

Cuyuna Rock, Gem and Mineral Society

The Agate Explorer

December 2018

Dues are due!!!!!

You may pay your yearly dues of \$20 (per household) at the Christmas party or mail it to Cuyuna Rock, Gem, and Mineral Society, 1001 Kingwood St., Ste. B-40, Brainerd, MN 56401. Checks can be made out to the Cuyuna Rock, Gem, and Mineral Society.

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Potluck Christmas Party

Saturday, December 8 Meal at noon.

Followed by white elephant gift exchange. If you would like to participate in the exchange, bring one or more gift (gag or not, rock related or not).

Harry Wagoner's mineral/crystal collection available for sale.

Rock Wrappers

Meets starting at 10 a.m. on meeting Saturdays. An open gathering for wire wrappers. 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!

Club Calendar

December 8 - Christmas Party, eating at noon January 12—Open Shop from 9-12; Board Mtg. at 12:00; General Mtg. 2:00. Speaker Bucky Lindgren on making cabochons from start to finish. February 9—Meeting

March 9—Meeting April 13—Meeting May 11 & 12-Show

Franklin Art Center

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.

Club Purpose:

To foster an interest (& encourage young & old) to study earth science, enjoy the art of lapidary, hunting for rocks, and semiprecious 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.

Information subject to change.

Cuyuna Rock, Gem, & **Mineral Society on the Web**

www.cuyunarockclub.org



Ancient Mammal Looked Like Cross Between **Rhino and Turtle**

Imagine if you crossed a rhino with a giant turtle and then supersized the result: You might get something like Lisowicia bojani, a newly discovered Triassic mammal cousin that had a body shaped like a rhinoceros, a beak like a turtle, and weighed as much as an African elephant, about 9 tons. Paleontologists say this startling creature offers a new view of the dawn of the age of the dinosaurs. "Who would have ever thought that there were giant, elephant-sized mammal cousins living alongside some of the very first dinosaurs?" marvels Stephen Brusatte, a vertebrate paleontologist at The University of Edinburgh.

Researchers had thought that during the Late Triassic, from about 240 million until 201 million years ago, early mammals and their relatives "retreated to the shadows while dinosaurs rose up and grew to huge sizes," Brusatte says. "That's the story I tell my students in my lectures. But this throws a wrench into that simple tale," suggesting the same evolutionary forces that favored giant dinosaurs were at work on other creatures as well.

The new fossil, a partial skeleton described online this week in Science, is an ancient plant eater called a dicynodont; the name means "two dog tooth," referring to the characteristic tusks on the upper jaw, which resemble oversize canines. Apart from the tusks, dicynodonts were mostly toothless, with a horny beak like modern-day turtles. They're part of the large evolutionary group called synapsids, which includes our mammal ancestors, and they were some of the most abundant and diverse land animals from the mid-Permian period into the Middle Triassic, from 270 million until about 240 million years ago.

Dicynodonts "are the first group of verte-



Precious or Semi-Precious Gemstones

Although amber is considered a gemstone, it's organic rather than an inorganic mineral. Amber is fossilized tree resin. It's usually golden or brown in color and may contain inclusions of plants or small animals. It is soft, has interesting electrical properties, and is fluorescent. Generally, the chemical formula of amber consists of repeating isoprene (C5H8) units.

https://www.thoughtco.com/alphabetical-list-of-precious-and-semiprecious-gemstones-4134639

brates that were successfully able to eat plants," says Tomasz Sulej, a paleontologist at the Polish Academy of Sciences's

Institute of Paleobiology in Warsaw. Dicynodonts evolved a striking range of forms: One burrowed like modern-day moles, another is the first known vertebrate to live in trees. Some grew as large as today's hippos, which weigh about 1.5 tons. However, the fossil record suggests the group was in decline by the time L. bojanilumbered into view. And even in dicynodonts' heyday, they did not come close to early dinosaurs in size.



Sulej, with the Institute of Paleobiology's Jerzy Dzik and Grzegorz Niedźwiedzki, a paleontologist at Uppsala University in Sweden, discovered the new fossil in a clay pit, once quarried for brickmaking, in the village of Lisowice, about 100 kilometers northwest of Krakow in southern Poland. In 2006, the team got a tip that someone had found bone fragments at the site. On their first visit, they found fossils within 15 minutes; during 11 years of fieldwork, they excavated more than 1000 bones.

