

Cuyuna Rock, Gem and Mineral Society

# The Agate Explorer

November 2018



**Franklin Arts Center  
Holiday Open House**  
*is being held on Saturday, November 10.  
9:30 a.m.—3:00 p.m.*

*If you are interested in FREE space in the cafeteria,  
contact Ed Opatz at 320-250-1363.*



Franklin Art Center

## Club Information

### 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 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.*

## November Meeting

The next meeting, on November 17 (note change of date) includes both general elections of vice-president, treasurer, and three board members at large. You must be a Club member for one year to run.

If you are interested in running

for a position on the Board, please contact Sandi Hilsgen at 320-249-3778 or Lisa Hughes at 218-546-2728.

There will be a silent auction held in conjunction with the November meeting on the 17th. Please bring only rock related items to sell. Seller keeps all profits.

## 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

**November 10** - Franklin Arts Building Craft Sale, 9 to 3.

**November 17** - **NOTE CHANGE OF DATE.**

Rock Wrappers at 10 a.m.; Board Mtg. at 12:00; General Mtg., ELECTIONS, at 2:00. Silent Auction.

**December 8** - Christmas Party, eating at noon

**January 12**—Board Mtg. at 11:30; General Mtg. 2:00.

**Information subject to change.**





### November Birthdays

Phyllis Wagoner	11/5
Lyndon Johnson	11/6
Harry Wagoner	11/19
Joan Guerra	11/25
Butch Goldenstein	11/25

### “Giant Thunderclap” Dino Discovered

If humans had lived 200 million years ago, they would have marveled at the largest dinosaur of its time. It's name means "a giant thunderclap at dawn."

The recently discovered fossil of a new dinosaur species in South Africa revealed a relative of the brontosaurus that weighed 26,000 pounds, about double the size of a large African elephant.

The researchers have named it *Ledumahadi mafube*, which is Sesotho for "a giant thunderclap at dawn." Sesotho is an official South African language indigenous to the part of the country where the dinosaur was found.

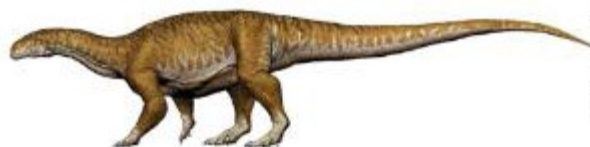
"The name reflects the great size of the animal as well as the fact that its lineage appeared at the origins of sauropod dinosaurs," said Jonah Choiniere, study author and paleontology professor at the University of the Witwatersrand in Johannesburg, South Africa. "It honors both the recent and ancient heritage of southern Africa."

Apart from its massive size, there are other evolutionary details about the new species that make it entirely unique, according to a new study published Thursday in the journal *Current Biology*.

"It shows us that even as far back as 200 million years ago, these animals had already become the largest vertebrates to ever walk the Earth," Choiniere said.

Choiniere's graduate student, Blair McPhee, discovered the bones of an unknown dinosaur in 2012.

"Blair told me how important he thought it was, and even showed me that some of its bones were still sticking out of the rocks in the field," Choiniere said.



Over years of excavation, the team uncovered the fossil of a fully-grown adult dinosaur, likely about 14 years old when it died.

*Ledumahadi* was a close relative of sauropod dinosaurs, like the brontosaurus and others that ate plants and walked on all four legs. But the fossil shows that it evolved earlier, and independently, of sauropods.

Sauropods had a posture and thick, column-like limbs that are very similar to elephants. But they evolved from ancestors that walked predominantly on two legs. Adapting to walk on all fours allowed sauropods to grow larger and supported the digestive process needed for their herbivore diet. The researchers believe that *Ledumahadi* was a transitional dinosaur, an evolutionary experiment itself during the Early Jurassic period. The forelimbs of this dinosaur are more "crouched," while being very thick to support its giant body.

"The first thing that struck me about this animal is the incredible robustness of the limb bones," said McPhee, lead study author. "It was of similar size to the gigantic sauropod dinosaurs, but whereas the arms and legs of those animals are typically quite slender, *Ledumahadi*'s are incredibly thick." The researchers wanted to find out whether or not this dinosaur walked on two or four legs, so they developed a new method to test it. They compiled data of dinosaurs, animals and reptiles that walked on two or four legs, including leg measurements and thickness. Comparing the data from the fossil with this dataset enabled them to determine *Ledumahadi*'s posture.

