

# THE BACKBENDER'S GAZETTE

NEWSLETTER OF THE HOUSTON GEM & MINERAL SOCIETY



*The Black Prince's "Ruby" in the Imperial State Crown of Great Britain*

## AUGUST'S NEW BIRTHSTONE - SPINEL

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### BACKBENDER'S GAZETTE SUBMISSION DEADLINES

*Articles are due on the 15th day of the month before the date on the BBG issue.*

*Copy is due for the next issue by the 15th of this month. Email content to [editor@hgms.org](mailto:editor@hgms.org)*



*The*

# BACKBENDER'S GAZETTE



*The Newsletter of the Houston Gem & Mineral Society*

## PRESIDENT'S MESSAGE

*by Nancy English*

I have seen nearly every General Meeting program for the last eleven years. I have enjoyed all of the programs: field trips, vacation chronicles, sculptures, paleo talks, mineral talks, and how-to demonstrations. I wish more members were able to join us.

Now you can participate from home via Zoom or come to the Club. On Tuesday, July 26, I expected to learn about water being found on the moon. Our speaker could not come, so the Program Director, Sarah Metsa, jumped on YouTube and found a program about the Moon's gravitational effect on the earth and humans. I learn something every month. If you have a program to share or a request for a type of program, please let Sarah know at [publicity@hgms.org](mailto:publicity@hgms.org).

"It takes a community" to maintain our Society. It takes all of us giving a little or a lot toward the management and well-being of HGMS so all of us can benefit from it. At the General Meeting, I asked for volunteers to be on the Nominating Committee. These key people will solicit other members to fill the important elected positions on the Board of Directors. All our elected positions last for one year. Some people spend a year in a position, some spend decades. Beverly Mace, the 2 nd Vice President has agreed to serve her 30th year in 2023, then retire. Sarah Metsa has committed to learning the Membership Chairman's job in 2023 and assuming the 2 nd Vice President position over Membership in 2024. Sharon Halton is stepping down as Secretary. Michele Marsel is willing to continue doing HGMS bookkeeping, but is stepping away from the Board responsibilities. I do not want to miss the progress we have planned for 2023, so unless someone else wants to be President I am staying.

So, the nominating committee will be looking for a new Secretary, a new 1st Vice President. (Program Chairman), and

Treasurer to participate on the Board of Directors. Contact me at [President@hgms.org](mailto:President@hgms.org) if you are willing to be on the Nominating Committee or assume one of the Officer positions.

I am amazed by the real estate market. The sign was posted in our yard on Monday, July 25. Our first buyer toured the house at 1:00 p.m. on Thursday. Our agent emailed us at 8:52 p.m. on the same day with an offer for more than we are asking!

Tom and I are grateful even though we will be doing more packing and more apartment hunting. If I seem distracted for the next 30 days just know that when I am not overwhelmed by the tasks ahead, I am overwhelmed with joy by the events that are making the next phase of our life possible.

## VICE-PRESIDENT'S MESSAGE

Sarah Metsa will be giving the August General Meeting program on the Dreher Masterworks carvings exhibit at the Houston Museum of Natural Science, covering the field trip planned for the Friday before the meeting.

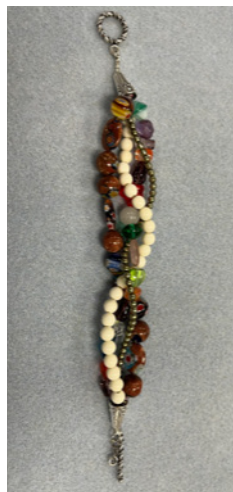
## SECTION REPORTS

As always, please see the [Upcoming Programs](#) section under Events on the HGMS website to learn more about planned future meetings.

### BEADING SECTION (3RD SATURDAY AT 12:30 PM)

Beading Section members had great fun making a Celtic Knot Leather bracelet at the June meeting. Each member left wearing their creation and requested more projects that can be completed in one or two sittings. Thanks to Ann Money for teaching this class.

On Saturday, July 16th from 12:30 PM to 3 PM Beading Section members made a twisted strand bracelet like the one shown here. Thanks again to Ann Money for designing and teaching this class.



For the August 20th meeting we will probably make the peyote stitch sweater pin shown at left.

When we meet, plan to bring your beading mat, scissors, wire and wire cutter, round nose and needle nose pliers, thread and beading needles if you have them. You can also work on your own project.

Would you like to receive notifications about upcoming Beading Group activities?

E-mail [beading@hgms.org](mailto:beading@hgms.org) to be added.

**NOTICE:** Do you have a bracelet or necklace that needs restringing? The Beading Section will carefully restring your piece at an hourly rate of \$15.00 + materials. Contact [beading@hgms.org](mailto:beading@hgms.org) to make arrangements. All funds will go to the Beading Section.

### DAY LIGHT SECTION (1ST WEDNESDAY AT 1:00 PM)

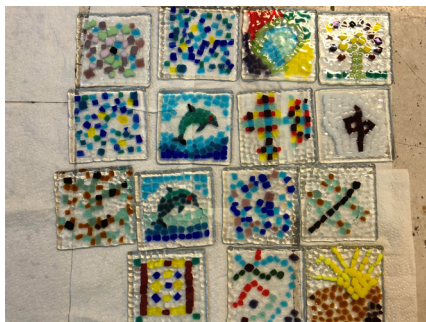
In June, Charlie Holden showed us how to make coasters with slump glass.

On July 6th, Neal Immega taught members of the Day Light Section how to make clasps and bails.

At our next meeting on August 3rd, we will be working with liquid precious clay and will

make a silver pendant out of a leaf. The number of people who can participate in this session is 10 and because of the cost of the supplies participants will have to pay \$10 rather than the usual \$5 at the time they register. There are very few places remaining so act quickly. You will be given a silver chain for your pendant.

Examples of the slump glass coasters created in the Day Light Section meeting are shown at right.



### **GEMSTONES AND FACETING (2ND THURSDAY AT 6:30 PM IN PERSON AND VIA ZOOM)**

For our July 14th meeting we continued with the study of Facet Diagrams that we began in June. We had a very busy session with machines set up for demonstration in the Meeting Hall.

### **LAPIDARY AND SILVERSMITHING SECTION (3RD MONDAY AT 7:00 PM)**

In July, we made a pendant setting for the turquoise cabochon made in June. For our August 15th meeting, we will learn about finishing techniques. Please bring a piece of silver jewelry to practice on. If you were at the July meeting, please bring your turquoise/stone pendant to finish. We will try out different flex shaft accessories, learn to use the buffing wheels properly and safely, and talk about other types of finishing machines (tumblers, pin finishers, etc.) We will have several types of flex shaft polishing and sanding accessories for you to try out.

