

# Cuyuna Rock, Gem and Mineral Society

# **The Agate Explorer**

# **April 2019**

# Sunday, April 7th—Geologists Day

Geologists Day is a professional holiday of geologists, geophysicists and geochemists. It is traditionally celebrated on the first Sunday of April. The establishment of this holiday was initiated by a group of prominent Soviet geologists headed by academician Alexander Yanshin. Following their initiative, the Geologists Day was established by decree of the Presidium of the Supreme Soviet on March 31, 1966 to commemorate the achievements of Soviet geologists after discovery of the West Siberian petroleum province.

The timing of the holiday, the first Sunday in April, was chosen because it marks the end of winter and beginning of preparation for summer field work and expeditions.

Geologists Day is traditionally celebrated in almost all geological and mining organizations of the former Soviet Union with festivities starting at the end of preceding week. With tens of thousands of geologists from the former Soviet Union working around the world, the tradition of celebrating the Geologists Day is becoming more international. In addition to geologists, many others involved in related fields also consider this day as their professional holiday and celebrate it.

https://en.wikipedia.org/wiki/Geologists\_Day



and The Weather Channel's television show Prospectors, will be speaking on Saturday, May 11 at 2:00 p.m. His topic is "Mining in Colorado".

# **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**

April 13—Meeting. Open shop at 9: Rock Wrappers at 10; Board Mtg. at 12; Regular Meeting at 2
May 4—(note change of date) - Meeting
May 11 & 12—Show
June 8—Meeting
July 5-7 (tentative) - field trip to Thunder Bay for amethyst
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.

# **Show Volunteer List**

Sign up sheets are now available for the show on May 11 & 12. Please consider helping at our biggest Sun. fundraiser of the year.

Show /Silent Auction Set up (Friday):

Gerry & Linda Shuety, Vern Iverson, Joanie Hanson, Mike Stanwood, Lilly Peterson, Ed & Marcia Opatz

#### Set up Display Cases (Friday):

Door Admission:			
Sat. 9-noon	Vern Iverson		
Sat. noon-3			
Sat. 1-5	Judy Frampton		
Sun. 10-1	Judy Frampton		
	Jane Kimball		
Sun. 1-4			
Club Table:			
Sat. 9-1	Joanie Hanson		
	Lilly Peterson		
Sat. 1-5	Sherry Busse		
Sun. 10-1	Joanie Hanson		
G., 1.4			
Sun. 1-4			

**Door Prizes/Vendor Survey:** Keith Lorensen

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



#### Rock Saws/Geode Cracker:

Ray Strassberg Marge Strassberg

#### Security—back gate:

Sat. 6-9	Erik Ess	
Sat. 9-noon		 
Sat. noon-3		 
Sat. 3-6		 
Sun. 9-12-:30	)	
Sun. 12:30-4		

#### Kids' Corner/Sluice Box:

Sat. 9-1 Judy Frampton

Sat. 1-5	Sandi Hilsgen
Sun. 10-1	
Sun. 1-4	Judy Frampton
<b>Spinning</b> Sat. 9-noor	Wheel: n
Sat. noon 3	3
Sat. 3-5	
Sun. 10-1	
Sun. 1-4	

#### Show Tear Down:

Bev Williams, Erick Ess, Lilly Peterson, Joanie Hanson, Ed & Marcia Opatz

#### Monday AM Clean Up:

Dolores & Tony Sibet, Ed & Marcia Opatz, Judy Frampton

To sign up, please contact Joanie Hanson at 218-831-2665 (leave message); or email cuyunarockgemclub@gmail.com or Ed Opatz at 320-250-1363.



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

#### Wizard of Rocks:

Sat.

