



The Official Publication of the Lincoln Gem & Mineral Club, Inc.

# THE PICK & SHOVEL

In association with



The Midwest Federation of  
Mineralogical and  
Geological Societies



The American  
Federation of  
Mineralogical Societies

The purpose of this corporation shall be to study, promote an interest in, and disseminate knowledge of lapidary and various Earth Sciences including but not necessarily limited to Geology, Paleontology and Mineralogy. It shall be a particular purpose of the corporation to provide education in these fields to its members and the general public, especially to youth and student groups.

## GENERAL MEETINGS

Third Thursday of the Month, except for January (4th Saturday), December (1st Sunday), and summer break (June, July, August).

**New Meeting Times:** Juniors meet at 6:15 p.m.  
Adults meet at 7:00 p.m.

**May 18, 2023** Program: Pyrite—All That Glitters is Not Gold. We will look at the magnificent history, uses, and problems of pyrite. It was the 2023 Lincoln Gem & Mineral theme and Eric will show pictures of pyrite from around the world. Most people probably have a piece of pyrite in their collection and there are people whose collection focuses on or specializes in pyrite. Pyrite can be found in every state and country. Pyrite also has a dark side and causes lots of environmental damage.

## BOARD MEETINGS

Until further notice, Board Meetings will be held at 6:30 p.m. on the first Thursday of each month.

**Next Board Meeting:**  
**Thursday, June 8, 2023 at 6:30 p.m.**  
**Vera Lyman's Residence**

Persons of general membership are invited to attend Board meetings and offer agenda items.

## 2023 BOARD OF DIRECTORS

**President:** Brett Jurgens, 402.850.3256, quartz89@aol.com

**1<sup>st</sup> Vice-President:** Corey Beer, 402.466.6628

**2<sup>nd</sup> Vice-President:** Jayne Beer, 402.890.3307, JBeer60070@aol.com

**Treasurer:** Vera Lyman, 402.464.6089

**Secretary:** Jeff Kubitz, 402.540.9395, jkubitz@neb.rr.com

**Board Member:** James Marburger, 402.430.6703, james.marburger@outlook.com

**Board Member:** Sharon Marburger, 402.429.3323, lgmc.editor@outlook.com

**Board Member:** Ed Ridge, 402.805.8248

**Board Member:** Charles Wooldridge, 402.975.0416, charles.wooldridgeii@gmail.com

## 2023 LONG RANGE PLANNING & BY-LAWS COMMITTEE

Jayne Beer, Chairman

1 year: Vera Lyman & Jim Marburger

2 years: Jayne Beer & Brett Jurgens

3 years: Sharon Marburger & Clyde Ogg

## 2023 NOMINATING COMMITTEE

Jayne Beer, Chairman

1 year: Jim Atkins & Corey Beer

2 years: Jeff Kubitz & Vera Lyman

3 years: Jayne Beer & Brett Jurgens

# ANNOUNCEMENTS & CLUB FUN



### ATTENTION!!!!

We have a club member with a severe peanut allergy. Please bring peanut-free foods to Club functions. Please provide any nut information on your foods.

**Sunday Fun-Day Auctions are back!**

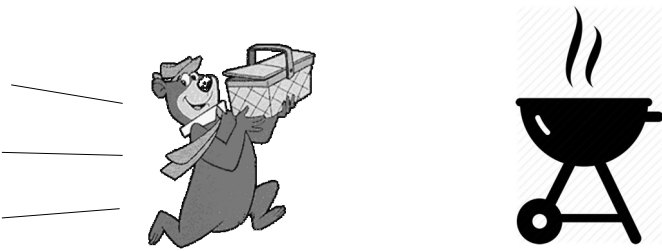
**Go to our Facebook page (<https://www.facebook.com/groups/223555904325876>)**

**most Sundays**

**from 10 a.m. to 8 p.m.**

Sunday Fun-Day Auctions are the only times that sales are permitted on this site.

**May Rock Party  
Sunday, May 21  
Picnic Lunch @ 1:00 p.m.  
Jackie's & Wooly's  
Brats on the grill!**



Follow us on Facebook:

<https://www.facebook.com/groups/223555904325876>

**Something new & exciting!  
A Driveway Traveling Rock Sale is being planned for Memorial Day Weekend.  
Watch our Facebook page or contact Jayne Beer if you are interested in getting on the map as a seller, or you'd like a map to visit all the participating driveways.**

MAY BIRTHDAY GREETINGS

Arvid Olson

Noah Van Butsel



EMERALD

Please send your hobby-related photos with captions or explanations for publication in the Pick & Shovel. Field trips, lapidary projects, fossil projects, metal projects, wire wrapping, tumbling, or any other activity of interest to the club. Your project may inspire someone else.