They didn't immediately recognize the new dicynodont as such-in part because it is so big, Sulej says. "Our first idea was that it was a sauropod," which were the largest known herbivores in this period, reaching 11 meters long. But skull fragments and limb bones identified the animal as the biggest, most recent dicynodont ever found. The team named it after the village and 18th giant-time-dinosaurs-ancient-mammalcentury comparative anatomist Ludwig Heinrich Bojanus; they estimate it was more turtle

than 4.5 meters long and 2.6 meters tall. Most dicynodonts had a posture that seems awkward to the modern eve: Their hind limbs were straight, like those of today's mammals, but their forelimbs sprawled, lizard-style, with a bend at the elbow. The team suggests that because of the way L. bojani's upper arm bone connected with its shoulder, its front legs must have been oriented vertically, giving it a more erect stance than in modern reptiles. This posture, like that of sauropod dinosaurs and modern mammals, might have helped support its massive weight. But others caution that reconstructing posture without soft tissue can be difficult.

L. bojani's bones also lacked the lines that, in most dicynodont fossils, mark periods when bone growth slowed. The animal may have grown unusually quickly, or wasn't yet full grown when it died. Given the "truly amazing" size of the creature, "it likely grew fast," says paleontologist Jennifer Botha-Brink of the Bloemfontein Palaeosystems Centre and the National Museum in South Africa. But she adds that lines signaling slower growth might have been erased when the bone was remodeled during adulthood, which happens in elephants today.

Researchers have hypothesized that sauropods grew big to avoid getting eaten. That may have been true for L. bojani, too, Sulej says. The Lisowice bone bed also contains the remains of a 5-meter-long predatorlikely a dinosaur-and coprolites (fossilized feces) containing dicynodont bones.

The researchers will seek more specimens farther east in Russia and Ukraine. "There is definitely more to discover," Niedźwiedzki says. "How many surprises are still waiting for us in the rocks?"

https://www.sciencemag.org/news/2018/11/ cousin-looked-cross-between-rhino-and-

Rox Box

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



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

For Sale: Ray Tech gem maker grider/ polisher with 2



expandable drums and 2 silicone carbide wheels. \$550. Contact John Leek: chickenjohn2001@yahoo.com or 763-516-0548.

Mineral Encyclopedia

Gaspeite



is a rare nickel carbonate mineral and a member of the calcite mineral group. It was first discovered on the Gaspe Peninsula of Quebec, Canada, from which it received its name. Gaspeite does

not have a long history in the scientific literature, being first described in The American Mineralogist in 1966. Because of its rarity and relatively short history, it is not a widely-known material.

However, over the past two decades, gaspeite has been emerging into popularity as a colorful inlay material used to add a splash of green color to southwestern-style jewelry. It is typically set with turquoise, coral, shell, lapis lazuli and other gem materials in sterling silver mountings. These produce an attractive and affordable product. Gaspeite is also seen as beads, tumbled stones and cabochons.

Composition of Gaspeite

The idealized composition of gaspeite is NiCO3. However, it often contains variable amounts of magnesium and iron, which can substitute for nickel in solid solution. Thus, the material called "gaspeite" is often a nickel-magnesium-iron carbonate with a composition of (Ni,Mg,Fe)CO3.

A solid solution series exists between magnesite(MgCO3) and gaspeite (NiCO3). Intermediate materials from the series are sometimes seen as tumbled stones, cabochons and inlay materials. How should the members of this solid solution series be named? If the amount of MgCO3 exceeds the amount of NiCO3, then use of the name "magnesite" is proper. The name gaspeite is

proper if NiCO3 exceeds MgCO3. These intermediate materials are often marketed using names such as "lemon chrysoprase", "lemon magnesite", "citron chrysoprase" or "citron magnesite". Use of the name "chrysoprase" is usually incorrect, although some specimens are moderately silicified.

Geologic Occurrence

Gaspeite occurs as a secondary mineral where nearby rocks serve as an abundant source of nickel. It is often found where ultramafic igneous rocks have been weathered or where they have been altered by hydrothermal metamorphism. All significant occurrences have been found in western Australia and Ouebec, Canada. Minor occurrences are known from Japan and South Africa.

