

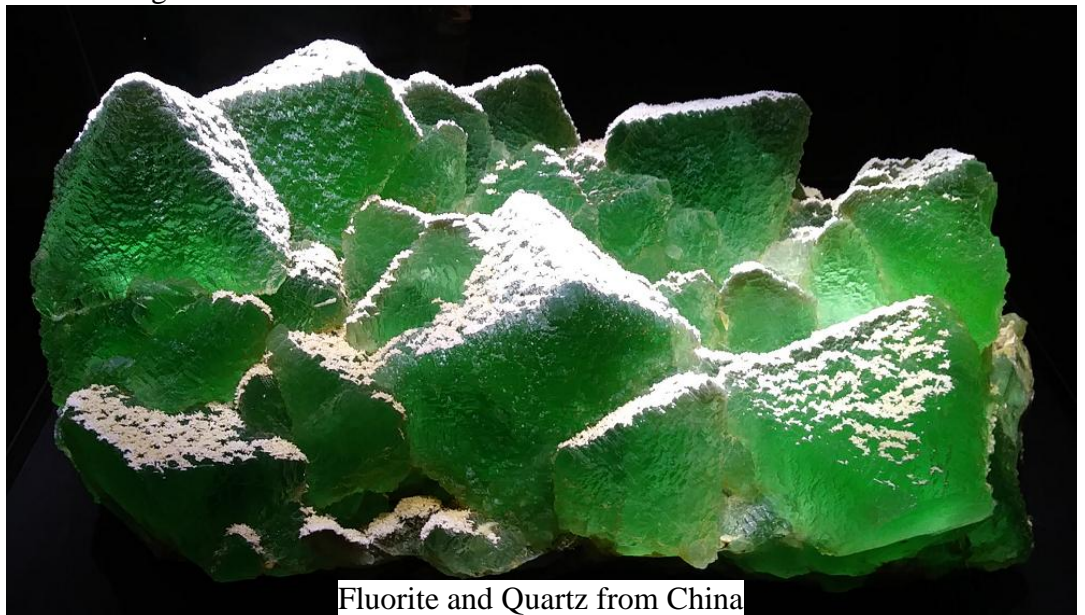


Fluorite

Don Shurtz, Pleasant Oaks Gem and Mineral Club of Dallas

Fluorite is a member of the Halide minerals class (minerals with a halide anion – fluorine, chlorine, bromine, and iodine) and is composed of Calcium and Fluorine, CaF_2 . Fluorite is not particularly abundant in the Earth's crust. Fluorite is placed in the earth's crust list as a Calcium mineral, and Calcium is only fifth on the list of minerals in the crust – only 3.6 % of the earth's crust is Calcium. Fluorite is well down in the list of Calcium minerals that is topped by Calcium Carbonates (Calcite, Aragonite, and Limestone). There are, however, over 9,000 (or, depending on the data source, over 10,500) areas in the world with significant Fluorite Deposits. Pure Fluorite is colorless, but it also is found in purple, blue, yellow, orange, green, pink, light brown, and brown colors. Some Fluorite specimens have multiple colors, often layered, in the same stone. Fluorite is the defining mineral for Mohs hardness of 4. It is known as Fluorspar in the commercial world and as Fluorite in the mineralogical world.

The colors in Fluorite are due to color centers (crystal lattice defects) and/or the presence of trace elements. Purple Fluorite is one of the most common colors for Fluorite. Its color mechanism is well understood – it is caused by missing fluorine atoms in the crystalline structure where a single free electron replaces the missing fluorine atom.



Fluorite and Quartz from China

The coloring mechanisms for other colors are still being studied. Fluorite is a common mineral in hydrothermal deposits including granites and other igneous rocks, and limestone and dolomite deposits. It is also commonly found with Galena, Sphalerite, Quartz, Barite, and Calcite deposits. The presence of these rocks and minerals offers plenty of opportunities for capturing trace elements into the Fluorite crystal lattice that could be the source of the Fluorite's color. Many Fluorites are also known to be fluorescent when exposed to an ultraviolet light. These fluorescent Fluorites have rare earth mineral impurities (yttrium, ytterbium, europium and others) and hydrocarbons trapped in the crystal lattice. Europium is often found in Fluorites that exhibit a blue fluorescence. These trace quantities of rare earth minerals and the trapped hydrocarbons may also be associated with the normal light colors of Fluorite.