For the September 19 Meeting - Big rings are in! We will make a bold ring using larger cabochons. We will have some available for purchase (from 25x18mm to 30x22mm), or bring your own. The stone can be oval or freeform - please avoid geometric shapes like squares and rectangles. The Section will have materials kits for this project which include silver sheet, plain or patterned wide wire for the ring shank, and bezel wire to set the stone. Kits are \$20 payable by cash or check at the meeting.

### **MINERAL SECTION (3RD WEDNESDAY AT 7:30 PM (VIA ZOOM))**

Mineral Section did not meet in June and July. News about the August Mineral meeting will be sent out before the meeting.

### **PALEO SECTION (3RD TUESDAY AT 7:30 PM)**

For the July Paleo Meeting members worked on recognition of dino bone. Neal brought good examples and encouraged everyone to bring their unknowns and dino bone wannabes.

### **YOUTH SECTION (1ST AND 3RD SATURDAYS FROM 10:00 AM TO 12:00 PM)**

We will continue our regular activities working in the shop.

## UPCOMING SHOWS

AKS Beads & Jewelry Show August 5-7, Grapevine Texas, Grapevine Convention Center, [www.aksshow.com](http://www.aksshow.com)

Baton Rouge Gem & Mineral Society Show, August 13-14, Gonzales, LA, Lamar Dixon Expo Center - Trademark Bldg., [www.brgemandmineral.org](http://www.brgemandmineral.org)

Ark-La-Tex Gem & Mineral Society Show, August 20-21, Bossier City, LA, Bossier Civic Center, [www.larockclub.com](http://www.larockclub.com)

## NEWS FROM NEAL

Note - the shop has only a 200 AMP service and in the summer when all three AC units are working, there is little power left for machines. This can not be changed according to Fred Breuckner. My best suggestion is to get the shade cloth back on the lecture hall windows so we can run only one AC for that hall. I will ask Nancy for the schedule. I have all the shade cloth and hardware ready.

Back Right Hand Saw - This saw 18" was so sludged up that there was NO liquid in it. Using this saw means that you are cutting DRY and the blade will be ruined. Everyone who uses a saw should notice the liquid level and put a DO NOT USE sign on the machine as necessary, or ideally, CLEAN IT. People are going to have to step up and do some of the nasty jobs! As the saws sludge up, I am going to put signs on them saying "DO NOT USE" until there are none left.

Lube - All the grinders, trim and slab saws have had the 6-month lubrication.

Trim Saws - The 8" trim saw is back in operation with a stainless steel nut and some rust spots fixed. I had to use the old rusty flanges because they are so thin that I can not replace them with micarta. I also rewired the 10" saw by the sink and put the switch back by the motor to keep it dry. The old switch was mounted on the lube tub. Now I only need to add the shaft. I have adjusted the trim saws in the back so that they will not repeatedly pop the breakers.

Air Abrasive - I have given up. The Swamblaster has beaten me. I got the vibrator repaired for \$250+ and it did not help. The machine requires too much work to keep running. I like the Problast machine that the Mineralogy section installed in the air tools room, particularly when I found that replacing a damaged grit cylinder only cost \$60 and the machine does not use electricity. So, I bought one for the paleo people to use with dolomite. Of course there is a problem. The Problast works by stirring up the abrasive into the air stream and that works fine with glass beads because they are so fluid that they continually get entrained. The dolomite powder tends to make tunnels for the air and does not work nearly as well. I am testing a home-built vibrator to see if I can shake things up and increase the grit flow. It seems to work very well. Good thing that dolomite is cheap. It helps to keep the canister full. Hint, hint.

The Problast also has a cracked abrasive bowl. It is plastic and probably unsafe under pressure. I have ordered another bowl plus a complete unit without the blast cabinet to use our existing cabinet.

Ask for training on the Supergrinder! Very handy if used right.

TIG welder - I will be sending it back to the factory to handle a problem of the light shutter. \$50 postage!

## LIBRARY

Finally something that I want to read - Rocks & Minerals - July/Aug 2022. This magazine is full of Art Smith-type articles about long-closed mines that produced exotic minerals like fleischerite, a fuzzy Lead/Germanium mineral and Oldesite, whatever that is. BUT they also have an article on pyrite suns from Illinois and Pennsylvanian petrified wood from Colorado, a club moss (modern ones are an inch tall) that grew to 60 feet long ago. The issue will be in the library by the time you read this.

## EDUCATION

We are seeking teachers to expand our class selections. Specifically: PMC, Dichroic Glass, Enameling, Mosaics, and bead weaving instructors are needed. Contact [Classes@HGMS.org](mailto:Classes@HGMS.org) for more information on teaching or taking classes. We are planning to offer more short & easy summer-time classes for those interested in making some fun projects.

### CLASS POSTINGS:

**CABOCHONS 101 CLASS:** Sharon Halton is offering a cabochon making class: CABS101-083122-SH – Wednesday, August 31st from 6:00 PM to 10:00 PM.

Cost is \$45.00 for members and \$60.00 for non-members, including all materials; or, you may bring your own stone slab. Minimum of 3-students and maximum of 5 students. Class will be held in the Lapidary Shop and Center Classroom.

Shop Manager Sharon Halton's cabochon making class includes a discussion of how to create cabochons and examples of cabochons in various stages of development. Students will choose a small slab, draw a design from HGMS templates, and learn to use the trim saws. Each student will choose a pre-dopped stone for hands-on experience using the grinding machines while their own dopped stones "set". Students will leave with one or two beautiful cabochons and the information and comfort level needed to work on their own time during HGMS open shop times. No previous experience is needed.

## BENCH TIPS FOR AUGUST

*by Brad Smith*

### SMALL PARTS CONTAINERS

I'm always on the lookout for small containers to use for holding all those little parts and tools we deal with in making jewelry, especially since I'm always traveling to classes and workshops.

My latest find are some plastic vials about 15 mm in diameter and 75 mm long. Best part is they are free. The vials are used in the doctor's office to draw blood samples. They cannot be used after their expiration date and are thrown out. On my last doctors visit, I





asked the nurse if they had any expired vials. She replied "How many do you want?" and tried to give me 400 of them. (We settled on 200).

Shown at left are "Vacutainers", but there are probably many other names. They're clear plastic with a rubber stopper and a paper label all ready to write on. I find them really handy for small parts like jump rings, prong settings, small drills, nuts & bolts, faceted stones, and precious metal filings.

## FINISHING PIERCED PATTERNS

After sawing patterns there's always a little cleanup to do, and the smaller cutouts can be a challenge. Needle files (7-8 inches) can get into the larger areas, and escape-ment files (4 inches) can get into some of the corners.

