

# Cuyuna Rock, Gem and Mineral Society

# **The Agate Explorer**

# September 2018

# Lost!

The ratchet for the new geode cracker has been missing since the show at the fairgrounds. If you remember seeing it, or packing it on the Sunday night of the show, please contact Ed Opatz at 320-250-1363.



# **Rock Wrappers**

Starting at 10 a.m. on meeting Saturdays there will be 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!

# Utah Trip Schedule

Plans are underway for the early October trip to Utah. On the list are septarians, petrified wood, wonderstone, topaz, Picasso marble, and possibly Dugway geodes.

Meet in Moab on Sunday, September 30. Delta area Marysvale area Mount Carmel area Last day on/about October 10.

Call Ed Opatz at 320-250-1363.(no texting) or email opatz1@att.net.





# Kids' Program

Bet you don't know what minerals you use every day. Find out Saturday, September 8 during the regular meeting presentation.

# Club Calendar



September 1—spinning wheel at Wild Rice Days in McGregor
September 8—Board Mtg. at 11:30; General Mtg. at 2:00.
Speaker: Bemidji State professor Miriam Ross-Sanchez on how crystal colors occur. Kids' Program on Minerals in Daily Life
October 13—Board Mtg. at 11:30; General Mtg. at 2:00. Speaker TBD

Information subject to change.



## 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 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.

### Cuyuna Rock, Gem, & Mineral Club Board Meeting Minutes Sunday July 29, 2018

The Board meeting occurred at the annual club picnic on Sunday July 29th. About 24 club members were in attendance at the picnic which took place at the Hallett House Bed and Breakfast Crosby MN.

The Board meeting was called to order at 1:00pm by President Ed Opatz.

Present were Joanie Hanson-Secretary, Kevin Martini- Treasurer, and Board Member-at-Large Sharon Smith.

Speakers for meeting Sept meeting- Miriam Ross-Sanchez, Professor of Geology at Bemidji State University will give a talk on crystals colors and refraction. Terry Roses Bruce Kramer

Franklin Center Arts event- clean up and prep for event Thursday August 9th. Sharon Smith, Bev Williams, and Jim Reed will represent the club at this event.

Get Picking event- The board voted to hire a bus and the club will pay for entrance fee of all that worked at the show.

Harry's rock collection- The club purchased some of his collection – numbers will be posted at the September meeting.

Some suggestions were made for different types of classes to be offered to members by the club. If there are any suggestions from the general membership, please let us know.

The board is reviewing and signing the new lease agreement for the club's Franklin Arts Center space. The rock room was added to it with the total rent being \$55.00 per month.

Wayne Nelson has donated a jeweler's bench and some tools to the club- Thank you Wayne!

Fair sign-ups- many thanks to all of those who volunteered.

Utah trip updates- call Ed Opatz.

Respectfully submitted, Joanie Hanson, Secretary

## Jewelry Making Tip By Brad Smith www.BradSmithJewelry.com

## **Transparent** Cabs

When bezel setting a transparent cabochon in silver, I usually cut out the back of the bezel to allow background light to show off the colors and patterns in the stone. If this is not possible or appropriate, I worry that the silver bezel will tarnish under the stone

# *The World of Jaspers* Polychrome Desert Jasper



Desert Jasper is a beautiful and colorful jasper that can best be described as polychrome (the act of decorating things in a varie-

ty of colors) in appearance. It includes red, pink, brown and grey jasper mixed in colorful swirling patterns. It comes from the Norcross-Madagascar Jasper fields, near Analalava, a coastal town and commune (Malagasy: kaominina) in north-western Madagascar over the Mozambique Channel. It was introduced in 1994. It is also referred to as Polychrome Jasper (based on coloring).

Norcross Madagascar Group (NMG) owns the Ambarijeby claim, which is the main source field in Madagascar consisting of the Majunga region and the Ankondromena region in Madagascar's Middlewest area.



# **September Birthdays**

Chuck Durnan	9/07
Tom Kulju	9/11
Dolores Sibet	9/12
Sally Hotchkiss	9/12
David Johnson	9/21

and will ruin its brilliance. What to do?

