Mid-Georgia Gem Clips
Official Bulletin of the Mid-Georgia Gem and Mineral Society
www.midgagms.org **Vol. 18, Issue 6, September 2018**

September Meeting

Don't forget the September meeting is on Tuesday, Sept. 4, 2018. Meeting starts at 7:30pm but come early and visit and chat with the early birds.

Speaker for the meeting is Kim Cochran. He will be discussing plant fossilization.

President's Message

Well, I hope we have all had a great summer. I would like to take this time to welcome Tina as our new editor for the newsletter. Jay stepped down because he was exhausted from it. We have elections coming up in October for the officers for the club and I want you to all think about whom you would like to have for President, Vice-president, Secretary, and Treasurer. I will be stepping down this year due to health concerns.

We have the Georgia State Fair in Perry coming up again in October and will be looking for people to come out and help us at the booth. We ask that you give your name to Susan if you will be able to come and sit with us in the booth this year. We always see people that come back each year as well as meet new members there. Those that come, will get a parking pass and a ticket to get into the park.

Georgia Mineral Industries: A Brief History

The first major mention of mineral riches in Georgia come from the sixteenth century when the Native Americans told the European explorers that the small amounts of gold they had come from the interior of the mountains to the north. Hernando DeSoto was told of the gold by the former Cherokee Chief *Ozley Bird Saunook*. There are some poorly documented accounts of gold mining from the Spanish and French in the 1500's and 1600's but nothing really spectacular or significant. It wasn't until 1828 that the first gold rush in Georgia took place when gold was found in the Dahlonega area. It is estimated that by the mid-20th century, more than 870,000 ounces of gold had been mined in Georgia.

In the mid-1830's, an Irish stone mason, Henry T. Fitzsimmons, traveling through Georgia saw an outcropping of marble in the Long Swamp Valley of what was then Cherokee County. He bought the land and created the Long Swamp Valley Marble Company. His methods were crude and his monuments were sold around the area. It wasn't until Samuel Tate bought land lottery tracts in 1830 in Georgia that had large deposits of marble on them. Samuel signed an agreement with James Ferrel, James C. Holmes, and Gideon Roberts, all from Alabama, that allowed for quarrying on his land. This agreement however was never acted on and in 1850, he became a partner in what is now the Georgia Marble Company near the town now known as Tate, Georgia.

By 1880, the marble industry in Georgia had floundered due to poor infrastructure. The railroads from Marietta and the North Georgia Railroad system made it possible for the transportation of the marble. This is what was needed to the marble industry to take off and thrive. By 1900, the marble industry was still struggling due to the lack of capital to make the needed investments in the finishing and mining facilities. The net profit for 1900 was only $14,000 for the year. In 1905, Samuel Tate was made president of the Georgia Marble Company and with the help of friends, he acquired 6,791 shares of the stock. He immediately added equipment, changed procedures, cleared quarries, and built additional houses for the workers. By 1906 the company's profit had risen to more than $120,000. During the marble boom of the 1930s, Georgia marble was utilized for the Longworth House Office Building in Washington, D.C., the Puerto Rican capitol, the New York Stock Exchange, and the Cleveland Federal Reserve Bank and Public Library in Ohio. The value of the Georgia Marble Company was reported to be more than $3.7 million.

The statue of Abraham Lincoln in the Lincoln Memorial was made of Georgia marble weighing more than 170 tons, made up of 28 blocks of white

Georgia marble and assembled there. Today, the Georgia marble has been used within the state on such structures as the state capitol, Lenox Square Mall in Atlanta, and several buildings on the Emory University campus.

During 1807, Elias Earle had been eyeing some property in the Cherokee nation where he was interested in establishing a furnace for smelting iron. He, along with his partner, Adam Carruth, were going to start an iron works where they could create an armory and were hoping to land Federal contracts for weapons and supplies. Carruth would operate his foundry and iron works until 1822 when he started having problems with his Federal contracts. Earle had sent men to build a furnace near the confluence of Chickamauga Creek and the Tennessee River they were turned around near Taylor's Crossroads (now called Ringgold, Georgia) Catoosa County. The state of Tennessee then held up ratification of the treaty giving Earle the land and Earle's plan collapsed. Prior to the establishment of the smelting furnaces, a number of bloomeries were established around the state. They were found in Elbert, Warren, Habersham, Bartow, Union, Murray, Walker, and Dade counties.