But I often find myself wanting even smaller files. I couldn't find them, even at a watch-maker tools supply company, so I had to try something else. I ended up grinding down the tip of a small 4" barrette file using a separating disk (or cutoff wheel) in your Dremel or Foredom.



Be sure to wear your safety glasses when using this tool. A flake of steel in your eye makes for a bad day.

If you enjoy these tips on jewelry making, take a look at the sample chapters from:

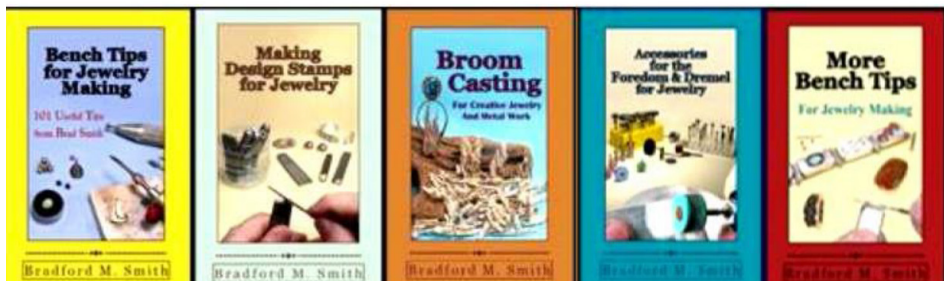
> Bench Tips 1 - <http://amzn.to/1Z6hQ06>

> Bench Tips 2 - <http://amzn.to/2KCygh4>

**MORE SMART SOLUTIONS FOR YOUR JEWELRY MAKING PROBLEMS CAN BE FOUND AT:**

[Amazon.com/author/bradfordsmith](http://Amazon.com/author/bradfordsmith)

**TIPS AND TRICKS FROM BRAD'S BOOKS**





## AUGUST'S NEW BIRTHSTONE – SPINEL

By Don Shurtz, Pleasant Oaks Gem and Mineral Club of Dallas

The newest birthstone to the American birthstone list was added in 2016. Spinel is the newest addition and joins peridot and sardonyx as recognized birthstones for August. Spinel comes in a variety of colors ranging from clear to red, peach, pink, violet, blue, and green. Until recent times, many large, red spinels were recognized as some of the most important rubies in existence. No, that isn't a typographical error – famous "rubies" were often proven later to be spinels.

Two such examples are the 170-carat Black Prince's Ruby in the Imperial State Crown of England and the 398-carat spinel that tops the Imperial Crown of Russia commissioned by Catherine the Great in 1763. It wasn't until 1783 that spinel was recognized as a separate mineral, unique from ruby. Spinel and ruby are similar in many respects. Spinel has a Mohs hardness of 7.5 to 8.0 while ruby has a Mohs hardness of 9.0. The chemical composition of spinel is magnesium aluminum oxide ( $\text{MgAl}_2\text{O}_4$ ) which is similar to ruby's chemical composition, aluminum oxide ( $\text{Al}_2\text{O}_3$ ). The specific gravity of a typical spinel is 3.58 – 3.61, but a spinel from a zinc-rich environment (as a trace element), can have a specific gravity as high as 4.40. Thus the specific gravity of spinel spans the specific gravity range of ruby which is 3.97 to 4.05. They are sometimes found next to each other in mines, and both derive their red color from trace amounts of chromium.



Spinel, Mogok, Myanmar. Rob Lavinsky, iRocks.com – CC-BY-SA-3.0, CC BY-SA 3.0  
<<https://creativecommons.org/licenses/by-sa/3.0/>>, via Wikimedia Commons

The Black Prince's Ruby is a large, irregular cabochon red spinel set in the cross pattée above the Cullinan II diamond (another very famous gemstone) at the front of the Imperial State Crown of the United Kingdom. The history of this spinel, one of the oldest parts of the Crown Jewels of the United Kingdom, dates back to 1367, when it was given to its namesake, Edward of Woodstock (the "Black Prince"). The stone is believed to have come from the Badakhshan mines in present-day Afghanistan and Tajikistan, the principal source of large spinel gems in the Middle Ages.



Green spinel, photo by Human-feather via Wikipedia Commons

The largest known spinel is the Samarian Spinel and it comes in at an amazing 500 carats. It was once in India, and is now part of the Iranian Crown Jewels. The gem has a hole through it. One story attributed to Shah Nasser al-Din Qajar was that the hole was used for a cord to hang the stone from the biblical golden calf which the Israelites made during the period that Moses was absent to receive the Ten Commandments. Although the Samarian Spinel may be the largest in existence, a 52 kg (114 lbs, 260,000 carats) red spinel crystal was found in October 2007 in a farmer's field in Mahenge, Tanzania. As word of the large

crystal leaked out, many miners and others descended on the area to try to acquire the gem or at least a piece of the gem by fair or foul means. In near-riot conditions, the miner and a motorcycle driver escaped into the wilds. After hiding out for several days, they made their way to Arusha, Tanzania. It was estimated that the yield of the spinel could be as low as 3%, which is still 7,800 carats. One piece was believed to have the potential to cut a 50-carat spinel.

Spinel has been found in many localities throughout the world. These include Sri Lanka, Afghanistan, Tajikistan and Myanmar. More recent finds include Tanzania (several locations), Viet Nam, and Canada. The Canadian spinels, found in 2018, are a bright blue caused by the trace element cobalt. In addition to all the places where natural spinel can be found, synthetic spinel has been available since the 18th century. Synthetic spinel is commonly formed by the flame-fusion (Verneuil) process or the flux growth process. More recently, synthetic spinel plates have been formed by the sintering process. Sintering fuses particles together using pressure and heat, but without heating the materials to liquefaction. Sintering can happen naturally in the formation of minerals.

#### References:

<https://www.dalesjewelers.com/blog/2019/08/06/spinel-augusts-newest-birthstone-has-a-confusing-colorful-history/>

<https://en.wikipedia.org/wiki/Spinel>

#### Giant Red Spinel Crystal Discovered in East Africa:

<https://www.prweb.com/releases/gemstones/spinel/prweb559185.htm>



*Spinel and Diamond Ring*

An Introduction to Synthetic Gem materials, <https://www.gia.edu/gem-synthetic>

Picture: The Black Prince's Ruby By Cyril Davenport (1848 – 1941) - G. Younghusband; C. Davenport (1919). The Crown Jewels of England. London: Cassell & Co. p. 6. (published in the US by Funk & Wagnalls, NY.) See also The Jewel House (1921) frontispiece., Public Domain, <https://commons.wikimedia.org/w/index.php?curid=64712804>  
[https://en.wikipedia.org/wiki/Black\\_Prince%27s\\_Ruby](https://en.wikipedia.org/wiki/Black_Prince%27s_Ruby)

For more information and some great pictures, visit

<https://www.gia.edu/spinel#:~:text=Spinel%20belongs%20to%20the%20cubic,a%20durable%20gem%20for%20jewelry.>

## HOT HOT HOT!

*by Charles "Wooly" Wooldridge, from the Pick & Shovel*

*Newsletter of the Lincoln Gem & Mineral Club, Inc. July 2022, Volume 64, Issue 11*

We are now in the Dog (var. Rock Hound) Days of summer, which means periods of high heat and humidity. Precautions should be taken to avoid the ill effects of prolonged exposure to heat, humidity, and strenuous activity.