### Jewelry Making Tip

By Brad Smith  
[www.BradSmithJewelry.com](http://www.BradSmithJewelry.com)

#### *Cleaning Steel Shot*

Steel shot in a vibratory or rotary tumbler works great to burnish and shine your finished silver pieces. But a common problem is how keep the shot clean. Carbon steel shot can get rusty if exposed to the air, and even stainless steel shot can sometimes develop a blackish coating that's hard to remove.

My solution of choice to clean the shot is Classic Coke. Just pour an ounce or two over the shot and let the tumbler run for an hour or so. A bad case might require a second cleaning. Some folks like to let the bubbles in the Coke dissipate before using it so that gas pressure doesn't build up in the tumbler barrel. I've heard that it's the phosphoric acid in Coke that does the trick.



While you're waiting for the shot to clean up, just settle back and enjoy the rest of the Coke.

While the method helped them determine that *Ledumahadi* walked on four legs, it also revealed that other early similar dinosaurs were also experimenting with walking on all fours.

"The evolution of sauropods isn't quite as straightforward as we once thought," Choiniere said. "It appears that sauropodomorphs evolved four-legged postures at least twice before they gained the ability to walk with upright limbs, which undoubtedly helped make them so successful in an evolutionary sense."

The newly discovered dinosaur is a close relative of gigantic dinosaurs that lived during the same time in Argentina, which supports the idea that all of the continents were still assembled as Pangea, a supercontinent made up of most of the world's land mass during the Early Jurassic.

"It shows how easily dinosaurs could have walked from Johannesburg to Buenos Aires at that time," Choiniere said.

When it roamed the land 200 million years ago, *Ledumahadi* lived in South Africa's Free State Province, but it looked very different then. Instead of the mountainous area that it is now, the land was flat and semi-arid, with shallow streams that could easily dry out.

And *Ledumahadi* was just one of many dinosaur species in the area.

"There was a thriving dinosaur ecosystem here in South Africa, at the bottom of the world, featuring 12 ton giants like *Ledumahadi*, tiny carnivores like *Megapnosaurus*, the earliest mammals, some of the earliest turtles, and many, many others," Choiniere said.

<https://www.cnn.com/2018/09/27/world/new-giant-dinosaur-brontosaurus-relative/index.html>

## 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:** 10" trim saw with rock



clamp vise and slab cutter adjustment. Blade with life left. \$340.

Also, have a number of

tumblers of various sizes, ranging from 3-12 pound capacity. Call Ed Opatz at 320-250-1363.

**For 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.

## Mineral Encyclopedia

### Arsenopyrite

Ilmenite is a common accessory mineral in igneous rocks, sediments, and sedimentary rocks in many parts of the world. Apollo astronauts found abundant ilmenite in lunar rocks and the lunar regolith. Ilmenite is a black iron-titanium oxide with a chemical composition of  $\text{FeTiO}_3$ .

Most ilmenite forms during the slow cooling of magma chambers and is concentrated through the process of magmatic segregation. A large underground magma chamber can take centuries to cool. As it cools, crystals of ilmenite will begin forming at a specific temperature. These crystals are heavier than the surrounding melt and sink to the bottom of the magma chamber. This causes ilmenite and similar-temperature minerals, such as magnetite, to accumulate in a layer at the bottom of the magma chamber. These ilmenite-bearing rocks are often gabbro, norite, or anorthosite. Ilmenite also crystallizes in veins and cavities and sometimes occurs as well-formed crystals in pegmatites. Ilmenite has a high resistance to weathering. When rocks containing ilmenite weather, grains of ilmenite disperse with the sediment. The high specific gravity of these grains causes them to segregate during stream transport and accumulate as "heavy mineral sands." These sands are black in color and easily recognized by geologists. "Black sand prospecting" has long been a method of finding heavy mineral placer deposits. Most commercially produced ilmenite is recovered by excavating or dredging these sands, which are then processed to remove the heavy mineral grains such as ilmenite, leucoxene, rutile, and zircon.

Ilmenite's ideal chemical composition is  $\text{FeTiO}_3$ . However, it often departs from that



composition by containing variable amounts of magnesium or manganese. These elements substitute

for iron in complete solid solution. A solid solution series exists between ilmenite ( $\text{FeTiO}_3$ ) and geikielite ( $\text{MgTiO}_3$ ). In this series, variable amounts of magnesium substitutes for iron in the mineral's crystal structure. A second solid solution series exists between ilmenite and pyrophanite ( $\text{MnTiO}_3$ ), with manganese substituting for iron. At high temperatures, a third solid solution series exists between ilmenite and hematite ( $\text{Fe}_2\text{O}_3$ ).