Send via email ([lgmc.editor@outlook.com](mailto:lgmc.editor@outlook.com)) or via Facebook Messenger to Sharon Marburger (<https://www.facebook.com/mamamar7880>).

**PRESIDENT'S MESSAGE**

by Brett Jurgens

Hello LGMC!

How are we already a month past our show? I am amazed at how the time flies. And do you know what that means? Only 11 more months before our next show! And there are so many things to do before then!



Before I get into that though, let's pause and talk some about our recent show. I continue to hear compliments about the show, from both members and guests. Interest in the hobby is growing again; we have seen sustained growth in attendance the last two years since we resumed the shows after COVID. It is starting to feel like things are returning as close to normal as they can.

The club is also getting back into its rhythm. Between field trips, workshops, and monthly programs, we are getting back into the swing of things. And I don't want to leave anyone behind. Take a minute and think about someone you haven't seen at a meeting lately. Maybe they don't know what we've been up to, or have just fallen out of the routine. Take the time to reach out to them; invite them back to a meeting or club event. Also, think about who you know that is interested in the hobby, but who has not been involved in the club. I'm surprised to find out how many people are not aware of the club, or just never considered joining. Encourage people to participate, and spread the word.

We had a great turnout for the field trip to Messengers' farm last month. I was saddened to hear of Charlie's passing. Reading his obituary, you could tell he led a full life.

Our field trip to Robbers Cave and subsequent rock party at Hidden Gems was one of the best events we've had in a while! If you have not been to Robbers Cave, look it up at [www.robberscavetours.com](http://www.robberscavetours.com). Joel Green is an expert on the cave (he literally wrote the book) and gives a fantastic tour.

Speaking of time flying by, we are less than two months away from our summer swap at the Beer Farm. If you have not experienced this, give yourself a treat. This year the swap is June 24th and 25th. There are three remaining vendor spots in the barn, but don't worry; there is tons of space outside. When you come, plan on staying for the club picnic on Saturday night right after the swap closes for the day. We encourage all the vendors to stay as well and enjoy good food and company. As we get closer to the swap, we will be looking for volunteers to help out, and we'll have a sign up list for those willing to bring food.

Take care. I'll see you soon.



2022 Swap  
A portion of the venue  
Photo by Jayne Beer

**TIDBITS FROM WOOLY**

by Charles "Wooly" Wooldridge



I was shocked to learn of the passing of Charlie Messenger. He and Karen have been involved with LGMC for many years. It was while watching Charlie and Karen a few years ago, then in their 80s, hauling cases during Show teardown, that we realized that we needed to hire help. It could be said that our realization was one of their finer contributions.

I recently visited with them in their home in Crete. I left with one lasting memory; they sat next to each other on the couch. It appeared that it was their usual spot, right next to each other. In these days of bucket seats and recliners, it was refreshing to witness a couple who have been together for decades seated next to each other like newlyweds. I went home with the intention to sit next to Jackie more often. Charlie will be greatly missed by all who knew him.

I'm trying something different with my tumbler. I filled it with prairie agates from the Messengers' barn and charged it with 36 grit. I wanted to take off more than usual. I'm letting it run for a month, so it should be done by the next Rock Party which, by the way, will be at our house on Sunday, May 21 at 1:00 p.m. Come check out the result of this experiment.

The theme of the Rock Party will be "Sunday Picnic". I'll have brats on the grill. Our address is 6115 Huntington Ave. Bring portable equipment or projects to work on. I hope to see you all then.

**TRILOBITE TREASURES: ARTHROPODS OF THE ANCIENT SEAS – A SUMMARY/REVIEW**

by Clyde Ogg, Program Chair



Paleontologist Joseph "PaleoJoe" Kchodl presented *Trilobite Treasures: Arthropods of the Ancient Seas* during LGMC's April meeting. I'm sure I speak for many members in saying that his talk was fantastic! PaleoJoe enthusiastically wove scientific information together with practical information and described it in a way that was entertaining and easy to understand.

Joe described environmental conditions in the ancient seas during the Cambrian Period when trilobites were prevalent. These now extinct invertebrates were so common, that this era is sometimes called "The Age of Trilobites." Joe provided the audience with a vivid explanation of how they grew, moved through their environment, scavenged for food, reproduced, and died. It's easy to see why PaleoJoe's favorite fossils are trilobites!

Joe shared a map showing the best places to find trilobite fossils in North America. Unfortunately, they are not found often in Nebraska. While Joe was talking, I began to imagine future trilobite collecting trips. So, what are we waiting for? Let's go collect some trilobites!

**LGMC BOARD MEETING MINUTES**

by Jeff Kubitz, Secretary

Thursday, April 6, 2023 at the Lyman Residence

Meeting called to order at 6:36 p.m. by President Brett Jurgens.