My solution is one extra step before setting the stone. I place a piece of thin silver Mylar plastic under the stone to act as a mirror that will never tarnish. Mylar is readily available in craft and gift wrap stores, or in a pinch from a party balloon supplier. You may even want to experiment with using colored or patterned Mylar (i.e. diffraction pattern) under some stones.

The Ambarijeby claim is where most of the Madagascar carnelian and Desert Jasper is found.

Norcross has discovered that 15 separate Chinese groups were stealing rock and minerals inside the claim, with 40-80 tons being shipped to China every month, and 10 tons going to the capital city, Antananarivo, for local lapidaries. The amount of the rare Desert Jasper stone illegally obtained from the claim, and sent to the local market, was so excessive that the main surface deposit of this material was depleted. NMG has been forced to go into unexplored reserve areas of the claim to find more of this material.

Please use caution when shopping on "auction" websites. Desert Jasper or Polychrome Jasper listed as coming from China or Antananarivo are highly suspect as being "poached" specimens.

http://spiritrockshop.com/ Polychrome Desert Jasper.html



Wearing opal as a jewelry stone is a

relatively modern practice. However, in ancient times, people wore this stone for various reasons. Many considered opal to be beneficial to the eye and wore it to cure eye diseases. Some even believed it could render the carrier invisible. Supposedly, carrying an opal wrapped in a fresh bay leaf would keep others from seeing you. This superstition earned opal the popular designation of patronus furum, Latin for "patron of thieves."

https://www.gemsociety.org/article/historylegend-opal-gems-yore/

# 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:** Sterling silver and 14 kt gold -filled wire for sale, by the foot. Selling at 60% of retail prices. All wire was purchased from a reputable dealer when

I was wirewrapping. Call JoAnn Moe, for details @ 602-689-4319. Available at Clubhouse.



# My feelings toward geology are purely plutonic.

# **Mineral Encyclopedia**

#### Titanite - Also Known as Sphene



Titanite is a rare titanium mineral that occurs as an accessory mineral in granitic and calciumrich metamorphic rocks. It is a minor ore of titanium and a minor gem-

stone know as "sphene."

#### **Physical Properties of Titanite**

Titanite's diagnostic properties are its crystal habit, color, and luster. Its monoclinic crystals are often wedge-shaped or tabularshaped. Its typical color range is yellow, green, brown, and black. Pink, orange, and red specimens are rare.

Titanite has a resinous to adamantine luster that is rarely seen in other minerals. It has one of the highest dispersions of any mineral - significantly higher than diamond. Titanite is also pleochroic. Transparent specimens might show its three trichroic colors.

Titanite is sometimes confused with sphalerite, especially when observing an adamantine to resinous luster. Sphalerite is softer than titanite, and often produces an odor of sulfur immediately after a streak test.

#### Titanite'br Sphene"

Before 1982, the name "sphene" was common usage for this mineral. Then the International Mineralogical Association adopted the name "titanite" and discredited "sphene." Geologists and mineralogists worldwide quickly switched to the name "titanite" and it is now in common use. The name "sphene" is rarely seen in current publications.

The name "sphene" is still the dominant usage in the gem, jewelry, and lapidary industries. There, a name change can cause severe disruption in marketing gemstone and jewelry products.

#### **Chemical Composition of Titanite**

Titanite has a chemical composition of CaTiSiO5 and sometimes contains rare earth elements such as cerium, niobium, and yttrium. It can contain other elements such as aluminum, chromium, fluorine, iron, magnesium, manganese, sodium, and zirconium.

Iron has a strong influence on the color of titanite. Small amounts of iron darken the color. Yellow and green specimens have a low iron content, while brown and black specimens have a higher iron content.

#### Geologic Occurrence of Titanite

Titanite is a rare mineral. It occurs as an accessory mineral in a few igneous rocks that include granite, granodiorite, diorite, syenite, and nepheline syenite. It is sometimes present in marble or calciumrich gneiss and schist. It often occurs as individual grains. When abundant, its habit is usually granular to massive. The best crystals are usually found in marble. Unlike other titanium minerals, titanite is rarely found in placer deposits. Its cleavage, parting, and a low hardness make it vulnerable to the abrasion of stream transport.