There are three levels of negative physical response: muscle cramps, heat exhaustion, and heat stroke; each being progressively more severe.

Muscle cramps occur as a response to dehydration. To avoid dehydration, start drinking

water well before the activity. By the time you get thirsty, it may be too late to maintain proper fluid and electrolyte levels. Wear a hat. Your head is an excellent heat exchanger.

The next level is heat exhaustion. Symptoms include: excessive sweating, muscle cramps, faintness, dizziness, fatigue, nausea, and headache, among others. You need to get into the shade, drink cold water, take a dip in some water if there is some nearby, and get to some air conditioning. At this point, your trip should end. To continue is to risk very serious consequences.

The third and most dangerous condition is heat stroke. Heat stroke occurs when body temperature hits 104° or above. This condition requires immediate medical treatment. Symptoms include all the aforementioned, plus delirium and loss of consciousness. At this point, you may stop sweating. Continued exposure may result in death. Steps to take: Get out of the heat; move to airconditioning as soon as possible; give cool fluids; and get medical attention as soon as possible.

Stay safe and good rock hounding!

And just for fun:

The Looney Toons Gang was robbing a liquor store. Daffy Duck held a bottle up to Elmer saying, "Is this whiskey?" Elmer replied, "Yeth, but not as wisky as wobbing a bank!"

## **FACEBOOK GROUP FOR YOUNG ROCKHOUNDS**

*From Diamond Dan's Mini-Miners Monthly,  
Vol. 14, No. 5, May 2022*

There is a really fun and well-organized special group on Facebook. It is called "Rock Swap." The Facebook pageheading has a quote, "Friendship: It's not a big thing. It's a million little things." "Rock Swap" was started by Stephen Eskes, a mineral collector from South Branch, Michigan. (He is also a fireman.) He wanted to give kids a chance to meet other mineral collectors and be able to trade specimens with each other. There are right now about 4,100 members! This Facebook group has grown much faster than he ever expected. It is now so big that he has other people helping to watch over (moderate) the page.

How can you join "Rock Swap"? It's very easy. Search for the group on Facebook. You will ask to join the group. Before you join you will have to answer some questions. Then one of the moderators will add you to the group (as long as you promise to follow the rules! That's one of the questions.)

One of the things that Diamond Dan loves about the group is that it does not allow advertising! It is a group for young mineral collectors who want to trade specimens, make friend connections, and enjoy the mineral hobby. In a world where every website and every TV program has a lot of advertising, it is so great to have a place you can go and know that you will NOT be hounded with advertisements.

One of their special events every year is a "Secret Santa" experience in December. Mr. Eskes and his friends randomly match up the group's members in pairs. If you want to do this, they will give you the name and address of another member and you can send a mineral specimen to that person. Another person will send you a mineral specimen. It's a lot of fun. You will make a new friend, or two, in the process.

# QUARTZ

By Prof. Philip R. Kesten, Ph.D.,  
Department of Physics, Santa Clara University  
Reprinted from BRECCIA, the Newsletter of the  
Santa Clara Valley Gem and Mineral Society  
Volume 70 Number 7, July 2022

A piece of quartz was the first specimen in my rock collection. More precisely, a piece of quartz became the first specimen in my collection, since I neither had a collection before I acquired it nor even knew that I was interested in rocks. Quartz is both attractive and also ubiquitous, so it is a greater “starter” specimen to launch someone, perhaps a young someone, into the world of rock and mineral collecting.

Truth to tell, that first piece of quartz in my collection wasn’t a crystal cluster or even a single crystal point – it was just a formless chunk of off-white rock. But it was special to me because I found it in the ground! I came to learn, later, that quartz is relatively abundant – in Earth’s crust, quartz is the second most abundant mineral after feldspar – and relatively easily found. Quartz is also interesting – at 7 on the Mohs Hardness Scale, it is relatively hard and therefore relatively scratch resistant.

Pure quartz is composed of atoms of silicon and oxygen, bound in clumps of four oxygen atoms to a central silicon atom. Each oxygen atom is shared between two neighboring clumps, however, and it is this interconnection that gives quartz its hardness. Because each oxygen atom in the silica lattice is shared between two silicon atoms, the chemical formula for quartz is  $\text{SiO}_2$ , rather than  $\text{SiO}_4$ .  $\text{SiO}_2$ : silicon dioxide.

As with so many minerals, pure  $\text{SiO}_2$  is colorless and transparent; specimens of quartz are imbued with color as a result of trace amounts of impurities, or as a result of defects in the molecular lattice structure. Rose quartz, for example, acquires its pink color from small amounts of titanium, iron, or manganese interspersed with the silicon and oxygen atoms. Aventurine, a variety of chalcedony – which is  $\text{SiO}_2$ , that is, quartz – gets its green color and shimmery appearance from inclusions of chromium-bearing mica. And the white, translucent appearance of milky quartz, the most common variety of quartz, is due to tiny inclusions of gas or liquid that got trapped between the  $\text{SiO}_2$  molecules when the rock was forming. Are there other colors of quartz? Yes! You can find varieties of quartz of literally every color of the rainbow, from dark grey-brown smoky quartz, to yellow or orange-yellow citrine, to the deep purple of amethyst.



Quartz, Veracruz, Mexico.  
Rob Lavinsky, iRocks.com – CC-BY-SA-3.0, CC BY-SA 3.0 <<https://creativecommons.org/licenses/by-sa/3.0/>>, via Wikimedia Commons

Crystals of quartz are hexagonal, and terminated in a six-sided point. Quartz crystals commonly form in clusters as shown, for example, in Figure 1.

Figure 1. A Quartz Crystal Cluster

Quartz crystals that form in an environment in which they are not attached to another material, for example, in a cavity filled with liquid, can grow with a terminated point at both ends. Of particular note are the “doubly-terminated” quartz crystals found

in and around Herkimer County in upstate New York. Doubly-terminated crystals of quartz are found all over the world. But those found in Herkimer County tend to be exceptionally clear and well formed. And because they are usually short and stubby, after large quantities of these doubly-terminated quartz crystals were discovered in the dolomite deposits in Herkimer County, this particular variety of quartz was dubbed a “Herkimer diamond.” They aren’t diamonds, of course, but they are certainly specimens of exquisite beauty.

