Mid-Georgia Gem Clips
Official Bulletin of the Mid-Georgia Gem and Mineral Society
www.midgagms.org **Vol. 18, Issue 2, March, 2018**

March Meeting At the Museum of Arts and Sciences on Monday, March 05, 2018 at 7:30pm.

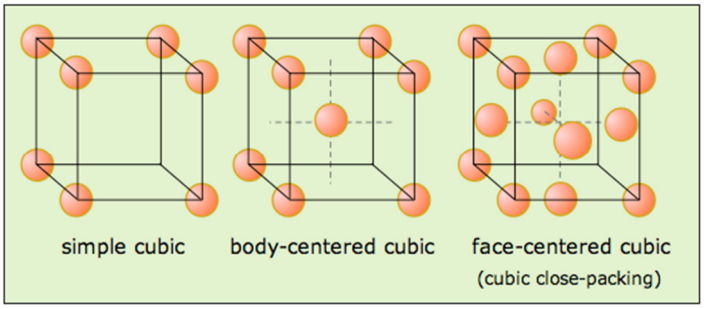
Speaker for the March Meeting is Tuell Walters. Tuell will be talking about Petrified Wood how it forms, locations found and much more!!!

President's Message

I have been reading ***Dana's Textbook of Mineralogy*** and have been trying to come up with a more simplified way to explain the *crystallography* in it to where it could be readily understood with a PhD in chemistry and physics. I am going to try to put it into simplified concepts so that we can understand them. When I first started reading about the crystallography of minerals, I felt like I had fallen into a giant kaleidoscope where all the crystals were morphing and shaping into different crystals as I watched. Over the next few months, I will endeavor to explain the different crystal systems we associate with mineralogy.

The first of these systems is ***Cubic*** or ***isometric***;

The *cubic* or *isometric* crystal system is a crystal where the unit cell is in the shape of a cube. This is one of the most common and simplest shapes found in crystals and minerals.



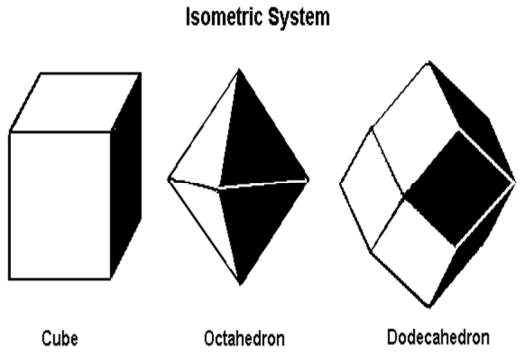
There are three main varieties of these crystals;

1) Primitive cubic – abbreviated as *cP* and alternatively called *simple cubic*.
2) Body-centered cubic – abbreviated *cI* or *bcc*.
3) Face-centered cubic – abbreviated *cF* or *fcc* and alternatively called *cubic close-packed* or *ccp*.

The **primitive cubic** system (cP) consists of one lattice point on each corner of the cube. Each atom at a lattice point is then shared equally between eight adjacent cubes, and the unit cell therefore contains in total one atom (1/8 x 8). A simple cubic unit cell has a single cubic void in the center.

The **body-centered cubic** system (cI)[bcc] has one lattice point in the center of the unit cell in addition to the eight corner points. It has a net total of 2 lattice points per unit cell (1/8 x 8 +1). A body-centered cubic unit cell has six octahedral voids located at the center of each face of the unit cell, and twelve further ones located at the midpoint of each edge of the same cell, for a total of six net octahedral voids. Additionally, there are 24 tetrahedral voids located in a square spacing around each octahedral void, for a total of twelve net tetrahedral voids. These

tetrahedral voids are not local maxima and are not technically voids, but they do occasionally appear in multi-atom unit cells. Examples of *bcc* include *iron, chromium,*



tungsten, and *niobium*.
The **face-centered cubic** system (cF)[fcc] has lattice points on the faces of the cube, that each gives exactly one half contribution, in addition to the corner lattice points, giving a total of 4 lattice points per unit cell (1/8 x 8 from the corners plus ½ x 6 from the faces). A face-centered cubic unit cell has eight tetrahedral voids located midway between each corner and the center of the unit cell, for a total of eight net tetrahedral voids. Additionally, there are twelve octahedral voids located at the midpoints of the edges of the unit cell as well as one octahedral hole in the very center of the cell, for a total of four net octahedral voids. Examples of *fcc* include *aluminum, copper, gold*, and *silver*.
The tighter and closer packed the lattice points in the cell are, the more dense they are.