A bloomery is a chimney shaped device in which it is filled with charcoal. There are fresh air pipes towards the base in which air is forced in via bellows. After the charcoal is fired and is at temperature, then more charcoal is added from the top then pulverized iron is added. This is usually done on a one to one basis. Inside the furnace, carbon monoxide from the incomplete combustion of the charcoal reduces the iron oxides in the ore to metallic iron, without melting the ore; this allows the bloomery to operate at lower temperatures than the melting temperature of the ore. As the desired product of a bloomery is iron which is easily forgeable, it required a low carbon content. The temperature and ratio of charcoal to iron ore must be carefully controlled to keep the iron from absorbing too much carbon and thus becoming unforgeable. Cast iron occurs when the iron melts and absorbs 2% to 4% carbon. Because the bloomery is self-fluxing the addition of limestone is not required to form a slag.

The small particles of iron produced in this way fall to the bottom of the furnace, where they combine with molten slag, often consisting of fayalite (aka: iron chrysolite), a compound of silicon, oxygen and iron mixed with other impurities from the ore. The mixed iron and slag cool to form a spongy mass referred to as the bloom. Because the bloom is highly porous, and its open spaces are full of slag, the bloom must later be reheated and beaten with a hammer to drive the molten slag out of it. Iron treated this way is said to be wrought (worked), and the resulting iron, with reduced amounts of slag is called wrought iron or bar iron. It is also possible to produce blooms coated in steel by manipulating the charge of and air flow to the bloomery.

In the early history of the iron production in the southeastern United States, statistics show that 41% of the ores came from the north Georgia area. The first blast furnace was the Sequee furnace near Clarksville, in Habersham county. It was built prior to 1832 but was abandoned by 1837. Then a number of furnaces sprang up in the area over the next half-century only to last a few years before being abandoned.

Roller mills, nail mills, and spike mills began to appear. A roller mill was located at Etowah and one in Atlanta, aka Gate City. Gate City was eventually shuttered, dismantled and moved to Rome.

Schofield Iron Works, which produced cotton presses, cane mills, steam engines, boilers, and general machinery, was founded on Fifth Street by J. S. Schofield in 1850. By 1866, it was one of Macon's leading industries. During the Civil War, Schofield's and its fellow foundry, Findley's, melted down church and school bells to produce shot and shell for guns and cannons for Macon's defense. Schofield's eventually became Taylor Iron, which operated until the 1970s.

For years, the farmers of Georgia were plagued by the presence of granite in their fields. They would go around it. The found the loose pieces were good for construction and so used for such. Thomas M. Swift and W.M. Wilcox opened the first commercial quarry in the Elberton, Georgia area in 1888. Their first monument was put on display at

Atlanta's Piedmont Exhibition where it won praise and admiration from people around the world. The granite industry in Georgia had started for building materials. It wasn't until 1898 when the Italian sculptor, Arthur Beter carved the first statue out of the granite from the mine. It was supposed to be a dedication to the Confederacy but a local said it looked like a cross between a Dutchman and a hippopotamus and so they named the statute "Dutchy." On August 9, 1900, Dutchy was hauled down from his pedestal to the ground where he was buried a few days later where he fell. He is now on display in the Elberton Granite Museum.

Elberton granite is mainly composed of grey feldspar, quartz, and mica. Quartz is pure silicate, grey to white. Biotite gives Elberton Granite the blue-grey color. Each grain is crystallized; the crystals having been formed when its molten substances cooled and solidified slowly in the depths of the earth. The granite being quarried at Elberton, Georgia, was intruded as a molten mass of rock material into pre-existing rocks about 400 million years ago. Cooling very slowly deep below the surface, the magma crystallized into the granite used today. When the magma forced its way into the overlying rocks, it had a cooling effect, thus producing a layering of recrystallized rocks. Long periods of erosion and numerous episodes of uplift removed the thousands of feet of surface rock, finally exposing the extensive granite deposits. Thus, the Elberton Granite and all the surrounding rocks are part of what geologists call the "root zone" of the very old Appalachian Mountain chain.

The industry continues to grow today and is an important economic source in the region.

During the 18th century, Josiah Wedgwood of England, would buy a white clay that was being brought in from America. This was before the white clays were discovered in Cornwall, England. Josiah found this clay from Georgia to be the purist and whitest he had ever encountered. Despite his demands for the clay, called Kaolinite was mined in small amounts. This was used for his finer china that was came to be known as Creamware and Queensware (Queen's ware). These were said to rival anything coming out of China as far as white china was concerned. The kaolin industry in Georgia remained small time until 1938 when the Champion Paper and Fiber Company decided to develop its land where kaolin was located. This was the start of the kaolin industry as we know it today.

