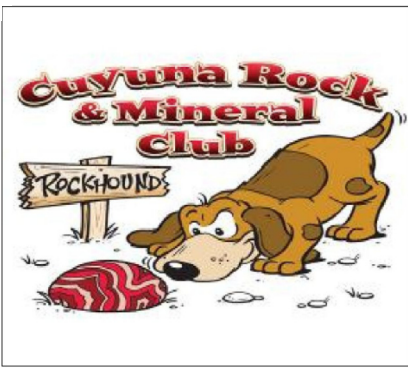


The Agate Explorer

April, 2024



Meeting Sat., April 13

10:00—Clubhouse, Rock Room
Open & Rock Wrappers
(wire wrapping group)

12:00 noon—Board Meeting

2:00— General Meeting
Show prep



University of Minnesota—Duluth

Out goes winter, in comes sunny beach days! Join us for a beach exploration as we uncover the hidden treasures that lay beneath the winter ice - a collection of fascinating rocks waiting to tell the geological tales of the North Shore.

Sunday, April 7 12-6 pm

Register By: 4pm, April 5

We provide: Transportation

You Provide: Appropriate clothing for the weather, water, snacks

Meet: Tennis courts outside SpHC

Cost: \$6 for UMD students/ \$14 Others

<https://calendar.d.umn.edu/event/94001-post-thaw-agate-picking-and-beach-combing>



Franklin Art Center

Needed for Show!

Small, unpolished Lake Superior agates for the kids' rock pile. Bring to the April meeting or call Ed Opatz at 320-250-1363.

Club Information

Website-www.cuyunarockclub.org
Email-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.



Pebble Pup Day Camp

This event will be held all day Friday, June 7, and the morning of Saturday, June 8.

Do you have ideas for topics related to rocks that could be taught to 6-12 year olds in a fun way? Games? Demonstrations? Crafts?

Or, if you are interested in volunteering that day, most likely co-teaching a station with a geology topic (information and supplies provided) to small groups of 3-5 kids several times that day, please contact Marcia Opatz at theisma@hotmail.com, or text 320-250-8120.



2024 Field Trips

Tentative trip to the Upper Peninsula of Michigan for late summer/fall.

Possible trip to Missouri over MEA weekend (October 17-20) Missouri Lace, druzy, copper minerals, barite, and galena.

If you are interested in either trip, please contact Ed Opatz at 320-250-1363.

Club Calendar

May 4—meeting date—show prep

May 10—show set up

May 11-12—Cuyuna Agate and Mineral Show

June 7—Pebble Pup Day Camp

June 8—Pebble Pup Agate Pick and Club 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.

Board Meeting

The meeting was called to order at 12:10 by President Ed Opatz (via phone). Present were Vice-President Lori DuBois, Treasurer Kevin Martini, Secretary Joanie Hanson, and Board Members-at-Large Vern Iverson, Mike Stanwood, and Alan Busacker.

A motion was passed to approve the minutes from the January meeting.

Treasurer's Report- a motion passed for Kevin to pay the bills for the month. The report is posted at the rock club. We will be purchasing some Apache tears from Kingsley North.

Tumblers/ Montana agates, petrified wood- we are looking for a member that can do some rock tumbling for the club.

Photos for Duluth- Lori took pictures of the rock specimens donated from Harry's family and sent them to the UofM Duluth Geology Department. They will let us know if they still want them.

Status on Genie motor- the motor has been repaired. Jim Albers is working on putting the machine back together.

Summer shows: Arts in the Park in Brainerd, Outing Corn Feed in Outing, Moose Lake Agate Show, Moose Lake.

Dan Hammond has agreed to help Ed with finding places to pick agates.

General Meeting

Call to Order- the meeting was called to order at 2:04pm by Vice-President Lori DuBois. There were 24 members present. Welcome to new members.

Treasurer's report- will be posted at the rock club.

We continue to encourage members to sign up to volunteer at the rock show.