Classifications:
Cube has six similar faces, each face is a square and are 90° on axis to each other.
Octahedron has eight similar faces with each being an equilateral triangle with plane angles of 60°.
Dodecahedron has twelve faces, each of which meets two of the axes at equal distances and is parallel to the third axis. Each face is a rhomb with plane angles of 70 ½° and 109 ½°. The normal interfacial angle is 60°. The faces of the dodecahedron are parallel to the six auxiliary, or diagonal, planes of symmetry.

Information can be found at http://webmineral.com/crystal/Isometric-Diploidal.shtml about the cubic or isometric crystal system and the minerals that are associated with the system. You will see there are five different classifications of the system. Each of these pages has a picture of the crystal and a picture that can be printed so it can be cut out to make a 3-dimensional representation of the crystal. There is also a list towards the bottom of the page that lists the minerals associated with the crystal form.

It is good to see new people at the meetings. We had two visitors this past month. It was good to see all our other members as well. I hope we can continue to grow. I look forward to another year as your president and hope to continue to serve you in positive ways so that we can become a more successful club.

If anybody has any comments or questions, please feel free to contact me or one of the officers or Jay Batcha.

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478.454.7273

Bill Mayer- Vice president
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678.621.3457

Susan Hargrove- Treasurer
susanbphilh@pstel.net
478.837.5327

Jay Batcha- Editor & Field trip chairman
rocky1s@cox.net
478.957.5002

Voted in as club Officers for 2018

Elected official as follows:
Jim Souter - President
Bill Mayer- Vice - President
Susan Hargrove - Treasurer
Richard Arnold - Secretary

February Minutes

The meeting was called to order at 7:34 PM by Jim Souter with 18 members/guests present.

Old Business

The treasurers' report was read and approved. Everyone is asked to collect additional material for grab bags for the fair.

New Business

This month's mineral was barite and several members brought in specimens to share. The old name for Barite is heavy spar. It is found in several countries such as: Spain, Poland, England, Germany, China and Czechoslovakia. It is also resides in Arizona, Colorado, Oklahoma and South Dakota.

We have upcoming digs: our club sponsored federation dig March 10 in Clarkesville, Georgia and a club dig April 21 near the airport in a martin Marietta quarry. We need some volunteers for the March 10 dig and also the Science fair on March 17 at Rutland middle school.

Our own Jay Batcha was our speaker for the meeting. He covered our trip to Michigan this past July for the Keewanee Mineral Days. This is an annual collection of 4 rock digs at different mines (Wolverine#2, Seneca, Larium and Central) sponsored by the A.E. Seaman Museum in Houghton, Michigan. They provided a track hoe early each morning at the mines to expose new material for digging. This area in upstate Michigan is split up primarily between "Iron Country" and "Copper Country" with the latter being the primary source of the world's copper from the early 1800's on into the mid 1900's. We displayed examples of the different types of rocks and minerals that were collected at the different mines. Some of the additional mines that we visited were: Champion, Eagle River, Wolverine #4, Tri-mountain, Quincy, Osceola, Drexel, Delaware, Hecla, Jackson, Republic, New York and Mather. While most of the mines were spoil piles, several still had some of the building remains. Most of the digging involved using metal detectors to help locate potential minerals. He provided

maps of the mines including some satellite views. A very useful website to find dig information where you plan on visiting any locations is www.Mindat.org.There was a question and answer session was provided at the end of his talk. The meeting was adjourned at 9:16 PM.