Ilmenite is a black mineral with a submetallic to metallic luster. With just a glance it can easily be confused with hematite and magnetite. The differentiation is easy. Hematite has a red streak, while ilmenite has a black streak. Magnetite is strongly magnetic, while ilmenite is occasionally ilmenite is weakly magnetic, possibly from small amounts of included magnetite.

Ilmenite is usually more durable than the other minerals in the igneous rocks in which it is abundant. For that reason, the weathering debris produced during the weathering of these rocks is especially rich in ilmenite. Its relatively high specific gravity causes it to become concentrated in placer deposits like gold, gems, and other heavy minerals.

Ilmenite is the primary ore of titanium metal. Small amounts of titanium combined with certain metals will produce durable, high-strength, lightweight alloys. These alloys are used to manufacture a wide variety high-performance parts and tools. Examples include: aircraft parts, artificial joints for humans, and sporting equipment such as bicycle frames. About 5% of the ilmenite mined is used to produce titanium metal.

Some ilmenite is also used to produce synthetic rutile, a form of titanium dioxide used to produce white, highly reflective pigments.

Most of the remaining ilmenite is used to make titanium dioxide, an inert, white, highly reflective material. The most important use of titanium dioxide is as a whitening. Whitings are white, highly reflective materials that are ground to a powder and used as pigments. These pigments produce a white color and brightness in paint, paper, adhesives, plastics, toothpaste, and even food. Titanium dioxide is also used to make powders with a tightly controlled particle size range. These powders are used as inexpensive polishing abrasives in a variety of lapidary work that includes rock tumbling, lapping, cabbing, sphere making, and faceting. Titanium oxide abrasives are used in many other industries.

<https://geology.com/minerals/>

### Physical Properties of Ilmenite

**Chemical Classification** Oxide

**Color** Black

**Streak** Black

**Luster** Metallic, submetallic

**Diaphaneity** Opaque

**Cleavage** None

**Mohs Hardness** 5.5 to 6

**Specific Gravity** 4.7 to 4.8

**Diagnostic Properties** Streak; sometimes weakly magnetic.

**Chemical Composition** Iron titanium oxide -  $\text{FeTiO}_3$ .

Sometimes has significant amounts of magnesium and manganese in solid solution with the iron to yield a composition of  $(\text{Fe}, \text{Mg}, \text{Mn})\text{TiO}_3$

**Crystal System** Hexagonal

**Uses** The primary ore of titanium. A minor source of iron. Used to make titanium dioxide.



## November Rock Shows

2-3—HURRICANE, UT: Southern Utah Rock & Gem Show; Washington County Legacy Park, Daily 10-7; Free; Email: antonellalr@yahoo.com  
 2-4—SARASOTA, FL: Frank Cox Productions; Sarasota Municipal Auditorium, Daily 10-5; Admission \$5, under 16 free; Website: frankcoxproductions.com  
 2-4—EUGENE, OR: Gem Faire Inc.; Lane County Events Center, Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7, under 12 free; Website: www.gemfaire.com  
 2-4—BLACK CANYON CITY, AZ: High Desert Helpers; High Desert Park, Fri. 9-4; Free; Email: bonnim68@gmail.com  
 3-4—ANAHEIM, CALIFORNIA: Gem & Jewelry Show; American Opal Society; Business Expo Center; Sat. 10-6, Sun. 10-5; adults \$5, students \$3, children free; Website: http://opalsociety.org  
 3-4—BREWER, ME: Penobscot Mineral & Lapidary Club; Brewer Auditorium, Sat. 10-5, Sun. 10-4; \$2, under 12 free; contact Lance Shope, (207) 989-3342  
 3-4—PLANT CITY, FL: Tampa Bay Mineral & Science Club; Plant City Strawberry Expo Hall, Daily 10-5; \$5, teens \$4; under 12 free; Website: TampaBayRockClub.com  
 3-4—RIDGECREST, CA: Indian Wells Gem & Mineral Society; Desert Empire Fairgrounds, Daily Sat. 9-5; Free; contact John DeRosa, (760) 375-7905  
 3-4—OLD GREENWICH, CT: Stamford Mineralogical Society; Eastern Greenwich Civic Center, Sat. 9:30-5, Sun. 10-4:30; \$6, under 12 free; Website: stamfordmineralsociety.org  
 3-4—ODESSA, TX: Midland Gem & Mineral Society Show; Ector County Coliseum, Sat. 9-6, Sun. 10-5; \$5; ages 6-18, \$2; under 6 free; contact Linda, (432) 242-7057  
 3-4—CONCORD, CA: Contra Costa Mineral & Gem Society; Centre Concord, Daily 10-5; \$6, under 16 free; contact Mary Hicks, 925-779-0698;  
 3-4—BREWER, ME: Penobscot Mineral & Lapidary Club; Brewer Auditorium; Sat. 10-5, Sun. 10-4; \$2; under 12 free; contact James White, 207-866-2546  
 9-11—COSTA MESA, CA: LLD Productions Inc.; Hilton Orange County/Costa Mesa; Fri. & Sat. 10-6, Sun. 10-5; free, \$5 parking; Website: www.mineralshowsllld.com  
 9-11—SANTA ANA, CA: LLD Productions, Inc.; Holiday Inn-Orange County Airport; Fri. & Sat. 10-6, Sun. 10-5; Free Website: http://www.MineralShowsLLL.com  
 9-11—BEREA, OH: GemStreet USA; Cuyahoga County Fairgrounds, Fri. 10-6, Sat. 10-6, Sun. 11-5; \$7, under 12 free; con-

