leave the sludge bag draining until more oil is needed to be filtered. This bag can be placed in a plastic trash bag and sent with the trash to the dump. The filter can be upscaled to use large paper groceries bag if larger amounts of oil need filtered. Good luck and happy cleaning your saw.

## 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 and blue variegated  
Obsidian  
Condor Agates  
Agua Nueva Agates  
Polychrome Jasper  
Tabasco Agate Pairs  
Sunset Jasper  
Noreena Jasper  
Tiger Iron  
Kumerha Jasper

## 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.

## Bench Tools Not Commonly Used

**Not Just For Oral Hygiene** Use a motorized throw away toothbrush, such as a Crest spin brush, on articles that need a quick cleaning. I let the brush do all the work. It gets behind stones perfectly without scratching polished pieces. I keep the brush next to the ultrasonic at all times for quick dipping.

**Fast Food, Fast Find** I use small paper cups (the kind fast food restaurants have for condiments) to hold my parts. I keep them handy on my bench to hold jump rings or sizing pieces. I label them on the side for quick spotting.

**Bottoms Up** I rubber banded a bottle cap to my bench pin for a pool of oil for my setting burs. It's always there when I need a quick dip.

**Nail It Down** Don't think it's not possible—you can nail that runaway pedal easily. Just find the right hole and attach it to the floor. Velcro does a good job also.

**Eye This** I use a small empty eye drop bottle for my flux. Soldering has never been easier. Just drip it on and solder away.

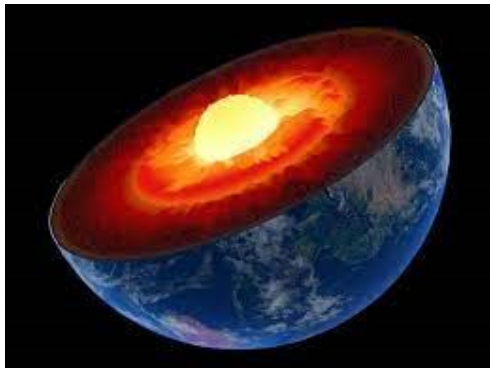
**Java Jewels** Use coffee filters to clean your plating solution. It works best if you pour the solution through the filter while the solution is hot. Then throw the used papers in with your sweeps.

**Forget Those Lighters** I know it's quick but it is not safe. Never keep a lighter around a flame. Look into getting an electric starter. They are available in most suppliers catalogs.

<https://www.ganoksin.com/article/jewelry-making-bench-tips/>



## Earth's Core Has Stopped and May Be Reversing Direction, Study Says



Earth's inner core has recently stopped spinning, and may now be reversing the direction of its rotation, according to a surprising new study that probed the deepest reaches of our planet with seismic waves from earthquakes. The mind-boggling results suggest that Earth's center pauses and reverses direction on a periodic cycle lasting about 60 to 70 years, a discovery that might solve longstanding mysteries about climate and geological phenomena that occur on a similar timeframe, and that affect life on our planet.

Of course, it must be noted this is more or less the plot of the 2003 disaster film *The Core*, but there's no need to worry about averting an impending apocalypse by nuking the center of Earth. While the core's rotation influences Earth's surface environment, scientists think this periodic spin switch is a normal part of its behavior that does not pose risks for life on our planet.

Earth's inner core is a solid metal ball that is 75 percent the size of the Moon. It can spin at different speeds and directions compared to our planet because it is nestled within a liquid outer core, but scientists are not sure exactly how fast it spins or whether its speed varies over time.

Located some 3,000 miles beneath our feet, the core experiences intense heat on par with the surface of the Sun. Because it is so remote and difficult to study, the inner core remains one of the least understood environments on our planet, though it's clear that it plays a role in many processes that make our world habitable to life, such as the generation of Earth's protective magnetic field, which blocks harmful radiation from reaching the surface.

Now, Yi Yang and Xiaodong Song, a pair of researchers at Peking University's SinoProbe Lab at School of Earth and Space Sciences, have captured "surprising observations that indicate the inner core has nearly ceased its rotation in the recent decade and may be experiencing a turning-back in a multidecadal oscillation, with another turning point in the early 1970s," according to a study published in *Nature Geoscience*.

"There are two major forces acting on the inner core," Yang and Song said. "One is the electromagnetic force. The Earth's magnetic field is generated by fluid motion in the outer core. The magnetic field acting on the metallic inner core is expected to drive the inner core to rotate by electromagnetic coupling. The other is gravity force. The mantle and inner core are both highly heterogeneous, so the gravity between their structures tends to drag the inner core to the position of gravitational equilibrium, so called gravitational coupling."