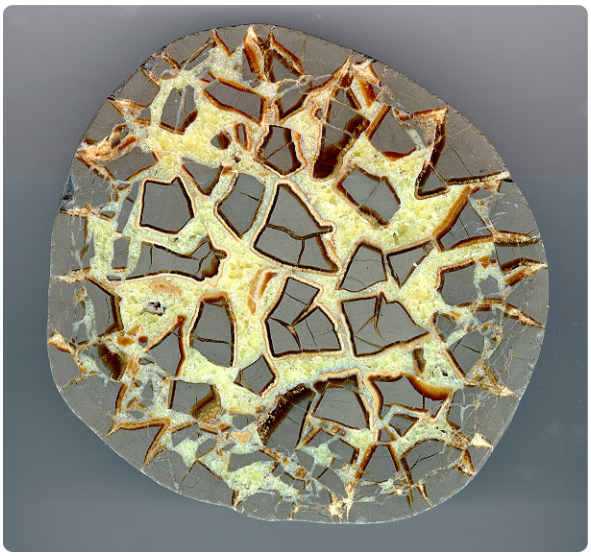
Some of the material information was excerpted from Rocks and Minerals; an American Nature Guide by Michael O'Donoghue.

By: Richard Arnold

Mineral of the Month
Septarian Nodules

Septarian nodules are classified as *concretions*.

The Septarians were formed during the Cretaceous period, some 50- 70 million years ago when the Gulf of Mexico reached into what is now southern Utah. The decomposing sea life, which had been killed by volcanic eruptions, had a chemical attraction for the sediment around them, forming mud balls. As the ocean receded, the balls were left to dry and crack. Because of their bentonite $((Na,Ca)_{0.33}(Al,Mg)_2(Si_4O_{10})(OH)_2 \cdot nH_2O)$ content they also shrank at the same time trapping the cracks inside. As the decomposed calcite from the shells were carried down into the cracks in the mud balls, calcite crystals formed. A thin wall of calcite was transformed into aragonite ($CaCO_3$) separating the bentonite heavy clay exteriors from the calcite centers. Because of this, the nodules are called *Septarians*.



Septarian nodules from west of Orderville, Utah

The name Septarian is derived from the Latin name, *septem*, meaning seven. This relates to the fact that the mud balls cracked with 7 points in every direction, thereby creating the beautiful designs we see.

Septarians are composed of Calcite (the yellow centers), Aragonite (the brown lines) and the outer gray rock is limestone. Occasionally the fossil or some of the fossils which started the formation of the rock is noticeable in the rock.

Septarian nodules uncut

Need help with upcoming Mid-Ga DMC Dig!

The March 10th DMC dig below is our sponsored DMC dig that we do about every other year. We need help running this dig. Mostly at the meeting place before we head to the dig site. Need help with the sign in sheet, release forms, collecting the $10.00 entrance fee, and parking at the dig site.

We would also like to have 3-5 door prizes we can give out for a drawing. We need door prizes, if you would like to donate something for a door prize or if you can help at the dig, please contact Jay Batcha cell # 478-957-5002. Jay will be handling the door prizes. By: Jay B.

Science Olympiad coming up on March 17th 2018

Our club has been asked to run the Rock Hound part of the Middle Georgia RESA Elementary Science Olympiad again, the same as last year. It will be held at Rutland Middle School located at 6260 Skipper Road in Macon on March 17, 2018 from 8:30 to 4:30. We did not have to stay the entire time last year, I believe we left by 12:00 noon last time. I need some help running this Rock Hound event. Please give me a call if you can help or you have any questions about it.

Call Jay at 478-957-5002

Some field trips coming up, time to do some digging!!!