Summer trips- Dan Hammond has agreed to help Ed with looking for and setting up agate picks in the area. The club is looking at a late summer or early Fall trip to the Keweenaw Peninsula. More information later.

100th anniversary since Milford Mining Disaster Feb 5, 1924- We are thinking of having our summer picnic at the park there in Crosby since that is where our club Originated.

Speaker- Steve Huber on rock carving.

Door prizes: Vern Iverson, Keith Lorensen, Merlin Thorn.

Respectfully submitted,
Joanie Hanson

Gem Encyclopedia Lapis Lazuli



Lapis lazuli has been used since ancient times and remains popular today. 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. Today, jewelry is its predominant use.

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, haüyne, sodalite, and nosean, all members of the sodalite group of minerals. (Lazurite itself may be considered a sulfur-rich haüyne).

Archeologists have found lapis lazuli beads, jewelry, and carvings at numerous sites, some dating as early as 6,000 BCE. The use of this gem material 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.

The colors of lapis range from a medium, grayish blue to intense, royal blue, to deep indigo, with varying amounts of white and brassy gold from calcite and pyrite inclusions. Some purists desire a specimen that's almost entirely lazurite, a deep and uniform blue, but most seek a piece with a moderate to generous sprinkling of golden-colored pyrite.

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 collectors and jewelry lovers. 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.

Polish quality and faceting artistry also affect value.

With a hardness of 5-6, lapis lazuli needs some care as a jewelry stone. Nevertheless, you'll find this gemstone commonly set in rings and bracelets. Use protective settings for these jewelry pieces and reserve them for occasional wear.

Even with protective care, lapis stones in rings or bracelets may need periodic re-polishing. On the other hand, you can wear pendants, earrings, brooches, and tie or lapel pins daily with little worry.

Lapis lazuli has been successfully synthesized by Pierre Gilson of Paris in France and Carroll Chatham in the United States. Many large jewelry supply houses offer the synthetic version, with or without pyrite.

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 lapis 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 acid and streak testing are destructive tests and should only be conducted by a professional gemologist.

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 years). Lapis occurs in large blocks and 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, USA: stringers in limestone, dark color, with much pyrite, from Italian Mountain in the western part of the state.

California, USA: 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/>

Delaware State Fossil

Fossil: Belemnite fossils. Cephalopod (*Belemnitella americana*)

Age: Cretaceous
Year Designated: 1996



Belemnites are an extinct group of squid-like cephalopods that lived during the Jurassic and Cretaceous.

They had a hard, internal, cone shaped structure that is often preserved as a fossil though it is not technically a shell. They had 10 arms but unlike modern squid these arms had small hooks instead of suckers.

Belemnites of the species *Belemnitella americana* are found abundantly in the exposures of the Mount Laurel Formation along the banks of the Chesapeake and Delaware Canal. The fine-grained sands and silts of the Mount Laurel were deposited in a shallow sea during the Late Cretaceous.

<https://www.fossilera.com/pages/state-fossils>

April 2024

Upcoming Midwest Shows

4-6—WYOMING, MI: Indian Mounds Rock & Mineral Club; Rogers Plaza Town Center, Thu. & Fri. 9:30-9, Sat. 9:30-7; Free; Website: indianmoundsrockclub.com/

5-6—KAHOKA, MO: Woodies Rock Shop/Warehouse; Fri. 3-8, Sat. 12-6; Free; Email: woodiessuites@gmail.com

6-7—GREEN BAY, WI: Neville Public Museum Geology Club; The Neville Public Museum; Sat. 9-5, Sun. 10-4; Email: mutualman@localnet.com

6-7—LINCOLN, NE: Lincoln Gem and Mineral Club, Inc; Sandhills Global Event Center; Sat. 9-5, Sun. 10-4; \$6 per adult, under 12 free; www.lincolngemmineralclub.org

7—WATERLOO, IA: Black Hawk Gem and Mineral Society; Waterloo Center for the Arts; Sun. 11-5; Free; Email: info@bhgmsrockclub.org;