Champion's new facility on the three-mile short line of the Sandersville Rail Road gave confidence to build their facilities too. Soon, Champion was joined by United Clay Mines (now operating as the Kentucky-Tennessee Clay Company), Burgess Washington Clay (now Thiele Kaolin). In 1947, the Burgess Pigment and Georgia Pigment (now Imerys Pigments and Additives & J.M. Huber) were built. The industry provides products that are used in the paper industry, cosmetics, rubber manufacturing, pharmacology, building industries and the chemical industry.

Today, kaolin is mined for the paper coating industry where it is used in the making of high quality papers. It is also used as a pigment additive for the porcelain-ceramics industry, pharmaceuticals and as a filler in numerous plastic and rubber compounds. The clay is also used in the porcelain industry in the making of bathroom toilets and sinks.

Georgia kaolin deposits occur in Late Cretaceous (about 100 to 65 million years ago) to Early Paleogene (65 to 45 million years ago) sedimentary rocks whose sediments were derived from weathered igneous and metamorphic rocks of the Georgia Piedmont geologic province. During these ancient times, sediments were transported by rivers to coastline deltas and to estuarine and back-barrier island locations. Relative sea-level changes provided environments of deposition favorable for the accumulation of the lens-shaped geometry of the present-day deposits. Since then further mineralogical changes have occurred to the sediments. The varied and complex geologic history that different kaolin deposits have experienced results in an array of formation properties. This area is known as the fall line. This is a line from Augusta to Macon to Columbus, Georgia.

The kaolin is stripped mine from the surface after the over burden has been removed. Many times, it is removed from one site and transported to

another site where it is stored until they have need of it. Once the site has been stripped of the Kaolinite, it is recovered using the most advanced means available. Once they have mined out the sources, the land is returned to its original condition, in fact, the land is better than it was with water ways and the wildlife and plants restored. They kaolin companies have teams of botanist, geologist, and biologist that study the land and wildlife, they take samples of all the fauna there so they can return it afterwards. The industry has been recognized internationally for their efforts to return the land to its original condition, if not better.

June Meeting Minutes

The meeting was called to order at 7:37 PM by Jim Souter with 18 members/guests present.

Old Business

The treasurers' report was read and approved. Anyone interested in helping stuff grab bags is invited to Jay's house on July 21st at 11am. 4220 Cyndy Jo Circle. Everyone is reminded that the setup for the Perry Fair is on September 29 beginning at 10am. The mineral of the month was amazonite and several nice specimens were brought in and discussed.

New Business

Everyone is reminded that the state fair is upcoming {October 4th-14th} and volunteers should contact our secretary Susan Hargrove as soon as possible.

Tina Perkins was our speaker this month and she gave a talk on geology. She proctored her "Are you smarter than a 3rd grade geology student" test which encompassed 19 stations with fill in the blanks and multiple choice. It was needless to say that other than a handful of rockhounds everyone else was not as smart as a 3rd grader. A question and answer session were provided at the end of the talk.

The meeting was adjourned at 8:43 PM

By Richard Arnold

Purple Apatite Crystals from Mt. Apatite Maine, Gem Mineral Auction

Mineral of the month: Apatite

Apatite comes from the Greek word ***apate*** which is to mean "deceit" since it can look like other minerals.

Apatite belongs to the phosphate group of minerals with three distinctive formulas:

$Ca_5 (PO_4)_3 OH$

$Ca_5 (PO_4)_3 F$

$Ca_5 (PO_4)_3 Cl$

Apatite has hexagonal crystals that can be transparent to translucent and can fracture conchoidal to uneven. It has a Mohs hardness of 5, specific gravity of 3.16-3.22 and a white streak. It has a vitreous luster. The crystals are usually green but can be colorless, yellow, blue to violet, pink or brown. A rare orange form has been found also but not in abundance. Fluorapatite which is blue to violet can be gemmy. In the US the violet or purple form is only found at Mt. Apatite, Hebron, Maine. In Georgia it can be found in Fanning County at Mount Pisgah and has be located in Monroe County Georgia by Cox Prospecting. Apatite was found in moon rocks. Its presence has lead scientists to believe that there may have been at one time more water on the moon than originally thought. Fission tracks in apatite are used to understand the history of mountains. Fertilizer and hydrofluoric acid are made from Fluorapatite.

Brazilian English faceted Blue Apatite
https://commons.wikimedia.org/wiki/File:Apatite

Remember to bring in a specimen of Apatite to the September meeting so you can qualify for the door prize drawing !!!