tact Jane Strieter Smith, Email: JaneS-trieter1946@gmail.com  
 9-11—HAMBURG, NY: GemStreet USA; Fairgrounds in Hamburg; Fri. & Sat. 10-6, Sun. 11-5; \$7, under 12 free; Website: GemStreetUSA.com  
 9-11—PUYALLUP, WA: Gem Faire Inc.; Washington State Fair Events Center, Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7, under 12 free; Website: www.gemfaire.com  
 9-11—HUMBLE, TX: Houston Gem & Mineral Society; Humble Civic Center, Fri. & Sat. 9-6, Sun. 10-5; Website: hgms.org  
 10—MOUNTVILLE PA, PA: Lancaster County Fossil & Mineral Club; Trinity Church of Christ, Sat. 8:30-4:30; \$3, K-12 \$1; Website: Facebook: Lancaster County Fossil and Mineral Club  
 10-11—HESPERIA, CA: Mining Supplies & Rock Shop; 16808 Main St.; Sat. 9-5, Sun. 9-4; free; Website: miningsuppliesandrockshop.com  
 10-11—EDMONDS, WA: Maplewood Rock & Gem Club; Maplewood Rock & Gem Clubhouse, 8802 196th ST SW ; Sat. 9-5, Sun. 10-5; Free; contact Mary Ann Collins, (206)-714-3922  
 10-11—FREEPORT, IL: North West Illinois Rock Club; Highland Community College; Sat. 9-5, Sun. 10-4; Donations; Website: nwilrockclubfrpt.blogspot.com  
 10-11—SEDRO WOLLEY, WA: Skagit Rock & Gem Club; Sedro Woolley Community Center, Sat. 9-5, Sun. 10-4; free; contact Debbie Frank; Email: skagitrockandgem@gmail.com  
 10-11—HESPERIA, CA: Mining Supplies & Rock Shop; Midtown Square, Sat. 9-5, Sun. 9-4; Free; www.miningsuppliesandrockshop.com  
 16-18—COLUMBIA, SC: The Columbia, SC Gem & Mineral Society; Jamil Temple, Fri. & Sat. 10-6, Sun. 12-5; \$5, under 16 free; Website: www.cgms.rocks  
 16-18—PORTLAND, OR: Gem Faire Inc.; Oregon Convention Center; Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7, under 12 free; Website: www.gemfaire.com  
 16-18—EUREKA, CA: Humboldt Gem & Mineral Society; Redwood Acres Fairgrounds; Fri. 9-6, Sat. 10-6, Sun. 10-5; \$3, ages 6-12 \$1; contact Diane Reed, CA, (707) 839-2079  
 16-18—MARIETTA, GA: Cobb County Gem & Mineral Society; Cobb County Civic Center; Fri. & Sat. 10-6, Sat. 10-6, Sun. 10-5; free; Website: http://www.cobbcountymineral.org/  
 17-18—PAYSON, AZ: Payson Rimstones Rock Club; Longhorn Gym; Sat. 9-5, Sun. 10-4; \$2, under 13 free; contact Becky Bagshaw, (928) 476-3419  
 17-18—WEST PALM BEACH, FL: Gem &