13—ANTIGO, WI: Langlade Gem & Mineral Club; Chocadoodledoo LLC, 816 5th Ave; Sat. 10-4; \$1, under 12 free; +Email: rog-chriswilder@hotmail.com

13-14—MARION, IL: Southern Illinois Earth Science Club, Inc; Pavilion of the City of Marion; Sat. 10-6, Sun. 10-5; \$2, Under 19 free; Website: siesclub.org

13-14—DES PLAINES, IL: Des Plaines Valley Geological Society; Des Plaines Park District Leisure Center; Sat. 9:30-5, Sun. 10-4; \$3; Under 12 free; Email: Geodeguy@att.net

13-14—CRYSTAL, MN: Anoka County Gem & Mineral Club; Crystal Community Center; Sat. 10-5, Sun. 10-4; free; Email: martha@rock-biz.biz

19-21—DANVILLE, IN: Indianapolis Gem, Mineral And Jewelry Show; Hendricks County Fairgrounds; Fri. & Sat. 10-6, Sun. 11-4;



The Rock & Art Shop

Rocks, minerals, jewelry, books, lapidary equipment/supplies, artwork, & education.

320-217-2757

1700 W. St. Germain St. St. Cloud, MN

www.therockartshop.com

DON'T MISS THIS HUGE ROCK SHOW!



Mineral, Fossil, Agate, Gem, & Jewelry Show

Sat., April 13 (10-5) & Sun., April 14 (10-4)

Crystal Community Center

4800 Douglas Drive, Crystal, MN

Free Admission-Free Parking-Family Friendly

Follow us on Facebook:



Anoka County Gem & Mineral club

\$8, 11-17: \$2, under 11 free; Website: www.americangemshow.com

26-28—WICHITA, KS: Wichita Gem & Mineral Society; Cessna Activity Center; Fri. 9:30-6, Sat. 10-6, Sun. 10-5; \$5; 13-17-\$1; under 13 free; Email: GANDPMAG-GARD@GMAIL.COM

27-28—EAU CLAIRE, WI: Chippewa Valley Gem & Mineral Society; Eau Claire County Expo Center; Sat. 9-5, Sun. 10-4; Free; Email: CVGMS2017@gmail.com

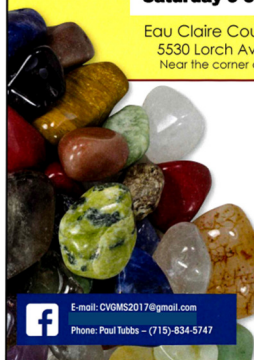
27-28—ELK RIVER, MN: Dale's Rocks & More; Furniture & Things Community Event Center; Sat. & Sun. 9-4; Email: dales-rocks_more@outlook.com

60th Annual Chippewa Valley

Gem & Mineral Society Show & Sale

April 27th & 28th 2024
Saturday 9-5 ~ Sunday 10-4

Eau Claire County Expo Center
5530 Lorch Ave. Eau Claire WI
Near the corner of I-94 & Highway 93



Great Shopping!

Jewelry & Gemstones
Mineral Specimens
Agates & Geodes
Fossils & Petrified Wood
Rock Art & Carvings
Beads & Supplies
Copper & Silver Finds
Crystals & Amethyst
Books & Rough Rock

Have Fun!

Activities and Crafts
Childrens Museum
Silent Auction

Displays:
Fluorescent Minerals
Rock Collections

Demonstrations:
Creating Rock Spheres
Wire Wrap Jewelry
Rock Cutting & Cabbing

Saturday and Sunday

Identify YOUR rock finds.
Variety of Special Guests.



