

Cuyuna Rock, Gem and Mineral Society

# **The Agate Explorer**

# June 2019

# **Show Volunteers' Appreciation Dinner**

Friday, June 7 at 6:00 p.m. The Woods, 19624 Co. Rd. 3, Brainerd If you worked the weekend of the show in any capacity and wish to attend, please RSVP by Sunday, June 2. Call or email Ed Opatz: 320-250-1363; opatz1@att.net



# **Thunder Bay Field Trip**

The dates are Friday-Sunday, July 5-7.

If you are not on the sign up sheet at the Clubhouse, please contact Ed Opatz at 320-250-1363 or opatz1@att.net ASAP!

It is necessary to have a passport to travel to Canada. You may also check to see if an enhanced driver's license is acceptable.



Let's play Fossil Wars Dinosaurs game during the June 8th meeting.

# Rock Wrappers No Rock Wrappers in June

An open gathering for wire wrappers starting at 10 a.m. on meeting Saturdays. Hang out with other wrappers, and work on your projects. (Bring all supplies needed.) Learn tricks to make wrapping easier, a new design, or perhaps a new place to find supplies. All skill levels welcome!

# **Club Calendar**

June 7—Pebble Pup Day Camp; 9-4
June 7—Show Volunteer Thank you dinner at 6:00 p.m.
June 8—Day Camp Agate Pick; Meeting—Board Mtg. at noon; General Meeting at 2:00. Speaker Dolores Sibet will demonstration how the Club's new rolling mill works.
July 5-7 - field trip to Thunder Bay for amethyst
July 21—picnic, location to be determined
Mid-September-early October—fall field trip to SD & MT Information subject to change.



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.

#### **June Rock Shows**

1—MACUNGIE, PA: Pennsylvania Earth Science Association (PESA); Macungie Memorial Park; 8:30-3; \$2, children free; Website: https://www.facebook.com/Pennsylvania-Earth-Sciences-Association-PESA-mineralfest-andclubs-1555170821375067/

**1**—DELTA, CO: Delta County Rock Wranglers; Heddles Recreation Center; 9-5; free; contact Harry Masinton, (970) 865-3861; Email: masinton@tds.net

**1**—COLFAX, NC: Greensboro Gem & Mineral Club; Piedmont Triad Farmers Market; Sat. 9-5; free; Website: ggmc-rockhounds.com

1-2—SPRINGFIELD, MO: Ozark Mountain Gem & Minerals Society; Missouri Institute of Natural Science Museum Grounds; Sat. 10-5:30, Sun. 10-4:30; free; Website: www.omgms.rocks 1-2—CANANDAIGUA, NY: Wayne County Gem & Mineral Club; Greater Canandaigua Civic Center; Sat. 10-5, Sun. 10-4; \$3, under 12 free; free admission for children under 12; Website: http://www.wcgmc.org/

**1-2**—LUBBOCK, TX: Lubbock Gem & Mineral Society; Lubbock Memorial Civic Center; Sat. 10-6, Sun. 10-5; \$4, srs \$3, ages 6-12, \$2, under 6 free; Website: www.lubbockgem andmineral.org

**1-2**—COEUR D'ALENE, ID: North Idaho Mineral Club; Kootenai County Fairgrounds, Sat. 9-5, Sun. 10-4; \$4, under 13 free; contact Mike Rose; Email: NIMCshowchairman@gmail.com.

1-2—MONROE, NY: Orange County Mineral Society of New York & the Eastern Federation of Mineralogical & Lapidary Societies; Museum Village; daily 10-4; \$5, srs \$3, under 12 free; Website: http://www.orangecountymineral societynewyork.com

**1-2**—MC CALLA, AL: Annual show; Alabama Mineral & Lapidary Society; Tannehill Ironworks Historical State Park; daily 9-5; \$5, srs \$4, ages 6-11 \$3, under 6 free; Website: https://www.lapidaryclub.com