Sat. 9-noon	
Sat. noon-3	
Sat. 3-5	
Sun. 10-1	
Sun 1-4	

#### Silent Auction:

Sat. 9-noon	Don Trieglaff Diane Trieglaff
Sat. noon-3	
Sat. 3-5	
Sun. 10-1	
Sun. 1-4	

#### Security: Sat 9-noon

Mike Stanwood (all day)	
Gerry Schuety	

**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.



Member

**MW Federation of** 

**Mineralogical & Geological** 

**Societies** 

Federation

**Societies** 

Buv 🔶 Sell 🔶 Trade

of Mineralogical

For more information call Sharon Smith at 218-343-7037 or email: Sharon@agatesrock.com

www.cuyunarockclub.org



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

### **Annealing Thin Wire**

Annealing fine wire can be tricky. For a good anneal, all areas of the wire must be heated uniformly to just barely red and then as it cools to black immediately quenched in water.

It's so easy to melt a section of the wire if you're heating with a torch. Avoid problems by winding the wire into a tight coil about two inches in diameter. Fasten the

# **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		Maral
Montana Moss & Blue	Agate	More?
Montana Petrified Woo	d	
Oregon Geodes	Chalcedony	
Desert Rose	Plume Agate	
Yellow Jasper		
Bruno Jasper		
Owyhee Picture Jasper		

#### Wallaby-Size Dinosaur Discovered in Australia



A small, agile dinosaur with powerful hind legs roamed the ancient rift valley between Australia and Antarctica during the Cretaceous period.

Archaeologists recently discovered fossils from this wallaby-size species while excavating 125-million-year-old rocks in Victoria, Australia. They found five fossilized upper jaws that resembled the upturned hulls of ships called galleons.

The scientists named the species Galleonosaurus dorisae, after both the galleon and paleontologist Doris Seegets-Villiers, who received her doctorate while working in the area. Analysis of the bones

coil in two or three places with scrap wire. I've found I can eliminate all risk of melting by using an oven set at about 1250 F. Place the coil of wire into the heated oven, let it soak for 5 minutes, and quench.

But if no oven is available, place the coil in a small covered metal can (like tuna fish comes in) or on a piece of copper or steel sheet and heat from the bottom.



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

showed that the newfound dinosaur was an ornithopod, a group of plant-eating dinosaurs that had bird-like feet and walked on their hind legs.

"These small dinosaurs would have been agile runners on their powerful hind legs," lead study author Matthew Herne, a postdoctoral fellow at the University of New England, said in a statement.

The bones were buried in volcanic sediments that were likely carried in by rivers that flowed from an eastern volcanic range active during the Cretaceous period. "The sediments washed by rivers into the rift valley created a forested river floodplain upon which dinosaurs such as Galleonosaurus and many other types of dinosaurs and other animals flourished," Herne told Live Science.

Just last year, the same team identified another small ornithopod species from these volcanic sediments: Diluvicursor pickeringi. Their analysis suggests that G. dorisae is a very close relative of D. pickeringi but 12 million years older. Cuyuna Rock, Gem & Mineral Society Board Meeting Minutes Saturday March 23, 2019 and Cuyuna Rock, Gem & Mineral Society

# General Meeting Minutes Saturday March 23, 2019

Due to a clarification of Robert's Rules the March meeting minutes will not be published until the May newsletter. Minutes need to be approved before they are published.



# Thank you to Dan Bubalo for the donation to the Club of the polished agates and Mohs Scale poster.

They also found that this newfound species was more closely related to ornithopods from Patagonia than those from say North America and China, Herne said. "We are steadily building a picture of terrestrial dinosaur interchange between the shifting Gondwanan continents of Australia, South America and Antarctica during the Cretaceous period," Herne said. At the time, the supercontinent Gondwana was shifting and Australia and Antarctica were spreading apart (forming an ancient rift valley that eventually filled with water to form the Southern Ocean).

The new finding suggests, "land connections (land bridges) between Australia and South America, via Antarctica, must have been available to dinosaur groups at times during the Cretaceous that resulted in closer genetic links between the dinosaurs on these continents than between these dinosaurs and those in other places," he wrote in an email to Live Science.

https://www.livescience.com/64953-wallaby -size-dinosaur-discovered-australia.html

# **Mineral Encyclopedia**



Rutile is a titanium oxide mineral with a chemical composition of TiO2. It is found in igneous, metamorphic and sedimentary rocks throughout the world. Rutile also occurs as needle-shaped crystals in other minerals.