**SeashellsbyShelly
Rock & Crystal Shop**
2625 County Road 37 NE
Monticello, MN
Open Mon 12-4, Fri 3-6
Sat 11-5, Sun 12-3
ph 763-295-2440

Huge shop with tons of inventory!
Rock cutting services and a dark room with
fluorescent minerals!
Seashellsbyselly.com

Minnesota Rock Shops

Agate City 721 7th Ave., Two Harbors
218-834-2304

Agate Trails of Fellerer Creations 471
Arrowhead Ln, Moose Lake 320-279-3553

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

Rock and Art Shop 1700 W St. Germain,
St. Cloud 320-217-2757

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

Those Blasted Things 924 Kniss Ave.,
Luverne 507-283-4027

Twin Pines Trading Post 31049 Front St,
Pequot Lakes 218-839-0829

Uncle Tom's Rock Shop 2746 Hoffman
Dr. NW, Owatonna 507-451-2254

ZRS Fossils and Gifts 3018 Lyndale Ave
S, Minneapolis 612-824-1068

Rocks Gems Fossils Minerals

JON'S GEM EMPORIUM

Call Or Text To Shop Off Hours

OPEN FRI AND SAT 10-6 SUN 12-5

Motley, MN

218-640-1047

2024 Cuyuna Agate & Mineral Show

Saturday, May 11 9 - 5 Sunday, May 12 10 - 4

Crow Wing County Fairgrounds

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

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

Admission: \$2 Adults
Kids under 12 \$1

Mothers free on Sunday!



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

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2024 Show Volunteer Lists

To volunteer, call

Joanie Hanson at 218-831-2665
or Ed Opatz at 320-250-1363

Show Set up Starting on Fri, May 10 at 12

Vern Iverson
Lilly Peterson
Joanie Hanson
Mike Stanwood (and helper)
Paulette Wosniak
Mike Ott
Bruce Curley
Merlin Thorn

Set up Display late Friday afternoon

Mike Stanwood (and helper)
Sue Mott
Lyndon Johnson
Joe Lermore

Security—Back Gate

Sat., 6-9 Lyndon Johnson

Sat., 9-12 Bruce Curley

Sat., 12-3

Sat., 3-5

Sun., 9-12:30 Maria Rosa

Sun., 12:30-4

Security –Show

Volunteers STRONGLY urged to attend free Fri. night meal and hear speaker on security and theft.

Sat., 9-12 Dan Hammond
Mike Stanwood

Sat., 12-3 Mike Ott
Les Tix

Sat., 3-5

Sun., 10-1 Dan Hammond
Kathy Peterson

Sun., 1-4

Exit Gate

Sat., 9-12

Sat., 12-3

Sat., 3-5

Sun., 10-1

Sun., 1-4

Door Admissions

Sat., 9-12 Vern Iverson

Sat., 12-3 Michael Maddox

Sat., 3-5

Sun., 10-1 Vern Iverson
Mike Windey
Diane Windey

Sun., 1-4 Kathy Peterson
Marie Rosa
Michael Maddox

Club Table

Sat., 9-1 Lilly Peterson
Joanie Hanson

Sat., 1-5

Sun., 10-1 JoAnn Moe

Sun., 1-4 Lilly Peterson

Vendor Survey

Keith Lorensen

Rock Saw/Geode Cracker

Times can be split into shorter increments

Sat., 9-12 John Krebs

Sat., 12-5

Sun., 10-4

Spinning Wheel

Sat., 9-12 Kathy Krebs

Sat., 12-3 Mike Stanwood
Kathee Stanwood

Sat., 3-5

Sun., 10-1 Mike Stanwood
Kathee Stanwood

Sun., 1-4 Sue Mott

Kids' Corner/Sluice Box

Sat., 9-1

Sat., 1-5 Marie Rose
Kathy Peterson

Sun., 10-1 Joy & Frank Ruzich

Paulette & Bryan Wozniak

Sun., 1-4 Bruce Curley

Wizard of Rocks

Sat., 9-12 Lyndon Johnson

Sat., 12-3

Sat., 3-5

Sun., 10-1 Lyndon Johnson

Sun., 1-4

Saturday Admissions Count—Sat. night

Show Tear Down Starts Sun., May 12 at 4

Lilly Peterson
Mike Stanwood (and helper)
Joe Lermore
Paulette Wozniak
Bruce Curley
Les Tix
Mike Ott
Gary Pecham
Bev Williams

Show Clean up Mon. May 13

Mike Stanwood (and helper)
Merlin Thorn
Joe Lermore

Pass The Word!