Identification of Gaspeite

The first clue to identifying gaspeite is its vellowish green to bright green color. It will also produce a weak effervescence with dilute (5%) hydrochloric acid. Producing effervescence often requires testing of the mineral's powder. It is easy to produce a powder by scraping the specimen across a streak plate, applying the acid to the streak, and checking for effervescence with a hand lens.

The best low-budget testing is done with a refractometer. Gaspeite has a birefringence of 0.222 with a refractive index that ranges from 1.61 to 1.83. It also displays a strong birefringence blink, like most other carbonate minerals. This is the most diagnostic test that can be done for gaspeite without expensive equipment.,

Uses of Gaspeite

Starting in the late 1990s, gaspeite began appearing in lapidary and jewelry markets. It has been used to produce cabochons, beads and tumbled stones. It's most beautiFor Sale: 2 showcases, stained & varnished. Slanted glass front with piano hinge opens wide for easy access from behind. One is 51"x26"x12," 2nd is 48"x26"x12". Very nice condition. \$65 each/\$100 for both. Can deliver to next



Club meeting. Call Butch Goldenstein, 320-252-3335.

ful use is as an inlay material in sterling silver jewelry of the American southwest. Bright green gaspeite adds a new and striking splash of green color to this jewelry. In the past decade its appearance in southwestern jewelry has become more frequent. Much gaspeite has also been processed as an ore in the production of nickel. The most important occurrences of gaspeite found to date are the one in Quebec, Canada, described above, and a few others in western Australia. All of these have been associated with nickel mining activities. Gaspeite contains significant amounts of nickel, and it was closely associated with other ores of nickel at these locations.

https://geology.com/minerals/

Physical Properties of Gaspeite

- Chemical Classification Nickel carbonate and a member of the calcite mineral group
- **Color** Yellowish green to bright green, often with brown matrix or mottling. Streak White

Luster Dull to vitreous

projects.

- **Diaphaneity** Cryptocrystalline material is usually opaque. Rare coarsely crystalline material can be transparent.
- Cleavage Good cleavage in one direction but only seen in the rare coarsely crystalline specimens.
- Mohs Hardness 4.5 to 5.0
- **Specific Gravity** 3.71 but may vary b because of multiple solid solutions.
- Diagnostic Properties Color, effervescence, refractive index of 1.61 to 1.83 with strong birefringence blink.
- **Chemical Composition** NiCO3
- Crystal System Trigonal Uses A minor ore of nickel. Also used as a lapidary material to produce beads. cabochons, tumbled stones, and inlay

December Rock Shows

1-CORNVILLE, AZ: Verde River Rockhounds; Windmill Park, Sat. 9-4; free; Website: www.verderiverrockhounds.com 1-2-BARSTOW, CA: Mojave Desert Gem & Mineral Society; Cora Harper Fitness Center, 841 S.; Daily 10-5; free; Website: www.mdgms.net 1-2-PINECREST, FL: Miami Mineralogical & Lapidary Guild, Evelyn Greer Park; Daily 10-5; \$6, under 12 free; Website: www.miamigemandmineral.com 1-2-PATCHOGUE, NY: Suffolk Gem & Mineral Club; Our Lady of Mt. Carmel Auditorium; Daily 10-5; \$6, under 12 free; Website: suffolkgem.com 7-9—LAWRENCEVILLE, GA: Mammoth Rock Shows: Gwinnett County Fairgrounds; Fri. & Sat. 10-6, Sun. 10-5; \$5, under 16 free; Website: www.mammothrock.com 7-9-SANTA BARBARA, CA: Gem Faire Inc.; Earl Warren Showgrounds, Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7, under 12 free; Website: www.gemfaire.com 7-9-EL PASO, TX: El Paso Mineral & Gem Society; El Maida Shriners Auditorium; Fri. 10-5; free; Email: 11155@yahoo.com 8-9-EDMONDS, WA: Maplewood Rock

8-9—EDMONDS, WA: Maplewood Rock & Gem Club; Maplewood Rock & Gem Clubhouse; Sat. 9-5, Sun. 10-5; free; Email: collma1@comcast.net 8-9—FRANKLIN, TN: Mid-Tennessee Gem & Mineral Society; Ag Expo Park; Sat. 9-6, Sun. 10-5; \$5, students \$1, under 12 free; Website: www.mtgms.org 8-9—LEESVILLE, LA: DeRidder Gem & Mineral Society; Leesville Fairgrounds Exhibit Hall; Sat. 9-5, Sun. 10-4; \$2, under 12 free; Website: https:// rockngemswla.com 14-16—SAN DIEGO, CA: Gem Faire