1-2—MARION, KY: Ben E. Clement Mineral Museum; Historic Fohs Hall; Sat. 9-5, Sun. 11-4; free; Website: clementmineralmuseum.org 1-2—HONOLULU, HI: Rock & Mineral Society of Hawaii; Ohana Hale Marketplace; Sat. 10-8, Sun. 10-5; free; Website: http:// hawaiimineralsociety.pohakugalore.net/hawaiigem-and-mineral-show-2019-in-honolulu/ **6-9**—FAIRPLAY, CO: Jay Penn; Fairplay River Park Event Site; Daily 9-5; Free; contact

Cuyuna Rock, Gem, & Mineral Society on the Web www.cuyunarockclub.org



Jay Penn, (505) 203-1900; Email: amypenn 246@gmail.com

**6-9**—AUSTIN, TX: Natures Treasures of Austin; Norris Conference Center; Thu.-Sat. 10-6, Sun. 10-5; \$15, all four day, \$60; Website: https://ntrocks.com/international-exposition-ofagate

**7-9**—SANDY, UT: Gem Faire Inc; Mountain America Expo Center; Fri. & Sat. 10-6, Sun. 10-5; \$7 weekend pass; Website: http:// www.gemfaire.com

**7-9**—CARTERSVILLE, GA: Bellpoint Gem Show; Clarence Brown Conference Center; Fri. & Sat. 10-6, Sun. 10-5; \$5, under 15 free; Website: www.bellpointinc.com

**7-9**—RALEIGH, NC: Treasures of the Earth, Inc.; North Carolina State Fairgrounds; Fri. 12-6, Sat. & Sun. 10-5; \$5, under 17 free; Website: http://www.TreasuresOfTheEarth.com

**8-** KENT, CT: Danbury Mineralogical Society; Connecticut Antique Machinery Association; 9am-4pm; free; Website: www.ct amachinery.com

**8-9**—MANSFIELD, OH: The Richland Lithic & Lapidary Society; Richland County Fairgrounds; Sat. 10-6, Sun. 11-5; \$5, srs \$4 students \$3, under 6 free; Website: WWW.RLLS. WEBS.COM

8-9—SAN FRANCISCO, CA: Pacific Crystal Guild; Fort Mason Center; Sat. 10-6, Sun. 10-4;
\$12, under 12 free; contact Jerry Tomlinson,
(415) 383-7837; Email: jerry@crystalfair.com;
13-16—PRINEVILLE, OR: Prineville Rockhound Pow Wow; Crook County Fairgrounds, Thu.–Sat. 9-5, Sun. 9-4; free; Website: www.Prineville.Rocks

14-15—QUARRYVILLE, PA: Lancaster County Fossil & Mineral Club; Solanco Fairgrounds; Fri. 10-6, Sat. 10-4; \$3; Website: https://www.facebook.com/Lancaster FossilandMineralClub/

14-15—PRICE, UT: Castle Country Rock, Fossil & Mineral Show; Carbon County Events Center; Daily 10-7; free; Website: https:// m.facebook.com/rockshopjunkie/

14-16—REEDSPORT, OR: Lower Umpqua Gem & Lapidary Society; Reedsport Community Building; Fri. & Sat. 10-5, Sun. 10-4; free; Website: ReedsportRockandGemShow.com 14-16—PARK HILLS, MO: Mineral Area Gem Mineral Society; Missouri Mines State Historic Site — St. Joe State Park; Fri. & Sat. 9-

6, Sun. 9-4; free; Website: https:// www.facebook.com/groups/1249800061698210/ 14-16—BIG PINEY, WY: Sublette County

# Sunshine Requests

If you know someone who could use a little sun-

shine— birth, illness, surgery, family death—please contact Christi Higgins at 320-224-6650. Rock Hounds; Sublette County Fairgrounds, Fri. 9-5, Sat. 9-6, Sun. 9-4; \$2, under 18 free; contact Jim Gray, Show Chairman, Email: jimgray@ wyoming.com

**15-16**—BUTTE, MT: Butte Mineral & Gem Club; Butte Civic Center Annex; daily 10-5; \$3, under 12 free; contact Pete Knudsen, (406) 490-5828

**20-23**—MADRAS, OR: All Rockhounds Pow Wow Club of America; Jefferson County Fairgrounds; daily 8-6; free; Website: Allrockhoundspowwowclubofamerica.com