Fluorite derives its name from the Latin *fluere*, a verb meaning “to flow”. The mineral was originally called fluorspar, a word that traces its origins to a German book by Georgius Agricola where he was describing how fluorspar was used as a flux to reduce the viscosity of the slag in smelting iron. As mentioned earlier, many Fluorites were known to be fluorescent. The word “fluorescent” was derived from the name of the mineral Fluorite. One would also believe that the cart (Fluorite) would come after the horses (calcium and fluorine), but the oxidizing agent (fluorine) derived its name from Fluorite! Generally the elements are known long before the contents of the mineral molecules, but in this case, the existence of an oxidizing agent was suspected, but took years to be isolated. Unfortunately, the discovery of the gas fluorine cost the lives and/or health of several researchers before it was isolated as an element. Fluorine is the strongest oxidizing element known. You can use fluorine to oxidize Oxygen! It is such a strong oxidizing agent that most scientists felt that it could not exist in native state. However, in 2012, fluorine gas - native fluorine as F₂ – was isolated in a fluorite mine in Germany.



Fluorite from Pakistan

Some of the commercial uses for Fluorite obviously are for use as a flux in smelting iron. Fluorite is also used in the production of aluminum, but not as a flux. Aluminum oxide is dissolved in a molten solution of AlF₃, cryolite (Na₃AlF₆) and Fluorite (CaF₂) which allows for the electrolytic separation of the Aluminum. Fluorite is also used to produce hydrofluoric acid that has a myriad of industrial uses from making Teflon coatings for cookware to etching materials for semiconductor chip production to fluoride coatings for our teeth. Very pure Fluorite is also used to make windows for transmission of infrared and ultraviolet light. Artificially grown Fluorite is also used in place of glass for high power telescope and camera lens.

Finally, Fluorite is obviously acquired for mineral specimens by mineral collectors and for lapidary materials for many rockhounds. Being soft (Mohs 4) it can be easily scratched so it must be protected by using proper mounts.

References

- AJS Gems, <https://www.ajsgem.com/gemstone-information/>
- Composition of the Earth’s Crust, Sandatlas, <https://www.sandatlas.org/>
- Fluorite, Mindat.org, <https://www.mindat.org/>
- Fluorite, University of Minnesota, <https://www.esci.umn.edu/>
- Wikipedia, <https://en.wikipedia.org/wiki/>

Pictures by Don Shurtz

- Fluorite and Quartz from China, specimen on display at Perot Museum of Nature and Science
- Fluorite from Pakistan, specimen on display at Perot Museum of Nature and Science

Note: these pictures in this article can be found online as puzzles at <https://www.jigsawplanet.com/>

From the desk of the President David Wayment, AFMS President

From the December 2019 / January 2020 AFMS Newsletter

And just like that the year is over and another one begun. The year as President-Elect is spent getting ready for your year as President. And no matter how well you think you have planned for it, you always run out of time. It is my honor to be your AFMS President for the 2019-2020 year. I am looking forward to working with everyone and meeting many new friends all over the country. I have been involved with the hobby, but not as a rockhound or collector, as so many of our friends in the west are. In Florida we have only a few rocks/crystals to collect. I have been in my home club since 2002. In my first few years I took a class at each of the 5 sessions SFMS offered at the William Holland and Wildacres workshops. Over the years I progressed from learning silversmithing to teaching silversmithing. I am currently the Education Chair for my home club, teaching classes there and at William Holland. Now that the winter season is finally getting to Florida and temperatures are dropping below 80, it is time to get back into the workshop for another busy season. After moving to Florida, you need a few years to turn your year around so you hibernate in the hot summer and go out in the winter. This is the season for club shows and some field trips in our area. If you are coming down to the south, look up a local club and you might find a show or field trip in the area.