Inc.; Scottish Rite Center; Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7, under 12 free; Website: www.gemfaire.com



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

The World of Jaspers Australian Rainforest Jasper

Rainforest Jasper is a rare type of rhyolitic lava, associated with volcanic activity in some areas. Gas bubbles are trapped in the lava flow during solidification, creating pockets which are later filled, or partial-

ly filled by flows of siliceous material, which may be Agate, Jasper, Quartz Crystal or other minerals. The Rhyolite usually occurs in association with Thunder Eggs, another volcanic gemstone.

Rainforest Jasper is known in different parts of the world by several other names. These include Spherulitic Rhyolite, Agatized Rhyolite and Green Rhyolite. This unique gemstone is mined only at Mt Hay, 38 kms west of Rockhampton in Central Queensland. It was first mined commercially in the late 1960's and continues



to be a popular gemstone with cutters and collectors around the world. The Rhyolites of the Mt Hay volcanics, which are dated at around 120 millions years old, occur in varying shades of green, brown, red and cream. The color range and va-

riety of minerals that infill the Rhyolite, create a unique and attractive gemstone.

Rainforest Jasper is used extensively in the manufacture of beads, cabochons, ornaments and more recently in the furniture and building industries.

https://www.aradon.com.au/rhyoliterainforest-jasper/

Agates From Around The World Purple Bean Agate Hermanas, Luna County, New Mexico

The purple agates locally referred as "Bean Agates" which can be confused with more known Bean agates from Mexico (ones with "eyes" all over). They're one

of few amygbdaloid agates found south of Deming, New Mexico and they're generally white to gray, sometimes with pink, yellow and purple hues. They're always small and the largest agate about 3 centimeters. Some agates with poorly silicified "peanut" inclusions had been found.

The agates can be found around the corral at Hermanas but since the land is mostly private, the collecting is not encouraged. There are real stories about the land owner shooting some warning shots at the trespassers and I know a certain collector who almost got shot. The agates can be found along the Hermanas road itself which is considered a public land. A number of agates can be found by just walking down the road after it was plowed in preparation for road paving.

http://www.sailorenergy.net/Agates/AgatesMexicoParcelas01.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 Montana Moss & Blue Agate Montana Petrified Wood Oregon Geodes Chalcedony Desert Rose Plume Agate Yellow Jasper Bruno Jasper Owyhee Picture Jasper Brazilian Agates Amethyst Tee Pee Canyon Agate Hauser Bed Agate Thundereggs Slabs of all sizes and types Condor Agate Septarian Nodules 79 Bed Geodes—Oregon Moroccan White Agate Obsidian –not priced yet Mineral specimens Dinosaur bone Whole Septarians Luna Lace Agate



Jewelry Making Tip By Brad Smith www.BradSmithJewelry.com

Dental Tools

A ready source of free tools is your local dentist. Dental picks can be reworked into wax tools or straightened and sharpened to make a stylus for marking and layout. The steel in these tools is high quality, and the handles are designed for comfort.

A special note however - If you want to modify the shape of the tool, don't try to just bend it with pliers. Working this alloy of steel while it's cold will cause it to snap. Changing its shape can only be done when it's hot. I work it like a blacksmith. Prop your torch up on the bench so that you can use both hands for the work. Have a hammer and bench block ready. Heat the tip red hot, and hammer it straight or bend it with pliers.

And don't forget to ask your dentist for some of the cutting burs they throw out. These are useful for a variety of things. It's best to call a week or two before your visit and ask the dentist or hygienist to put some of these tools aside for you. It's good practice also to ask that they run them through the sterilizer for you. If that's not possible, pop them in an oven at around 250 F.



Cuyuna Rock, Gem & Mineral Society **Board Meeting Minutes Saturday** November 17, 2019

The meeting was called to order by President Ed Opatz at 12:15 pm.

Ed met with Vicki from the Arboretum and we will start having the rock box there. (\$5.00 per bag of rocks.)

Discussed appointing a board-member-atlarge to be in charge of speakers. Will continue discussion at next meeting.