#### Sphene the Gemstone

Sphene continues to be the name used for titanite in the gem and jewelry industries. It is a minor gemstone that is popular with 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.

collectors because of its high dispersion. Sphene is one of the few minerals with a dispersion higher than diamond. The dispersion of diamond is 0.044, while the dispersion of sphene is 0.051. Specimens of sphene with high clarity can display a strong, colorful fire when light is passed through them (see accompanying image). Sphene is not commonly seen in jewelry. Its hardness of 5 to 5.5 on the Mohs scale, along with its easy cleavage and parting, make it too fragile as a ring stone. Reliable supplies of cut stones in commercial quantities have not been developed, and the jewelry-buying public is unfamiliar with the gem. For these reasons, sphene has not become a mainstream gem that is commonly available in jewelry.

https://geology.com/minerals/

### **Physical Properties of Titanite**

#### **Chemical Classification**

Calcium titanium silicate. **Color** Commonly yellow, green, brown, black or gray. Rarely pink, red, or orange. Streak White. Luster Resinous to adamantine. **Diaphaneity** Translucent to transparent. Cleavage Fair to good. Mohs Hardness 5 to 5.5 **Specific Gravity** 3.4 to 3.6 Diagnostic Properties Luster, hardness, color, dispersion. Chemical Composition CaTiSiO5 Crystal System Monoclinic. Uses Minor ore of titanium. Minor gemstone.

#### **September Rock Shows**

1-2—AUGUSTA, ME: Kennebec Rocks & Minerals Club; State Armory, Sat. 10-5, Sun. 10-4; \$2, Website: www.kennebecrockhounds.com

1-3—SILVER CITY, NM: Grant County Rolling Stones Gem & Mineral Society; Grant County Veterans Memorial Conference Center; Free; Website: https:// rollingstonesgms.blogspot.com 7-9-GREENFIELD, IN: 500 Earth Sciences Club; Hancock County 4-H Fairgrounds, Fri. & Sat. 10-6, Sun. 10-4; Free; Email: bkremercer@gmail.com 7-9—WINSTON-SALEM, NC: Forsyth Gem & Mineral Club; Fairgrounds, Fri. &

Sat. 10-7, Sun. 12-5; \$3, children free; Website: www.forsythgemclub.com 7-9—COTTONWOOD, AZ: Mingus Gem & Mineral Club; Clemenceau Museum; Fri. 10-5, Sat. 9-5, Sun. 9-4; \$3, children free; Email: d.strong42@yahoo.com

8-9-PORT ANGELES, WA: Clallam County Gem & Mineral Association; Vern Burton Community Center; Sat. 9-5, Sun. 10-4; Free; Kathy Schreiner, (360)-681-3811

8-9-WALLA WALLA, WA: Marcus Whitman Gem & Mineral Society; Walla Walla Fairgrounds, Daily 10-5; \$3, Under 12 free; Email: jcedwards1475@ hotmail.com

8-9-SILOAM SPRINGS, AR: Northwest Arkansas Gem & Mineral Society; Hwy. 43 & Lawlis Rd., Sat. 9-5, Sun. 10-4; Free; Website: nwarockhounds.org 8-9-NORTH ADAMS, MA: Northern Berkshire Mineral Club; American Legion; Sat. 10-6, Sun. 10-4; \$4, Under 16 free; Email: lmichon@rcn.com 8-9-NEW MILFORD, CT: Danbury Mineralogical Society; New Milford High School; Sat. 10-5, Sun. 10-4; \$5, srs/ students \$4, under 12 free; Website: danburymineralogicalsociety.org 14-16—RICHMOND, VA: Treasures of the Earth, Inc.; Richmond Raceway Complex, Fri. 12-6, Sat. & Sun. 10-5, Sun.; \$5, Under 17 free; Website: www.TreasuresOfThe-Earth.com

14-16—SAN RAFAEL, CA: Gem Faire

Inc.; Marin Center, Fri. 12-6, Sat. 10-6, Sun. 21-23-SANDY, UT: Gem Faire Inc.; 10-5; free; Website: www.gemfaire.com 14-16—HOLLAND, MI: Tulip City Gem & Mineral Club; Soccer Spot Sportsplex, Fri. 10-8, Sat. 10-7, Sun. 11-5; \$3; Children free; Website: www.tulipcity.org 15-16-REDWOOD CITY, CA: Sequoia Gem & Mineral Society; Communities Activities Building, Daily 10-5; \$3, under 12 alsociety.org

