

FORSYTH GEM AND MINERAL CLUB, INC.

Nature's Treasures

October 17, 2019

*** *Public Version* ***



MEETING: The next meeting of the Forsyth Gem and Mineral Club will be held at **7:30 PM, October 17, 2019**, the third Thursday of the Month, at **Vulcan Materials Company's Training Center, 4401 N. Patterson Ave., Winston-Salem, NC**



PROGRAM: Our speaker for the October meeting will be Dr. Andrew B. Heckert. His presentation is entitled "Trekking across the Triassic—Microvertebrates and Triassic Tetrapod Evolution".



Refreshments: Refreshments for the meeting will be provided by the **Fulcher and Roby families**. 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*

2019 Refreshment List

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|----------|-----------------------------|-----------|-------------------------|
| January | Sandra and Stephanie Myers | July | Shelton and Gonzalez |
| February | Dow and Brouhle | August | Picnic |
| March | Hebert and Gaskill | September | Show |
| April | Whicker and Beck | October | Fulcher and Roby |
| May | Goode and McGilvary | November | Reed and Marion |
| June | Hyde, Gonzalez & Schlottman | 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.

Reminder: It will soon be time to start signing up for refreshment slots for next year. If you are interested and willing to help out, see Vickie.



DON'T FORGET YOUR NAME TAGS



About the Program

Andrew Heckert earned a B.S. in Geology summa cum laude from Denison University in 1993 before earning an M.S. (1997) and Ph.D. (2001) from the Department of Earth & Planetary Sciences at the University of New Mexico. Subsequent to this he worked as the Geoscience Collections Manager at the New Mexico Museum of Natural History (2002-2005) before taking a position as Assistant Professor in Geology and Director of the McKinney Geology Teaching Museum at Appalachian State University. He is now a professor of geology in the Department of Geological & Environmental Sciences at Appalachian.



Annual Show Report

We have made it through another Show! 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 2768 for the 2019 show. As difficult as it may seem, we had more attendees in 2018 at 2883.

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! 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.

The writer would like to take this opportunity to thank all that contributed their time and energy 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 Bill Visek and family that contributed significantly at Setup, during the show and 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 | Thor Bochonko | Lori Marion | Ann Riddle |
| Willann Baker | Joan Fulcher | Steve Herbert | Scott Marion | Diane Roby |
| Wayne Ketner | 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 |
| Cynthia Brouhle | Marcus Gonzales, | Arvil Marion | David Mengel | Bill Visek |
| Rick Martin | Julian Gonzales | Reed Marion | Jim Stroud | Lisa Visek |
| Joe Edwards | Marcus Gonzales | Lexi Marion | Lisa Reed | Hannah Visek |
| Trey Caldwell | Daniel Bowles | Alysa Marion | Ken Reed | Lori Nicholson |
| Nan Harper- Janeway | Raeann Gonzales | | | |

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 enthusiastic; some were very, very pleased with the show.



Upcoming Shows

November 22 - 24, 2019 -The Columbia, SC Gem & Mineral Society will hold its 52nd Annual Gem, Mineral, & Jewelry Show - Fri. Nov. 22, 10:00 - 6:00. Sat. Nov. 23, 10:00 - 6:00, Sun. Nov. 24, 12:00 - 5:00 - Jamil Temple, 206 Jamil Rd, Columbia, SC 29210 - Exit 106 off I26 - Jewelry, beads, loose stones, fossils, minerals, gold, silver, & tools for salem Geodes sold & cut, Club member's rock collections on exhibit & lapidary demonstrations. Education for the whole family. South Carolina amethyst on display. Sponsored by The Columbia Gem & Mineral Society \$5.00 for adults, Sixteen & under free with adult. 3 day pass - \$10 All military & their dependents free with ID Sue Shrader 803-736-9317 ashrader@mindspring.com Dealers; Sharon Sterrett 803-356-1472 ssterrett@sc.rr.com www.cgams.org



Reviewing: Fluorite (also known as Fluorspar) From Geology.com/minerals

An important industrial mineral used in many chemical, ceramic, and metallurgical processes.