"If the two forces are not balanced out, the inner core will accelerate or decelerate," they added. "Both the magnetic field and the Earth's rotation have a strong periodicity of 60-70 years. We believe that the proposed 70-year oscillation of the inner core is driven by the electromagnetic and gravitational forces." Song has spent decades trying to unravel the mysteries of the inner core by studying seismic waves that pass through this distant region. He was part of the team that first reported evidence of the inner core's rotation in 1996 by measuring slight time (or "temporal") changes in these waves, which are generated by earthquakes.

However, the origin of the temporal changes has been a matter of debate within the geoscience community ever since, as some scientists think the wave patterns arise from phenomena at the boundary between the outer and inner core.

"Some researchers are still arguing that the temporal changes do not come from the inner-core rotation, but from localized deformation at the inner core boundary," Yang and Song said. With their new study, the pair "tried to gather more data over a longer duration to test different models."

To that end, the team studied seismic waves that passed through the inner core made by earthquakes that occurred since the 1960s. In particular, they looked for "doublet" events, which are "repeating earthquakes with nearly identical waveforms at common receivers," according to the study. By analyzing the slight temporal changes between these doublets, Yang and Song were able to probe the rotation of the inner core.

As it turned out, the temporal changes reached a minimum around 2009, suggesting that the inner core had paused rotation around this time, creating seismic observations that seem more static. The team was even more astonished when they identified a similar turning point in the early 1970s, hinting that the core stops and reverses rotation on a periodic cycle.

"Our results further support the inner-core rotation, and more interestingly, reveals the multidecadal pattern of the rotation," Yang and Song said.

The results offer an unprecedented look at the searing pit of our planet, a region that continues to evade clear explanation, and it also has big implications for understanding the familiar world we inhabit on Earth's surface.

For instance, the team notes that the same multidecade cycle has also been observed in Earth's climate system, as global mean temperatures and sea level rises appear to oscillate every 60 to 70 years. The length of Earth's day, which shifts slightly over time, also seems synced to the proposed cycle. For this reason, the new findings "may imply dynamic interactions between the deepest and shallowest layers of the solid Earth system," according to the new study.

"We pointed the existence of similar periodicity of different observations, forming a resonating system," according to Yang and Song. "The linkage, however, is less clear at the moment. The gravitational coupling between the inner core and the mantle may cause deformation at the Earth's surface, which would affect the sea level. The changes of the sea level and the Earth's rotation may affect the global atmosphere circulation and temperature. The resonance of different systems may also amplify the mutual interactions."

It's tantalizing to imagine that our most mundane experiences—such as the length of our days, and the climatic patterns that guide our local weather—might be sculpted by the rotational cycles of a weird metal ball at the center of our world. Untangling these nuances will require new models and continued observations of Earth's enigmatic central realm. The next steps are "to build quantitative models of the physical mechanisms on the multi-decadal oscillation system" and "to monitor how the rotation changes in the future," Yang and Song said.

"We'd expect it to rotate westwards relative to the surface of the Earth in the coming years and decades," the pair concluded. "Seismic waves are still the best way and thus continuous operation of high-quality seismic networks is crucial in this regard."

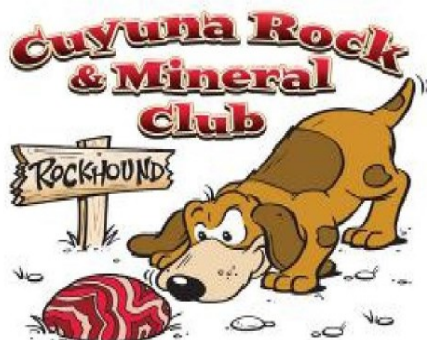
<https://www.vice.com/en/article/xgyje7/earths-core-has-stopped-and-may-be-reversing-direction-study-says#:~:text=For%20instance%2C%20the, GEOLOGY>

**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.**

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## FIRST CLASS MAIL



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## Notes from the President

Our Club roster list for 2023 is much smaller than it was before the new year. Have you paid your dues for this year? If you aren't continuing your membership I would be interested in hearing why. Please call, text, or email me if you could. If we could make changes in the Club that would change your mind we certainly would consider that.

Marcia and I have been treasure hunting in Quartzsite and Tucson. There are always the predictable vendors and rocks/minerals, but there are always surprises too, things we have never seen before. We will have some awesome new rocks at the shows this year.

I am excited to go mining again. I should be able to spend several weeks looking for agates, my favorite kind of rock.

We are already organizing for the show in May. At the meetings between now and then we will have flyers, both full size and quarter page size, along with show cards. Please take them and distribute them to friends, relatives, and any other rockhound, or rockhound wannabe you can find. There will also be volunteer sign up sheets for the two days of the show and the Friday before. If everyone takes a shift or two we can make it work!



*Ed Opatz*