15-16-CHICO, CA: Feather River Lapidary & Mineral Society; Silver Dollar Fair Grounds, Sat. 9:30-5, Sun. 9:30-4; \$4, under 22-23—LODI, CA: Stockton Lapidary & 16 free; Website: featherriverrocks.org 15-16-MONTEREY, CA: Carmel Valley Gem & Mineral ; Monterey County Fairgrounds, Daily 10-5; \$4, Children free; Website: www.cvgms.rocks

15-16—CASTLE ROCK. WA: Southern Washington Mineralogical Society; Castle Rock Fairgrounds, Sat. 10-5, Sun. 10-4; free; contact Robert Klickman, (360)-785-4417

15-16—HARRISBURG, PA: Central PA Rock & Mineral Club; Scottish Rite of Freemasonry, Sat. 10-6, Sun. 10-5; \$6, under 12 free, Website: rockandmineral.org 15-16—HOWELL, MI: Livingston Gem & Mineral Society; Hartland Education Support Service Center, Sat. 10-6, Sun. 10-4; \$3, 12-18 \$1, under 12 free; Website: www.livingstongems.com

21-23-FISHERSVILLE, VA: Shenandoah Valley Gem & Mineral Society; Augusta Expo, Fri. 2-6, Sat. 10-6, Sun. 11-5; \$3; Website: www.shenandoahvalleyrockclub.org

21-23-MARIETTA, GA: Damian w/ Bellpoint Promotions; Cobb County Civic Center, Fri. & Sat. 10-6, Sun. 10-5; \$5, under 16 29-30-OSHKOSH, WISCONSIN: Oshfree; Website: www.bellpointpromotions.com

21-23-OCEAN CITY, MD: Treasures of the Earth, Inc.; Roland E. Powell Convention Center, Fri. 12-6, Sat. 10-5, Sun. 10-4; \$5, under 17 free; Website: www.Treasures OfTheEarth.com

21-23—ARDEN, NC: Mountain Area Gem & Mineral Association; Camp Stephens, Fri. & Sat. 9-6, Sun. 10-4; free; Website: www.americanrockhound.com

Agate bowls were very famous in the past. Mithradates, the king of Pontus has treasured three thousand bowls made of agate gemstones. Even today, some of the collections of agate bowls by royal families are on display in the museums of European countries.

### Sunshine Requests

If you know someone who could use a little sunshinebirth, illness, surgery, family death—please contact Christi Higgins at 320-224-6650.



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

www.cuyunarockclub.org



Mountain America Expo Center, Fri. & Sat. 10-6, Sun. 10-5; \$7, under 12 free; Website: www.gemfaire.com

22-23—AUBURN, WA: Cascade Mineralogical Society, Kent, WA; Green River College, Sat. 10-6, Sun. 10-4; Free; Website: www.cascademineralogicalsociety.org 22-23—WEST FRIENDSHIP, MD: Gem free; Website: www.sequoiagemand- miner- Cutters Guild of Baltimore; Howard County Fairgrounds; Sat. 10-6, Sun. 10-5; \$6, Free, under 12 free ; Website: www.gemcuttersguild.com

> Mineral Club; Lodi Grape Festival Grounds, Daily 10-5; \$6, under 13 free; Children free 12 and under; Website: http://www.stockton lapidary.com/show.html

22-23—POUGHKEEPSIE, NY: Mid-Hudson Valley Gem & Mineral Society: Gold's Gym, Sat. 10-5, Sun. 10-4; \$5, Srs \$4, Students \$2, under 12 free; Website: www.mhvgms.org

28-30—BEREA, OH: GemStreet USA; Cuyahoga County Fairgrounds, Fri. & Sat. 10-6, Sun. 11-5; \$7 under 12 free; Website: GemStreetUSA.com

28-30—INDIANAPOLIS, IN: Treasusres Of The Earth Gem & Jewelry Shows; Indiana State Fairgrounds; Fri. & Sat. 10-6, Sun. 11-5; \$5, under 16 free; Website: www.tote shows.com