**Roll Call**

President:	Brett Jurgens	Present
1st Vice Pres.:	Corey Beer	Present
2nd Vice Pres.:	Jayne Beer	Present
Treasurer:	Vera Lyman	Present
Secretary:	Jeff Kubitz	Present
Board:	Charles Wooldridge	Present
	Sharon Marburger	Present
	James Marburger	Present
	Ed Ridge	Present

The minutes of the March meeting were distributed. Wooly moved to accept the minutes, second by Vera. Motion carried.

The Treasurer's Report was reviewed. Jim moved to accept the report, second by Corey. Motion carried.

**Old Business:**

Sharon suggested that because we have some money, the club should buy a projector. Vera said this should be done ASAP. Sharon moved to have Brett buy a projector, not exceed \$900.00. Vera seconded and the motion carried. Sharon moved for Brett and Jim to work on finding new fluorescent lights for the trailer, not to exceed \$3,000.00. Wooly seconded. Motion carried. These motions will be discussed at the General Meeting.

Brett brought up the club T-shirts and hats and baseball hats. We will discuss these items more.

Wooly reminded about the field trip to the Messengers' old property on Saturday, April 15th, stating there is still lots of items to collect.

**New Business:**

Wooly mentioned that the by-laws state that member applicants wishing to join the club must attend one meeting before being approved. The By-Laws Committee needs to meet to discuss changing that rule. Also, the criteria for denial of membership needs to be explicitly spelled out. After the Committee meets, suggested changes will be presented to the general membership for approval. Brett suggested that the dues late fee be returned to \$5.00 per person.

Sharon would like to eliminate Silent Auctions at future events. It seems that people don't understand the concept. Instead, a club booth that sells items directly (like Omaha's Rock Pile) would be utilized. Sharon plans to sort the current Silent Auction donations into bins, according to cost. Brett mentioned the club could have before-meeting sales. Wooly liked this idea.

Vera mentioned the Swap Advanced Reservation forms need to be submitted with payment before she will accept them.

Brett mentioned a slightly used Facet Machine was donated to the club by Alan Oestmann. A location to house it is in the works.

Jayne will contact the Pioneers Park Nature Center regarding a booth on April 29th from 1:00 to 4:00 p.m. Brett will contact McPhee Elementary School about having a booth at their event on May 18th.

Brett asked Jim to price more craft stone for the kids gem dig booth.

The Board had an Executive Session, the subject of which may not be disclosed.

**Show Report:**

Sharon shared Jackie Barnhardt's ideas for the club booth during shows: an 8½x11 sign stating when the next meeting is scheduled; an 8½x11 sign listing the activities listed on the membership application; and any other ideas deemed helpful to the public. Jayne and Vera suggested 8½x11 signs indicating the location of the ATM machine, and that admission to the show is cash only.

Jayne suggested we reinstate name tags for show helpers and the dealers.

We need to request that the Event Center open the rear concession stand instead of the front one. Using the front stand impedes pedestrian flow, creating a bottleneck.

If the weather forecast indicates warm weather for the show weekend, the AC should be turned on in advance. It was way too warm in the building this year.

Jayne and Vera both mentioned the Dealers like the raffle.

Robbers Cave tour is scheduled for 5:00 p.m. on Sunday, April 23rd. The Rock Party will follow at Hidden Gems at 6:00 p.m.

Wooly moved to adjourn the meeting, second by Sharon. Meeting adjourned at 8:15 p.m.

**GENERAL MEETING MINUTES**

April 20, 2023, Bethany Park Shelter House  
by Jeff Kubitz, Secretary

Meeting called to order at 7:09 p.m. by President Brett Jurgens. There were 25 members and two guests present; father Josh Kramer and son Alex.

The minutes of the March meeting were published in the Pick & Shovel. Motion by Jim Atkins to accept the minutes as published, second by Jim Marburger. Motion carried.

Treasurer Report was read by Sharon Marburger. Motion to accept Treasurer's Report by Jim Marburger, second by Sheryl Olson. Motion carried.

(Continued on page 5)

**LOSS OF A MEMBER**

by Sharon Marburger

Long time member Charlie Messenger passed on to collect heavenly specimens on Wednesday, April 12, 2023 at the age of 90 years. His wife, Karen, said his death was preceded by a short illness.

Charlie was born July 3, 1932, which explains why he was such a firecracker! He loved to tell jokes and have fun, and he had a smile on his face most of the time.

Charlie was a man of many interests: he was a proud Marine; repaired airplane engines, radios, and televisions; worked as a chemist for Department of Roads; collected specimens for the University of Nebraska; worked for the University in the areas of Paleontology, Geology, and Entomology; dug up dinosaur bones, turtles, and all kinds of petrified sea life in Nebraska; collected old cars and Massey Ferguson tractors; danced and played music on the baritone, trumpet, and bugle horn; and was a fireman on the Hickman Rural Volunteer Fire Department for many years. Charlie was one of the many who helped dig up "Pleezy", the plesiosaur located near Valparaiso in the 1960s, and who now resides on display in the state museum at Morrill Hall.