Members of the Mohawk tribe of the Iroquois Nation – who lived in the part of New York State which eventually became Herkimer County and who had been finding Herkimer diamonds in streams and fields since the 16th century – prized these stones, and used them to make amulets and to trade with other tribes. Early European settlers were also taken by these Herkimer diamonds.

A Herkimer diamond crystal, like most quartz, is hexagonal, with all six (cross-sectional) sides equal in length. Each end of a crystal is capped by a six-sided pyramid; a typical doubly terminated Herkimer diamond crystal is shown in the sketch below of Figure 2.

Herkimer diamonds are also found that exhibit variations on this hexagonal structure; two of the many variations are shown in the middle and right sketches in Figure 2.

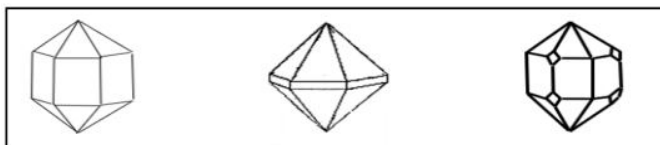


Figure 2. Three examples of the crystal habit of a Herkimer diamond.

But, wait! How can doubly terminated crystals form in dolomite deposits? Dolomite, a type of sedimentary rock, is compressed into bedrock – the hard, solid rock that underlies the looser soil on Earth’s surface – as more sediment is laid down on top of it. Dolomite is a type of limestone. The molecules of limestone are composed of a calcium atom bonded to a carbon atom and three oxygen atoms –  $\text{CaCO}_3$ , or calcium carbonate. Dolomite is calcium magnesium carbonate,  $\text{CaMg}(\text{CO}_3)_2$ , a molecular structure similar to pure limestone with a magnesium atom added.

Five hundred million years ago, runoff from the Adirondack Mountains, a mountain range that runs north and south in northeastern, upstate New York, deposited calcium and magnesium carbonate sediments in the shallow, inland sea that occupied a region in what is now part of New York State. As those sediments accumulated and lithified, the slightly acidic water formed cavities, or vugs, in the dolomite bedrock. And as the rock got buried deeper and deeper under layers of accumulating sediment, the temperature in those vugs rose, creating an environment ideal for crystal formation... crystals and also geodes tend to form in vugs. And because those vugs could sometimes be filled with liquid, they were also an ideal environment for the formation of crystals not attached to the surrounding material. Huzzah! A perfect environment for the formation of doubly terminated crystals.

The clear, doubly terminated crystals found in upstate New York are not the only quartz crystals to have acquired the “diamond” moniker. Quartz pebbles found on the beaches of Cape May Point in New Jersey – just a bit to the south of Herkimer County – are known as Cape May diamonds. Small pieces of quartz became worn smooth as they were washed down the Delaware River, resulting in attractive stones prized by collectors.



Again, these stones are not diamonds, but higher quality Cape May diamonds are often cut and faceted and used as gemstones in jewelry. Cape May diamonds are not as hard as actual diamonds, nor as brilliant, but they are attractive... and also far less expensive!



*Cape May Diamonds*

By Clark Perks at [en.wikipedia](https://commons.wikimedia.org/w/index.php?curid=16360065), CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=16360065>

Long ago I lived in upstate New York, and was fortunate to both visit Herkimer County and also to find and collect some Herkimer diamonds. These form the centerpiece of my satisfying sub-collection of quartz points and clusters, including some red and orange (“tangerine”) quartz clusters. And including, of course, clusters of smoky quartz, citrine, and amethyst. (I don’t yet have a Cape May diamond, but it’s on my list.)



Quartz: it is both an excellent choice to start a crystal and mineral collection, and also a perfect rock around which to build a “sub-collection.” So inject more variety into to your own collection: add more quartz!

Quartz, Herkimer. Rob Lavinsky, [iRocks.com](https://iRocks.com) – CC-BY-SA-3.0, CC BY-SA 3.0 [<https://creativecommons.org/licenses/by-sa/3.0/>](https://creativecommons.org/licenses/by-sa/3.0/), via [Wikimedia Commons](https://commons.wikimedia.org/wiki/File:Quartz_Herkimer.jpg)





Editor's note: Pecos "Diamonds" - doubly terminated quartz crystals - occur in outcrops of the Permian age Seven Rivers Formation along the Pecos River valley in southeastern New Mexico. Apparently, calling pretty quartz crystals diamonds is very common.



Quartz, variety "Pecos Diamonds"  
Roswell area, Pecos River Valley, Chaves Co., NM

<https://www.mindat.org/photo-1018324.html>  
Specimens and Photo, Rolf Luetcke

McEarl Pocket, Coleman Mine,  
Hot Springs, Garland County, Arkansas  
Rob Lavinsky, iRocks.com – CC-BY-SA-3.0,  
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Amethyst, Vera Cruz, Mexico  
Didier Descouens, CC BY-SA 4.0 <<https://creativecommons.org/licenses/by-sa/4.0/>>, via Wikimedia Commons

# UPCOMING 2022 SCFMS/AFMS CONVENTION IN THE NEW ORLEANS AREA




50th Annual  
Gem & Mineral Show  
October 14-16, 2022

Hosted by:  
Gem & Mineral  
Society of Louisiana



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



**ALARIO CENTER**  
2000 Segnette Blvd. Westwego LA  
70094

Precious Gemstones, Minerals, Fossils,  
Beads & Jewelry!

Demonstrations of Jewelry Making &  
Cabochon Cutting!

Tons of Activities for Kids as well!

Geode Cracking & Gem Mining....Much  
More!!

FRIDAY	SATURDAY	SUNDAY
OCT. 14	OCT. 15	OCT. 16
10AM TO 6PM	10AM TO 6PM	10AM TO 4PM



ONE PRICE ADMISSION ALL 3 DAYS

**CASH ONLY!!!**

Kids under 12 FREE

ADULTS - \$6.00 \$1.00 off with this card

Students , Military and Members W/ I.D \$3.00  
SCOUTS IN UNIFORM FREE



It's the 50th Annual Gem and Mineral Show and SCFMS/SFMS Convention!

Presented by: The Gem & Mineral Society of Louisiana, Inc

Come join your Louisiana Rockhounds for a ROCK-ING good time.

Dates and Times:

Friday, Oct 14 10 AM to 6 PM

Saturday Oct 15 10 AM to 6 PM

Sunday, Oct 16 10 AM to 4 PM

Location:

John A. Alario Center, 2000 Segnette Boulevard, Westwego, LA 70094

Admission: Adults: \$6.00

Students, Military and Members: \$3.00

Scouts in Uniform Free, Children under 12 Free

What to Expect?