28-30—BOISE, ID: Gem Faire Inc.; Expo Idaho, Fri. 12-6, Sat. 10-6, Sun. 10-5; \$5, under 12 free; Website: www.gemfaire.com 28-30—HAMILTON, IL: Geode Fest; Keokuk Area Convention & Tourism Bureau; Chaney Creek Boat Access, Fri. & Sat. 6:45-6, Sun. 7:45-1; Free; Website: www.keokukiowatourism.org kosh Earth Science Club; Sunnyview Expo Center, Sat. 9-5, Sun. 10-4; \$2, Students \$1,

under 12 free; Website: https://www.face book.com/Oshkosh-Earth-Science-Club-202088083155987/

29-30-BELLEVILLE, MI: Midwest Mineralogical & Lapidary Society; Wayne County Fairgrounds, Sat. 10-5, Sun. 10-4; free; Website: www.mmls.us 29-30-SOUTH SIOUX CITY, NE: Siouxland Gem & Mineral Society; South Sioux City Sr Citizens Center, Sat. 9-4; free; Email: bobphyl.powell@gmail.com 29-30-MORGANTOWN, WV: Mystical Crystals: Mylan Park, Sat. 10-6, Sun. 11-5: \$5, Under 13 free; Email: mysticalcrystals1@hotmail.com

29-30—NASHVILLE, IN: Brown County Rock & Mineral Club; Brown County History Center; Sat. 10-6, Sun. 10-5; Free; Website: http://browncountyrock.webs.com/

# New dinosaur fossils show 'weird' evolution from meat-eaters to insect-eaters



The discovery of two dinosaur fossils in China is shedding light on a previously missing chapter of evolution, according to a new study. The dinosaurs were announced along with the new research on Thursday in the journal Current Biology.

Both dinosaurs are alvarezsaurs, which began as meat-eaters that adapted to eat insects living in colonies, like anteaters. But they also had many similarities to birds, with bird-like skulls and hind limbs, the study said.

"Alvarezsaurs are weird animals," said Jonah Choiniere, study co-author and professor at the University of the Witwatersrand in South Africa, in a statement. "With their strong, clawed hands and weak jaws, they appear to be the dinosaurian analogue to today's aardvarks and anteaters." And when a dinosaur evolves from a meateater to an insect-eater, some pretty strange things can happen to their appearance.

Early on, the dinosaurs were better equipped to be meat-eaters, with teeth and hands that could help them catch prey. But they evolved, losing teeth and developing shorter arms and a hand with one single huge claw. The claw could help them tear open rotting logs or anthills.

Like horses, which lost their individual toes as they adapted, alvarezsaurs reduced and lost their fingers over time.

"The new fossils have long arms, and so show that alvarezsaurs evolved short arms only later in their evolutionary history, in species with small body sizes," said Roger Benson, study co-author and professor at Oxford University, in a statement. "This is quite different to what happens in the classic example of tyrannosaurs, which have short arms and giant size."

Because of the evolution of their diet and appearance, resulting in some startling changes like unusually short limbs and less teeth, there has been controversy over their history, where they originated and where they belong on the evolutionary tree. The two new dinosaurs are Xiynykus, found in northwestern China, and Bannykus, found in north-central China. They are from the Early Cretaceous period, which stretched from 100 million to 146 million years ago.

They help fill in a "ghost lineage" spanning 70 million years, falling right at the midpoint between the earliest and latest alvarezsaurs. The researchers said this helps cement that the dinosaurs began in Asia and moved on to other continents later as they evolved.

Alvarezsaurs began with relatively long arms and grasping hands in Haplocheirus during the Middle to Late Jurassic Period, evolved to have long arms with specialized hands found in Xiynykus and Bannykus during the Early Cretaceous Period, and then became known for short arms with a big single claw in Shuvuuia during the Late Cretaceous Period.

"This transition plays out in an incremental fashion over more than 50 million years," said XU Xing, study author and professor at the Institute of Vertebrate Palaeontology and Palaeoanthropology of the Chinese Academy of Sciences, in a statement. James Clark, co-author and honorary professor at Wits University, noted in a statement that "The fossil record is the best source of information about how anatomical features evolve. And like other classic examples of evolution such as the 'horse series,' these dinosaurs show us how a lineage can make a major shift in its ecology over time."

https://www.cnn.com/2018/08/24/world/ chinese-dinosaur-fossils-claw-hand-study/ index.html?no-st=1535228474



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.