Charlie and Karen acted as hosts of the Geology Day and Grinding Party events at the Pioneers Park Nature Center. They loved to share their vast knowledge of fossils and the living creatures at the Nature Center.

The activity Charlie liked the most was to eat out at his favorite restaurants with friends and family.

The memorial of Charlie's life was held Wednesday, April 19 at the Crete American Legion Post #147. Cash memorials will be accepted at this Post.



Charlie taking a break from volunteering at the Nature Center



Charlie showing one of the Nature Center's snakes

**GENERAL MEETING MINUTES—CONTINUED**

*(Continued from page 4)*

**Announcements:**

Say hello to our new members, Lee and Jan Amberg

Charlie Messenger passed away on Wednesday, April 12, just a few days before our visit to the farm. Jim and Sharon Marburger and the Dvoraks went to the service.

**Old Business:**

The Messenger field trip went well, and those participating collected many nice specimens.

**New Business:**

Sharon stated that she asked the Board for permission to change the Silent Auction to a Club Booth (or Rock Pile) and sell specimens outright. The Board thought this would be better for all. Brett mentioned the Omaha Club sells rocks at their show. but call it "The Rock Pile". This change was approved by the General Membership.

Brett said the Board has asked for funds to be spent on a new projector and UV lights for the trailer display. The amount spent should not exceed \$900.00 for the projector and not exceed \$3,000.00 for the lights. Jim Marburger moved for the General Membership to back the Board's recommendation to buy a new projector and UV lights, with the monetary restrictions, second by Sharon. Motion carried.

A Rock Party and potluck dinner will be held this Sunday, April 23 at Jayne's shop at 6:00 p.m.. Before that, there is a tour of Robbers Cave at 5:00 p.m. Members are to be there about 15 minutes early. The fee is \$18.00 for adults and \$9.00 for kids 6 years to 12 years of age. Drop off potluck food at Jayne's by 4:30, if you plan to go to the Robbers Cave tour.

Next month's Rock Party, with a picnic lunch, will be held at Wooly's house on May 21st.

Jayne announced the Summer Rock Swap was coming up fast.

Jim Atkins said we had 2,744 people attend the Rock Show.

Jim Marburger moved for the meeting to adjourn, second by Sharon. Meeting adjourned at 7:29 p.m.

A lady from McPhee School asked to talk to Brett about some of our club members participating in their science night.

Clyde Ogg introduced Paleo Joe, our guest speaker tonight. The presentation was about Trilobites – Arthropods. These creatures lived around 230-250 million years ago in many parts of the United States and the world. There were 20,000 different species of them and when threatened, they could fold up like a clam or roll up much like the Roly Poly bug or pill bug. They are an interesting and much collected fossil.

Next month's guest speaker will be Eric Fritzsich. He will talk about Pyrite.

**MORE SAD NEWS**

Apparently Karen Messenger has fallen. A broken hip has put her in the hospital. Please keep her in your thoughts and prayers.

**CAVE TOUR AND ROCK PARTY**

by Jayne Beer

April 23rd was a great day. Brett, our fine President, arranged for club members to tour Robbers Cave. I have wanted to tour this cave for years. Having a business so close to the cave, I've heard stories but never had the opportunity to visit it. I was so thrilled when Brett planned this adventure.

Twenty-eight members met at the cave, making this the most attended field trip in many years. We got to meet Joel Green, tour guide and the author of the book on Robbers Cave. The normal hour-long tour lasted an hour and a half, so we really got to explore the cave and hear many great stories about the history of the cave.



Photo by Joel Green

After the tour, we went to my shop, Hidden Gems by The Jewelry Connection LTD. We had a fantastic feast there and the biggest turn out of people we have had yet at our shop, and for a Rock Party! It was great to see. Even Joel Green came to have a meal and talk with folks some more.



Photo by Jim Marburger

After the meal, people either sat around and talked or broke out and worked on projects. It was incredibly heart-warming to see so many people using the equipment. This is definitely what I hoped for when the set up this shop.

*(Continued on page 7)*

**NYKKY'S DRAGONFLY PENDANT WIRE WRAP CLASS**

by Jayne Beer

On Thursday, April 27th Nykky Chrastil Lytle held a class at my shop, Hidden Gems by the Jewelry Connection LTD, on how to create a dragonfly pendant out of wire and beads. There was a good turnout of folks showing up to take the class.