DMC Program of the SFMS Field Trip Committee

An Official Field Trip of the Gem and Mineral Society of Lynchburg, VA (HOST)
An Official Field Trip of the Mid-Ga Gem and Mineral Society.
Saturday, September 29, 2018
9:00 AM to 1:00 PM Eastern Time
KYANITE MINING CORP. DILLWYN, VA
WILLIS MOUNTAIN KYANITE MINE
If the mine is working, we may have to limit our collecting areas
Registration required
Fee: None

Note to Field Trip Leaders: All club field trip leaders send me a list of your total collectors by 9-24-18 so that I can compile a list and forward it to the mine management. There is a limit of 150 collectors from all clubs for this event so there should be room for everyone who wants to attend. Contact Jay if you want to attend so he can add your name to the list.(**registration required**)
TRIP: Willis Mountain is what's known as a monadnock. The kyanite exposure resisted weathering and, as the surrounding area was eroded and weathered away, the mountain outcrop was left standing. This is very much like the famous Graves Mountain kyanite mine in Georgia. The center of the mountain has been mostly mined away.
COLLECTING: It is a good year. The mine is very active and has opened more new material. We should be able to find plenty of white kyanite blades in the massive kyanite quartzite (15-35% kyanite); pyrite; quartz; hematite with some iridescence, red mica, green mica, apatite and possibly some blue kyanite and pale green trolleite. The dust/sediment here is about 15% kyanite and worth collecting too. Some of the white kyanite and quartz here have a beautiful light blue fluorescence and the apatite is yellow so bring your shortwave lamp and blackout cloth.
EQUIPMENT: The standard quarry safety gear required is a hard hat with a manufacturing date of 5 years or less. Everyone must have an approved hard hat, no bicycle helmets. Small heads can wear a ball cap under the hard hat. Also required: safety glasses and a pair of wheel chocks, either purchased, homemade or even a rock is acceptable. Every time you leave the car, turn off the engine, put in park and apply the hand brake and wheel chocks. ONLY STEEL TOED BOOTS OR MSHA (Federal Mine Safety and Health Act) APPROVED REINFORCED FIBERGLASS TOED BOOTS WILL BE ALLOWED, THERE WILL BE NO EXCEPTIONS!!! No low quarters or sneakers even if they have steel or composite toes. If you do not have all the required safety equipment, you will not be allowed to enter the quarry. Also required are long pants, gloves, and water as it may be very hot and it is very important to stay hydrated. Respiratory protection from rock dust you may encounter is optional, but a respirator dust mask like the ones used by painters and contractors is highly recommended for children and people with respiratory problems. If you have any medical condition that would put you in any danger, do not attempt this trip. For your own safety, let your field trip leader or collecting buddy know if you have any medical condition that could be a problem for you.
BRING: In addition to the required equipment listed above, you should bring a hammer and chisels, wrapping paper, and buckets. A shortwave lamp and blackout cloth are useful for finding fluorescent minerals. Be prepared for windy, hot or wet weather. We will be on the mountain top and it's always windy. We can drive to the designated collecting area, so hand trucks should not be needed. Bring a camera, as the view is awesome.
SAFETY: Everyone must arrive at the office parking lot no later than 8:30AM to sign the release form and hear the required safety briefing. Updated safety forms will be available the day of the field trip. They must be signed and mandatory safety meeting attended to enter the mine. Safety checks will also be made to assure that all appropriate safety gear is in use while in the active mine area. Anyone failing to abide by the rules or not listening to mine staff directions will be escorted off the premises. Barricades will be in use to prevent anyone from going into restricted areas. Each Club field trip leader, or their appointed replacement, will act as safety observer while in the mine and will be expected to be on the lookout for and correct all safety infractions from any collector from any club. Keep in mind that this site is one of the very few that are still open for collecting. Not obeying all the safety rules will cause this site to be closed to all future collecting.
CHILDREN (Maybe): There is no age limit, but no toddlers please. All children must be signed for, closely supervised by an adult, and never left un-attended. They must also have all the required safety equipment. No Exceptions!!! If parents have any questions about what is