Rutile has a high specific gravity and is often concentrated by stream and wave action in "heavy mineral sands" that exist today in both onshore and offshore deposits. Much of the world's rutile production is mined from these sands.

Rutile is used as an ore of titanium, it is crushed into a white powder that is used as a pigment in paints, and it is processed for use in a multitude of products. Networks of needle-shaped rutile crystals produce the "eyes" and "stars" in many gems, such as star ruby and star sapphire.

#### Geologic Occurrence of Rutile

Rutile occurs as an accessory mineral in plutonic igneous rocks such as granite and in deep-source igneous rocks such as peridotite and lamproite. In metamorphic rocks, rutile is a common accessory mineral in gneiss, schist and eclogite. Well-formed crystals of rutile are sometimes found in pegmatite and skarn.

Rutile and a number of other metallic ore minerals are mined together from sedimentary deposits known as "heavy mineral sands". These sediments are derived from the weathering of igneous and metamorphic rocks that contain abundant tiny grains of high-specific-gravity minerals such as rutile, ilmenite, anatase, brookite, leucoxene, perovskite, and titanite (also known as sphene).

As these rocks weather, their more resistant mineral particles are washed into the marine coastal environment where they are sorted and concentrated according to their density by wave and current action. Where conditions are right and heavy minerals are abundant, these sediments can become minable deposits.

#### **Rutile Mining**

Heavy mineral sands are mined in the shallow marine environment by ships that dredge up sediments, separate out the heavy mineral grains, retain the heavy minerals on -board, and discharge the lighter sediment fraction back to the bottom.

Heavy mineral sands are also found on land in sedimentary deposits that accumulated at times when sea level was much higher than it is today. These sediments are mined, processed to remove the heavy minerals, and returned to a landscape that is reclaimed to its original topography.

#### **Polymorphs and Impurities**

Rutile is the most abundant natural form of TiO2. There are numerous polymorphs that include anatase and brookite. Iron (Fe+2) sometimes substitutes for titanium in some specimens of rutile. When this occurs, a valence difference between iron and titanium requires balancing - and that balance is often accomplished by substitution of niobium (Nb+5) and/or tantalum (Ta+5) for another titanium. Substitution of these elements increases the specific gravity of rutile and causes a black color in both the mineral and its streak.

#### **Rutile and Gemology**

More than perhaps any other mineral, rutile has an affinity for growing as prism-shaped crystals within other minerals. Long prisms of rutile occur in many different gem minerals. Quartz, corundum (ruby and sapphire), garnet, and andalusite are some of the more familiar.

Sometimes these needles are coarse and clearly visible within the gem, as in many specimens of rutilated quartz. These needles produce attractive and interesting novelty gems when they have a pleasing color and arrangement.

In some gems, such as ruby and sapphire, reflections of light from a network of fine rutile crystals within a properly cut cabochon will produce a beautiful "star" of light on the surface of the gem. Gem rubies and gem sapphires with this star are known in the trade as "phenomenal gems", and the phenomenon of the star is known as "asterism".

In other gems, one direction of parallel crystals will form a line of light on the surface of the gem known as a "cat's-eye". The phenomenon that produces a cat's-eye is known as "chatoyance", and gems that exhibit that phenomenon are said to be "chatoyant". The best-known gem for its chatoyance is cat's-eye chrysoberyl.

#### Uses of Rutile

The primary uses of rutile and titanium oxide made from rutile are: manufacturing titanium oxide pigments, manufacturing refractory ceramics, and production of titanium metal. The use of rutile to make pigments touches the lives of almost every person in the United States in many ways almost every day.

When finely crushed and processed to remove impurities, rutile become a bright white powder that serves as an excellent pigment. It is used to make paint by suspending the powder in a liquid. The liquid serves as a carrier in the paint's application, and evaporates to deposit a layer of titanium oxide on the object that was painted. Titanium oxide pigments became very important in the paint industry in 1978, when the United States government banned the use of lead -based pigments in consumer paint products.