**21-23**—CODY, WY: Wyoming State Mineral Gem Society & Cody 59ers Rock Club; Cody Auditorium; Fri. 10-8, Sat. 10-6, Sun. 10-4; \$4, c (K-12) \$2; Website: http://www.wsmgs.org AND https://www.cody59ers.com/

**21-23**—BEDFORD, IN: Lawrence County Rock Club; Lawrence County Fairgrounds, Fri. 10-6:30, Sat. 9-6:30, Sun. 10-4; free; Website: http://www.lawrencecountyrockclub.org/

**21-23**—GASTONIA, NC: Gaston Gem, Mineral & Faceters Club; Absher Flowers VFW Post 9337; Fri. & Sat. 9-6,Sun. 9-4; free; Website: www.facebook.com/groups/gastongems

**22-23**—GILSUM, NH: Gilsum Recreation Committee; Gilsum Elementary School & Community Center; Sat. 8-6, Sun. 8-4; free; contact Robert Mitchell, (603) 357-9636, gilsumrocks@gmail.com

**28-30**—SAN DIEGO, CA: Gem Faire Inc; Scottish Rite Center; Fri. 12-6, Sat. 10-6, Sun. 10 -6:30; \$7 weekend pass; Website: http:// www.gemfaire.com

**28-30**—CASCADE LOCKS, OR: Karmic Beads & Gems; Port of Cascade Locks - Marine Park; Fri. & Sat. 9-5, Sun. 9-4; free; Website: www.karmicbeadsandgems.rocks

**28-30**—ELDON, MO: ORMC Rock & Mineral Club; Eldon Community Center; Fri. 2-6, Sat. 9-6, Sun. 9-3; free; contact Roger Varvel, (417) 533-2788; Email: ormc2019show@ centurylink.net

**29-30**—CULVER CITY, CA: Culver City Rock & Mineral Club; Veterans Memorial Auditorium; Sat. 10-6, Sun. 10-5; free; Website: http://www.culvercityrocks.org/

**29-30**—ESCONDIDO, CA: Palomar Gem & Mineral Club; California Center for the Art, Sat. 10-5, Sun. 10-4; \$5, military/srs \$3; Website: www.palomargem.org

**29-30**—GRAPEVINE, TX: Arlington Gem & Mineral Club; Grapevine Convention Center, Sat. 9-6, Sun. 10-5; \$6, Website: www.agem club.org



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

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

#### **Texturing Tool**

If you don't have a rolling mill, one of the quickest and fastest ways to texture a sheet is to use a texturing tool. They are available from a number of tools suppliers.

Caution is advised though. You don't wan to put a texture of your fingers. I suggest holding smaller pieces with pliers, wear-



More tips on how to choose the right tool bit for the job are in my Accessories for the Foredom book. Browse a sample chapter at http://amzn.to/2fwxuaT

# **Dinosaur With Bat Wings** Was More Than Legend

Chinese scientists first thought it was a prehistoric bird, until chipping away at the

fossil revealed surprising features.

Dr. Wang's team was also surprised to find the remains of soft tissue around the dinosaur's arms and torso. This

tissue, in life, formed flaps of skin that probably resembled batlike wings, Dr. Wang said.

The new find, published in the journal Nature, follows a report in Nature in 2015 — by a team including authors of the new paper — that described the only other known batlike dinosaur. That animal, called Yi qi, was the first of its kind, and other paleontologists were skeptical. The doubts arose because Yi qi was so bizarre.

"I think that if you had asked a paleontologist to just draw up some kind of fantasy dinosaur, you know, a lot of us never would have come up with something that was that weird," said Stephen Brusatte, a vertebrate paleontologist at the University of Edinburgh, who was not involved in the new research. But the discovery of Ambopteryx,

which is a close cousin of Yi qi, "pretty much seals the deal that there was this group of dinosaurs with batlike wings," he said.

So batlike dinosaurs definitely existed. But

exactly how Ambopteryx flew through the air remains unclear.

The team's best guess is that the animal's flying style was "halfway between a flying squirrel and a bat," said Jingmai O'Connor. a co-author and a vertebrate paleontologist at the Chinese Academy of Sciences.

