



The Mineral Mite

Vol. 50 – No. 5

Washington D.C. – A Journal for Micromineralogists

May 2017

50 Years 1967 - 2017

May 24 Time: 7:30 p.m. – 10 p.m.

Long Branch Nature Center, 625 S. Carlin Springs Rd. Arlington, VA 22206

Program: Mid-West Sedimentary Mineralogy – Part II “The Illinois Fluorite District”

By David Fryauff, Vice President

At our April meeting, we watched a DVD talk by Dr. Steve Neely on the Elmwood Mine in Tennessee. We discovered some fabulous and fabulously expensive specimens, but we were also consoled by our own observations that beautiful examples of Elmwood Mine minerals could be found as micro-minerals for a micro investment. In the discussion afterwards, the question arose whether the Illinois Fluorite mines were related to the Elmwood Mine. As it happens, on the same DVD, there is another talk by Alan Goldstein titled “The Illinois Fluorite District”. There are some Illinois minerals that look remarkably like the Tennessee minerals. We should enjoy comparing these talks. Please bring to the May meeting any Illinois Fluorite District specimens that you would like to share with our group, especially if any rocks have micro potential.



President’s Message:

By: Dave MacLean

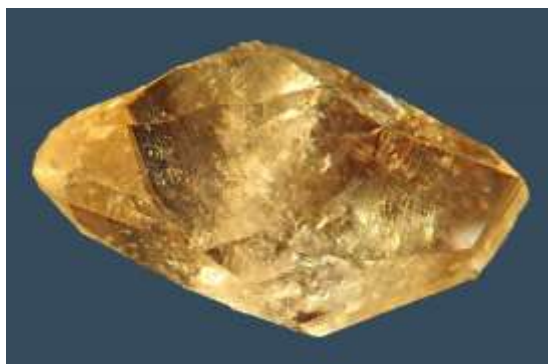


Our 2017 Atlantic Micromounters Conference showed that the “little things are inspirational”. We enjoyed Dr. Michael Wisnes’ talks about the Smithsonian micromineral collection, merelaniite, and micros in pegmatites. Scott Duresky presented micros from the Rutherford mine.

The sellout of 20X loupes from our table at the GLMSMC show says that there are persons interested in the little things. Some persons appear to be intimidated by an expensive microscope. However, by showing what one can see with a 10X or 20X loupe maybe we can draw persons in to look at the “little things”.

Last Wednesday I enjoyed looking at the slides of calcites on fluorite from the Elmwood Mine in TN. I asked what are the micros and thumbnails from that now closed 1991 zinc and fluorite mine at Elmwood, TN. Thank you, Michael Pabst for bringing in some samples of what came from there. I think about the marvelous micros and thumbnails from the long closed 1969 lead and zinc mines in NW Illinois and SW Wisconsin, the limestone quarries near Dubuque, IA, and the closed lead and zinc mines in south Missouri, NE Oklahoma, and SE Kansas. I look forward to our next meeting.

Photo of the Month



Golden Calcite, Elmwood Mine in Tennessee. 6 mm wide (about 1/4 inch), involving stacking 8 images. I Photoshopped in a blue background for contrast.

Photomicrography by Michael Pabst

Previous Meeting Minutes: 4/26/17

By: Bob Cooke, Secretary

President Dave MacLean called the meeting to order at 7:40 PM. No guests or past presidents were present. Nine members were in attendance.



Treasurer's report: Michael Pabst presented the Treasurer's Report.

Old business: Members approved the March meeting minutes as printed in The Mineral Mite. Kathy Hrechka thanked all members for their efforts in supporting the Atlantic Micromounters' Conference (AMC). She reported that the AMC had a net gain of \$40.

New Business: The death of long-time member George Reimherr on March 31 was noted with sadness. Several members recounted anecdotes of their experiences with George. Dave MacLean said that George's grandson Aaron has developed an interest in minerals and is the new owner of George's collection.