I'm just recently back from the SFMS Annual Meeting. The SFMS has been working on a big initiative to disseminate information for the State Directors to present to the clubs in their state about the benefits and programs available to the local clubs provided by the SFMS and AFMS. One of the most underutilized programs is the Slide/Video program. This is a wonderful benefit to the clubs that comes from the AFMS to the regions. Not all clubs are lucky enough to have skilled instructors in all areas of our hobby or speakers to provide programs at meetings. This wonderful library can lend DVD's or VHS programs for the clubs to use, and return, at no cost. The topics range from a tour of the Grand Canyon, identifying gemstones to creating a bezel for a cabochon. As the holidays approach I wish blessings on everyone and I look forward to working with all of you.

Past President Report, Doug True, AFMS Past President

From the December 2019 / January 2020 AFMS Newsletter

It is hard to believe where the year has gone. It seems that our journey had just begun. As we traveled around the country, we met new friends and visited others that we have met before. What a great experience. We would like to thank everyone for welcoming us throughout the different federations and for showing us your beautiful states and sharing what is going on in your federation, or clubs. I would do it again in a minute. It is important that we work hard to keep our hobby strong and vibrant, that means putting that extra effort in to our youth; it means working to keep open our public lands for collecting; it means sharing your time and knowledge to help advance our hobby. I'm sure that my journey is not complete, just going in another direction. I am sure I will see many of you down the road in the future.



Thank you for a great year. Doug

President's Message by Roger Burford, SCFMS President

From the January – February 2020 SCFMS Newsletter

The Christmas season is upon us and the New Year will start very soon. This is a time of year we reflect on our friends and family and I hope that you also remember your fellow Rock Hounds who share your hobby. It has been a good year for us and I hope the same is true for you and yours.



Those of us in the south are lucky that we are able to continue to get out and rock hound during the winter and enjoy the outdoors without it being so hot, as long as it doesn't snow. For us in Baton Rouge it only snows every ten years. Happy holidays and have a happy New Year, I hope to be able to see more of you during this one.

Roger

Shows and Activities – Upcoming Show and Activity Dates

- FEB 15-16, Georgetown, TX, Williamson County G&MS, San Gabriel Park, wcgmstx1@outlook.com
- FEB 22-23, Pasadena, TX, Clear Lake G&MC, Pasadena Convention Center, clgmvendors@gmail.com
- FEB 22-23, Plainview, TX, Hi-Plains G&MS, Ollie Liner Center, bobcat22@suddenlink.net
- MAR 7-8, Big Spring, TX, Big Spring Prospectors Club, Howard Cnty. Fair Barn, lolobellelamb@yahoo.com
- MAR 7-8, Gulf Coast G&MS, RMB Fairgrounds, Exhibit Hall A, gulfcoastgemandmineralsociety@gmail.com
- MAR 12-15, Deming, NM, Deming G&MS, SW NM Fairgrounds, thedgms@gmail.com
- MAR 14-15, San Antonio, TX, Southwest G&MS, San Antonio Event Center, krbotx@gvtc.com
- MAR 20-22, Albuquerque, NM, Albuquerque G&MC, Expo NM State Fairgrounds, paulhlava@q.com
- MAR 27-28, Ada, OK, Ada GM&FC, bfreeman.1966@yahoo.com

Ref:

- January February 2020 SCFMS News
- SCFMS Local Shows, www.scfms.net
- Rock & Gem Show Dates, <https://www.rockngem.com/ShowDatesFiles/ShowDatesDisplayAll.php?ShowState=ALL>

Bench Tips from Brad Smith

Reprinted by permission of the author, Brad Smith. Received as an email from Brad Smith

CUTTING A BOLT¶

Whenever you have to cut a threaded bolt shorter, it's often difficult to get the nut to thread back onto it. And the smaller the bolt, the more difficult it is to restore any distorted threads. The problem is easily solved with the use of a nut. Here's how I do it.¶