Mineral Society of the Palm Beaches; Expo Center East South Florida Fairgrounds; Sat. 9-6, Sun. 10-5; \$9, under 12 free; Website: www.gemandmineralsociety.org  
 17-18—LEBANON, PA: Mid-Atlantic Gem & Mineral Association; Lebanon Valley Expo Center; Sat. 10-5, Sun. 11-4; \$5, under 12 free; Website: www.gemshow.com  
 17-18—OXNARD, CA: Oxnard Gem & Mineral Society; Oxnard Performing Arts Center; Sat. 10-5; free; Website: www.oxnardgem.com  
 17-18—MESQUITE, TX: Dallas Gem & Mineral Society; Rodeo Center Exhibition Hall; Sat. 10-6, Sun. 10-5; \$8, family of 4 \$20, children \$4; Website: www.dallasgemandmineral.org  
 17-18—CLARKSBURG, WV: Mystical Crystals; Harrison County Parks & Recreation Complex; Sat. 10-6, Sun. 11-5; \$3, under 13 free; contact Tom Watson, (304) 695-1587  
 17-18—LAKESIDE, CA: El Cajon Valley Gem & Mineral Society; Lakeside Rodeo Grounds; Sat. 10-5, Sun. 10-4; free; Website: ecvgms.org  
 17-18—SHORELINE, WA: Crystallography Gem + Mineral Market; Shoreline Community College, Sat. 10-6:30, Sun. 11-5; free; Website: crystallographygems.com  
 17-18—MADISON, WI: Madison Gem & Mineral Club; Alliant Energy Center Exhibition Hall; Sat. 9:30-5, Sun. 10-5; \$3, under 13 free; Website: www.madisonrockclub.org  
 17-18—WORCESTER, MA: Worcester Mineral Club; National Guard Armory; Sat. 10-5, Sun. 10-4; \$5, students/srs \$4, under 13 free; 12 and under free; Website: www.worcestermineclub.org  
 17-18—LIVERMORE, CA: Livermore Valley Lithophiles Gem & Mineral Society; The 'BARN'; Sat. 10-5, Sun. 10-4; \$5; under 13 free; Website: www.lithophiles.com  
 17-18—MESA, AZ: Apache Junction Rock & Gem Show; Skyline High School, Sat. 9-5, Sun. 10-4; \$3, students \$1, under 12 free; contact Tom Mortensen, (480) 620-8178  
 23-25—ST. PETERSBURG, FL: Frank Cox Productions; The Coliseum; Daily 10-5; \$5; under 16 free; Website: frankcoxproductions.com  
 24-25—SAN FRANCISCO, CA: Christmas In San Francisco Crystal Fair; Pacific Crystal Guild; Sat. 10-6, Sun. 10-4; \$12, under 12 free; contact Jerry Tomlinson, PO Box 1371, Sausalito, CA 94966  
 24-25—MONTEREY, CA: Gem Faire Inc.; Monterey County Fairgrounds; Sat. 10-5, Sun. 10-4; free; Website: www.gemfaire.com

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### November 2018-December 2018

30-2—ARDEN, NC: Christmas Show; Mountain Area Gem & Mineral Association; Camp Stephens, Daily 9-5; Website: [www.americanrockhound.com](http://www.americanrockhound.com)

30-2—SPRINGFIELD, OH: GemStreet USA; Clark County Fairgrounds; Fri. & Sat. 10-6, Sun. 10-5; \$7, under 12 free; contact Jane Strieter Smith, Email: [JaneStrieter1946@gmail.com](mailto:JaneStrieter1946@gmail.com)

30-2—SARASOTA, FL: Frank Cox Productions; Sarasota Municipal Auditorium, Daily 10-5; \$5, under 16 free; Website: [frankcoxproductions.com](http://frankcoxproductions.com)

30-2—COSTA MESA, CA: Gem Faire Inc.; OC Fair & Event Center, Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7, under 12 free; Website: [www.gemfaire.com](http://www.gemfaire.com)