Nykky got started by doing a little demonstration on how to create the wings. We all began to wrap our own wings which, of course, looked so much easier when she did it. Finally, we each got through the long process of the wings. From there, it was just a matter of adding beads that we had picked out and finishing it off. As you can see in the picture, each dragon fly turned out slightly different, but each one is adorable and unique.



Photo by Corey Beer

It is always fun to take a class from Nykky. Watch the LGMC Facebook page, or my business Facebook page, for the next class. Nykky and some students were talking about doing a large stone pendant next time. I will certainly announce when that class is planned.



Photos by Beers and Marburgers

## CAVE TOUR AND ROCK PARTY - CONTINUED

(Continued from page 6)

As a reminder, the shop is now open, usually 1:00 p.m. to 8:00 p.m. for members to come use the lapidary equipment for \$5.00 per hour. Call first to make sure we haven't been called away to something else. The first time you come in, we will help you get started and share some basics on using the equipment. After that, you can just come in and saw/grind/polish stones to your heart's content. We hope to see many of you soon!



Joy's lapidary project  
Photo by Jayne Beer



Sharon works on a cabochon while Jim explains how the equipment works to new members, Jan and Lee  
Photo by Jayne Beer



Joel Green starts the tour of Robbers Cave  
Photo by Jayne Beer



Corey always talking - and teaching - about rocks  
Photo by Jayne Beer

## JUNIORS

by Brett Jurgens, Junior Leader

Hello juniors.

Some of you were able to attend our field trip to Robbers Cave. I think everyone in attendance had a blast! Joel Green has amazing knowledge of the cave and really gives a great tour. I would love to go back soon; if you missed out (or want to go again), let me know. I purchased a copy of Joel's book at the end of the tour. I will bring it to the meeting if you want to thumb through it. I have not been able to deep dive into it yet, but it looks interesting.

Our next meeting is Thursday the 18th. Junior meeting at 6:15 p.m. General meeting at 7:00 p.m. Bring your specimen box. Our talk will coordinate with the general meeting program on Pyrite by Eric Fritzsich. Eric is a good friend and one of the most intelligent people I know. Prepare for a great program.

I will be looking for people to help at our summer swap on June 24 and 25. I would like the juniors to have a booth with the gem dig and also selling drinks. It helps the swap, and is a good fundraiser for the juniors.

Take care and I'll see you soon.



## BRACHIOPOD IN CHERT?!

by Eric Fritzsich  
Borrowed from Facebook

So, a bit of a live report. I'm working in Wyoming (and watching a guy working just east of some gravel beds). The gravel bed has some jasper, weak agates, chalcedony, etc. Perhaps the most interesting specimen I came across was this brachiopod fossil in chert. Was chert the animal's final resting place? No. The brachiopod fossil formed in a limestone which was later replaced by siliceous fluids, preserving the character shape of the fossil. The silica protected the fossil which likely eroded out of the Rocky Mountain uplift about 20 miles to the west. Not rare, but an interesting rock/fossil with a story to tell. The specimen will be soaked in a week Clorox solution when I get home because the soil here contains a bacteria poisonous to dogs (and rarely, humans).



**CLAY**

by Eric Fritzsch

Clay is often an overlooked mineral. It is formed by the chemical breakdown of minerals such as feldspar. Clay is perhaps the most common mineral type in Nebraska, and montmorillonite is perhaps the most common species. Nebraska has many clayey soils and anyone who's walked over a wet field knows your boots are going to be caked in it.

Braded rivers have crossed and crisscrossed Nebraska for many millions of years. These rivers flood and much of the material that is released by a river after flooding is clay. The source of the minerals that become clay are boulders falling off the Rocky Mountains, rounded as cobbles, moved as sand and gravel, flooded as clay particles.

Clay is used to make bricks, adobe, and other building materials. Earthen dams and levees are commonly covered in clay. Clay has to be sought out to rebuild a broken levee along the Missouri River.

Clay is used for a wide variety of purposes and is a multibillion-dollar industry. Many of us think about the clay that potters use to form clay pots, bowls, and other objects. Kaolinite is a soft white clay that when fired becomes hard. It is used to make ceramics like plates, cups, and toilets. Clay is a common dispersant used in things like pesticide. It is a filler in medicine, paper, and paint.

Bentonite is a clay that is formed by weathering volcanic ash, often in ancient oceans. Huge deposits of bentonite are found in Wyoming, South Dakota, and elsewhere. It is used in a variety of products from cat litter to milkshake thickener. There is even this common commercial on TV where a 20-something girl with impeccable skin is hawking wrinkle cream that comes "shale minerals." Yes, that stuff is bentonite (aka cat litter) that people are putting on their faces. Perhaps less than one cat litter grain per bottle and they sell for a lot of money. In places like Colorado Springs, Colorado, housing developers built expensive houses on clay seams that swelled and destroyed the houses.