Titanium oxide pigments are used to produce white color in plastics, and they are used to make high-brightness paper. Titanium oxide gives these products a color that is resistant to fading. Titanium oxide is also nontoxic and chemically stable. Those properties allow it to be used as a pigment in food, cosmetics, pharmaceuticals, and many consumer products such as toothpaste.

#### **Physical Properties of Rutile**

Chemical Classification Oxide Color Red to reddish brown, black, yellow to gold Red to brown Streak Luster Adamantine to submetallic Diaphaneity Opaque, transparent on thin edges Cleavage Good Mohs Hardness 6 to 6.5 Specific Gravity 4.2 to 4.4 Diagnostic Properties Luster, color, specific gravity, prismatic crystal habit **Chemical Composition** Titanium oxide, TiO2 Crystal System Tetragonal Uses An ore of titanium, pigments,

inert coating on welding rods

https://geology.com/minerals/

#### **April Rock Shows**

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

4-7—JOSHUA TREE, CA: Sportsman's Club of Joshua Tree; daily 9-6; free; Website: jtsportsmansclub.com

5-6—ALEXANDRIA, VA: The Micromineralogists of the National Capital Area, Inc.; Holiday Inn Express, Fri. 6-9, Sat. 8:30 -9; \$30 - cost for two-day conference; Website: www.dcmicrominerals.org

5-7— INDIANAPOLIS, IN: Treasures Of The Earth Gem & Jewelry Shows; Indiana State Fairgrounds - Fri. & Sat.10-6, Sun. 11 -5; \$5, under 16 free; Website: www.toteshows.com

5-7—EUGENE, OR: Gem Faire Inc; Lane County Events Center, Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7 weekend pass; Website: http://www.gemfaire.com

5-7—VISTA, CA: Vista Gem & Mineral Society; Antique Gas & Steam Engine Museum, 2040 N. Sante Fe Ave; daily 9-5; free admission; contact Kurt Kluey, CA; Email: klueysgems@yahoo.com; Website: http:// www.vistarocks.org

6—MADISON, TN: Middle Tennessee Rockhounds; Amqui Station, Sat. 10-4; free; Website: http://rockhound.org 6-7—ORANGE, CONNETICUT: The New Haven Mineral Club; Amity Regional Middle School; Daily Sat. 9:30am-5pm; \$6; under 12 free; Website: http://newhavenmineralclub.org/

6-7—MARION, IL: Southern Illinois Earth Science Club; Pavilion of the City of Marion; Sat. 10-6, Sun. 10-5; \$2, under 19 free; Website: siesclub.org

6-7—SPRINGFIELD, OR: Springfield Thunderegg Rock Club; Willamalane Adult Activity Center; Sat. 9-5, Sun. 10-3; free; contact Dean Burkhart, (541) 744-1919; Email: burkhaks@aol.com

6-7—JOHNSON CITY, NY: New York Southern Tier Geology Club; Johnson City Senior Center; Sat. 9-5, Sun. 10:30-4; \$4, under 12 free; Website: https:// www.facebook.com/pages/category/ Nonprofit-Organization/New-York-Southern-Tier-Geology-Club-571826199572927/

6-7—CENTRAL POINT, OR: Roxy Ann Gem & Mineral Society; Jackson County Expo - Olsrud Arena; Sat. 9-5, Sun. 10-4; \$5, srs \$3, students \$2; Website: www.craterrock.com

6-7—PINECREST, FL: Miami Mineralogical & Lapidary Guild; Evelyn Greer Park; Sat. Daily 10-5; \$6, under 12 free; Website: www.miamigemandmineral.com. 6-7—DES PLAINES, ILLINOIS: Des Plaines Valley Geological Society; Des Plaines Park District Leisure Center, Sat. 9:30-5, Sun. 10-4; \$3, srs \$2, students \$1, under 12 free; contact Frank Lavin, (815) 298-9178; Email: nival42@hotmail.com 7—WATERLOO, IA: Black Hawk County Gem & Mineral Society; Waterloo Center for the Arts; Sun. 12-5; free; contact Dave Malm, (319) 266-6433; Email: davidmalm@cfu.net

12-14—SARASOTA, FL: Frank Cox Productions; Sarasota Municipal Auditorium, daily 10-5; \$5; Website: http://www.frankcoxproductions.com