Show cards and show flyers are available at the Clubhouse, and a full size flyer is in this newsletter. PLEASE pass these out to friends, co-workers, and neighbors, and stop at local businesses to ask to display a flyer. You can give them a few show cards too.

Sharon Smith Memories February 26, 1956-November 26, 2023



Sunday, May 12th
8:00-9:45 a.m.

Curling Club building Mezzanine level

A gathering will be held on Sunday to remember the Cuyuna Rock, Gem, and Mineral Society's long time show coordinator, Sharon Smith.

Please feel free to bring any photos or other memorabilia to share.



Proposed National Monument in New Mexico will Halt Rockhounding

A collaborative of community members, elected leaders, business owners, economic development advocates, conservationists, hunters, and students in southern New Mexico are proposing a national monument of 245,000 acres. The proposed Luna County Monuments includes Tres Hermanas, Cookes Peak, Goodsight, and The Florida Mountain Ranges.

National monuments are protected under the National Monuments Rules and Regulations governed by the National Park Service. National Park Service Regulation 36CFR Section 2.1 prohibits rockhounding/recreational collecting in all units of the National Park Service.

If the proposed Luna County Monuments

Waste to Gold

team of researchers at ETH Zurich in Switzerland has made a discovery that they say could turn recycling e-waste into a literal goldmine.

The researchers devised a novel way to extract precious metal from electronic waste, a sustainable method that is based on a byproduct from the food industry.

And it's pretty lucrative as well. For each dollar spent, the team suggests you could make \$50 worth of gold.

Best of all, they say, it's an incredibly environmentally friendly process. The team found that protein fibril sponges, made from protein-rich byproducts from cheesemaking, can be used to extract the gold from discarded e-waste.

"The fact I love the most is that we're using a food industry byproduct to obtain gold from electronic waste," said coauthor and ETH

gain monument status rockhounding becomes illegal at all four proposed mountain ranges.

These are major rockhounding areas for the state of New Mexico.

If you are opposed to this proposition please take action on the proposed monuments in Luna County to save rockhounding in these areas.

You can:

Email Congressman Gabe Vasquez

nm02gvima@mail.house.gov

Email Senator Martin Heinrich

www.heinrich.state.gov

Email Senator Ben Ray Lujan

www.lujan.senate.gov

Sign at petition www.nmflb.org/policy-action/advocacy-voter-voice

You do not have to be a resident of Luna County New Mexico to voice your opinion.

Zurich professor Raffaele Mezzenga in a statement. "You can't get much more sustainable than that!"


As detailed in a new paper published in the journal *Advanced Materials*, the team was able to recover a 450-milligram nugget of 22-carat gold from just 20 old computer motherboards.

To do it, the team denatured whey proteins under acidic conditions and high temperatures to create a slurry of protein nanofibrils. They then dried this gel to create a sponge. After dissolving the metal parts of the 20 motherboards and ionizing them in a bath, they placed the sponge in the solution to attract the gold ions.

By heating their sponge, the team reduced the collected ions into flakes, and eventually melted them into a tiny gold nugget.

This 450-milligram nugget was 91 percent gold and nine percent copper. At current rates

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.

Cuyuna Rock, Gem, & Mineral Society

on the Web

www.cuyunarockclub.org



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.

per ounce, that's roughly \$33 of gold.

According to the team, the energy costs present a mere 50th of the value of the gold that can be recovered, making it an incredibly profitable process if scaled up.

Now, the researchers are looking for ways to market their idea, and for other protein-rich byproducts that could be transformed into sponges.

According to the World Health Organization, e-waste is the fastest-growing solid waste stream in the world, with millions of electrical devices being discarded and thrown away. Without being recycled properly, this waste is not only incredibly harmful to the environment, but it can also be toxic to humans.