Whereas most collectors don't have samples of clay, there are collectible examples of clay. From Cornwall, England there are orthoclase crystals replaced by clay and mica commonly called Pig's Ears that collectors appreciate.

Clay--don't take it for granite, but it is made from highly weathered granite.

**What club activity would you like to do in July? A Rock Party, a Field Trip, something else? Offer your suggestions at the May General Meeting.**

**FIRST COLLECTING TRIP OF 2023**

by Corey Beer

I was so eager to get out and go rock hunting as it had been since early fall of last year when we were last able to go. My dad and I had discussed going a few times, but we finally decided a week beforehand that we were finally going to go. I let Bryan Mack and his family know we were going and they planned to go out with us.

It turned out that the weather wasn't really on our side and that day was windy and cold almost all day long, but it felt so good to finally be back on the river again. Because of the weather, Bryan's family ended up staying home so it was just my dad, Ja-zeil, Bryan Mack, and me.

We went to a few locations on the Nemaha River, where there is always a HUGE amount of gravel to look at. Most of the day, all we found were honey agates, though they were quite plentiful. Bryan found a decently well-banded laker early on in the day and Ja-zeil found a really nice smaller laker that had fantastic colors. Personally, I had much worse luck when it came to lakers, as I didn't find my first one until about 20 minutes before we were done for the day, and it was about the size of a pea, so not exactly one to write home about (although it was apparently enough to write to the Pick & Shovel about; haha!).



Ja-zeil's laker  
Photo by Corey Beer

All in all, it was a great day. It felt so good to get back out on the river again, even though it was cold and windy, and I somehow still managed to get a sunburn on my whole face. Hope to get back out again soon!

**PICK & SHOVEL STAFF**

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**DEADLINE:**  
Last Sunday of the month.

## SAGENITE: THE MINERAL THAT ISN'T

by Ray Lambert (from January 1981 P&S)

How to define this term was brought home to me the other day when a voice from on high said, "What is sagenite?"

Was this a message from heaven? Not really. My eight year old daughter, who was recuperating from a virus in her upstairs bedroom, was looking through one of my books on agate. This seemed a reasonable question from a true bibliophile. (A connoisseur of books to the rest of us mortals.) The question should not have surprised me. Because of her reading habits, I have had to cancel some of our more risqué publications: Good Housekeeping, The Wall Street Journal, and the Lincoln Telephone Book.

Trying to explain what sagenite is, is difficult to anyone unless they are a real agate nut like myself. (Some people just consider me to be a nut that is agatized.) In trying to come up with an answer for an eight year old, I discovered how easy it is to know what something is and how difficult it is to teach it to others. If you really want to learn, try teaching.

This article is basically a refresher for us old timers and an eye opener for the novice who would like to know more about inclusions in agates.

In "The Book of Agates", Leland Quick (1963) defines sagenitic agate as clear chalcedony containing tiny needles of foreign minerals. This is the broad definition used by most lapidary hobbyists. If the needles are short and stiff or slender, the agate is considered sagenitic. If it contains fluffy bits of moss or feather, it is termed a moss or plume agate. (Zeitner, 1964).

Dake (1950) states that sagenitic agates are "specimens with acircular or needle like inclusions. The acircular inclusions are caused by the presence of an impurity, and at some stage in the genesis of the agate this foreign mineral did not combine with the silica present but segregated itself into those unique needles running in various directions through the agate matrix. He lists the inclusions as "some of the ziolites and hydrous silicates, rutile, hornblende, actinolite, tourmaline, natrolite and others." Occasionally they "may be some metallic mineral like stibnite, marcasite and pyrite, but as a rule these metallic minerals present a moss like growth rather than acircular." Stibnite is probably the exception to the last statement. "Byssolite and crispatite may be regarded as subvarieties."

Frequently the inclusions will be radiating like a fan from a common center. Others will appear as spiny sea urchins trapped under glass. Some agates show fine or coarse fibrous inclusions which are not necessarily straight and needle-like, but may be curved or even wavy. Still others will be very fine and wavy hair-like structures.

Dake feels that the included minerals were present in a vug or cavity prior to deposition of the agate. "These are frequently zeolite and hydrous silicate minerals attached to the walls of the cavity and point inward in numerous directions. When the agate in solution enters the cavity to complete the filling, the minerals are trapped within the agate." Most of Dake's observations were made using specimens of agate from the Pacific Northwest states which

probably accounts for his recurring reference to the zeolite minerals which occur frequently in this area.