12-14—OGDEN, UT: Golden Spike Gem & Mineral Society; Weber County Fairgrounds; Fri. 9-6, Sat. 10-6, Sun. 10-4; \$3; ages 12-18 \$2, under 12 free; Website: goldenspikegem.org

12-14—ORLANDO, FL: Central Florida Mineral & Gem Society; National Guard Armory; Fri. 1-6, Sat. 10-6, Sun. 10-5; adults \$5, Gr. 1-6; \$2; Website: www.cfmgs.org

12-14—DENVER, CO: RMGM Promotions; Crowne Plaza Hotel & Convention Center; Fri. & Sat. 10-6, Sun. 10-5; free; Website: https://www.rmgmpromotions.com/

13-14—EDMONDS, WA: Maplewood Rock & Gem Club; Maplewood Rock & Gem Clubhouse, Sat. 9-5, Sun. 10-5; free; contact Mary Ann Collins, (206) 714-3922; Email: collma1@comcast.net

13-14—MARIPOSA, CA: Mariposa Gem & Mineral Club; Mariposa County Fairgrounds; Sat. 10-5, Sun. 10-4; \$3, under 14 free; speakers and presentations, geode cutting, and a silent auction ; contact Meredith Meehan, mgmc@sti.net; Website: http:// mariposagemclub.org

13-14—KENNEWICK, WA: Lakeside Gem & Mineral Club; Benton County Fairgrounds; Sat. 10-5, Sun. 10-4; \$5, under 13 free; Website: www.lakesidegemandmineralclub.com

13-14—IDAHO FALLS, ID: Idaho Falls Gem & Mineral Society; Recreation Center, Sat. 10-6, Sun. 10-5; \$3, under 13 free; Website: http://ifrockhounds.com 13-14—ABILENE, TX: Central Texas Gem & Mineral Society; Abilene Convention Center; Sat. 10-6, Sun. 10-4; \$4, ages 6-12 \$2, under 6 free; Website: http:// www.new.calichetimes.com/page13.html 13-14—WALNUT CREEK, CA: Pacific Crystal Guild; Civic Park Community Center; Sat. 10-6, Sun. 10-4; \$12, under 12 free; Website: http://www.crystalfair.com 13-14—PASO ROBLES, CA: Santa Lucia

Rockhounds; Paso Robles Event Center; daily 10-5; \$5, children free; Website: slrockhounds.org

13-14—DOVER, NH: Southeastern New Hampshire Mineral Club; Dover Elks Lodge ; daily 10-4; \$3, under 12 free; Website: www.senhmc.org

13-14—STANDISH, ME: Maine Mineralogical & Geological Society; Saint Joseph's College; Sat. 10-5, Sun. 10-4; \$5, srs/ teens \$4, under 13 free; Website: https:// www.mainemineralclub.org/annual-gemshow

19-21—SANTA ROSA, CA: Gem Faire Inc; Sonoma County Fairgrounds; Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7 weekend pass; Website: http://www.gemfaire.com 19-21—SOUTH JORDAN, UT: Wasatch Gem Society; Salt Lake County Equestrian Park & Events Center: Fri. & Sat. 10-6. Sun. 10-4; \$2, under 13 free; Website: www.wasatchgemsociety.com 19-21—RICKREALL, OR: Willamette Agate & Mineral Society; Polk County Fairgrounds; Fri. & Sat. 9-5, Sun. 10-4; \$2; under 12 free; Website: www.WAMSI.net 19-21—ALPINE, TX: Chihuahuan Desert Gem & Mineral Club; Alpine Civic Center, Fri. & Sat. 9-6, Sun. 10-5; free; contact Judith Brueske, 79831, (432) 244-9503; Email: ocoent895@gmail.com 26-28—GRANTS PASS, OR: Rogue Gem & Geology Club; Josephine County Fairgrounds; Fri. & Sat. 9-5, Sun. 10-4; \$2, under 1 free; contact Janet Fields, (541) 415-1720; Email: jfields123@outlook.com 26-28—SAN DIEGO, CA: Gem Faire Inc; Scottish Rite Center; Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7 weekend pass; Website: http://www.gemfaire.com 26-28—WICHITA, KANSAS: Wichita Gem & Mineral Society; Cessna Activity Center; Fri. 9-6, Sat. 10-6, Sun. 10-5; adults \$5, ages 12-17 \$1, under 12 free; Website: www.wgmsks.org 26-28—YAKIMA, WA: Yakima Rock & Mineral Club; Central Washington State Fair Park; Fri. 9-5, Sat. 10-6, Sun. 10-4; \$5, \$2 students, under 12 free; Website: www.yakimarockclub.com 26-28-CONROE, TX: RMGM Promotions; Lone Star Convention & Expo Center; Fri. & Sat. 10-6, Sun. 10-5; free; Website: https://www.rmgmpromotions.com/ 27-CORNVILLE, AZ: Verde River Rockhounds; Windmill Park; 9-5; free; Website: http://www.verderiverrockhounds.com 27-28—KENT, WA: Crystallography Gem

