

FORSYTH GEM AND MINERAL CLUB, INC.

Nature's Treasures

October 18, 2018

*** *Public Version* ***



MEETING: * The next meeting of the Forsyth Gem and Mineral Club will be held at **7:30 PM, October 18, 2018**, the third Thursday of the Month, at **Vulcan Materials Company's Training Center, 4401 N. Patterson Ave., Winston-Salem, NC.**



PROGRAM: The October program will be a presentation by Bob Lauf of Oak Ridge National Laboratory on Industrial and Consumer Uses of Minerals



Refreshments: Refreshments for the meeting will be provided by **the Schlottmans and Heberts**. The Club will provide cups and napkins and ice for the refreshments. Those volunteering to provide refreshments need only provide sufficient drinks and snacks, such as, cookies, cakes, crackers, or donuts *and ice*

2018 Refreshment List

January	Fulchers and Bakers	July	Hughes and Roby
February	Myers and Gaskills	August	Picnic
March	Goodes and McGilvarys	September	Show
April	Whickers and Becks	October	Schlottmans and Heberts
May	Brouhles and McGilvarys	November	Marions, Reeds
June	Caroline Jones and Daniel Bowles	December	Holiday/Show Dinner

If you enjoy the refreshments, please be prepared to take a turn in furnishing them. NOTE: if you volunteer to bring refreshments, please do so. If you are unable to attend for any reason, contact Vickie or Al Gaskill prior to the meeting so that alternate arrangements can be made.

Note: Due to equipment issues in the meeting area kitchen, it will be necessary for the refreshments providers to also bring ice for the drinks, at least for the next couple of months.



DON'T FORGET YOUR NAME TAGS



FGMC Field Trip

Note: FGMC Field Trips are for club members and their families only. Liability issues mean that these trips cannot be attended by the general public unless otherwise noted.

Our October field trip will be to the **Propst Property** to look for corundum (ruby/sapphire). More information will be given out at this month's meeting, or people can call either Jeff Schlottman or Scott Brouhle. The **fee is \$25/person**. Collecting equipment includes shovels, rock hammers/chisels, and heavy-duty screens are also useful (larger mesh). Lastly, yes, it is cooler, but please remember water and sunscreen!

Note: this is not a long walk from the cars to the dig site, and the site is children-friendly.



October Program Details

We collect minerals because they are interesting and beautiful, and in some cases because they are rare. Minerals are mined in vast quantities, however, because they are useful. When we think of useful minerals, our thoughts naturally turn to ore minerals of metals such as iron, aluminum, copper, lead, gold, and silver. The greatest tonnages, though, are represented by limestone, granite, marble, and other building materials. These ugly ducklings of the mineral kingdom provide us with roads, concrete, and building stone building facades, and brick.

This program will describe some less-familiar industrial uses of such familiar minerals as barite, fluorite, spodumene, micas, amphiboles, zeolites, zircon, and garnet. Some of these will likely be surprising to most mineral collectors

About the author

Bob holds a BS in Civil Engineering and MS and PhD in Metallurgical Engineering from the University of Illinois. His scientific career included over twenty years at Oak Ridge National Laboratory, where he conducted research on topics ranging from nuclear fuel, coal by-products, materials synthesis, microwave processing, sensors, optical materials, and biomineralization. He has been granted about fifty U.S. Patents for his inventions, many of which have become successful industrial products. He is now a Registered Patent Agent and technology consultant



Reviewing: Kyanite

From Geology.com/minerals

A mineral used to make porcelain, as an abrasive, and occasionally as a gemstone

What is Kyanite?

Kyanite is a mineral found mainly in metamorphic rocks. It most often forms from the high-pressure alteration of clay minerals during the metamorphism of sedimentary rocks. It is found in the schists and gneisses of regionally metamorphosed areas and less often in quartzite or eclogite.