Despite this lingering mystery, Dr. Brusatte said, the discovery of

Ambopteryx underscores that on the dinosaur family tree, there were several branches — not just the one that led to birds — that gave rise to flying dinosaurs. And, he added, it is unsurprising that dinosaurs may have evolved to fill the kinds of ecological roles filled today by mammals such as flying squirrels.

Perhaps paleontologists should not be too shocked by the next oddity they dig up. "Maybe a dinosaur with seven arms, or a tyrannosaur with a big horn sticking out of its head, or, I don't know, a brachiosaurus with webbed feet." he said. "I have no idea! Who knows what we might find. But that makes the field very, very exciting."

https://www.nytimes.com/2019/05/08/ science/dinosaur-bat-wings.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-Utah 79 Bed Geodes-Oregon

Moroccan White Agate Obsidian Mineral specimens Dinosaur bone Mexican Luna Lace Agate Starolites Small Botswana Agate

### Famous Pearls in History

This historic pearl necklace had two rather infamous owners. The first was the doomed Marie



ess to the Woolworth Department Store fortune, Hutton received the necklace as wedding gift from her father in 1933. Hutton was wildly wealthy in her youth, but frivolous and careless spending throughout her lifetime would ultimately leave her bankrupt by the time of her death.

This storied necklace features 44 pearls ranging from 8.7-16.33mm with a diamond and turquoise clasp. It sold at a Christie's auction for \$1.6 million USD in 1999.

https://www.truefacet.com/guide/lustrousluxurious-worlds-expensive-pearls/

# **Mineral Encyclopedia**



**Cassiterite** is a tin oxide mineral with a chemical composition of SnO2. It is the most important source of tin, and most of the world's supply of tin is obtained by mining cassiterite.

Small amounts of

primary cassiterite are found in igneous and metamorphic rocks throughout the world. It is also a residual mineral found in soils and sediments.

Cassiterite is more resistant to weathering than many other minerals, and that causes it to be concentrated in stream and shoreline sediments. Although cassiterite is the most important ore of tin, it has only been found in minable concentrations in a few locations.

#### **Physical Properties of Cassiterite**

Cassiterite has several properties that aid in its identification and enable it to be found in minable quantities. Its adamantine luster, high hardness, light streak, and high specific gravity are helpful in its identification. Its high specific gravity, resistance to weathering and physical durability enable it to survive stream transport and concentrate in placer deposits.

#### Geologic Occurrence of Cassiterite

Primary deposits of cassiterite worth mining are almost always found in hightemperature hydrothermal veins that accompany granitic intrusions. There, cassiterite can be associated with tourmaline, topaz, fluorite, and apatite. Important deposits

#### Cuyuna Rock, Gem & Mineral Society Saturday April 13th **Board Meeting Minutes**

The meeting was called to order at 12:15 pm by Vice-President Sharon Smith. Board members present were Secretary Joanie Hanson, Board Members-at-Large Lilly Peterson, Vern Iverson, and Lori DuBois.

A motion was made and passed to approve the March minutes. They will be posted in the May newsletter.

of primary cassiterite are found in Australia, marketing campaign are not available. As a Bolivia, Brazil, China, the Democratic Republic of the Congo, England, Peru, Portugal, Russia, Rwanda, Spain, and the countries of Southeast Asia.

Most of the world's cassiterite is produced from secondary, placer deposits. These are sediment-hosted concentrations of cassiterite in stream valleys and along shorelines. The hardness of cassiterite enables it to survive stream transport, and its high specific gravity causes it to concentrate in deposits that are large enough and rich enough for mining. Other high-specificgravity minerals might also occur in these deposits, improving the economy of mining. Placer deposits of cassiterite are being worked today in Burma, China, the Democratic Republic of the Congo, Indonesia, Malaysia, Nigeria, and Rwanda.

The United States does not have any important domestic sources of cassiterite or other tin minerals and is dependent upon other countries. There are deposits in Alaska, South Dakota and other states, but these deposits are either small, low grade, or in locations where development will be difficult

#### Cassiterite as a Gemstone

Gem-quality cassiterite is very rare. To be suitable for cutting faceted gems cassiterite must be transparent, free of fractures, be of high clarity and have an attractive color. When cut properly, cassiterite can be a beautiful gemstone. It is known to occur in brown, yellow, orange, red and green. Some stones have a strong fire that rivals the fire of diamond.