30-2—MONTGOMERY, AL: Montgomery Gem & Mineral Society; Garrett Coliseum, Fri. 9-6, Sat. 10-6, Sun. 11-5; \$2, under 19 free; Website: [montgomerygemandmineralsociety.com](http://montgomerygemandmineralsociety.com)  
30-2—HUDSON, FL: Withlacoochee Rockhounds; Veterans Memorial Park Gymnasium, Daily 9-5; \$3, teens \$1, under 12 free; Website: <https://www.withlacoocheerockhounds.com/annual-gem-show.html>

## Rock Room

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  
Various slabs of many sizes  
Obsidian—not priced yet  
Mineral specimens—some are priced

Coming into the rock room soon:  
Dinosaur bone  
Slabs of various sizes  
Whole Septarians  
Luna Lace Agate

## Ice White Diamond Dug up in Arkansas State Park

A 71-year-old retiree from Aurora, Colorado made the find of a lifetime this month when she discovered an ice white diamond weighing nearly three carats, according to a news release issued Wednesday by Arkansas State Parks.

According to the finder, who wishes to remain anonymous, she had been searching for about 10 minutes with her husband, son, grandson, and granddaughter when she hit pay dirt.

"I was using a rock to scrape the dirt but don't know if I uncovered the diamond with it or not. It was just lying on the surface!" she said.

She found the gem about halfway between the East Drain and North Wash Pavilion in the park's 37.5-acre diamond search area, the eroded surface of an ancient, diamond-bearing volcanic crater.

The Coloradan didn't realize that she had picked up a diamond, and thought it might be a piece of glass. Fortunately, she gave the gem to her son to put in his pocket. The family continued searching for another hour before having their rocks and minerals identified at the park's Diamond Discovery Center, where staff revealed that the Coloradan had found the largest diamond so far in 2018. Upon learning that she had found a large diamond, the finder said, "I didn't know what to think. I was shocked!"

"About one out of every five diamonds registered by park visitors is found right on top of the ground, including many of the largest ever found at the Crater of Diamonds," says Park Interpreter Waymon Cox.

Park personnel plow the diamond search



area periodically to loosen the soil and assist with natural erosion. Diamonds are a bit heavy for their size and lack

static electricity, so dirt doesn't stick to them. When rainfall uncovers larger diamonds and the sun comes out, they sparkle and are often easy to see.

"Like other rocks and minerals, no two diamonds are exactly alike. This white diamond is about the size of a pinto bean and is shaped somewhat like a fingernail. Several brownish, freckle-like marks along the surface give the gem a unique, one-of-a-kind appearance," Cox adds.

Many visitors choose to name the diamonds they find at Crater of Diamonds State Park. This finder named her gem Lichtenfels, the name of her hometown in Germany and a word that means "a rock between two lights." The finder's son pointed out that she was standing between her grandchildren when she found the diamond. "She wouldn't have come to the park if it weren't for her grandkids," he explained, "They're her two points of light."

As of this writing, 256 diamonds have been registered at Crater of Diamonds State Park so far in 2018, weighing a total of 49.64 carats. Five diamonds registered this year have weighed at least one carat each.

<https://www.yourcentralvalley.com/news/national-news/ice-white-diamond-dug-up-in-arkansas-state-park/1479882067>



## Agates From Around The World The Casas Grandes, Parcelas and Calandria Agates

This trio of agates tend to be very similar in cut/polish appearance that they sometimes can be confused for each other. What may

distinguish the Casas Grandes Agates from Parcelas Agates is that Casas Grandes Agates look more rusty (yellowish) while Parcelas Agates come with dark red-gray dark skins. The Parcelas Agates are mostly white sometimes with lavender to purplish or grayish hues. Some bands are fuzzy or spotted with clay sphericals.

<http://www.sailorenergy.net/Agates/AgatesMexicoParcelas01.html>



## Protective Gem Settings for Cabochons & Soft Materials

### The Cage Design

You'll find the cage setting more commonly used for pearl pendants than rings, but it works for both. In pendant designs, the pearl typically rolls around loosely within the protection of a metal cage. In ring designs, jewelers will glue the pearl to the ring and either wrap the cage directly around the pearl or extend it outwards to encircle the pearl like a bubble.



Many ring designers will encase the pearl in a beautiful spiral cage. Cage settings entice the viewer to examine the pearl while effectively protecting it from scratches and blows.



### The Bowl Design

A bowl design consists of a pearl surrounded by a metal hemisphere or bowl. As a result, the pearl is visible mostly from the top of the ring but not the sides. This

setting can vary greatly in appearance, from abstract, modern looks to very ornate, flower-like shapes.