Kyanite's typical habit is a bladed crystal, although it sometimes occurs as radiating masses of crystals. Kyanite is often associated with other metamorphic minerals such as garnet, staurolite, and corundum.

Kyanite's Unusual Hardness

Kyanite specimens have a variable hardness. The long crystals have a Mohs hardness of about 4.5 to 5 if tested parallel to the length of a crystal, and a hardness of 6.5 to 7 if tested across the short dimension of a crystal. The mineral was once commonly called "disthene" which means "two strengths."

Physical Properties of Kyanite

Chemical Classification	Silicate
Color	Blue, white, gray, green, colorless
Streak	White, colorless
Luster	Vitreous, pearly
Diaphaneity	Transparent to translucent
Cleavage	Perfect in two directions, faces sometimes striated
Mohs Hardness	Kyanite often occurs in long, bladed crystals. These have a hardness of 4.5 to 5 along the length of the crystals and 6.5 to 7 across the width of the crystals.
Specific Gravity	3.5 to 3.7
Diagnostic Properties	Color, cleavage, bladed crystals
Chemical Composition	Al ₂ SiO ₅
Crystal System	Triclinic
Uses	Ceramics, gemstones

Polymorphs of Al₂SiO₅

Three minerals have a chemical composition of Al₂SiO₅. These are kyanite, andalusite, and sillimanite. Kyanite is the high-pressure polymorph, sillimanite forms at high temperature, and andalusite is the low-pressure polymorph.

Many Industrial Uses of Kyanite

Kyanite is used to manufacture a wide range of products. An important use is in the manufacture of refractory products such as the bricks, mortars, and kiln furniture used in high-temperature furnaces. For foundries, the molds that are used for casting high-temperature metals are often made with kyanite.

Kyanite is also in products used in the automotive and railroad industries where heat resistance is important. Mullite, a form of calcined kyanite, is used to make brake shoes and clutch facings.

Use in High-Refractory-Strength Porcelain

Kyanite has properties that make it exceptionally well suited for the manufacture of a high-refractory-strength porcelain - a porcelain that holds its strength at very high temperatures. A familiar use of this type of porcelain is the white porcelain insulator on a spark plug.

Kyanite is also used in some of the more common forms of porcelain, such as those used to make dentures, sinks, and bathroom fixtures.

Use in Abrasive Products

Kyanite's heat resistance and hardness make it an excellent material for use in the manufacture of grinding wheels and cutting wheels. It is not used as the primary abrasive; instead, it is used as part of the binding agent that holds the abrasive particles together in the shape of a wheel.

Expansion of Kyanite When Heated

Kyanite, unlike most other minerals, can expand significantly when heated. Depending upon particle size, temperatures, and heating conditions, kyanite can expand to up to twice its original volume when heated. This expansion is predictable. In the manufacture of certain refractory products, specific amounts of kyanite are added to the raw material (which shrinks during heating) to maintain volume in the finished product.

Kyanite Use as a Gemstone

Kyanite is a gemstone that you will rarely encounter in the typical jewelry store. Most people have not heard of kyanite, as it is infrequently used in jewelry. It is an "exotic" gem. Perhaps that is what makes it so interesting?

If you are interested in kyanite as a gemstone or in jewelry, the best place to find it is in artisan jewelry stores or in jewelry stores that are associated with a mineral dealer. The people who own these businesses are likely to be interested in kyanite and incorporate it into their product line.

High-quality and nicely colored kyanite can be cut into attractive and desirable cabochons and faceted stones. These are often used in rings, earrings, pendants, and other jewelry. Kyanite is also used to make beads. These beads often have a flat geometry because the mineral typically occurs in thin blades.

Kyanite Gemstones are Challenging to Cut

Kyanite is a challenging mineral to cut because it has two distinctly different hardnesses. Kyanite crystals are typically long, narrow blades. They have a hardness of about 4.5 parallel to their length but a hardness of 6.5 to 7.0 across the width of the blade. Skilled cutters are needed to work these stones.