Research by Sinkankas (1961) has indicated the inclusions to be "acircular needles of some unknown mineral or minerals, slender distorted rhombohedral and normal rhombohedral crystals of calcite, and dark brown curved rhombohedral crystals which may be siderite or possibly some other carbonate." In Mexican nodules, angular breccia-like fragments of a soft greasy pale colored mineral which may be an alteration clay mineral such as hallosysite occur. Calcite is abundant along the rims of unweathered nodules. He feels that the included minerals grew within a silica-bearing solution. His hypothesis is that the chalcedony precipitated from a true solution upon the inclusions or that it came from thin viscous gel layers.

Pabian (1976) states that Ford (1958) included tourmaline, goethite, stibnite, asbestos, actinolite, hornblende and epidote as sagenitic minerals.

Pabian (1980) concludes that "agates develop from saturated silica solutions into which some impurity is introduced: spherulitic crystallization takes place and the impurities are deposited in the troughs between crystal aggregates, and the bands are produced." Inclusions in nodular agates from basaltic deposits have formed under conditions of low temperature and pressure.

He states that in geologically young agates (those from Northern Mexico, West Texas and Oregon) the sagenitic minerals were generally unaltered forms of aragonite, calcite, barite, gypsum, goethite, and rutile. Many agates contain chalcedony pseudomorphs after "sagenitic" minerals, especially the geologically older agates (e.g., Lake Superior agates). It is his opinion that the sagenitic minerals were present before the agate formed and were subsequently trapped in silica gel. According to his hypothesis much of the "sagenitic" minerals are restricted to the non-banded exterior portion of the agate.

As one can see, many of the old timers were on the right track, they just weren't on the express. Current research, as shown in articles by Pabian, is probably the most reflective of the theory of agate formation. The term "sagenite" is thoroughly embedded in the language of the lapidary hobbyist. Although it is not very useful to the research scientist, it is still valuable as the adjective "sagenitic" and is generally understood by most agate collectors. Hopefully, this article will refresh old memories and increase interest in the inclusions in agate.

### References:

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- Sinkankas, J., 1964: What do we really know about the formation of agate and chalcedony? Agates of North America, Arts and Crafts Press San Diego, California, pp. 6-10
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LINCOLN GEM & MINERAL CLUB  
HOSTS ITS THIRD ANNUAL

# Summer Rock Swap

**June 24 & 25, 2023**

Saturday 9 a.m. - 6 p.m.

Sunday 10 a.m. to 4 p.m.



## Beer Family Farm

18701 Ashland Road, Ashland, Nebraska

**Admission: Adult \$3.00; Kids 15 and under FREE**

**Help the Lincoln Food Bank replenish its shelves.**

**Bring canned items for the Food Bank.**

Swap is open to the public, for both selling and buying.  
Everyone is welcome!

**Family  
Friendly**

**Jewelry**

**Fossils**

**Silent  
Auction**

**Buy  
Sell  
Trade**

**Lapidary  
Supplies  
&  
Equipment**

**Rocks  
&  
Minerals**

If you are interested in being a vendor, go to  
<https://www.lincolngemmineralclub.org/happenings/other-events>  
for more information and to fill out the Advanced Reservation form  
or let Corey or Sharon know at the contact info shown below.

LINCOLN GEM & MINERAL CLUB  
Box 5342

Lincoln, NE 68505-0342

Contact Corey Beer at 402.890.9155 or

Sharon Marburger at 402.429.3323; [lgmc.editor@outlook.com](mailto:lgmc.editor@outlook.com).

**2024 MID-WINTER SWAP COMMITTEE**

Chairmen: ..... Jayne Beer, Sharon Marburger  
Club Booth/Silent Auction ..... James & Sharon Marburger  
Finance & Swapper Bucks Sales: ..... Vera Lyman  
Floor Chairman: ..... Jayne Beer  
Insurance ..... Vera Lyman  
Publicity & Promotion: ..... Jayne Beer, Jim Marburger  
Web Master: ..... Sharon Marburger  
Youth Activities: ..... Brett Jurgens

**2024 SHOW COMMITTEE**

**Theme:** .....  
Chairman: ..... Jayne Beer  
Dealers & Demonstrators: .....  
Displays: .....  
Event Center Liaison ..... Vera Lyman  
Finance/Ticket Sales: ..... Jim Atkins  
Floor Chairman: ..... Corey Beer, Jayne Beer  
Fluorescent Booth: .....  
Forms ..... Sharon Marburger  
Indoor Rock Pile: ..... Sharon Marburger  
LGMC Club Booth: .....  
Nebraska Gem Dig: ..... Charles Wooldridge  
Plants: ..... Ed Ridge  
Publicity & Promotion: ..... Jim Marburger  
Raffle ..... Gene Mulinex  
Ribbons & Recognitions: ..... Sharon Marburger  
Security: ..... Vera Lyman  
Show Flyer & Printed Program ..... Sharon Marburger  
Youth Activities: ..... Brett Jurgens