Treasurer's Report- Kevin Martini- full report is posted at club.

Kevin purchased some new heavy-duty shelves for the rock room and the club room

Cuyuna Rock, Gem and Mineral Society General Meeting Minutes Saturday, November 17, 2019

The meeting was called to order at 2:15pm by President Ed Opatz.

30 members in attendance, 1 new member.

Door prize winners: Carol Russell-Johnson, Mark Jeppesen, Judy Frampton.

Election judges were picked for today's elections - Dick Salzwedel & Sherry Busse.

The annual member silent auction went on during elections.

Newly elected board members are: Vice-President- Sharon Smith, Treasurer- Kevin Martini.

The club is looking at purchasing several pieces of equipment for lapidary work that some people are selling. No decisions have been made yet.

Ed purchased some more show cards for the outside and inside locations. 2019 show and brought the rock he purchased for the club when he was in Utah this fall

Kevin found the wrench for the geode cracker.

It was brought up that we need a master price list for all the rock that the club sells to members. Ed, Lilly, and Kevin will work on this.

Ed started looking at places that the club can go for the 2019 Fall club trip. He is looking at some places in South Dakota and Montana for September.

Newly elected Board Members-at-Large: Vern Iverson, Lilly Peterson, and Lori DuBois.

The Christmas party will be Saturday December 8th arrival between 11 & 12, eat at 12:00pm, potluck, and white elephant gift exchange. There will be a short board meeting.

The January 12th meeting will be training on shop equipment. 9-noon open shop/learning. Meeting to follow.

2019 dues are due.

New 2019 show cards have been printed. Please take and distribute them.

We started brainstorming ideas for the 2019 show advertising. As suggestions come in we will keep a list, and decide which ones to implement.

Respectfully Submitted, Joanie Hanson, Secretary

Do we want a "spotlight guest" for the 2019 show?

We are looking at the Kid's Corner location and activities at the show. Looking at both

We are also looking at doing a panning trailer at the show.

The board passed a motion to give a scholarship gift of \$500.00 to Matt Metzler.

Ed Opatz, Lisa Hughes and Joanie Hanson did an audit of the club treasurer's records from 2013 through 2017. No problems were found.

Respectfully Submitted, Joanie Hanson, Secretary

DON'T FORGET THAT YOUR 2019 DUES ARE DUE!

Sunshine Requests

If you know someone who could use a little sunshine birth, illness, surgery, family

death—

please contact Christi Higgins at 320-224-6650.



Descriptions & Origins of Selected Principal Building Stones in Washington D.C.

Sandstone

Maryland - Seneca Creek, Montgomery County. Red, reddish - brown, and gray. Coarse - to fine-grained angular quartz; some frag-



ments of feldspar and mica. Fine-grained. Durable building stone. Triassic age. Example: Original Smithsonian Institution Building.

Virginia - Aquia Creek, Stafford County. Brown to light-gray. Rounded, coarse to



fine grains of quartz. Cemented with silica and containing scattered pellets of clay as much as 1 inch in diameter. Cretaceous age. **Example:** Crypt and

Rotunda of the U.S. Capitol Building.

Limestone

Alabama - Colbert County. Similar to Indiana limestone. Has large isolated shells and other fossils. Mississippian age. Example: Interior gallery walls of the National Gallery of Art.



Indiana - Bedford, Lawrence County. Light tan buff to nearly white. Rounded grains of calcite. Shell fragments also present. Firm and compact. Mississippian age.

Example: Washington National Cathedral

Granite

Connecticut - Stony Creek, New Haven County. Coarse - grained, with large pink feldspar crystals in a gray mass of

smaller crystals. Precambrian age. **Example: Exterior of Commerce** Department.



Massachusetts - Milford. Worcester County. Light pinkish to greenish gray, with spots of black biotite mica that may form bands. Medium to

coarse textured. Precambrian age.

Example: Zero Milestone.



Minnesota - Redwood and Renville Counties. Greenishgray medium grained biotite

gneiss; pale-pink biotite granite or quartz diorite; and a granite gneiss with distinct banding, black knots of biotite, and large isolated feldspar crystals. Precambrian age. Example: Fountains on the Ellipse at **Constitution** Avenue.