The bowl shields the pearl from blows from the side. If the pearl is flush or sunk into the bowl, its top is also protected from scratches. Although less protective overall than the cage design, the bowl design does offer an unobstructed view of the pearl (at least from the top).

### The Arch Design

This design protects the pearl not only with metal but also with the wearer's hand itself! The metal band wraps around the ring finger as well as the top of the pearl. An arch setting will make



your ring look like an architectural masterpiece. While not as protective as the cage or bowl, the arch design does reveal more of the pearl.

The main drawback to this design is that it puts the pearl in direct contact with the wearer's finger. If you choose this setting, avoid using sunscreen, perfume, or other chemicals that could potentially harm the pearl on your ring hand. Also, make sure the pearl's surface is smooth enough not to irritate your finger.

### Opals

Another notoriously fragile gem, opals come in many shapes and sizes. Thus, designers have to get inventive when it comes to creating protective gem settings for these stones. In rings, most opals receive bezel settings. In general, the less domed the opal, the easier it is to protect, since less of the stone protrudes above the setting.

Keep in mind that assembled opal doublets and triplets will give you additional durable and secure options.

### Solid Backings

When designing an opal ring, you can choose whether or not to make the backing of the ring solid. Empty or open backings allow light to play around more when passing through the opal. Some opals may shine red or orange when the light shines through them. Solid or closed backings remove this effect. However, they also help reinforce thinner, more delicate opals, making them less likely to shatter.

Choosing a solid backing doesn't mean you're closing the door on spectacular displays. In fact, a solid black backing can also increase the intensity of an opal's play-of-color effect. However, the color of the ring metal also plays a role here. With a thin opal, white or rose gold may wash out the opal's color.

### Raised Prongs

Adding thick, designer prongs to a bezel

setting will give an opal more protection from blows and scratches. It also adds some pizzazz to a ring. These prongs don't have to be metal claws. For example, trios of bezel-set diamonds can secure a corner of a square or tear-shaped cabbed opal. Any thick prongs or gems that rise above the opal can provide some protection. Even three short prongs that rise over a bezel-set opal can provide some additional protection.



### Raised Border

The idea of the raised border is similar to that of the raised prongs. If a border around the opal protrudes slightly above it, the opal will be protected from most blows. This design offers even more protection



than raised prongs, although it will also allow less light to reach the stone.

### Setting Stones or Metal Leafing Over an Opal

Opals have inspired some unique jewelry designs and protective gem settings. Some designers will glue an additional stone or add metal leafing right on the center of the opal. This protects the most vulnerable part of the opal and adds visual interest. Other designers have covered opals with thin diamond-and-metal vines — or something with a similar motif — that function like cage settings.

### Amber

Like opal, amber comes in unusual shapes and sizes. It's also soft and can be damaged easily. Jewelers usually bezel set amber stones in rings with solid backings. As with opals, designers sometimes use metal leafing to cover portions of the amber stone for additional protection.

<https://www.gemsociety.org/article/protective-gem-settings/>



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

*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.*

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

[www.cuyunarockclub.org](http://www.cuyunarockclub.org)



### 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.



## ***The World of Jaspers*** **Utah Rainbow Jasper**



Utah Rainbow Jasper often has areas that would be considered agate. It is sometimes referred to as a jasper/agate or "jaspagate". While the main colorations are brown, red and orange, it may also display yellow or green. mossy inclusions similar to those found in moss agate may also be found in this beautiful jasper.

<https://lapidaryslab.com/utah-rainbow-jasper/>

### **Cuyuna Rock, Gem and Mineral Society Board Meeting Minutes Saturday October 13, 2018**

The board meeting was called to order at 11:25 pm by Vice-President Chuck Durnan. Present were Treasurer Kevin Martini, Secretary Joanie Hanson, Board Members at Large Keith Lorensen and Vern Iverson.

Treasurer's Report- Kevin Martini. The rent for the club was paid for the year in the amount of \$660.00. We currently have a 7 year lease with the school. The rest of the report will be posted at the rock club. A motion was voted on and passed to change the time of the board meetings to 12:00 pm.

A motion was voted on and approved to buy more shelving for the rock room and the club room.

Franklin Arts Holiday Craft show is November 10. If you want to vend you must

let Ed know.

Nominations are being taken for the elections next meeting Nov 17. If you are interested in being on the board please contact Lisa Hughes or Sandi Hilsen. Up for election is vice-president, treasurer, and 3 board-member-at-large positions.