What is Fluorite?

Fluorite is an important industrial mineral composed of calcium and fluorine (CaF₂). It is used in a wide variety of chemical, metallurgical, and ceramic processes. Specimens with exceptional diaphaneity and color are cut into gems or used to make ornamental objects.

Fluorite is deposited in veins by hydrothermal processes. In these rocks it often occurs as a gangue mineral associated with metallic ores. Fluorite is also found in the fractures and cavities of some limestones and dolomites. It is a very common rock-forming mineral found in many parts of the world. In the mining industry, fluorite is often called "fluorspar."

Physical Properties of Fluorite

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|-------------------------|---|
| Chemical Classification | Halide |
| Color | Typically purple, green, and yellow. Also colorless, blue, red, and black. |
| Streak | White |
| Luster | Vitreous |
| Diaphaneity | Transparent to translucent |
| Cleavage | Four directions of perfect cleavage |
| Mohs Hardness | 4 |
| Specific Gravity | 3.2 |
| Diagnostic Properties | Cleavage, hardness, specific gravity, color |
| Chemical Composition | CaF ₂ |
| Crystal System | Isometric |
| Uses | Numerous uses in the metallurgical, ceramics, and chemical industries. A source of fluorine, hydrofluoric acid, metallurgical flux. High-clarity pieces are used to make lenses for microscopes, telescopes, and cameras. |

Fluorite is very easy to identify if you consider cleavage, hardness, and specific gravity. It is the only common mineral that has four directions of perfect cleavage, often breaking into pieces with the shape of an octahedron. It is also the mineral used for a hardness of four in the Mohs Hardness Scale. Finally, it has a specific gravity of 3.2, which is detectably higher than most other minerals.

Although color is not a reliable property for mineral identification, the characteristic purple, green, and yellow translucent-to-transparent appearance of fluorite is an immediate visual clue for the mineral.



Fluorescence

In 1852, George Gabriel Stokes discovered the ability of specimens of fluorite to produce a blue glow when illuminated with light, which in his words was "beyond the violet end of the spectrum." He called this phenomenon "fluorescence" after the mineral fluorite. The name gained wide acceptance in mineralogy, gemology, biology, optics, commercial lighting, and many other fields.

Fluorite typically glows a blue-violet color under short-wave ultraviolet and long-wave ultraviolet light. Some specimens are known to glow a cream or white color. Many specimens do not fluoresce. Fluorescence in fluorite is thought to be caused when trace amounts of yttrium, europium, samarium, or other elements substitute for calcium in the fluorite mineral structure.

Fluorite Occurrence

Most fluorite occurs as vein fillings in rocks that have been subjected to hydrothermal activity. These veins often contain metallic ores which can include sulfides of tin, silver, lead, zinc, copper, and other metals.

Fluorite is also found in the fractures and vugs of some limestones and dolomites. Fluorite can be massive, granular, or euhedral as octahedral or cubic crystals. Fluorite is a common mineral in hydrothermal and carbonate rocks worldwide.

Fluoride products

Fluoride products: Most people are familiar with fluoride products used in the prevention of tooth decay. Fluoride is added to drinking water as a systemic fluoride therapy and added to toothpastes, mouthwashes and dental rinse as a topical fluoride therapy. These uses of fluoride have been controversial.

Uses of Fluorite

Fluorite has a wide variety of uses. The primary uses are in the metallurgical, ceramics, and chemical industries; however, optical, lapidary, and other uses are also important.

Fluorspar, the name used for fluorite when it is sold as a bulk material or in processed form, is sold in three different grades (acid, ceramic, and metallurgical).