acceptable for your child, please call me and we will discuss it.
PETS (NO): This is an active quarry -- no pets allowed.
WEATHER: The trip will be canceled for safety concerns in case of hard rain or a thunderstorm. Call to confirm if there is any question.
AFTER THE DIG SOCIAL: This year, the pavilion beside the office will be available immediately after the dig ends at 1PM to relax, cool off eat your lunch. This will also be a social get together so that we can have a chance to become better acquainted with the members of our rock club neighbors and to provide some time to relax before their long ride home. You might want to bring your own lawn chair. There may also be other groups there as invited guests of Kyanite Mining. There might be a brief program on the mine and lab tour.
DIRECTIONS AND WHERE TO MEET:
ASSEMBLY TIME: Everyone will meet at the mine office for sign-in and safety instruction so be there no later than 8:30am eastern time.
DRIVING FROM ROANOKE / LYNCHBURG AREA: From Roanoke, follow US 460 East to Lynchburg, to the Sheets Station on US 460 and Rt. 811 in New London. Continue on the US 460 East by-pass around Lynchburg thru Appomattox and take Rt. 24 North to its end at US 60, Mt. Rush.
Continue on US 60 East to Sprouses Corner.
Turn right on US 15 South and drive 4 miles to Willis Mt. Plant Road.
Turn left and stop at the stone mine office.
Park out of the way as not to block traffic. Do not park along Rt. 15.
Allow 1 1/4 minimum hour driving time from New London west of Lynchburg to the mine office.
GENERAL LOCATION:
The mine is located north of Farmville, Va. on Rt. 15 North, James Madison Highway.
Proceed from US 460 North on Rt. 15 for a little over 12 miles to Willis Mt. Plant Rd. The stone mine office is on the right.
If you approach from Rt. 60 at Sprouses Corner, then go south on Rt. 15 for 4 miles to Willis Mt. Plant Rd. and the office will be on your left. Wait in the parking lot and do not block traffic. Many trucks may be using the road. While you're waiting, be sure to enjoy the beautiful blue kyanite bolder in the front yard from the old closed Baker Mountain. Barricades will block you from driving in restricted areas. Access to plant operations is prohibited.
CONTACT: David Ball, Home 434-983-9595 or Cell 703-256-0097 Field Trip Chairman for the Lynchburg Club, email: gmslveditor@gmail.com website: www.LynchburgRockClub.org

UPCOMING EVENTS

Museum of Arts and Sciences
October 2, 2018 at 7:00

Ocean Discovery Series: Mud and Bugs Under Stress

Dr. Julia Reece is an assistant professor in the College of Geosciences at Texas A&M University and studies the hydromechanical behavior of marine sediments.

Sept. 21 - 23, 2018
30th Annual Show
Jacksonville Gem and Mineral Society
Morocco Shrine Auditorium
3800 St. Johns Bluff Road,
Jacksonville, FL 32224

Friday 1:00pm-6:00pm
Saturday 10:00am-6:00pm
Sunday 10:00am-5:00pm

Admission: $4 or $6 for three-day pass
Children under 12 FREE with guardian:
Seniors and Military with ID get $1 OFF

80+ dealers from around the world, hourly door prizes, 5 Grand prize drawings, Moon rock display on loan from NASA made possible by Dr. Mike Reynolds. Club Hospitality table, 20+ Club competition display cases, Sky Lab exhibit. 4 special faceting Lectures from noted Faceters. All major faceting equipment dealers and National tool and equipment dealers will be represented.
Special Large lapidary demos each hour.
Continuous Educational exhibits on Silversmithing, Cold Connections, Faceting,

Cabbing, Beading, Gem trees and more. Large junior's booth, Gem ID and Gem mining sluice. Scouting educational sessions to earn merit Badges in rocks and metal work.

web site: www.jaxgemandmineral.org/
3800 St. Johns Bluff Rd
Jacksonville, Florida 32224
Show contact: Jason Hamilton, Show Chair, 904-294-4744, JGMS-SHOW@hotmail.com
http://www.jaxgemandmineral.org/show.html

Dues are Due
November starts a new club year. There is a grace period until February 1, 2019. Please send in dues to Susan Hargrove

Club Officers

President / Web Master: Jim Souter, ph. 478-454-7273, jgsouter@windstream.net

Vice President: Bill Mayer, ph. 678.621.3457, orebilly@gmail.com

Secretary / Photographer, Richard Arnold, ph. 678-682-9860 rarnold216@charter.net

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

Editor: Tina Perkins
Ph. 478-542-0388
fossilhunterofgeorgia@gmail.com

Field Trips / 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_____
_____
_____
_____
_____

Make checks payable to **Mid-Georgia Gem & Mineral Society**
Mail to the Treasurer (above) or bring to a meeting.

Mid-Georgia Gem Clips

Official Bulletin of Mid-Georgia Gem and Mineral Society
Macon, Georgia

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

Mid-Georgia Gem Clips
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