You will probably not find cassiterite in a jewelry store. Very few people have even heard the name "cassiterite." As a result there is almost no demand for it. It is also so rare that adequate amounts to support a

Treasurer's Report- Kevin was not present but sent a copy of the report via email. It will be posted at the rock club.

Lilly and Vern reported that several new saw blades and parts for the tumblers arrived. Lilly suggested that the club should buy a 40lb. tumbler barrel either from Ed or buy one new for the club.

Brainerd H.S. is having their big spring craft sale the same Saturday as the show (May 11). We will need to post signs for the rock show around the school so people goresult, cassiterite is cut mainly for collectors and museum exhibits.

One property of cassiterite that can make it a spectacular gemstone is its high dispersion. Dispersion is the ability of a material to separate white light into its spectral colors. This is the property that produces the colorful "fire" of a diamond.

Cassiterite has a dispersion of 0.071, which is considerably higher than diamond's dispersion of 0.044. Cassiterite's high dispersion enables it to produce a fire that exceeds that of diamond. Strong fire is only seen in cassiterite gems with a light color. In many stones, a dark body color partially masks the fire.

#### **Physical Properties of Cassiterite** Chemical Classification Oxide **<u>Color</u>** Reddish brown, to brown to black Streak A trace of white to no streak at all. It is often harder than the streak plate. Luster Adamantine, splendent to submetallic Diaphaneity Opaque to translucent Cleavage Imperfect Mohs Hardness 6 to 7 Specific Gravity 6.8 to 7.1 **Diagnostic Properties** High specific gravity, bright metallic to adamantine luster, light streak, fibrous appearance Chemical Composition Tin oxide, SnO2 Crystal System Tetragonal **Uses** An ore of tin, a collector's gem,

mineral specimens

https://geology.com/minerals/

ing there will know about our show as well. The MFW has voted to give a year's subscription of "The Mini Miner's Monthly" (Diamond Dan Publications) to all of the member rock clubs. We can use or copy any part of it. It will be available at the rock club.

The large show signs will be hung as soon as the snow melts. Lori volunteered to do this week.

Respectfully Submitted, Joanie Hanson, Secretary



### Agates From Around The World Temporal Glutch

These small agates were discovered by accident while investigating a reported site of quartz lined geodes at Temporal Glutch, Patagonia, Arizona. They are amygdaloids which are quite small. They were traced to a hard basalt host.

The colors are generally white to tan with some purplish and reddish hues. The interesting thing is that some of those agate nodules contain root beer colored quartz, and few calcite-filled geodes with scepter quartz crystals also have been found.

It would be better to just grind down the agate nodules than cutting them in order to get a good agate patterns without exposing the quartz/calcite cores. Tumbling is also recommended since many agate nodules have "eyes" patterns on their skins.

http://www.sailorenergy.net/Agates/AgatesArizonaTemporalGlutchpatagonia01.html

#### **New Mineral Discovered**

Israel-focused precious stones junior Shefa Yamim announced a scientific discovery that may make its gemstones more valuable than they've ever been, as researches have

confirmed the presence of a new mineral inside them.

According to an article published in the journal Minerals, the new mineral, named Carmeltazite, after Mount Carmel in northern Israel, contains titanium, aluminum and zirconium.

The element, first discovered by Shefa Yamim, is now recognized and approved as a new mineral by the International Mineralogical Association, the company said. It can be found within a certain type of sapphire, and called Carmel Sapphire.

#### Cuyuna Rock, Gem & Mineral Society General Meeting Minutes Saturday April 13

The Meeting was called to order at 2:05 pm by Vice-President Sharon Smith.

There were 28 members and 4 visitors were present.

Approved minutes from the March meeting.

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

Sharon stressed the importance of volunteering for the show- we need more volunteers. She also reviewed show prep.

All of the school flyers were distributed to members to take to the schools. Many

Chief executive Avi Taub said the news confirmed the uniqueness of its gemstone. "We are delighted that our Carmel Sapphire has been recognized as a host to many rare minerals," he said in the statement. "In

today's world, where the prices of gems are determined predominantly by their rarity, the Carmel sapphire is a unique discovery."