Announcements: Dave Fryauff announced that the Sterling Hill Super Dig is this weekend (April 29/30). He also invited MNCA members to join GLMSMC club members on field trips May 13th and 27th. The May 13th trip meets 9 AM at the National Limestone Quarry #1 in Middleburg, PA then in the afternoon proceeds to the National Limestone Quarry #2 in Mount Pleasant Mills, PA. The May 27th trip meets at 6:30 AM at the Vulcan Materials Quarry, Manassas, VA. If interested, RSVP to Dave. The meeting adjourned at 8:15 PM.

Membership Dues are Due: 2017

Single = \$15. Family = \$20.

**Payable to MNCA - Michael Pabst, Treasurer
270 Rachel Drive Penn Laird, VA 22846**



Previous Program Reviewed: 4/26/17
"Minerals of the Elmwood Mine in Tennessee"

We viewed a talk by Dr. Steve Neely: "Elmwood, Tennessee – Past and Present Perspectives" from the 2016 Dallas Mineral Collecting Symposium DVD. The symposium is kind enough to provide readers of the *Mineralogical Record* with a DVD of their proceedings. In the latest 2016 edition of the DVD, there are 11 talks. Michael Pabst brought some micro calcites hidden amongst fluorite and sphalerite minerals from the Elmwood Mine to share with our group.



Welcome back, John Kress

Merelaniite and Associated Minerals of the Merelani Tanzanite Deposit

Presented by Dr. Michael Wise, Department of Mineral Science, Smithsonian Institution
Atlantic Micromounter Conference April 1, 2017

The new mineral merelaniite was found associated with the Tanzanite (variety of zoisite) deposit in the Merelani hills, Laletami Mountains in northeast Tanzania.

Tanzanite is found in a high grade metamorphic ultrahigh temperature granulite facies resulting from metamorphism of black shale with high organic content and high vanadium content. Minerals include tanzanite colored blue due to vanadium VO²⁺, graphite crystals as mm size plates on tanzanite, diopside, orange, green and blue prehnite, pyrite octahedral, dodecahedra, marcasite balls, and euhedral, wurtzite, alabandite MnS, titanite, quartz, chabazite on laumontite and prehnite, grossular distorted dodecahedra, blue hexagonal prisms apatite, orange sphalerite, 200nm zircon, purple fluorite on colorless fluorite, apophyllite on prehnite or chabazite, laumontite and other minerals. Tanzanite miners are now saving other mineral specimens to sell into the collector's market.

Black wires were found on chabazite. Their X-ray diffraction patterns were similar to molybdenite. Elemental analysis showed molybdenum, lead, vanadium, antimony and sulfur. The mineral Merelaniite was Mo₄Pb₄V₅Sb₁₅. Merelaniite occurs as wires, and flexible cylindrical whiskers up to 12mm long enclosed in other minerals associated with graphite. The ends are tapered, and the wires are almost square. SEM examination of the wires looking down the ends found layered structure like rolled up paper consisting of layers of PbS and MoS₂. The location of vanadium antimony in the Merelaniite structure is yet to be determined.

This talk presented the sequence of the metamorphism with zircon, titanite and thorite formed at high temperature and merelaniite formed at low temperature.

Jessica and Robert Simonoff bought blue prehnite from the Merelani Hills Tanzania at the Tucson

Show. Apparently, the blue color is inside the center of the prehnite. The blue color arises from color centers, missing atoms creating vacancies or color centers in the structure.

Apparently, the vanadium comes from the adjacent black shale and graphite from its metamorphism. Vanadium is common in petroleum. Tanzanite from the mine is often pale blue. Heating tanzanite makes it deep blue.

Written by David MacLean



Merelaniite Photo by Robert Simonoff
MY FIRST "MICRO" by Dr. Wise

Micromineralogists of the National Capital Area, Inc.