Dealers from Texas to Georgia will be exhibiting hand faceted gems, Louisiana opals, mineral specimens, fossils, beads and finished hand crafted jewelry, lapidary rough and slabs.

Crack your own geode, hourly FREE raffled door prizes, silent auction and TWO GRAND PRIZES will be raffled Sunday.

Society members will be demonstrating the art of silversmithing and casting, wire wrap-  
ping and cabochon cutting.

Competitive exhibits displaying unique rock collections and dinosaur bones; A fluorescent minerals tent; Cabochon cutting; Jewelry Making.

Activities for the kids include:

- Surprise grab bags
- "polish your own cabochons"
- "MAKE A FOSSIL", where kids create their very own Dino-bone.
- Gem Tree Creations, a tree of gems
- Plinko Wall of QUARTZ

There's family fun for everyone!

The New Orleans Gem and Mineral Society of Louisiana, INC. is a recognized 501(c)3 organization, a member of the American Federation of Mineralogical Societies and South Central Federation of the Mineralogical Societies.

Mission Statement: The Gem & Mineral Society of Louisiana, at New Orleans, is dedicated to the advancement and sharing of knowledge in the fields of Geology, Mineralogy, Lapidary, and Paleontology.

Brenda Reilly, Advertising Chair  
(504) 430-4240 [brendar@gmsofla.org](mailto:brendar@gmsofla.org)

## FIELDTRIP TO HMNS TO SEE THE DREHER MASTERWORKS

If you'd like to attend a docent-guided tour to view the Dreher Masterworks, please email [publicity@hgms.org](mailto:publicity@hgms.org) to sign up.

Admission is \$22 and it will include general admission to the museum as well as the special Dreher Masterworks exhibit. Tentatively scheduled for Friday August 19th at 1 PM.

### DISPOSSESSED!!

*By Domer L. Howard*

*Reprinted from the Roadrunner*

*Volume 54 Issue # 7 July 2022 from the Sooner Rockologist , 8 - 9/9 2*

I had a rock collection  
And it grew and grew and grew –  
Until I had so many  
That I knew not what to do!



There were specimens in the kitchen  
In the bedroom and the bath  
'Till from one room to another  
I could hardly dig a path!



So I started in to cut them  
Just as quickly as I could  
But the barrier still out-grew me  
Although they all looked good.

They were stored upon the mantle,  
They were piled upon the floors,  
They were falling out the windows,  
They were stacked against the doors!

'Twas a hopeless situation  
I was "rock-bound" don't you see;  
None could I dispose of,  
For they meant too much to me!



After months of contemplation  
And a session with the spouse,  
We've resolved the situation  
By moving out of the house!

## A CRYSTAL

*by Jerry Kaster, in Michigan Gem News, via Glacial Drifter 1/89*

*Reprinted from the Roadrunner, Volume 54 Issue # 7 July 2022*

A crystal is one of the strangest objects in nature. It is not alive, yet it grows. A crystal attracts the same kind of materials of which it is composed, arranges them with great accuracy in geometrical forms, cements the parts together and holds them. Place a crystal in a liquid or vapor composed of the same ingredients as the crystal and the process of accumulation immediately begins. If a crystal is broken in two parts and placed in a bath of liquified crystal, the broken surface will be repaired and each part will grow into another crystal, providing other condition favorable for crystal growth are present.

Even after a crystal has been worn to where it is but a rounded grain of sand, it will speedily become a crystal again if placed in a solution containing the ingredients of which it is composed. There is no known limit to the ability of a crystal thus to repair itself and resume its growth.

Under a microscope, a crystalline solution can be seen forming into crystals and it is a wonderful sight. First, innumerable dark spots form in the fluid; they stand still and then begin to move. It is soon seen that the movement arranges the spots in straight lines, like beads. The beads speedily coalesce into rods, and the rods arrange themselves into layers, until a crystal is created. The process proceeds so rapidly it is almost impossible to follow it closely.



*Quartz, Arkansas.  
Photo by Steve Blyskal*

# HOUSTON GEM & MINERAL SOCIETY

## BOARD OF DIRECTORS MEETING MINUTES

July 5, 2022  
By Sharon Halton

X	President— Nancy English	x	Beading— Maggie Manley
X	1st Vice President—Sarah Metsa	X	Day Light—Fred Brueckner
X	2nd Vice President—Beverly Mace	X	Gemstones & Faceting—Randy Carlson
X	Treasurer—Michele Marsel	X	Lapidary & Silversmithing—Richard Good
X	Secretary—Sharon Halton		Mineral—Ray Kizer
	Past President —Sigrid Stewart	X	Paleontology—Mike Dawkins

President Nancy English called the Zoom meeting to order at 7:37 p.m.  
A quorum was present.

### PRESIDENT'S COMMENTS:

Approval of Minutes:

Sarah Metsa moved via email to approve the minutes of the June 7, 2022, Board of Directors 'Meeting. Fred Brueckner seconded the motion. It was voted on via email and passed by a quorum of seven, on June 20, 2022.

Treasurer's Report: Treasurer Michele Marsel sent the Treasurer's Report to members on July 5, 2022. She reports the following items:

- A higher than projected spend is occurring in Shop Repairs - currently at 114% of the budget and we're only halfway through the year.
- Education/Classes - The BOD budgeted \$2700 for new tools and it does not look like we will spend that this year; input was requested from Maggie.
- Consider moving \$2000 from Expenses to Support Classes line item to Shop Repairs. This does not require a budget motion because we are only redistributing funds between line items, not increasing or decreasing the overall approved budget. Maggie Manley requested that the amount be reduced to \$1500 at least for the time being.
- Effective June 10 the interest rate increased to 1.02% for Live Oak Bank account.
- Non-Show Parties/Member Appreciation/GM Snacks was raised from \$35.00 to \$55.00.

### COMMITTEE REPORTS

BBG Editor: Sigrid Stewart was not in attendance. Fred Brueckner asked that Sigrid make sure that the page showing other Club Shows be returned to the BBG. Nancy English also suggested that the calendar be printed in the BBG again. These have been missed.

BBG Notice: Beverly Mace notified members on July 5, 2022, that the online version of

the July BBG is available on the HGMS Website.

Donations, Sales, Auction Committee (DSAC): Michele Marsel – no update was available

Education Committee: Maggie Manley – No changes to classes listed on the website.