North Carolina -Mount Airy, Surry County. Very light grav. Medium



textured. Biotite granite. Biotite is unequally distributed; some rock contains almost no biotite. Probably Paleozoic age.

Example: Arlington Memorial Bridge.



Vermont -Barre, Washington County. Gray to white. Medium to fine grained. Contains about 65

percent feldspar, 27 percent quartz, and 8 percent biotite mica. Ordovician age. Example: Steps to the west front of the Capitol.

Marble

Colorado -West Elk Mountains, Gunnison County.



White with gray markings. Fine grained. Contains scattered grains of pyrite. Excellent building stone. Mississippian age. **Example:** Exterior of the Lincoln Memorial.



Georgia - Pickens County. White, blotched with black and gray. Coarser grained than Vermont white marble. Called "White Cherokee marble." Precambrian age.

Example: East-central front of the Capitol.

Maryland - Texas and Cockeysville, Baltimore County. White to light gray. Medium to coarse textured. Precambrian age. Example: Bottom 152 feet and upper 390 feet of the Washington Monument.



Massachusetts - Lee, Berkshire County. White to light gray. Medium fine textured. Ordovician age.

Example: Exterior of Senate and House wings of the Capitol.

Missouri -Carthage district, Jasper County. White to light gray

with bluish-



gray tint. Coarse grained. Some stylolites (wavy, thin, dark lines formed when minerals in the rock dissolve under pressure). Mississippian age.

Example: Interior of Commerce Department Building.



Tennessee -Knox and Blount Counties. Pink, light pink, and gray. Fine textured. Stylolites.

known locally as crowfeet, in beds. Ordovician age. Example: National Gallery of Art.

County. Dark chocolate to red with white streaks and masses. Coarse. Has some fossils. Ordovician age. **Example:** Newseum First Amendment



Vermont - Rutland County. Snowy white.



Fine grained. Other types light-blue-gray and black with highly contorted stylolites. Ordovician

age. Example: Jefferson Memorial.

https://pubs.usgs.gov/gip/stones/ descriptions.html



Tennessee - Hawkins



Date:



Geology Match Words



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 a Crack in the surface of the Earth that is Created when two plates move away from each other 	water pollution
2. the arching of sediments of a salt surface	blueschist
 mud, Clay, and rocks that are picked up in rivers and streams and taken to the ocean 	rift
 Can be large Chucks or dust particles that are shot from a volcano during it eruption 	tephra
5. found on the top of a mountain in the tropics	Creep
 Contamination that happens by industrial mumiCipal businesses 	salt dome
7. the deep section of the ocean	sediment
 small solid particles that form a cloud from a volcanic eruption 	abyss
 an island that parallels the shore and protects the land from the storms that pass through 	Carbonate
 ocean Crust that is metamorphosed rocks, which are exposed to the atmopshere 	ash fall
11. mineral that contains CalCium Carbonate	tropiCal glaCier
12. slow flow of the Earth's material	barrier island
Answers on the next page.	
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FIRST CLASS MAIL



Answers: 1. rift 2. salt dome 3. sediment 4. tephra 5. tropical glacier 6.water pollution 7. abyss 8. ash fall 9. barrier island 10. blueschist 11. carbonate 12. creep



The Agate Explorer

December 2018 Official Publication of the Cuyuna Rock, Gem & Mineral Society

Members of AFMS & MWF

Notes from the President

Before the January meeting there will be an open shop from 9-12, with our speaker later that day showing how to make a cabochon. What would you like to learn in February and March? The machines are there and waiting for you.

Don't forget that the Christmas party is on our regular meeting date, December 8. From past years it will be filled with good food, good friends, and crazy white elephant gifts. I can hardly wait!

A couple of people have asked about a short road trip to Thunder Bay to collect amethyst. I am thinking July might be a good time. Please let me know if you are interested in going and I can start planning. A long weekend would be enough time to make the trip.

And speaking of trips, if you know of any locations for a one day trip, please contact me. It could be a place to collect, a museum, or ?

If you are unable to make the party in December I hope you have a happy holiday season.



Club Officers & Board of Directors

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President: Ed Opatz opatz1@att.net 320-250-1363

Vice-President: Chuck Durnan cpdurnan@gmail.com 218-699-3685 Secretary—Joanie Hanson

secretarycuyunarockgemclub@outlook.com 218-831-2665

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Ed Opatz