50th Anniversary MNCA 1967-2017



Smithsonian Blue Room 1969, Paul Desautels



Cynthia Barnes, Payne 1981
Hope Diamond



Phil Cosminsky, Erich Grundel 1980s



Joe Murter below, 1998



Barbara Sky, 1990s above
Cynthia Barnes, 1980s right



Molybdenite

By Michael Pabst

Molybdenite, which is molybdenum disulfide or MoS_2 , is the principal ore of molybdenum. In Colorado, mountains have been leveled, and valleys filled with sludge, as the result of the large-scale mining of this metal. Two of the largest such mines are the Climax mine near Leadville, and the Henderson mine near Berthold Pass. Extensive use of explosives and gigantic-scale mining equipment means that relatively few good mineral specimens have been salvaged from these devastated landscapes. The Henderson mine has produced some poor specimens of Molybdenite and some fair specimens of Rhodochrosite, but its principal contribution to mineral esthetics is Creedite $\text{Ca}_3\text{Al}_2(\text{SO}_4)(\text{OH})_2\text{F}_8 \cdot 2\text{H}_2\text{O}$. Of course, Creedite is not a molybdenum mineral, but there are a few flecks of Molybdenite and Pyrite in the specimen below. This beautiful Creedite specimen somehow eluded all the explosives and crushers!



Creedite (very pale lilac) on a plate of presumed Rhodochrosite (pale old rose color) from the Henderson Mine, Dailey District, Clear Creek County, Colorado. FOV 22 mm. Photo by Michael Pabst. (Single photo taken several years ago with a 50 mm Minolta MACRO lens and a Panasonic Lumix DMC-GF3 camera).

Molybdenite is a hexagonal mineral, often occurring as a stack of gray-black metallic hexagonal plates. Molybdenite is dihexagonal dipyramidal ($6/mmm$), indicating that it has a six-fold axis of rotation, and three mirror planes. There is also a rare polytype of Molybdenite that is ditrigonal pyramidal ($3/m$). Molybdenite is flexible, but not elastic. It is soft, with Mohs hardness 1 – 1½. It has perfect basal cleavage like a mica [0001]. An isolated crystal is difficult to distinguish from Graphite. Both are soft enough to use as dry lubricants or to write on paper.

There is a similar, but rare, mineral with Tungsten instead of Molybdenum, Tungstenite WS_2 . Tungstenite has a Mohs hardness of 2.5, but looks much like Molybdenite. Here is my favorite photo of Tungstenite from Mindat taken by Enrico Bonacina: www.mindat.org/photo-272083.html. This photo suggests that the thin crystal is translucent, as are thin crystals of Molybdenite. As in this photo, the best specimens of Tungstenite come from a marble quarry in Italy.

Molybdenite is a common mineral world-wide; good specimens occur at many localities. Some of the best Molybdenite specimens come from small-scale mining of a pegmatite in Québec, where specimens can be gathered by hand. The crystals are shiny, and show a thin platy habit. The site is the Moly Hill mine, La Motte township, Québec, Canada.



Molybdenite on Quartz from the Moly Hill mine, La Motte, Abitibi RCM, Abitibi-Témiscamingue,

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Québec, Canada. FOV 10 mm. *Photo by Michael Pabst.* (25 images were taken with my new 60 mm Olympus Macro lens and Olympus OM-D E-M5 Mark II camera using auto focus bracketing, then 8 images were selected and stacked with CombineZP, and the final image was edited with Photoshop Elements version 14.)

The Molybdenite photo gives the impression, which is correct, that individual leaves can be peeled off the crystal, and that each leaf is shiny and flexible like foil.

In Molybdenite, the molybdenum is in the 4+ oxidation state, but most molybdenum minerals are further oxidized and occur as molybdates (MoO_4)²⁻, where molybdenum is in the 6+ oxidation state. The most prominent molybdate is the lead molybdate, Wulfenite, which we looked at in the two previous articles. But there are some other nice molybdate minerals that we will examine in upcoming articles. Think copper molybdate, for example.