Acid Grade Fluorspar

Acid grade fluorspar is a high-purity material used by the chemical industry. It contains over 97% CaF₂. Most of the fluorspar consumed in the United States is acid grade even if it is used in lower grade applications. It is used mainly in the chemical industry to manufacture hydrofluoric acid (HF). The HF is then used to manufacture a variety of products which include: fluorocarbon chemicals, foam blowing agents, refrigerants, and a variety of fluoride chemicals.

Ceramic Grade Fluorspar

Ceramic grade fluorspar contains between 85% and 96% CaF₂. Much of this material is used in the manufacture of specialty glass, ceramics, and enamelware. Fluorspar is used to make glazes and surface treatments that produce hard glossy surfaces, opalescent surfaces, and a number of other appearances that make consumer glass objects more attractive or more durable. The non-stick cooking surface known as Teflon is made using fluorine derived from fluorite.

Metallurgical Grade Fluorspar

Metallurgical grade fluorspar contains between 60 and 85% CaF₂. Much of this material is used in the production of iron, steel, and other metals. Fluorspar can serve as a flux that removes impurities such as sulfur and phosphorous from molten metal and improves the fluidity of slag. Between 20 and 60 pounds of fluorspar is used for every ton of metal produced. In the United States many metal producers use fluorspar that exceeds metallurgical grade.

Optical Grade Fluorite

Specimens of fluorite with exceptional optical clarity have been used as lenses. Fluorite has a very low refractive index and a very low dispersion. These two characteristics enable the lens to produce extremely sharp images. Today, instead of using natural fluorite crystals to manufacture these lenses, high-purity fluorite is melted and combined with other materials to produce synthetic "fluorite" lenses of even higher quality. These lenses are used in optical equipment such as microscopes, telescopes, and cameras.

Lapidary Grade Fluorite

Specimens of fluorite with exceptional color and clarity are often used by lapidaries to cut gemstones and make ornamental objects. High-quality specimens of fluorite make beautiful faceted stones; however, the mineral is so soft and cleaves so easily that these stones are either sold as collector's specimens or used in jewelry that will not be subjected to impact or abrasion. Fluorite is also cut and carved into ornamental objects such as small figurines and vases. These are often treated with a coating or impregnation to enhance their stability and protect them from scratches.

Fluorite Production in the United States

Deposits of minable fluorite exist in the United States; however, nearly all of the fluorite consumed in the United States is imported. The primary countries that supplied fluorite to the United States in 2011 were China, Mexico, Mongolia, and South Africa. All of this fluorite is imported because production costs in the United States are so high that the material can be produced in these other countries and shipped directly to customers in the United States at a lower cost.

In 2011 several companies were producing and selling synthetic fluorite as a byproduct of their phosphoric acid production, petroleum processing, or uranium processing activities. A limestone producer in Illinois was also recovering and selling small amounts of fluorite from their quarry. That company is developing an underground mine to exploit a large vein of fluorite which they hope will be in production in 2013.



Outreach Session

Jeff Schlottman presented an educational event for a home-school group at Oaklawn Baptist Church on September 12, just after the show. The following is an acknowledgement received from the class coordinator:

Hello! I just wanted to say thank you to Jeff for coming out on Thursday to meet with our children. He had lots of samples to pass around and information that the kids had not read in their books. He even gave each of them a sample to keep for themselves. It really was a terrific class and we are thankful that he chose to spend his time with us!

Have a great day!

Angie



FGMC Field Trip

Note: FGMC Field Trips are for club members and their families only. Liability issues mean that these



Meeting Minutes

Due to the annual show there was no meeting in September.

.Respectfully Submitted,
Lisa Reed, Secretary



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

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| President: | Al Gaskill | |
| Vice-President: | Charles Whicker | ccwhicker@live.com |
| Secretary: | Lisa Reed | |
| Treasurer: | Alex McGilvary | amcgilvary@csmenvironmental.com |
| Directors | David Goode Sandra Myers Sherry Marion Ken Reed | dgoode@triad.rr.com |
| Hospitality Chair: | Vickie Gaskill | |
| Editor: | Wayne Ketner | 336-769-3553 wketner3553@gmail.com |