DMC Dig

An Official Field Trip of the Mid-Ga Gem & Mineral Society

(Macon, GA) (HOST)

An Official Field Trip of the Mid-Ga GMS

Saturday, March 10, 2018
Clarkesville, GA
10:00 AM Eastern (9 am Central)
Fee: $10 per person

TRIP: This location is located in a band of kyanite bearing material. The material has been moved around so the kyanite is not in situ. Small blades are easy to find, but digging and some perseverance is required to find the larger specimens. This site is fun and productive site for all ages.

COLLECTING: Kyanite blades and cobbles, small mica books, and graphite

specimens (rare). The kyanite ranges from gray to pale blue and may contain graphite. Some of the blades can be polished and, because of the graphite, they have a curious depth and shimmer when they are polished.

FEE: $10 per person

BRING: Small blades can be found weathering out onto the surface. Bigger blades and cobbles are found by digging 8" to 24" deep. You will need scratching tools and baggies for surface collecting, and a shovel and pick for digging. **All holes must be refilled**. This site can be muddy at times, so a change of clothes would be good too.

FACILITIES: There are no bathroom facilities at the site, but there is a McDonald's Restaurant in Clarksville and also restrooms at a public park a few miles from where we will be collecting.

CHILDREN: This field trip is suitable for children but they must be supervised at all times.

PETS: Because this is a working farm, pets are not allowed.

SAFETY: There are electrified fences on the farm so **do not** touch any fences. Field trip leads will open and close gates. This is a working farm and there may be animals present – **do not** approach any of the animals. **Do not** enter pastures where animals are present.

DIRECTIONS AND WHERE TO MEET:

We will be meeting at 10:00 am Eastern time at Ingles Market (the only Ingles in Clarkesville) 199 East Louise Street (US Old/Historical 441) Clarkesville, GA 30523

Coordinates: 34.603124,-83.517801

1) From Macon, GA, take I-75 North towards Atlanta, GA (From I-475 / I-75 interchange North of Macon is 50 miles to I-675)
2) Take I-675 North (exit 227) it will end at I-285. Take I-285 East. (Keep Right to Greenville). (I-675 to I-285 10 miles)
3) Continue on I-285E to I-85 North (19 miles)
4) Take I-85 North (exit 33 to Greenville)
5) Continue on I-85 North to I-985 North (17 miles)
6) Take I-985 North (exit 113 to Gainesville, left lane on I-85)
7) Follow the rest on direction **From Atlanta** below!
Total travel time from Macon, GA = 2 hours 12 minutes (148 miles)

1) From Atlanta, take I-985 North towards Gainesville
2) I-985 North will transition to GA 365/US 23 (49 miles)
3) Continue on GA 365/US 23 to GA 197
4) Take GA 197 north to Clarkesville (about 3.5 miles)
5) Ingles is on the right, we will meet in the parking lot close to the highway.

CONTACT: Jay Batcha: cell: 478-957-5002, home: 478-784-1965

Kyanite Cobble and Blades

A Mid-Ga Gem and Mineral Society field trip at Martin Marietta's Red Oak Quarry On April 21, 2018 at 10:00 am Red Oak, Georgia

Registration Required

Location: This field trip is near the Atlanta Airport at the intersection of I-285 and I-85, and Hwy 14 on the south side of Atlanta.

COLLECTING: Grossular garnet, epidote, pyrite, calcite, and possibly amphiboles, apophyllite, chabazite, diopside, and titanite (based on mindat.org).

SAFETY REQUIREMENTS: You must have the following safety equipment or you will not be allowed into the quarry: hard hat, safety glasses, steel toed boots , safety vest (orange/yellow) and gloves.
CHILDREN (No): Must be 18 or older. PETS (No): No pets allowed.

BRING: Not allowed are sledgehammers (big or small), pry bar, chisels. Allowed are rock hammers, paper or aluminum foil for wrapping specimens, buckets, and a dolly or hand truck. A four-wheel or all-wheel drive vehicle is recommended but not required.