#### What is Gemstone Luminescence?

Gemstone luminescence can help gemologists differentiate between certain natural and synthetic gems. However, for gem identification purposes, gemologists usually analyze luminescence in conjunction with other tests. Collectors also prize crystal specimens with spectacular luminescent displays.

If the absorbed energy is released almost immediately, the effect is called fluorescence. If there is a delay in the release of the energy (ranging from seconds to hours), the effect is then called phosphorescence.

X-rays, visible light, and even heat can provide the energy to excite the electrons in minerals. However, gemologists most commonly use ultraviolet light (UV) to trigger gemstone luminescence.

There are two kinds of UV light, longwave (LW) and shortwave (SW). Special quartz tubes can generate SW UV light. Some gemstone minerals display luminescence in LW, some in SW, some in both, & some in neither. Gems from different sources may also have different luminescent properties.

In many cases, UV light won't excite a mineral unless it contains an impurity element that functions as an activator. The element manganese, for example, plays such a role in many minerals. Conversely, the element iron quenches fluorescence in most minerals.

https://www.gemsociety.org/article/ understanding-luminescence-gemology/

List of Important Gemstones Agate Alexandrite/Chrysoberyl Amber Amethyst Diamond Apatite Emerald Garnet Pearl Opal Peridot Quartz Sapphire Ruby Tourmaline Topaz Turquoise

# Francium

Compiled by Harry A Wagoner

The most expensive natural element is francium. Although francium occurs naturally, it decays so quickly that it cannot be collected for use. Only a few atoms of francium have been produced commercially, so if you wanted to produce 100 grams of francium, you could expect to pay a few billion US dollars for it.

Luteium is the most expensive element that you could actually order and purchase. The price for 100 grams of lutetium is around \$10,000.

The transuranium elements, in general, are extremely expensive. These elements typically are man-made, plus it is costly to isolate the trace amounts of transuranic

# Agates From Around The World Grape Chalcedony Agate



Grape Agate was discovered some years back along one of Indonesia's coastal areas, Manakarra Beach in the

Mamuju Area in West Sulawesi. Since its discovery the Indonesian government has not allow it to be collected or exported. Recently they officially started allowing collecting and exporting of this very unique mineral.

These have been called Grape Agate, Grape Chalcedony, Amethyst Grapes and more. The Spirit Rock Show has decided to call it Grape Chalcedony Agate due to their color, botryoidal formation and their cluster formation.

This agate forms a combination of fine brilliant purple radial aggregates "balls" that resemble a bunch of grapes that have a tunning three-dimensional form and enticingly sparkling luster. When viewed through Opti-Visors or magnification, each individual "ball" has finite crystallized drusy-like surfaces.

http://spiritrockshop.com/ Agate\_Grape.html



elements that exist naturally. For example, based on the cost of the accelerator time, manpower, materials, etc., californium is estimated to cost around 2.7 billion dollars per 100 grams. You can contrast that price with that cost of plutonium, which runs between \$5,000 and \$13,000 per 100 grams, depending on purity.

A gram is equal to about 0.035 of an ounce, or .0022 of a pound. It takes almost 29 grams to equal a pound.

Francium is element number 87 on the periodic table, symbol: Fr. Discovered in 1939 by Marguerite Perey of the Curie Institute, Paris, France. The melting point of francium is 27 °C, boiling point is 677 °C, and its valence is 1. Francium is the heaviest known member of the alkali metals series. It has the highest equivalent weight of any element and is the most unstable of the first 101 elements of the periodic system. All known isotopes of francium are highly unstable, so knowledge of the chemical properties of this element comes from radiochemical techniques. No weighable quantity of the element has been prepared or isolated. The chemical properties of francium most closely resemble those of cesium.

Francium occurs as a result of an alpha disintegration of actinium. It can be produced by artificially bombarding thorium with protons. It occurs naturally in uranium minerals, but there is probably less than an ounce of francium at any time in the total crust of the earth.





# Get Pickin' Field Trip

Photos by Christi Higgins



Would you like to have a job someday that has something to do with gems? Here are some ideas.

*Appraiser* What is it? What is it worth? Appraisers who know gemology can answer these questions. They can also evaluate jewelry and usually work in jewelry stores or have their own business.