+ Mineral Market; Kent Commons; Sat. 10-6, Sun. 11-5; free; Website: crystallographygems.com

27-28—SEATTLE, WA: West Seattle Rock Club; Alki Masonic Temple; daily 10-5;

Free; Website: www.westseattlerock club.org

27-28—MEMPHIS, TN: Memphis Archaeological & Geological Society; Agricenter, Fri. 9-6, Sun. 10-5; \$5, under 13 \$2; Website: www.theearthwideopen.com 27-28—SANTA CRUZ, CA: Santa Cruz Mineral & Gem Society; Santa Cruz Civic Auditorium; daily 10-5; \$6, under 12 free; Website: www.scrockngem.org 27-28—ELMA, WA: Grays Harbor Gem & Geology Society; Grays Harbor County Fair & Event Center; Sat. 10-5, Sun. 10-4:30; free; Website: https://www.facebook.com/ GraysHarborGeologyandGem/ 27-28—TROY, OH: Miami County Gem & Mineral Club; Miami County Fairgrounds, Sat. 10-6, Sun. 10-4; \$2; Dewey Buck, (937) 308-3012; Email: dewey.buck@ pcmg.com

27-28—EAU CLAIRE, WI: Chippewa Valley Gem & Mineral Society; Eau Claire County Expo Center; Sat. 9-5, Sun. 10-4; Free; Paul Tubbs, (715) 834-5747; Email: CVGMS2017@gmail.com 27-28—CUYAHOGA FALLS, OH: Akron Mineral Society & Summit Lapidary Club; Emidio & Sons Expo Center; Sat. 10-6, Sun. 10-5; \$5, Website: gemboree.org 27-28—LANCASTER, CA: Antelope Valley Gem & Mineral Society; Antelope Valley Fairgrounds, daily 10-5; Free; Website: www.avgem.weebly.com 28—SEVERNA PARK, MD: Patuxent Lapidary Guild, Inc.; Earleigh Heights VFC; 10-5; \$6, under 10 free; Website: patuxentlapidary.org

# What are Gemstone Enhancements?

Gemstone enhancements are procedures applied to gems to improve their appearance and wearability. There are many kinds of treatments. Some have been used for centuries, while others are recent. People in the gem industry choose treatments based on the gem type and the desired effect. Although some gemstone enhancements are commonplace, the gem-buying public remains relatively unaware of these practices. However, this age of information and disclosure is bringing changes.

Some in the gem industry feel too much information will confuse customers and hurt sales. For example, some procedures involve subjects such as the physics of light response to molecular structure. They argue that there's no need to disclose treatments that are indistinguishable from natural gem formation processes. Others in the industry feel the public's right to know outweighs these concerns.

The topic of gemstone enhancements is controversial and vast. So, as an introduction, here are the most common procedures you'll likely encounter in the world of gems.

## Natural Gems and Enhanced Gems

First, let me clarify some terms.

Natural gems form in the earth. Treatments after mining don't change their status as natural gems.

Synthetic gems are made under lab conditions that mimic natural formation processes, only greatly accelerated.