In short, incentivizing the recycling of e-waste can only be a good thing.

<https://futurism.com/the-byte/extract-gold-old-electronics-fortune>



The World of Jasper

Blue Dream Jasper
Fallon, Nevada

This jasper has a brecciated, psychedelic stained glass pattern. It's collected from the Dead Camel Mountains. It is predominately blue with yellow and/or red splashes.

Bench Tip

If you drink champagne start saving those corks! Use champagne corks as file handles! Their fat, rounded tops fit perfectly into the heel of your palm, allowing your hand to adopt a natural, relaxed curve as you file. You should notice a decrease in hand fatigue on long bench days.



<https://tips.metalsmithsociety.com/tips>

Archaeologists discovered the oldest-known arrowheads, dating to roughly 74,000 years ago in what is now northern Ethiopia. This time period coincides with the Toba super-eruption, which spread ash and gas worldwide.



Kids' Corner

Fun Volcano Facts

Check out these fun volcano facts for kids. Learn about hot magma, famous eruptions, volcanoes on other planets, volcanic gases, flowing lava and more. Enjoy our wide range of strange and interesting facts about volcanoes.

- * The word volcano originally comes from the name of the Roman god of fire, Vulcan.
- * Volcanoes are usually located where tectonic plates meet. This is especially true for the Pacific Ring of Fire, an area around the Pacific Ocean where over 75% of the volcanoes on Earth are found.
- * While most volcanoes form near tectonic boundaries, they can also form in areas that contain abnormally hot rock inside the Earth. Known as mantle plumes, these hotspots are found at a number of locations around the globe with the most notable being in Hawaii.
- * Hot liquid rock under the Earth's surface is known as magma, it is called lava after it comes out of a volcano.
- * Some famous volcanic eruptions of modern times include Mount Krakatoa in 1883, Novarupta in 1912, Mount St Helens in 1980 and Mt Pinatubo in 1991.
- * While we certainly have some big volcanoes here on Earth, the biggest known volcano in our solar system is actually on Mars. Its name is Olympus Mons and it measures a whopping 600km (373 miles) wide and 21km (13 miles) high.
- * The object with the most volcanic activity in our solar system is Io, one of Jupiter's moons. Covered in volcanoes, its surface is constantly changing to the large amount of volcanic activity.
- * Most people think of volcanoes as large cone shaped mountains but that is just one type, others feature wide plateaus, fissure vents (cracks where lava emerges) and bulging dome shapes.
- * There are also volcanoes found on the ocean floor and even under icecaps, such as those found in Iceland.

<https://www.sciencekids.co.nz/sciencefacts/earth/volcano.html>

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	Colorado	Royal Imperial Jasper
Oregon Geodes	Snowflake Obsidian	Dino Bone
Chalcedony	Utah Petrified Wood	Coyamito Agate
Plume Agate	African Blue Lace Agate	Grape Agate
Owyhee Picture Jasper	Carnelian Agate	Root Beer Selenite
Brazilian Agates	Tiger Eye—red and blue	Gold Diggins
Amethyst	Tiger Eye—gold & blue	Red Cloud (Fluorescent)
Hauser Bed Geodes	Variegated	Pumice
Thundereggs	Miscellaneous Obsidian	Mookaite
Mexican Geodes	Condor Agates	
Montana Petrified Wood	Blue Forest Petrified Wood	Coming soon!
Montana Moss	Polychrome Jasper	Mookaite
Tee Pee Canyon Agate	Sunset Jasper	El Picacho Agate
Slabs of all sizes and types	Noreena Jasper	Mexican Geodes with
Septarian Nodules—Utah	Tiger Iron	crystals
79 Bed Geodes—Oregon	Kumerha Jasper	Apache Tears
Moroccan White Agate	Swazi Agate	Laguna Agate
Small Botswana Agate	Calandria Agate (Mexico)	
Smokey Quartz crystals -	Bear Canyon Agate	

Dinosaur-Age Sea Monster Discovered in Moroccan Mine

Extinct marine lizard the size of an orca with sharp teeth and a strong jaw was a top predator during the dinosaur age.