The independent research was conducted by a group led by geologist Bill Griffin at Mac-

quarie University in Australia, & included academics from the University of Western Australia, Università degli Studi di Firenze & Università degli Studi di Milano.

http://www.mining.com/new-mineral-found -inside-gemstones-israel/

thanks to all who helped pack them and distribute them.

Many members helped sort rock for the spinning wheel and fill bags for the sluice box.

We will be looking for volunteers for Kid's Camp June 7 & 8.

Rock is available in the rock room for purchase by members. See Lilly Peterson.

Reminder- members only can use the grinders and saws. You must be trained on them and must sign in and out.

Door prizes- not recorded.

Respectfully Submitted, Joanie Hanson

#### Precious or Semi-Precious Gemstones



Like amber, a pearl is an organic material and not a mineral. Pearl is produced by the tissue of a mollusk. Chemically, it is calcium carbonate, CaCO<sub>3</sub>. It is soft, with a hardness of around 2.5 to 4.5 on the Mohs scale. Some types of pearls display fluorescence when exposed to ultraviolet light, but many do not.

https://www.thoughtco.com/alphabeticallist-of-precious-and-semipreciousgemstones-4134639

### *The World of Jaspers* Arizona Mushroom Jasper



Arizona Mushroom Picture Jasper is a silica rich orbicular rhyolite. Mushroom Jasper has base colors of red, reddish orange, greens and greenish browns. The orbs that make up the mushroom patterns are comprised of grays, flesh tones, tans and browns.

Mushroom Jasper can be cut in different directions to reveal mushroom pictures, orbs and other interesting patterns or scenes. There is a similar rhyolite nodule that comes from the Oregon opal mines near Hepner. This material is mostly browns and tans. It is called turkey feather. At times the patterns in the mushroom jasper also look like feathers.

https://www.minerals-n-more.com/new-Mexico-apache-jasper-silver-jewelry



# Vintage Engagement Ring Styles



Victorian Era (1835-1900) In the Victorian Era, engage-

ment rings vary widely in designs and materials. (In fact, Victorian jewelry can be subdivided into early, middle, and late period styles). However, Victorian rings were generally yellow or rose gold and often included diamonds. Rows, halos, and clusters of diamonds became popular during this era. So, in some ways, a yellow gold double -halo ring could be an example of a Victorian-inspired vintage engagement ring.

Since blue was the eponymous Queen Victoria's favorite color, turquoise and blue enamel appeared often in jewelry from this period. Pearls were also featured frequently. Since perliculture hadn't been perfected yet, pearls in jewelry from this era were natural, and small seed pearls were more common than larger ones. Other white gemstones like moonstone and opal were also popular.

Although large diamonds were uncommon at this time, consumers began to wear diamond solitaires. However, most diamonds were old mine cuts, old European cuts, step cuts, or rose cuts, since modern diamond cuts like the round brilliant hadn't been invented yet

Popular Victorian motifs included bows, hearts, birds, and snakes. Navette or marquise shapes were also popular, either as a gemstone shape or in the overall design. In addition, the bypass setting was popular during this period (another common choice for modern styles as well).

Edwardian Era (1900-1920) If you're into intricate, lacy designs, you'll



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. love jewelry from the Edwardian Era. Rings from this period were



generally platinum and included intricate metalwork called filigree in designs called filigree in designs featuring scrolling, ribbons, and vines. Floral motifs were also popular.

Although diamonds and pearls continued to be popular, colored gemstones appeared in jewelry more frequently. Old mine cuts, old European cuts, and rose cuts were the most common cuts for diamonds in this period.

#### Art Deco Era (1920-1940)

In contrast to the lacy lightness of Edwardi-



an styles, Art Deco was all about bold geometry and repeating patterns. Instead of curvy, flowing filigree, Art Deco rings often includ-

ed metalwork with repeating, sharp angles and tiny beads called milgrain. This style has enjoyed a resurgence in popularity in recent years.

Step-cut diamonds like emerald and asscher cuts became fashionable, and colored gemstones, especially rubies, sapphires, and emeralds, were especially popular. However, during the Great Depression, many consumers couldn't afford these expensive gemstones, so they opted for more affordable alternatives instead, including amethyst, citrine, garnet, and glass.