Health Safety & Environmental Committee: Name is changed to Safety/Policy Committee  
Safety/Policy Committee –Nancy English will remain Chairperson of this committee.  
Michele Marsel has agreed to act as Project Manager for the remediation work. We have received a preliminary bid from one General Contractor so far and will fine-tune that bid and get at least one other once the design subcommittee has agreed on a rebuild/reconfiguration plan for the Lapidary Shop - the target to complete this is the end of July.

The chosen General Contractor will handle all remediation items in the Lapidary Shop, Jewelry Fabrication Shop, and the Air Abrasives Room (provide A/C duct in this room). Structural Engineering services to evaluate the loft including providing a load capacity, and installation of properly lighted exit signs and exit path lighting will be in addition to services provided by the General Contractor. The preliminary estimate is within the range of money available in the Capital Repair and Improvement account. This does not include any shop equipment replacement or upgrade parts that may be recommended by the design subcommittee.

By the time decisions are made about the Lapidary Shop reconfiguration and contractor bids are fine-tuned (plus getting additional bids), we are likely to be too close to the Annual Show to begin work which will require a shutdown of 4-6 weeks. The Committee is recommending that we schedule work in January 2023 and plan for a grand reopening in February 2023. This schedule will also give the Committee plenty of time to work on Shop policies and get those approved by the Board, and plan Basic Shop Training classes (not part of our Education Committee).

Membership Committee: Beverly Mace reported new and renewed memberships in June.

Member counts	New	Renewals
Singles	4	7
Couples	1	4
Families	1	1
Youth	3	

Scholarship Committee: Mike Sommers Molly Peplau, Eden Lagnado, Matthew O'Brien. Mike sent out the scholarship recipient notices. Two have replied back that they are going to start school and one is still not committed to begin classes in the fall. They have indicated appreciation for the award. Once the Scholarship Committee receives confirmation that they all are still attending classes this fall and agree, we can use their name and brief bio in our public announcements. The committee will send out the notices to the less successful candidates. Then we can work on the BBG announcement and possibly Facebook/Instagram.

Show Committee: Scott Singleton/Sigrid Stewart – Next Meeting July 12

Website Committee: Scott Singleton – Next Meeting July 6



## SECTION REPORTS

President English asked Section Chairmen or Representatives to limit their comments to news about the Section and problems the BOD needs to know about, since the meetings are posted on HGMS.org under programs and the calendar are posted on the weekly eblast.

Beading Section in person: third Saturday, 12:30 p.m., June 18, July 16, August 20, September 17, 2022.

Day Light Section: first Wednesday, 1:00 p.m., July 6, August 3, September 7, 2022.

Gemstones and Faceting Section: second Thursday, 6:30 p.m., Zoom Hybrid, July 14, August 11, September 8, 2022.

Lapidary and Silversmithing Section: third Monday, 7:00 p.m., July 18, August 15, September 19, 2022

Mineral Section: third Wednesday, 7:30 p.m., Zoom program planned. July 20, August 17, September 21, 2022.

Paleo Section: third Tuesday, 7:30 p.m., July 19, August 16, September 20, 2022.

Youth Section: first and third Saturdays, 10:00 a.m. to Noon., July 2, July 16, August 6 and 20, September 3 and 17, 2022.

## OLD BUSINESS

Access Lock - Michele Marsel and Fred Brueckner made the adjustments discussed at the June BOD meeting. The Friday schedule has been adjusted, access removals and temporary disablements have been made and the affected parties have been notified.

Clubhouse Chairperson resignation – The Board requested that Nancy English confirm the effective date of Neal's resignation.

Display Cases status: After the June General Meeting James Eleckel offered to help with the cases rebuild. Nancy English put him in touch with Sigrid Stewart.

Dunn SW: Painting – The job was awarded to Kirkconnell Maintenance Co. and is scheduled for July 11-12. Members will be notified in the July 3 and July 10 eBlasts. Nancy English will contact the neighboring business behind HGMS to request that their staff not park against our back wall on those two days.

## NEW BUSINESS

Calendar Director: Someone used to manage the whiteboard calendar for meetings and classes; now all classes can be found on the HGMS Website.

Holiday Party, December 10, 2022. Steve Blyskal reported that the Unity Fellowship Hall has been reserved and he confirmed that emotional support animals are allowed.

Security Issues: Clyde offered to donate \$500.00 toward a security camera and system upgrade. L. T. Wilcox offered his expertise. All inside cameras are working but the outside camera is not. The origin of the problem is not known (wiring or camera itself). Whether the existing system is fixed or replaced, someone also needs to monitor the camera feeds. Fred Brueckner confirmed he did not agree to do this. Nancy English received more information from L. T. Wilcox and will share it with the BOD members for further

discussion at the August Board Meeting.

2023 Treasurer - Michele Marsel informed the Board she is willing to continue managing HGMS bookkeeping activities on a volunteer basis, and she will step down from her Board position as Treasurer at the end of 2022. Michele anticipates reporting to the new Treasurer.

Nominating Committee: The Club is looking for members to begin the process of finding replacements for the Secretary, First Vice President, and Treasurer. Nancy English stated that she is willing to continue as President next year. The Committee needs to begin looking for people to fill upcoming Board positions as soon as possible. The slate is presented to the Members at the October General Meeting and voting takes place at the November General Meeting.

The next Board of Directors Zoom meeting will be on the first Tuesday, August 2, 2022, 7:30 p.m.

The next General Meeting will be on fourth Tuesday, August 23, 2022, 7:30 p.m.

Georgiana Kramer will present "Goodnight Dry Moon."

Adjourn: Sharon Halton moved to adjourn. Richard Good seconded the motion and it passed. The meeting adjourned at 8:45 p.m.

## **HOUSTON GEM & MINERAL SOCIETY GENERAL MEETING MINUTES**

July 26, 2022  
*by Michele Marsel*

President Nancy English called the meeting to order at 7:30 p.m.

She welcomed 28 members including 5 online attendees.  
There were no new members or guests in attendance.

### **PRESIDENT'S COMMENTS**

The Silent Auction opened before the meeting. You will have another opportunity to bid on items during the break. Then it closes. You may pay after the program. There are some tumbled moonstone parcels for sale (Buy It Now).

The speakers used for the hybrid meetings are very sensitive. If you feel the need to have a personal conversation during the meeting or the program, please move to the garage.

Approval of Minutes: Ray Kizer moved to approve the minutes of the June 28, 2022, General Meeting, as published in the July 2022 BBG.  
Richard Good seconded the motion and it passed.

### **COMMITTEE/SECTION REPORTS**

Please look for reports of future Section meetings and programs in the BBG calendar, on

the Website <https://hgms.org/events>, or by reading the weekly e-blast from Houston Gem and Mineral Society. If you are a member and not on our email list, please contact the Publicity Chair at [News@hgms.org](mailto:News@hgms.org), using the Subject Line: "New Member to be added." President English invited other Section Chairs and Standing Committee Chairs to make any additional announcements.