**2023 SUMMER SWAP COMMITTEE**

Chairmen: ..... Corey Beer, Jayne Beer  
Vendors: ..... Corey Beer, Sharon Marburger  
Finance & Ticket Sales: ..... Vera Lyman  
Floor Chairmen: ..... Corey Beer, Jayne Beer  
Insurance ..... Vera Lyman, Sharon Marburger  
LGMC Rock Pile: ..... Sharon Marburger  
Publicity & Promotion: ..... Jayne Beer, Jim Marburger  
Web Master: ..... Sharon Marburger  
Youth Activities: ..... Brett Jurgens

**ADVERTISING INFORMATION**

Advertising by rock / hobby business or interest is permitted with the approval of the Board of Directors. Contact the Editor with your proposed ad. The rate is set at \$20.00 per full page; \$10.00 per 1/2 page; \$5.00 per 1/4 page (minimum) per issue, paid in advance to the Club treasurer. Ads will be placed throughout the newsletter as space permits.

**STANDING COMMITTEES**

**Audio/Visual:**  
Jayne Beer  
**Audit:**  
Jayne Beer, James Marburger  
**Christmas Party:**  
Edward Ridge  
**Door Prizes:**  
Corey Beer, Brett Jurgens, Charles Wooldridge  
**Facebook:**  
James Marburger, Jayne Beer, Brett Jurgens  
**Field Trips:**  
James Marburger  
**Historian:**  
Sharon Marburger  
**Legislative Liaison:**  
  
**Membership Record:**  
Edward Ridge  
**MWF Liaison:**  
Vera Lyman  
**Programs:**  
Clyde Ogg (Wooly & Brett assisting)  
**Property:**  
James Marburger  
**Recognition/Awards:**  
Jayne Beer, Charles Wooldridge  
**Refreshments:**  
Vera Lyman  
**Show - 2024:**  
Jayne Beer  
**Swap (Mid-Winter) 2024:**  
Jayne Beer & Sharon Marburger  
**Swap (Summer) 2023:**  
Jayne Beer & Corey Beer  
**Website:**  
Sharon Marburger  
**Youth Activities:**  
Brett Jurgens

**MEMBERSHIP INFORMATION**

Membership dues for the Lincoln Gem & Mineral Club are as follows:

- Adults (age 16 and over) - \$20 per year or \$30 per couple (within the same household)
- Juniors - \$3 per year (with a responsible adult)

All new memberships must be accompanied by a written application. Prospective members must gain Board approval and attend one regular meeting or club event before paying dues. Applications are available on the website:

<https://www.lincolngemmineralclub.org/about/membership>, or you may contact Treasurer Vera Lyman for a printed copy.

Mail Exchange Newsletters to:  
Lincoln Gem & Mineral Club, Inc.  
P.O. Box 5342  
Lincoln, NE 68505-0342



Or e-mail newsletters to:  
lgmc.editor@outlook.com

A color version of the Pick & Shovel is available at:  
<http://www.lincolngemmineralclub.org/index.php/newsletters/current>

# PICK & SHOVEL

## Lapidary Classes

(Stone Cutting)

### Regular student

Pay \$75 for 5 3-hour classes

You get first choice at the session you choose.

If you cannot be there, let me know by noon on Friday and you won't be charged for the class (this is how drop in openings happen). If you don't call and don't show up, you will be charged as if you were there.

### Drop in student

Pay \$15 for 3 hours

This is only when openings are available.

I will post on Lincoln Gem and Mineral Club Facebook page when there are openings.

### Hidden Gems

by The Jewelry Connection

3227 S 13th  
Lincoln Ne

#### Class Times

Saturday 10 am - 1 pm

Saturday 2 pm - 5 pm

Sunday 1 pm - 4 pm

Jayne Beer - Jeweler  
402-890-3307

Corey Beer - Lapidary  
402-890-9155

## Silversmithing Classes

**The Jewelry Connection Ltd.**

**Indian Village Shopping Ctr.**

**3227 S. 13th St., Lincoln (next to LaundrOmat)**

**Tuesday & Wednesday Evenings**

**7:00 p.m.—10:00 p.m.**

**Tuition: \$150 plus \$30 supply deposit**

### Tuesdays

Session 1: Jan 10—Feb 28

Session 2: Mar 7—Apr 25

Session 3: May 2—Jun 20

Session 4: Jun 27—Aug 15

Session 5: Aug 22—Oct 10

Session 6: Oct 17—Dec 5

### Wednesdays

Session 1: Jan 11—Mar 1

Session 2: Mar 8—Apr 26

Session 3: May 3—Jun 21

Session 4: Jun 28—Aug 16

Session 5: Aug 23—Oct 11

Session 6: Oct 18—Dec 6

**Contact: Jayne Beer 402-890-3307 or look up "Hidden Gems by the Jewelry Connection LTD" in Facebook and send message**