The new email addresses for the club are as follows:

Joanie-  
[secretarycuyunarockgemclub@outlook.com](mailto:secretarycuyunarockgemclub@outlook.com)

General club email-  
[cuyunarockgemclub@gmail.com](mailto:cuyunarockgemclub@gmail.com)

I check these addresses frequently so please use them.

We will be updating the member roster for phone numbers, addresses and email addresses. If there are any changes please let us know.

Respectfully submitted,  
Joanie Hanson, Secretary



### **Crystal Basics**

Crystals are a special kind of solid material where the molecules fit together in a repeating pattern. This pattern causes the material to form all sorts of unique shapes.

The process of crystal forming is called crystallization. Crystals often form in nature when liquids cool and start to harden. Cer-

tain molecules in the liquid gather together as they attempt to become stable. They do this in a uniform and repeating pattern that forms the crystal.

In nature, crystals can form when liquid rock, called magma, cools. If it cools slowly, then crystals may form. Many valuable crystals such as diamonds, rubies, and emeralds form this way.

Another way crystals form is when water evaporates from a mixture. Salt crystals often form as salt water evaporates.

Crystals can have very flat surfaces called facets. They can form geometric shapes

such as triangles, rectangles, and squares. The shapes are a direct result of the type of molecules and atoms that make up the crystal. Smaller crystals and larger crystals that were formed of the same molecules and in the same method should have similar shapes.

There are seven basic crystal shapes, also called lattices. They are Cubic, Trigonal, Triclinic, Orthorhombic, Hexagonal, Tetragonal, and Monoclinic.

<https://www.ducksters.com/science/crystals.php>

### **Cuyuna Rock, Gem and Mineral Society General Meeting Minutes Saturday October 13, 2018**

The meeting was called to order by vice-president Chuck Durnan at 2:05pm. There were 36 people present, of whom 3 were guests.

Chuck reviewed instructions and information for the upcoming elections which will take place at the November 17th meeting.

Also at The Nov. 17th meeting will be the annual members silent auction. If you have rock related items or specimens you want to

sell - bring them to the next meeting.

A reminder that if you want to vend at the Franklin Arts Holiday craft show please be sure to let Ed know.

We reminded members to please be sure to read the newsletter for important information about club activities.

Also to please keep us updated with any phone, address, or email changes. You can send changes to one of the email addresses listed in the board minutes or update them on the signup sheet at meetings.

Ed would like us all to start thinking of ideas and promotions for the May show which

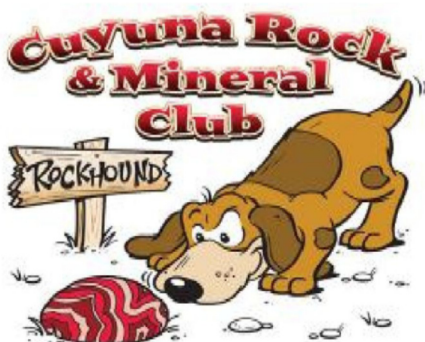
will be on Mother's Day weekend next year. Today's speaker is Ron Wienhold. He will speak on Glaciation Periods of Minnesota.

Respectfully submitted,  
Joanie Hanson, Secretary



Marcia Opatz, Editor  
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## FIRST CLASS MAIL



## The Agate Explorer

November 2018

*Official Publication of the Cuyuna Rock,  
Gem & Mineral Society*

Members of AFMS & MWF



## Notes from the President

With elections coming up, I got to thinking. In what direction does our Club want to head? We want to be what the majority of our members want. Please make sure you tell Board members what you consider important. After all, it's YOUR Club.

I'm not sure you realize that our Club is unusual. Most rock clubs do not have a clubhouse; they have a designated place to meet (such as a library), but not somewhere to have equipment or a rock room. But our equipment often sits idle. Why is that? The equipment is there for members to use, and I know that not all of you have equipment of your own. Is it because you don't know how to run it? That the space isn't available when you are? That you aren't interested in using it? There is no point in having equipment if it isn't going to be used. Please talk to me about how we can make this better.

I don't know if I have totally grown up, because I've been thinking about Christmas gifts, specifically what I might get at the white elephant gift exchange at the Club's party. I already have a couple of gifts stashed to bring. Put December 8th on your calendar for the Christmas potluck party.



*Ed Opatz*

## Club Officers & Board of Directors

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