Photomicrography by Michael Pabst

Sphalerite from the same specimen that contains the small calcite. FOV 6 mm. The tiny deep amber Sphalerites are much prettier to me, compared with the dark masses we have all seen on big specimens.



“Minerals of the Elmwood Mine, TN”

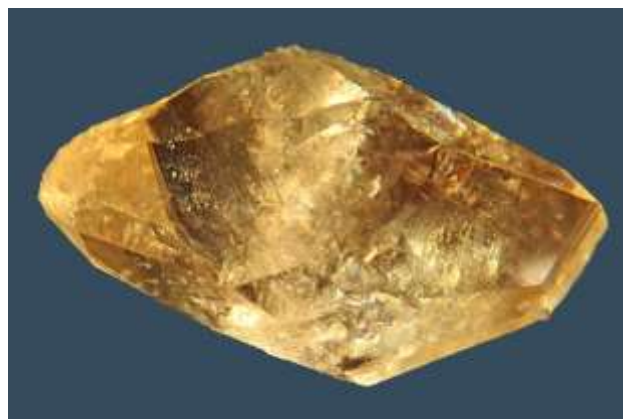
By Michael Pabst - Program workshop 4/26/17

Here are two golden calcites from the Elmwood Mine in Tennessee. One specimen is 175 mm wide (about 7 inches); the other is 6 mm wide (about 1/4 inch). I photographed both, and both are in my collection. The tiny calcite involved stacking 8 images; the big is a single photo.

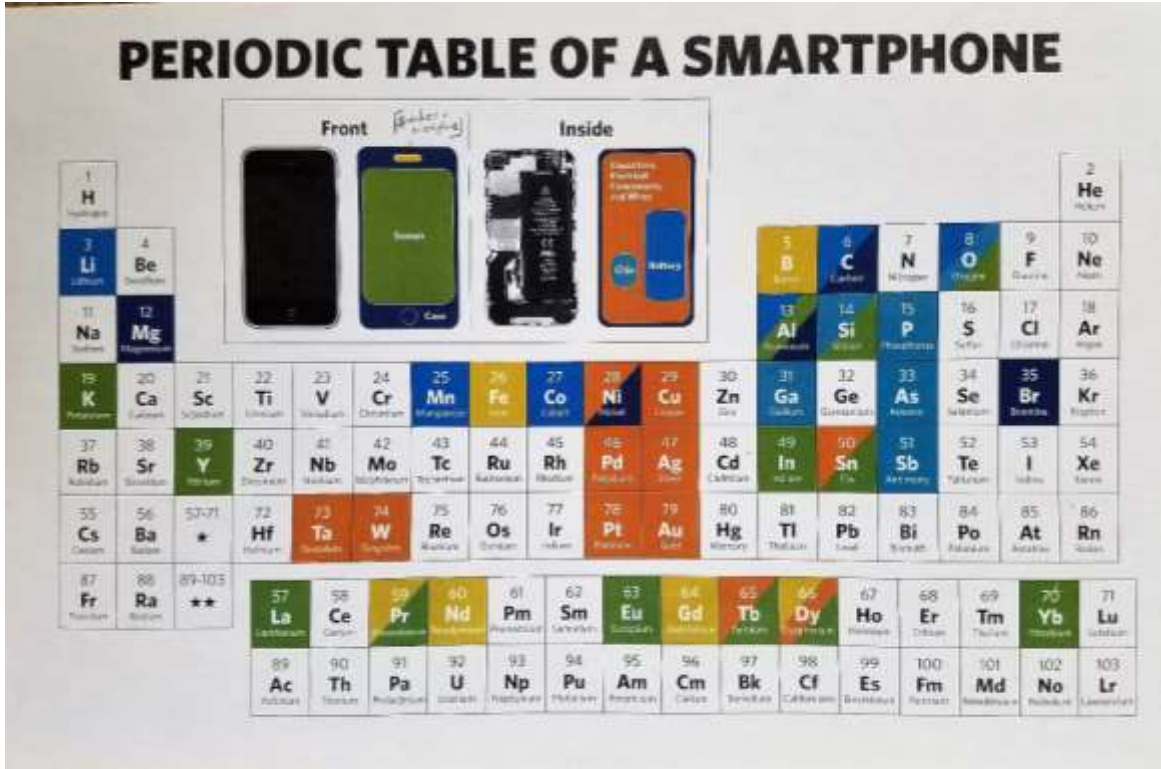
I think it is not too hard to tell which is which. Big is a lot easier to photograph! I had to Photoshop in a blue background on the micro to make it look similar to the big one, which is resting on blue paper. I must admit that, in this example, the big calcite (top photo) is better.