#### Retro Era (1940-1960)

Prior to World War II, few engagement rings featured



For Sale: Double barrel Lot-O Tumbler in good condition. On cement block for stability. \$175.



For Sale: Finish polish wheel with brand new leather. \$110.

a center diamond. However, after the highly successful De Beers diamond marketing campaign, which began in the 1940s, engagement rings almost exclusively featured diamonds.

Unlike earlier rings, engagement rings from this "Retro Era" featured simpler designs. Solitaire rings and baguette side stones were quite popular, and the typical size of the center stone grew larger once the Depression ended.

Since the non-military use of platinum was banned during World War II, yellow and rose gold became the metals of choice for engagement rings in the United States during this period. Many rings from this era were two-toned, with both yellow gold and white gold in the design.

A modern round brilliant diamond in a simple gold design might just describe your grandmother's engagement ring, and this nostalgia makes these rings popular today.

### Engagement Rings from Recent Decades

In the 1960s, Jacqueline Kennedy's twostone diamond and emerald engagement ring brought colored gemstones back into fashion. Art Deco styles were also popular. In the late 1970s, disco styles were bold and large. Rings from this decade also featured geometric designs.

In the 1980s, Princess Diana's famous sunburst halo sapphire engagement ring inspired a wave of imitations. Colored gemstones and pear shapes were popular.

The 1990s are the most recent decade that can be considered "vintage." Designs were bold and minimalistic, and marquise-cut diamonds were especially popular.

https://www.gemsociety.org/article/vintageengagement-rings/?utm\_source=igs& utm\_medium=email&utm\_campaign=marc h\_11\_vintage\_rings

For Sale: Buffer/ Polisher in fair condition. Includes wood stand. \$65.



All three can be seen at the Clubhouse. Call Ed Opatz at 320-250-1363.

# **Twin Metals Minnesota** (TMM) Mine, Minnesota

Twin Metals Minnesota is an underground copper, nickel and platinum group metals (PGMs) mining project planned to be developed in northern Minnesota, US. Twin Metals Minnesota (TMM), a joint venture between Canada-based Duluth Metals (60%) and Chile-based Antofagasta (40%), was formed in January 2010 to develop the project.

In November 2014, Antofagasta agreed to acquire Duluth Metals through its subsidiary, Antofagasta Investment Company, to become the sole owner of TMM. The pre-feasibility study (PFS) for the underground polymetallic mining project was completed in June 2014. It anticipates production of 5.8 billion pounds (Blb) of copper, 1.2Blbs of nickel, 1.5 million ounces (Moz) of platinum, 4Moz of palladium, 1Moz of gold and 25.2Moz of silver over the initial 30-year operational life.

Situated about nine miles south-east of Ely and 11 miles north-east of Babbitt, the TMM Copper-Nickel-PGMs mine project comprises four deposits, namely Maturi, Maturi Southwest, Birch Lake and Spruce Road

"Classified as magmatic nickel-copperplatinum group element (PGE) deposits, all the four deposits are hosted in the 1,000ftthick basal mineralised zone (BMZ) of South Kawishiwi Intrusion (SKI) of the Duluth Complex, a composite intrusion comprised 12 sub-intrusions, whose emplacements date back up to 12 million years tact roads, as well as a rail extension to an ago.

The mineralization comprises primarily of chalcopyrite, cubanite, pentlandite and talnakhite with trace quantities of numerous base and precious metals-bearing minerals. The maximum depth of the mineralization is 4,300ft below the surface elevation.

The initial 30-year mine plan is based on Maturi and Maturi Southwest deposits, which are estimated to hold 478 million tonnes (Mt) of proven and probable ore reserves grading 0.59% Cu, 0.19% Ni, 0.154g/t Pt, 0.349 g/t Pd, 0.084g/t Au and 2.14g/t Ag, as well as containing 6.2Blbs of copper, 2Blbs of nickel, 2.4Moz of platinum, 5.44Moz of palladium, 1.3Moz of gold and 33Moz of silver.