Treatments or enhancements occur after the gems are formed. Thus, an enhanced gemstone isn't necessarily a synthetic stone.

*Common Gemstone Enhancements Heat Treating* The most common form of enhancement is heating. For example, jewelers should inform their customers that rubies and sapphires are "probably heat treated," since heating is so common for corundum gems.

"Probably" doesn't sound very professional. However, heating enhancement so closely resembles what happens in nature that you can't always tell if gems have been treated after mining. Sometimes, microscopic examinations can reveal evidence of heating. Otherwise, there is no way to tell if the heating was done before or after mining. (Again, let me clarify. Heat is one of the conditions that cause gems to form, whether in the ground or in a lab. Heating that occurs during gem formation isn't an enhancement. On the other hand, heating applied after gem formation is considered an enhancement).

Another often heat-treated gem is aquamarine. Most of this material has a natural green tint. If heated properly after mining, these gems may turn pure blue. However, sometimes aquamarines do come out of the ground a pure blue. Natural heating underground and artificial heating after mining can produce identical results. For this reason, jewelers should describe any pure blue aquamarine as "probably heat treated."

<u>Radiation</u> Yes, radiation. (Now you know why some in the gem industry are nervous about full disclosure). Radiation is a scary word. Revealing that a gem was irradiated will likely drive away customers. But just as with heating, radiation enhancements duplicate what happens in nature. During their formation, radioactive elements affect many gem crystals. That doesn't mean these gems are radioactive or otherwise harmful.

Most blue topaz gems are colorized in a two -step enhancement process. First, radiation modifies electron sharing between certain atoms in the crystal structure of colorless topaz. This turns the topaz brown. Next, heating creates a stable blue color. <u>Oiling</u> Some gems, notably emeralds, have internal fractures. Light reflection off their surfaces seriously affects the clarity and brilliance of these stones. Simply filling these fractures with a substance with similar optical properties makes these tiny cavities transparent. The difference in the appearance of the finished gem can often be startling!

Unlike heat and radiation, oiling gemstones ture. To gem cutters, oiling poses a serious problem, because those tiny fractures represent structural weaknesses. They must consider these areas in the cutting process. Oilmasked fractures increase the risk of damaging a gem during cutting. To gem owners, oiling is well worthwhile. The oil filler isn't visible. It simply allows the natural beauty of the stone to shine. For them, gemstone enhancements like oiling increase both the emotional and monetary value of the gem. Jewelers should tell buyers that oiled gems need special care. For example, frequently washing dishes while wearing such a stone can make it less brilliant. Vigorous cleaning methods, like using heat or an ultrasonic system, can be disastrous.

<u>Dyeing and Sealing</u> Gemstone enhancements can be applied to less expensive gems, too. Dyes are common treatments for stones such black onyx. Jewelers often seal porous materials like turquoise with surface coatings, such as paraffin wax, so body oils won't cause discoloration.

*Filling* Diamonds, rubies, and sapphires can be filled with lead glass to improve their clarity.

https://www.gemsociety.org/article/ gemstone-treatment-and-enhancement/? utm\_source=igs&utm\_medium=email&utm \_campaign=march\_25\_gemstone\_ enhancements



# Plasma Agate

Plasma agate is a fairly rare material found in the Clear Creek area of Central California. . Stones were collected by rockhounds and others on public land.

The Federal Government closed the area to collecting several years ago. The best of the material is green with perhaps a bit of brown or tan and is highly agatized. The material is characterized by unique and interesting patterns.

https://www.pinterest.com/ pin/275282595946081391/?lp=true

# **Summer Field Trip**

Plans are being made for a long weekend trip to Thunder Bay to collect amethyst.

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

A sign-up sheet will be available at upcoming meeting in order to plan this trip. 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.



Lapedo Valley 22,500 BCE Portugal



# Prehistory Jewelry 100,000-3,200 BCE



Prehistory is the time in history before events were written down and recorded. Most of what we now know about this period has been learned through archaeological discoveries and research.

This includes part of the Stone Age, Ice Age, and distant ancient time even before then.