Calcite, Elmwood Mine in Tennessee
175 mm wide (about 7 inches)



Calcite, Elmwood Mine in Tennessee
6 mm wide (about 1/4 inch).



Smithsonian’s Smart Phone Geo Cart

By Kathy Hrechka

I find myself attracting many museum goers in the mineral gallery, while promoting “Elements in My Smart Phone” on an educational cart designed by Adam Blackenbicker and Dr. Michael A. Wise.

I recall when Conrad Smith, NVMC member created “Minerals in My Smart Phone” as a part of his Eagle Scout project in 2014. Then, USGS created “A World of Minerals in My Mobile Device” in 2016. Today I use all three posters in my display, which reinforce the importance of mining minerals. Customers of all ages are captivated with this information, with consideration in the study of geology.



Photo above: Kathy presenting geo info.



Photo on left: Researchers - Dr. Wise & Dr. Bell

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Conrad Smith's poster



USGS poster



Smithsonian cart

San Diego, California 1869 Rock Shop

By Kathy Hrechka

No matter where I travel to, I am determined to discover some form of mineral study. Recently, my husband Ken and I were in San Diego for a convention. After his lectures one day, we decided to take the local Trolley Tour of the city. We stopped off in Old Town, where we ventured into an old-fashioned rock shop. Realizing where we were, I gravitated to the tourmalines from San Diego County. The California gold from 1948 also caught my eye.



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When we returned home, I had to check out the tourmalines from San Diego County in the mineral gallery at the Smithsonian. They are amazing!



Elbaite with quartz, San Diego County, California



Tourmaline King Mine, San Diego county, CA

Geology Field Trips: May 13 & 27

By Dave Fryauff

I hope you all got a good start to the 2017 rockhounding season with field trips to Gettysburg Teeter's quarry, the Bluegrass Medford quarry. Sorry that both of these were set on school/work days. The BIG annual Sterling Hill Super Dig and Franklin NJ Gem & Mineral show are both set for Saturday & Sunday this weekend. Should be good weather!!!

Come out to the big auction on Saturday, May 6th, 10 am at 11109 Rosemont Dr., Rockville, NJ. Lots of great lapidary equipment and rock.

National Limestone Quarry #1 at 3499 Quarry Rd, Middleburg, PA 17842. Saturday, May 13th meet up at 0830-9 am at the National Limestone Quarry #1 at 3499 Quarry Rd, Middleburg, PA 17842. We will collect in this large quarry until 12 noon, then break for lunch and head to National Limestone Quarry #2 at 217 Quarry Rd., Mount Pleasant Mills, PA 17853. The two sites are about 5 miles apart and easy to find. We will collect at the Mount Pleasant Mills quarry #2 until 4 pm. MapQuest indicates the distance from my house in Damascus at 148 miles and a driving time of 2 hrs. and 45 minutes...make that 3 hours with a stop. These are great collecting sites for calcite, strontianite, celestite, fluorite, wavellite, quartz, cacoxenite, and strengite. These last two only occur as microminerals so bring a hand magnifier. The Mount Pleasant Mills No. 2 quarry also host a good selection of Devonian age marine fossils: brachiopods, gastropods, & trilobites. Children over 10 years old, with full safety gear (helmet, long pants, steel-toed boots, and eye protection) and accompanied by a parent are permitted. Full safety gear is required. See attached rules and bring a signed, dated waiver when you show up at 0830. RSVP to me by 9pm on Thursday, May 11th.