First, screw a nut onto the bolt before cutting it. Grip the bolt by the threaded section that is to be sawed off. Then saw the bolt to the desired length, taper the end with sandpaper or file, and unscrew the nut from the bolt.¶

Unscrewing the nut over the freshly cut end of the bolt will straighten out any damage that sawing and filing did to the threads. Gripping the bolt by the piece to be sawed off



localizes any crushing damage to the piece that will be thrown away.¶

DEPTH GAUGE FOR DRILLING¶

Sometimes you need to drill a number of holes all to the same depth. One quick and easy way to do this is to wind some tape around the drill bit so that the tape just touches the part surface when the hole is deep enough.¶

You can set the depth either by measuring from the tip of the drill to the tape or by drilling to the correct depth, leaving the bit in the hole, and wrapping tape around the bit at the surface level.¶

Note that a little extra tape left free on the end will blow away debris from the drilling.¶



Section Break (Continuous)

Work Smarter & Be More Productive With Brad's "How To" Jewelry Books

[Amazon.com/author/bradfordsmith](https://www.amazon.com/author/bradfordsmith)



VISIT AN AREA CLUB

- [Arlington Gem & Mineral Club](#), meets the 1st Tuesday of each month at 7:30 pm, 1408 Gibbins, Arlington, TX
- [Cowtown Gem, Mineral, & Glass Club](#), meets the 2nd Tuesday at 7:00 pm, CERA 3300 Bryant Irvin Rd. Fort Worth
- [Dallas Bead Society](#), meets 1st Saturday of each month at 10:00 am at The Point at CC Young, 4847 W. Lawther Dr., Dallas, TX
- [Dallas Gem & Mineral Society](#) meets the 3rd Tuesday of each month at 7 pm, American Legion, 10205 Plano Rd, Dallas (next to their shop)
- [Dallas Paleontological Society](#), meets 2nd Wed. of each month at 7:00 pm, Brookhaven College, Building H, 3939 Valley View Lane, 75244
- [Fort Worth Gem & Mineral Club](#), meets 4th Tuesday of each month at 7:30 pm, 3545 Bryan Avenue, Ft. Worth
- [Oak Cliff Gem & Min Soc.](#), meets the 4th Tuesday of each month at 7:30 pm, Unitarian Universalist Church, 3839 W. Keist Blvd, Dallas,
- [Pleasant Oaks Gem & Mineral Club](#), meets the 1st Thur. of each month at 7:30 pm, Garland Women's Activities Bldg., 713 Austin, Garland
- [Wild West Bead Society](#), meets 3rd Tuesday of each month at 6:30, Wild Beads, 2833 Galleria Dr., Arlington, TX

PRESIDENT'S MESSAGE

Ling Shurtz, POGMC President

The IGEM show at Fair Park was poorly attended on the first day due to rain, but had a good flow of customers on the 2nd and 3rd day despite the \$10.00 required for parking. For those who waited to set up prior to the first day of the show, security would not open the roll-up doors to allow heavy loads to be brought in – everything had to enter through a personnel door with a six inch step – very difficult for a loaded cart and hand truck (dolly). This needs to be rectified or many dealers will not participate at a subsequent Fair Park show. At our next meeting we will continue our discussion of meeting options.

CLUB OFFICERS FOR 2019

President:	Ling Shurtz
1st VP, Programs:	Carolyn Grady
2 nd VP, Field Trips:	Open
Secretary:	Lee Elms
Treasurer:	Del Grady
Editor:	Don Shurtz
E-mail:	don.shurtz@gmail.com, L.SHURTZ@gmail.com

MEETING MINTUES

January 2, 2020

POGMC President Ling Shurtz called the January 2, 2020 club meeting to order at 7:35 pm.

Warner led the Pledge of Allegiance to the Flag

Quorum: We have a quorum.

Sunshine Report: Nothing new to report

Visitors: None at tonight's meeting

Minutes: We discussed the minutes of the November 2019 meetings as printed in the December 2019 Chips and Chatter. Hatt made a motion to accept the minutes. Warner seconded the motion. The motion passed. The December 2019 meeting was the annual Christmas Party – no minutes were taken nor required.