Day Light Section meeting on August 3, 2022: Margaret Hardman-Muye will be teaching a Precious Metal Clay class. \$10.00 is asked for supplies.

Membership Committee: Beverly Mace Members who have not renewed have been removed from the e-Blast mailing list and the shop privileges list. New Members joining now may join for half price.

Donations, Sales, Auction Committee (DSAC): Michele Marsel We have some unsold equipment in our garage area. You can buy anything you want at the minimum bid price on the item sheets. We still have trim saws - all refurbished by Richard Good. If you want something to fix up yourself, there is a Genie grinding unit (missing some parts like trays and needs a tune-up) -- a STEAL at \$249!

Education Committee: Maggie Manley reported remotely that the second Dichroic glass class, taught by Sharon Halton, will be offered in the Fall. Sharon is also offering the second Cabochon Making Class of the summer on Wednesday, August 31, 2022, from 6:00 to 10:00 p.m.

Health Safety & Environmental Committee: Name is changed to Safety/Policy Committee  
Safety/Policy Committee: Nancy English/Michele Marsel Nancy English will remain Chairperson of this committee. Michele Marsel has agreed to act as Project Manager for the remediation work. The Committee has authorized new lighted exit signs to be installed soon.

Scholarship Committee: Mike Sommers reported the names of the three winners of the 2022 \$2500 HGMS Scholarships in the July 24 e-Blast. This is the first time HGMS has offered three \$2500.00 scholarships. The scholarship committee also spent additional time and effort reaching out to colleges and universities across Texas to spread awareness of our scholarship program with amazing results. This year we received 15 applications, by far the most in a single year since the middle of the last two decades! Eden Lagnado, the University of Texas at Austin, Mathew O'Brien, University of Houston, Molly Peplau, University of Houston – Downtown. You can read their bios and thank you messages on the July 24 e-Blast.

Show Committee: Nancy English Start planning today to volunteer on November 11, 12, or 13 for the 69th Annual Show.

Web Site Committee: Scott Singleton – No report.

## OLD BUSINESS

President English asked members to look for the progress of Old Business items in the Board of Directors Meeting Minutes in the latest BackBenders Gazette (BBG) on the HGMS Website <https://hgms.org> under Publications.

**Building Issues:** There was a large leak in the driveway area on the Brooklet side of the building yesterday. It is on the City of Houston side, and they are responsible for the repair. We await their mobilization, and the leak will continue until they can get a team out to fix it.

**Dunn Southwest:** The exterior painting is not complete. The front door needs to be prepared and repainted to address rust spots and overspray issues. Our HGMS letters have been repainted.

## **NEW BUSINESS**

**Holiday Party, December 10, 2022.** Steve Blyskal reported that the Unity Fellowship Hall has been reserved. Save that date – DECEMBER 10; we will need volunteers to set up and take down. This is a potluck so make plans to bring your favorite holiday dish.

**Nominating Committee:** President English is looking for volunteers to be on the Nominating Committee for the 2023 BOD Officers. This is an important volunteer position that only lasts from August through November's General Meeting. Five elected officers lead the Board of Directors. Members may volunteer to run for any office. The Nominating Committee recruits people to run for office. Beverly Mace and Nancy English have agreed to remain in our positions. Beverly will mark her 30th year serving in her position, and Sarah Metsa will work with her during 2023 so she is prepared to assume responsibility for Membership in 2024. Sarah Metsa is resigning as 1st Vice President, Sharon Halton is resigning as Secretary, and Michele Marsel is resigning as Treasurer. Michele will continue to do the Club bookkeeping and report to a new Treasurer on the Board unless the new Treasurer prefers to do it themselves.

## **HMNS FIELD TRIP FOR THE DREHER MASTERWORKS EXHIBIT**

If you'd like to attend a docent-guided tour to view the Dreher Masterworks, please email [publicity@hgms.org](mailto:publicity@hgms.org) to sign up. This is the biggest ever exhibit of this amazing work and features four generations of Dreher family artists. You can read more about the Exhibit on the HMNS website.

Admission is \$22 and it will include general admission to the museum as well as the special Dreher Masterworks exhibit. The field trip is scheduled for Friday, August 19 at 1:00 p.m.

The next Zoom Board of Directors meeting will be on Tuesday, August 2, 2022, at 7:30 p.m.

The next Hybrid General Meeting will be on Tuesday, August 23, 2022, at 7:30 p.m. The Program will be about the Dreyer Masterworks exhibit – Sarah will share photos and talk about what field trip participants learned and saw.

**Show-n-Tell:** Nancy asked for presenters to limit items to 3.

Beverly Mace displayed a shadow box of miniatures made by member Calvin Copeland many years ago.

Neal Immega highlighted three new books in the library and highly recommended them.

Check these out (literally) in our Main Library: The Dechronization of Sam Magruder, Fleischer's Glossary of Mineral Species 2022, and The PreHistory of Houston and Southeast Texas.

Steve Blyskal told us he and Sigrid Stewart brought back six boxes of rocks from their recent trip to Colorado. Steve showed off a large sample of Staurolite in matrix from Taos, NM. They visited the Sangre de Cristo Gallery and Rock Shop in Westcliffe, CO. The shop is owned by Steve & Peggy Willman who were dealers at the HGMS Show when it was in downtown Houston. The Shop is in the valley between the Wet Mountains to the east and the Sangre de Cristo Mountains to the west. Steve showed a selection of Colorado minerals including some from the Eagle Mine at Gilman and minerals the Willman's collected from pegmatites and other deposits. Sigrid also snagged a nice book on woven jewelry.

Drawing: There were four door prizes tonight.

- Neal Immega won a nice piece of blue-gray tiger eye rough
- Theresa Glanton won a large quartz cluster
- Sigrid Stewart won a calcite in shell specimen from Ruck's Pit in Florida
- Richard Good won a wooden box laser engraved with the Geologist's Prayer

#### **BEFORE WE ADJOURN:**

Refreshments were provided by Foster Kneeland.

During the break:

Feed the Kitty! Your donations go to offset the cost of the snacks.

Thank the volunteers who made tonight possible.

Thank the volunteers who make all of what HGMS is available.

Adjourn: Sarah Metsa moved to adjourn. Ray Kizer seconded it.

Adjourned at 7:59 p.m.

Vice President Metsa introduced the Program: Due to an unforeseen emergency, Georgiana Kramer was unable to present the planned program. Sarah shared a History Channel program instead: "The Universe-Moon Mysteries Solved."



*Smoky Quartz,  
Arkansas, irradiated.  
Photo by Steve Blyskal*