Blue Kyanite - Green Kyanite

Most gemstone-quality kyanite is blue in color. However, kyanite can be clear, green, black, and rarely purple. Some kyanite gemstones are pleochroic (appear to be different colors when viewed from different directions).

Blue kyanite stones can be found in a continuous color range between clear and dark blue. The most popular kyanite gemstones are transparent with a deep sapphire-blue color. Some deep blue stones are shown in the photos on this page. Transparent blue kyanite with a lower color intensity might look like blue topaz or blue aquamarine.



Dixie Mineral Council Field Trip

**An Official Field Trip of the Montgomery Gem & Mineral Society (Montgomery, AL) - HOST
An Official Field Trip of the Forsyth Gem & Mineral Club**

Note: DMC Field Trips are for club members of DMC-affiliated clubs and their families only. Liability issues mean that these trips cannot be attended by the general public unless otherwise noted.

Hogg Mine Troup County, GA Fee Site

TRIP: The Hogg Mine started out as the Oxford Mine in 1942 to mine beryl to produce beryllium. Commercial operations shut down in 1960. The site has been opened off and on since then for specimen mining and is currently managed by Chris Painter. The site is a surface mine pit approximately 650 feet long with an east – west orientation.

COLLECTING: The parking area is at the east end of the pit. As you enter the pit from the parking area there is a trench approximately 150 feet long and to your right. Large green Aquamarine beryl and pockets of green Aquamarine beryl have been found there. As you enter the main pit area, there is a tailing or spoil pile to your left that came out of the pit in front of you. There have been several large nice gemmy Aquamarine beryl specimens from this area. The main pit in front of you has a plethora of treasures, Rose Quartz, Smoky Quartz, banded Quartz, Beryl in matrix with the quartz, Tourmaline in matrix with the quartz, etc. The last area of note is at the western end at the back of the pit. There has been a new smaller pit dug in the last year and some very nice Blue Aquamarine Beryl has been found. The new pit was dug because an old drilling report indicated that Amethyst was found. There are pieces of Amethyst coming from the new pit.

FACILITIES: There is an outhouse available on site. There is plenty of parking. The mine also cooks hamburgers and hot dogs and has drinks. Lunch plate is \$8.00

FEE: 17 years old and up is \$35 per person, 16 years old and younger dig for free.

TOOLS: Bring all the tools you have: pick, shovel, screen, rock hammer, hand sledge, rock chisel, bucket, hand cart, etc. The Hogg does sale some tools in limited quantities. It would be a good idea to bring an extra change of clothes. The pit can be muddy and wet.

SPECIAL NOTE: There will be no November DMC field trip. The field trip originally planned for November has been rescheduled to June, 2019



2018 Show Review

The Show is over for another year. While we again experienced some labor shortages we continue to have a successful show. A special thanks to all of the dedicated members who put in so much time to make this Show a success. A good number of members willingly spent a considerable amount of time helping with the show and all members should be grateful. We had members drive a considerable distance to help with the show.

We recorded a total attendance of 2883 for the 2018 show up from 2665 for the 2017 Show.

Of the 53 Families comprising the club on setup day, 35 had indicated they would participate in bringing the Show to realization. Of those 35 families, 25 actually participated. What was discouraging was the number of members that did not return phone or email messages at all while one member returned a call while on vacation! It escapes me as to why one would not at least take the time to return a phone call. As is obvious, some members contributed nothing (some absences were fully understandable) while others contributed much, much more to make up the difference. Without members willing to contribute more than their share, the show would be considerably smaller or perhaps follow in the footsteps of shows in surrounding areas.