*Auction Specialist* In an auction, property is sold to the highest bidders. In the jewelry industry, an auction specialist oversees the buying and selling of private and unique jewelry.

**Bench Jeweler** Do you like gemology, art, and working with tools? Bench jewelers do! Bench jewelers make or repair jewelry by using skills such as sawing, soldering, and laser welding.

**Buyer** A buyer can find and buy jewelry for retail stores or they can buy gems for companies that make jewelry. They must know the latest fashions in order to buy gems and jewelry that will sell well.

**Curator** A gemologist can be a curator in the gems and minerals area of a museum, or for a private collection. A curator is in charge of the collection, authenticity,

more information: 763-717-1641

display, and cataloging of museum pieces.

*Field Gemologist* Field gemologists help determine the origin of gemstones. They visit mines around the world and collect samples for studying in a lab. They also get valuable up-to-date information on gem mining.

*Gem Cutter* A gem cutter has a strong knowledge of gems and cuts and polishes them to bring out their best color, size and beauty. They use special tools to cut and polish faceted gems, cabochons, or other forms.

#### Gem Miner

Gem miners extract gemstones from rivers and streams or from rock. They usually use baskets or pans in rivers and streams, while picks, shovels, or heavy equipment are used in rock mining.

*Gem Trader* How would you like to buy gemstones and jewelry from around the world? And how would you like to sell them to jewelry stores or to companies that make jewelry? That's what a gem trader does!

*Jewelry Designer* A jewelry designer draws, drafts, and uses computer skills to turn creative ideas into jewelry. They know gemology and how jewelry is put together. They must also know the latest fashion trends.

*Jewelry Historian* Some people know about the history of jewelry and find this

helpful as appraisers and gem and jewelry museum workers. They might even write about it in books, journals and on the Internet!

*Laboratory Gemologist* If you like rocks and minerals, you might like working in a gemological lab. Laboratory gemologists use microscopes, loupes, and other instruments to identify gems and to determine their quality.

**Manufacturer** A business that makes jewelry to sell to retailers, or a business that cuts diamonds or colored stones to sell to wholesalers, dealers, retailers or other manufacturers.

**Photographer** It takes a very special skill to photograph minerals, gems, and inclusions. The best photographers have years of practice and usually know gemology and mineralogy. Jewelry knowledge helps them, too.

**Retailer** A jewelry retailer is a person or a store that sells directly to the public. Store sales professionals must be good listeners and find the right jewelry for their customers. Managers run the store.

**Teacher** A gemology teacher can show students how to identify and evaluate gemstones. A jewelry arts teacher shows how to design, make, and repair jewelry. Both have experience in the gems and jewelry business.

http://gemkids.gia.edu/resources/careers

# **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-not priced yet

# MINNESOTA MINERAL CLUB'S

2018 Agate, Mineral, Gem & Fossil Show

Saturday, October 20 10:00 am to 5:00 pm Sunday, October 21 10:00 am to 4:00 pm

National Guard Training & Community Center 8180 Belden Blvd. Cottage Grove, MN 55016 (from US Hwy. 61 take the 80th St. / Grange Blvd. exit)

www.minnesotamineralclub.org

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# FIRST CLASS MAIL





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Members of AFMS & MWF

# Notes from the President

The rock gods have been raining down on our Club! First members Phyllis and Harry Wagoner moved to Iowa and sold us pounds of rocks, and left minerals for us to sell for them. Then I finally connected with the nephew of a member who had died several years ago. He gifted the Club almost 1000 pounds of material. And, just recently I received a call from a contact vice-president Chuck Durnan had made and that guy donated a pail of rocks and some equipment. Wow! Our rock room is bursting at the seams!

A discussion has been started about having a silent auction on the Saturday evening of the show. I have been at one at another show and I think that their method would work. We certainly have a lot of rock to sell. And, speaking of the show, since next year's is on Mother's Day weekend, do you have any thoughts as to how we can incorporate mothers into the weekend?

Now that we are back to our regular schedule of Saturday meetings it would be great if members would let us know what speakers and classes they would like. Guessing isn't much fun.

We are still looking for someone who can make occasional phone calls to those members without email. PLEASE consider doing this if you are able.



## Club Officers & Board of Directors

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