Paleontologists in Morocco have discovered the fossilized remains of a huge, never-before-seen species of marine lizard with "dagger-like" teeth.

The reptile was around 26 feet (8 meters) long — about the same length as an orca — and hunted in the Atlantic Ocean off the coast of what is now Africa at the end of the dinosaur age, about 66 million years ago, according to a study published March 1 in the journal *Cretaceous Research*.

The creature is named *Khinjaria acuta*, which is derived from *khinjar*, the Arabic word for "dagger," and *acuta*, which means "sharp" in Latin. Its formidable jaws would've enabled it to feast on very large prey, including sharks and other marine reptiles.

The "nightmarish" reptile was a member of the *Mosasauridae* family, also known as mosasaurs — an extinct group of marine lizards whose relatives today include Komodo dragons (*Varanus komodoensis*) and ananodas, according to a statement from the University of Bath in England.

Its fearsome teeth and jaws can be seen in the skull and partial skeleton that were found buried inside a phosphate mine near Morocco's port city of Casablanca.

Analysis of the skull and jaw suggests the creature had "a terrible biting force," study co-author Nour-Eddine Jalil, a professor and collection manager at the National Museum of Natural History in Paris, said in the statement.



Khinjaria was just one of many top predators prowling the ocean for prey during the Cretaceous period (145 million to 66 million years ago).

"This was an incredibly dangerous time to be a fish, a sea turtle or even a marine reptile," lead study author Nick Longrich, a senior lecturer in the Department of Life Sciences and the Milner Centre for Evolution at the University of Bath, said in the statement.

The discovery of *Khinjaria* adds to the huge number of known top marine predators at the end of the Cretaceous — raising the question of how and why so many mosasaurs appeared at this time.

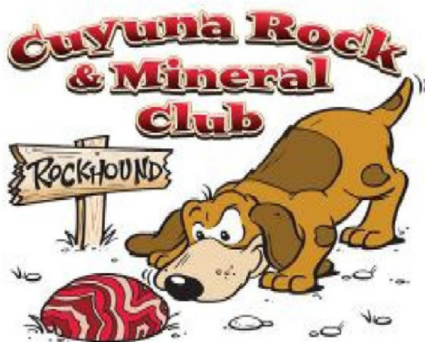
"We have multiple species growing larger than a great white shark, and they're top predators, but they all have different teeth, suggesting they're hunting in different ways," Longrich said.

"This is one of the most diverse marine faunas seen anywhere, at any time in history, and it existed just before the marine reptiles and the dinosaurs went extinct," he added. "Some mosasaurs had teeth to pierce prey, others to cut, tear, or crush. Now we have *Khinjaria*, with a short face full of huge, dagger-shaped teeth."

<https://www.livescience.com/animals/extinct-species/dinosaur-age-sea-monster-with-face-full-of-huge-dagger-shaped-teeth-discovered>

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Notes from the President

Marcia and I arrived home about a week ago. Our rig was FULL of rocks, some for other people (including the Club), but most were ours. Unpacking is really an event. You can see a lot of what we collected and bought at upcoming sales.

On our way home we stopped at Haunted Ridge Rocks, to collect Missouri lace and druzy quartz. There is a LOT of rock in those hills. After talking to the owner I found out that there is another collecting location nearby, with another to open early this summer. He also talked about a lodge with rooms, cabins, and RV spots. I thought it would make a great field trip for this fall. (You don't want to be there in the summer unless you really like hot, humid weather.) We'll see if there is enough interest for a group to make the trip.

As of right now we have about 40% of the volunteers we need for the show. If you haven't signed up yet you can expect a phone call from me to ask you to work. Please, please help us make the show a success without exhausting members who have to work many shifts to fill the empty spots.



Ed Opatz

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