Vulcan Materials Quarry, Manassas, VA Saturday, May 27 meet at 0630 for collecting starting at 0700 am sharp at the Vulcan Materials Quarry, Manassas, VA at 8537 Vulcan Lane, Manassas, VA 20109. Children over 10 years old, with full safety gear (helmet, long pants, steel-toed boots, and eye protection) and accompanied by a parent are permitted.

Geology Field Trips continued

Full safety gear is required for all adults and minors. See attached rules and bring a signed, dated waiver when you show up at 0630. RSVP to me by 9 pm on Thursday, May 25th.

Needed: Assumption of risks, waiver, and indemnification agreement (binding for all fieldtrips)

For the purpose of this waiver "field trip facilitators", also referred to as "releases", include the Gem, Lapidary, and Mineral Society of Montgomery County (GLMSMC), owners, operators, and managers of properties visited as part of the field trip, any third party facilitating, supporting, or managing the field trips, and any affiliates, agents, or officers and directors of these entities. Fieldtrips are events, including educational and collecting trips, organized or announced by the GLMSMC, its officers and directors, or their agents. This agreement applies to all such trips as well as activities involving preparation for or transportation to the event. Contact Dave for form.

Cheers, Dave Fryauff 240-277-7206



Club Geology Auction Invitation 5/6/17

By Dave Tiktinsky, GLMSMC

The Gem Lapidary and Mineral Society of Montgomery County (GLMSMC) is sponsoring an auction on May 6, 2017. A large quantity of lapidary equipment, lapidary supplies, cutting material and slabs. There are many flats of rough cutting material and slabs that will be auctioned off. Open to all – members and non-members, dealers. Please join us. When: Saturday May 6 (rain date Sunday May 7) 11109 Rosemont Drive 10 a.m.

EFMLS: Wildacres September 4-10

By Steve Weinberger, Wildacres Committee Chair

Speaker-in-residence is Timothy Morgan

A weeklong session at the spectacular Wildacres Retreat is \$410 per person, which includes your tuition, room, and board, plus gratuities for the retreat permanent staff. Meals are served family style in the lovely Wildacres dining room, and bedrooms are comfortable, each with its own private bathroom. Classes are held in the numerous well-equipped Wildacres classroom facilities.

EFMLS has been holding workshops at the Wildacres Retreat since 1973; over the years, our sessions have grown in both content and variety.

Your fee gives you access to one or two of the classes being offered during the week. Instructors volunteer their time and talents to teach our classes. Most have been with us before and are outstanding!

For fall, our lineup of classes is:

4-day classes:

- Faceting—Steve Weinberger
- Photography storytelling—Bruce Gaber

2-day classes:

- Chainmaille (basic & continued)—Roger Campbell
- Intarsia (beginning)—John Milligan
- Silversmithing (basic and intermediate)—Richard Meszler
- Wirewrapping (basic and continued)—Jacqueline Campbell

Descriptions of each of the classes are listed on the EFMLS Wildacres Workshop Website. You can find registration forms there as well. Or you can find the description in the February 2017 issue of EFMLS News, page 11, and the registration form on page 12.



Micromineralogists of the National Capital Area, Inc.



**American Federation of
Mineralogical Societies**

(AFMS)
www.amfed.org

AFMS Show & Convention June 9-11 in Ventura, California

An Invitation to Exhibit at This Year's National Show
On behalf of the Ventura Gem & Mineral Society, I invite you to exhibit in this year's national AFMS Show & Convention taking place June 9-11 in Ventura, California. Enter either a competitive or a noncompetitive display—or one of each! Go to the show website at <2017CFMS-AFMSShow.com> to access and download entry forms by clicking on "Files and Entry Forms." You'll also find a direct link to the AFMS Uniform Rules manual. The deadlines are May 22 for noncompetitive entry forms and April 30 for competitive forms, so don't delay.