A combination of post-pillar cut-and-fill and long-hole open stopping mining methods will be employed to extract ore from the Maturi and Maturi Southwest deposits. The extracted ore is proposed to be crushed underground before being conveyed to the surface for processing at the concentrator plant.

Access to the underground mine will be through four declines from surface, three to Maturi and one to Maturi Southwest. Multiple ventilation facilities will be installed to provide the required air intake and exhaust. The crushed ore from the polymetallic mine will be sent to a 50,000t/d capacity concentrator plant proposed to be located 2.5 miles west of the underground mine site. The concentrator unit, using sequential flotation method, and semi-autogenous grind and ball mills, will capture the valuable metals in concentrate form.

Roughly half of the tailings from the concentrator will be sent back to be underground mine as paste backfill, while the remaining half will be pumped to a proposed tailings storage facility south of Babbitt, which will house a concentrate filtration plant, intermediate pond and a rail load -out facility.

The mine will be accessed via the existing local and regional highways along with the purpose-built on-site roads.

The project also involves the development of utility corridors connecting the underground mine with the concentrator site, as well as the TSF with the concentrator site, in order to meet the infrastructure needs such as the transport of concentrate and tailings, water pipelines, service and conexisting railroad.

High-voltage electricity required for the mining operation is proposed to be sourced from the Minnesota electricity transmission grid. A backup power facility comprised diesel generators and a fuel storage facility are also proposed for the mine.

AMEC E&C Services, Barr Engineering, Blue Coast Metallurgy, Golder Associates, Itasca Consulting Group, Itasca Denver and SRK Consulting prepared the technical report for the pre-feasibility study of the Twin Metals Minnesota mine.

https://www.mining-technology.com/ projects/twin-metals-minnesota-tmm-mineminnesota/?fbclid=IwAR013bc0x9KAi YoMzhcK8ik9HjnGmiekKrTmKf5 RYUgKjbKnEHc HpLnDZA



#### **Rock and Minerals Facts**

#### Rocks are made from minerals. Some rocks are made of only one mineral and some are made of two or more minerals.

The chemical makeup of any one mineral is the same any place it is found in the world. Sand is not a mineral because it looks and feels different in different parts of the world. Sand in one area has different chemical makeup than the sand in another area.

Gold, silver, and copper are examples of minerals. Gold is the same any place it is found on the Earth. If one finds gold in California it will have the same look and feel as the gold found in Africa.

The atoms in a mineral form a pattern called a crystal. All minerals have their own crystal shape. Quarts crystals have six sides. The ends of the quarts are shaped like pyramids. The mineral called galena is a cube-shaped crystal.

Scientists have found over three thousand minerals on the Earth. There most likely are many minerals that have not been found. Sometimes we need a microscope to see the minerals in rocks.

Scientists use tests to help identify a mineral. They will test the hardness of a substance. The softest mineral is talc and the hardest mineral is diamond

#### The luster or chine of a mineral helps to identify it. Quartz has a glossy look and gold has a metal like shine.

The streak test is also used to identify a mineral. When a mineral is rubbed on a rough, white surface it will show the true color of the mineral.

https://teachersherpa.com/template/Rocks -and-Minerals/5e281432-e0be-4782-8ac5 -176400a85d9f/details?authorName= SchoolExpress&afmc =03c0d17c-fa18-4261-9b73-c5bb1ac9670ee

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### FIRST CLASS MAIL





# The Agate Explorer

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Members of AFMS & MWF

# Notes from the President

Even though we didn't have the best weather for our show weekend I think it was a success. I even talked to one fisherman/rockhound who decided the weather was better for shopping than fishing!

If you volunteered at the show you can pat yourself on the back for a job well done. We appreciate you so much! As a thanks we will have an appreciation dinner on Friday, June 7 at The Woods at 6:00 p.m. If you plan to attend, PLEASE RSVP by contacting me by phone (320-250-1363-no text) or email (opatz1@att.net). Think about how we can improve for next year. We'll talk about it at the dinner.

I am STILL looking for good places for the Club members to pick agates. Someone did offer a field, but I walked it and found very little. Please keep looking.

We are getting organized for the Thunder Bay trip. There is still time to sign up, but you need to do it soon. The Club had a great time when we were there a few years ago.

Ed Opatz

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