VERY IMPORTANT!!! Field trip attendees must be escorted at all times by quarry personnel, so we will caravan into and out of the quarry as a group. If you have an emergency and have to leave before the trip is over, you must be escorted out by quarry personnel**.**
YOU CANNOT ENTER OR LEAVE ON YOUR OWN.
DIRECTIONS: Directions will be sent via email to registered attendees only.

Must RSVP with Jay (cell# 478-957-5002) to fine out meeting location and directions!

I am putting this field trip in a month ahead to give you time to plan ahead.

Massive epidote and garnet

Check website
http://www.amfed.org/sfms/
For more shows coming up in the Southeast and other great information!

March 9–11, 2018

30th Annual Aiken-Augusta Gem, Mineral & Fossil Show
Fri & Sat 10–6 / Sun 10–5

Kids under 12 FREE with one Adult admission:
$3/day or $5 weekend pass
50¢-off admission coupon on our websites

Julian Smith Casino, 2200 Broad St. Augusta, GA

Diamonds, sapphires, tanzanites, emeralds and other fine jewelry. Gorgeous everyday jewelry, mineral lamps, art objects, and beads. Fabulous fossils and minerals from around the world. Jewelry making and cabochon cutting demos. Kid's Treasure Dig, Grab Bags, Geode cutting, Member case displays, Educational resources. FREE "Adopt-a-Rock" to every child

Sponsored by the nonprofit organizations:
Aiken Gem, Mineral & Fossil Society http://www.aikengmfs.org
Augusta Gem and Mineral Society http://agams.club

Concessions benefit Relay for Life
Show Chair: Chris Glass 706-284-9239

March 17 - 18, 2018
Dothan, AL

DOTHAN GEM AND MINERAL SHOW
Show is held annually the 3rd weekend in March

Hosted by the Dothan Gem and Mineral Club
Sat: 9 am to 5 pm; Sun 10 am to 4 pm

Houston County Farm Center
1701 East Cottonwood Road, Dothan, AL

The show is the place to find minerals, gems, fossils, lapidary rough, beads, and handcrafted items such as cabochons, jewelry and knapped knives. There will be hourly door prizes, silent auctions, and grab bags for the kids. Admission is free.

Show contact: Jeff DeRoche, show chair, 334-673-3554
Check us out at www.wiregrassrockhounds.com

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Macon, Georgia

The Club meets on the First Monday of each Month, at The Museum of Arts and Sciences, in Macon, Georgia.
Except: No meeting January, July, and August. The annual Christmas Party is the first Monday in December. September the first Tuesday of the Month

Purpose: To promote the earth sciences, the lapidary arts, and the collection, study and display of rocks, minerals, and fossils; to promote the public awareness of these efforts in educational and recreational activities.

Club Officers:

President / Web Master: Jim Souter,
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Vice President: Bill Mayer,
ph. 678.621.3457, orebilly@gmail.com

Secretary / Photographer, Richard Arnold,
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Treasurer: Susan Hargrove, 86 Clear Branch Rd, Butler Ga. 31006, cell. 478-837-5327,
susanbphilh@pstel.net

Editor / Programs: Jay Batcha,
4220 Cyndy Jo Circle, Macon, Ga. 31216,
ph. 478-784-1965, Cell 478-957-5002 rocky1s@cox.net

Education Chairperson: Tuell Walters,
ph. 478-922-7200
firecomet46@gmail.com

Club year begins November 1st, a grace period of three months will be given before membership lapses.

Mid-Georgia Gem & Mineral Society Application for Membership

Name(s)_____
_____
_____
_____
_____
Address_____
_____
City_____
State____ Zip Code_____
Phone_____
Adult(18+) $10.00 Junior $2.50 New
_____
Renewal _____
E-mail
Address_____
_____
List your interests and reasons for joining_____
_____
_____
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Make checks payable to:
Mid-Georgia Gem & Mineral Society
Mail to the Treasurer (listed on this page) or bring to a meeting.

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Macon, Georgia

Member of Southeast Federation of Mineralogical and Lapidary Societies
Member of American Federation of Mineralogical Societies

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