This writer would like to take this opportunity to thank all that contributed their time and energies to make this show a success. Special thanks to Wayne Ketner and Ken Reed that have been serving as assistant Show Chairmen. A special thank you to our new members that contributed significantly at take down - welcome to the group. Some people were on hand from the time the doors opened Thursday for set-up, and daily from the time dealers were let in, until the dealers left in the evening. Others, a few hours, but all contributors and their contribution are much appreciated. There were no unimportant jobs. Year after year, several members generously contributed far more than their share, and to those members, the Club owes a great deal, for without your unselfish contribution the quality of our Show would undoubtedly suffer--to those folks a special "Thank You". The following Club members contributed their time and energy to help bring the Show to completion:

Lowell Baker	Terry Fulcher	Ernie Hughes	Lori Marion	Ann Riddle
Willann Baker	Joan Fulcher	Steve Herbert	Scott Marion	Diane Roby
Anna Baker	Al Gaskill	Caroline Jones	Alex McGilvary	Jay Wilhelmi
Kurt Brouhle	Vickie Gaskill	Wayne Ketner	Sandra Myers	Charles Whicker
Scott Brouhle	David Goode	Sherry Marion	Stephanie Myers	Karen Whicker
Daniel Bowles	Marcus Gonzales,	Arvil Marion	David Mengel	Pam Wooten
Trey Caldwell	Julian Gonzales	Reed Marion	Stephanie Muff	
Joe Edwards	Marcus Gonzales	Lexi Marion	Lisa Reed	
Melia Edwards	Bob Hudspeth	Alysa Marion	Ken Reed	

Without these folks contributing so much of their time, the show would have certainly suffered..., as would this writer. I personally thank each one of them and so should all that enjoy the Show.

This information was accumulated from the volunteer work schedule. If I have missed anyone that volunteered and worked at the show, I apologize. Please call it to my attention and it will be noted in the next Bulletin.

We continue to receive rave reviews on our Set-Up Day/Dealer Dinner especially on the barbeque and lasagna prepared by Trey. Many thanks to Vickie Gaskill, and her helpers for organizing and seeing to all the details and to the many other contributors and helpers for an outstanding job of overseeing this event. Much thanks to all those people who worked on the dinner and brought food for all to enjoy.

Dealer response to the Show was very positive. Some dealers were very, very pleased with the show saying that of all of the shows they participate in ours show is second only to the famed Tucson Gem and Mineral Show. Quite an accolade for a small town show.



Grab Bags - Again

We did it again! At this year's show we sold out of grab bags once again – selling over 650 of the by late afternoon on Saturday! So, we'll be making up more grab bags for next year's show at the annual picnic next year.

But with that comes the usual reminder: whenever you are out collecting and have an opportunity, grab a few small samples to contribute to the grab bag assembly. It doesn't have to be massive quantities of such, just a few or a few dozen can help add to the variety of what we include in the bags.

In particular we need that variety – while we can always use quartz and calcite we usually have quite a bit of that. So, we're looking for the less common things. Whenever possible it is best if the samples can be easily identified, since many of our members get asked for assistance at such identification by the purchasers.

We are just a bit over 10 months away from the next round of assembly, so that leaves plenty of time and hopefully plenty of field trips to start gathering materials.



Future Field Trips

Speaking of field trips, it's also time to start thinking about possible locations for club trips over the next year. The field trip "committee", which is basically made up of anyone who wants to go on field trips, usually gets together early in the year to discuss possible sites and arrange to make contact where necessary. Anyone who has an idea for a possible location is urged to contact Jeff Schlottman.



Meeting Minutes

There was no meeting for September due to the show. However the club did hold an auction in place of the monthly field trip:

Our "field trip" for September 22 was an auction participated in by the members of the Forsyth Gem and Mineral Club. Each current member of the club was allowed 12 items to be auctioned. 20 percent of the total money was donated to the club.

Thank you to Lowell Baker, Jeff Schlottman, and Jean Schlottman for arranging the location, handling the auctioneering and working the technology to make the auction a success.

17 members were present.

.Respectfully Submitted,
Lisa Reed, Secretary



Nature's Treasures

Nature's Treasures is the monthly newsletter of the Forsyth Gem and Mineral Club.

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