Treasurer's Report: Del Grady gave Treasurer's Reports for November and December 2019. Carolyn made a motion to accept the Treasurer's Reports. Warner seconded the motion. The motion passed

Old Business:

- IGEM is January 10, 11, and 12, 2020. Set up will be on Thursday, January 9. The show will be at Fair Park in the Food and Fiber building. Tickets are available at the desk

New Business:

- Meeting options – Various options for future meetings were discussed including meeting at a restaurant, continuing at current location with more frequent potluck meals, and continuing as is. Further discussion was tabled until the February meeting.
- There was no other new business

Area shows:

- Jan 10-12, Dallas Texas, Fair Park at the Food and Fiber Building.
- Jan 18-19, Fredericksburg, TX, Fredericksburg Rockhounds, Lady Bird Johnson Park
- Jan 24-26, Tyler, TX, East Texas G&MS, Tyler Rose Garden Center

Break

Presentation: We viewed a video about Impact Crater, AZ from the Great Course geology series. The geology of Impact Crater (also known as Barringer Crater) was fascinating. It was formed about 50,000 years ago when a meteorite hit the earth with the force equivalent to 20,000,000 million pounds of TNT. The crater is 570 ft deep and 3,900 ft in diameter with a rim about 130 ft above the desert floor. Originally believed to be a volcanic crater, Daniel Barringer believed an iron meteorite caused the crater and spent many years and dollars drilling to find the iron. By early 1960, scientific evidence had confirmed that the crater was caused by a meteorite. The size estimate of the meteor was calculated to be only 150 ft in diameter and most of the meteorite was vaporized by the impact. An estimated 200 – 400 million tons of ground were ejected from the crater by the impact. The crater has filled and the height of the rim has decreased in the 50,000 years from impact to today due to wind and water erosion.

Ling adjourned the meeting at 8:50 pm.

MEETING

The next meeting will be Thursday, February 6, 2020 starting at 7:30 PM. We will view a DVD, "The Galapagos Rift". The subsequent meeting will be March 5, 2020.

VISITORS ARE ALWAYS WELCOME

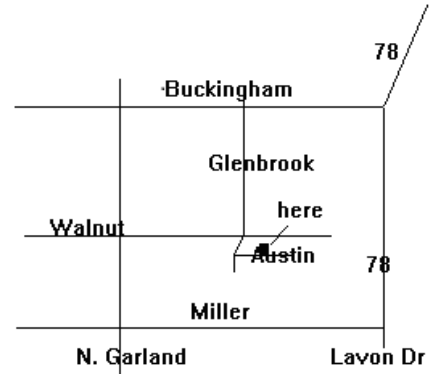
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PLEASANT OAKS GEM and MINERAL CLUB of Dallas



Meetings
 First Thursday of each month, 7:30 PM
 Garland Women’s Activities Building
 713 Austin St., Garland, TX
 (Northeast corner of Austin & Glenbrook)

Membership
 Single Adult: \$16.50,
 Junior: \$5.00, Family: \$27.50
 (Plus badge fee for new members)



PURPOSE

The Pleasant Oaks Gem and Mineral Club of Dallas is organized for charitable and educational purposes to promote interest in the various earth sciences, particularly those hobbies dealing with the art of cutting and polishing gemstones, the science of gems, minerals and metal crafts, as well as their related fields. Pleasant Oaks Gem and Mineral Club of Dallas is a Section 501(c)(3) not-for-profit organization

CHIPS AND CHATTER

Pleasant Oaks Gem & Mineral Club
 PO Box 831934
 Richardson, TX 75083-1934

To:

VISITORS ARE ALWAYS WELCOME

Meetings: First Thursday of each month, usually at 7:30 PM, Garland Activities Building, Garland TX
 Next Meeting: **February 6 starting at 7:30 PM – Presentation will be video “The Galapagos Rift”**

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