#### Blombos Cave 1000,000-70,000 BCE South Africa

In this beachside cave in South Africa,



there are many Stone Age artifacts, including rocks engraved with geometric designs and bone tools.

There are also many sea snail shells. These seashells have been worn as beads: some are painted with ochre

and are drilled with holes for easy stringing perhaps on cord or sinew.

# Deer teeth, which once



adorned a headdress, and two periwinkle seashells from the Atlantic Ocean, which were part of a pendant, are found in a child's grave.

These ornaments belong to the oldest complete skeleton every discovered in Europe's Iberian Peninsula.

#### Varna Necropolis 4,500 BCE Bulgaria



This Bulgarian burial ground has unearthed the world's oldest gold jewelry—thousands of years older than Ancient Egypt! Also found here are

copper pieces, shells, agate beads, and faceted chalcedony gemstones.

Three thousand gold artifacts, weighing over 13 pounds, are uncovered in EMPTY graves.

http://gemkids.gia.edu/jewelry-timemachine

#### Precious or Semi-Precious Gemstones



Garnet describes any member of a large class of silicate mineral. Their chemical composition varies but may be generally described as X3Y2(SiO4)3. The X and Y locations may be occupied by a variety of elements, such as aluminum and calcium. Garnet occurs in almost all colors, but blue is extremely rare. Its crystal structure may be a cubic or rhombic dodecahedron, belonging to the isometric crystal system. Garnet ranges from 6.5 to 7.5 on the Mohs scale of hardness. Examples of different types of garnets include pyrope, almandine, spessartine, hessonite, tsavorite, uvarovite, and andradite.

Garnets are not traditionally considered precious gems, yet a tsavorite garnet may be even more expensive than a good emerald!

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

# *The World of Jaspers* Royal Imperial Jasper

Imperial Jasper is found around the Jalisco/Zacatecas area of Mexico, north of Guadalajara.



Imperial Jasper is considered to be a fine jasper. The term porcelain stands for rocks that form when ascending magma takes along

fragments of class and marl as inclusions and subsequently gets "fritted" at high temperatures.

https://www.lexxstones.com/product/ royal-imperial-porcelain-jaspergemstone-cabochon-hand-crafted-lexxstones-89-carats Marcia Opatz, Editor Cuyuna Rock, Gem & Mineral Society 1001 Kingwood Street Suite B-40 Brainerd, MN 56401

# FIRST CLASS MAIL





# The Agate Explorer

April 2019 Official Publication of the Cuyuna Rock, Gem & Mineral Society

Members of AFMS & MWF

# Notes from the President

I met up with a rock friend from out of state (you know who you are), who knew a lot about what was going on in our Club. How is that possible? He reads our newsletter faithfully every month!

At some point we'll be able to see the ground again. Please be on the lookout for places that our Club can go look for Lake Superior agates—farm fields, gravel areas, etc. It is especially helpful if the farm field is one that has been recently plowed.

Planning for the May show is in high gear. We are going to have an AMAZING show! New and seasoned vendors, new stations in the Kids' Corner, including sluicing for the young and old kids, and now we even have Joe Dorris speaking. Every year we try to tweak what already works and make it better. And the word on the street is we are becoming the best show in the state. Wow!

Now my nagging is starting. PLEASE, PLEASE do what you can to volunteer before the show, during the show, or after the show. If it's just a few that do all the work those people are exhausted and can't even enjoy this great event. Contact Joanie Hansen: 328-831-2665 or secretarycuyunarockgemclub@outlook.com. Leave a message if she doesn't answer your phone call or text.



### Club Officers & Board of Directors

cuyunarockgemclub@gmail.com

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

Vice-President: Sharon Smith sharon@agatesrock.com 218-343-7037

Secretary—Joanie Hanson secretarycuyunarockgemclub@outlook.com 218-831-2665

Treasurer: Kevin Martini treasurer@cuyunarockclub.org kjspumanti69@gmail.com 218-770-8917

Director: Lori DuBois Director: Vern Iverson Director: Lilly Peterson

Newsletter Editor: Marcia Opatz theisma@hotmail.com 320-250-8120



Ed Opatz