Exhibiting is fun! When displaying at a gem show, we not only get to show off our collections and handiwork but also to learn from others, seeing display techniques, getting advice, sharing tips, and forging bonds of friendship through mutual interests. There is a host of trophies for adult exhibitors, including a special trophy for nervous first-time Novice Exhibitors sponsored by the hosting Ventura society.

Kids entering either competitive or noncompetitive displays can earn the Showmanship badge in our AFMS/FRA Badge Program, and those entering competition can strive for both trophies and the AFMS Lillian Turner Award. Several years ago, Lillian Turner of Bethesda, Maryland, generously donated funds to support an award for the best junior's exhibit at the annual AFMS Show. The award consists of a certificate, a \$100 bond, and a mineral specimen and is presented at the Show Awards Ceremony. I guarantee that adults and kids who choose to display in Ventura will find the experience both rewarding and fun!

By: Jim Brace-Thompson, CFMS/AFMS Show
Publicity Chair



**Eastern Federation of
Mineralogical and
Lapidary Societies**

(EFMLS)
www.amfed.org/efmls

**Communication and Involvement
Are the Keys to Our Success!**

Geology Events:

May

13: National Limestone Quarry 3499 Quarry Road, Middleburg, PA; Sat 8:30-9 to 12 noon at #1, then after lunch at #2, 217 Quarry Rd, Mount Pleasant Mills, PA

Contact Bob Cooke at rdotcooke@gmail.com.

13: Towson, MD 28th Annual Chesapeake Gem & Mineral Show; Chesapeake Gem & Mineral Society; Ruhl Armory, I-695 at exit 26 south

Contact Bernie at bernieje@comcast.net.

22: MNCA Meeting

Long Branch Nature Center in Arlington, VA 7:45 – 10 pm

24: NVMC Meeting Long Branch Nature Center in Arlington, VA 7:45 – 10 pm

27: Vulcan Quarry 8537 Vulcan Lane, Manassas, VA; 6:30 a.m.

Contact Bob Cooke at rdotcooke@gmail.com.

EFMLS Wildacres' Workshops

Spring Session: Bob Jones

Executive Editor Rock & Gem
Magazine

May 22 – 28, 2017

Fall Session: Tim Morgan

Gem & Bead Educator

September 4 – 10, 2017 details on p. 11 MM

Questions: contact Suzie Milligan, Registrar

smilligan@stny.rr.com 607-687-5108

Pam Bryant, Director pjbryant@juno.com
804-457-4698



Registration on EFMLS website, Wildacres tab

Micromineralogists of the National Capital Area, Inc.

50th Anniversary – GOLD We Want to Hear How You Became Interested in Micromounting!

As part of our 50th Anniversary publication, (due this fall) please write a paragraph or two on how, and when you began “Micromounting.”

Simply include:

- * Your profession / retired
- * Year you began micromounting
- * Who inspired you?
- * Why you are a micromounter?
- * Something unique about you

Submit to Kathy kshrechka@msn.com



GeoWord of the Day and its definition:

gyroid (gy'-roid) An isometric crystal form consisting of 24 crystal faces with indices {hkl} and symmetry 432. A gyroidal crystal may be right- or left-handed.



All terms and definitions come from the Glossary of Geology, 5th Edition Revised.

Micromineralogists of the National Capital Area Meeting: The 4th Wed. of each month 7:30 -10 p.m.
Long Branch Nature Center, (Except Easter & Dec.)
625 S. Carlin Springs Road, Arlington VA 22204

MNCA Purpose: To promote, educate and encourage interest in geology, mineralogy, and related sciences.

Pres: Dave MacLean, dbmaclean@maclean-fogg.com
Vice Pres: David Fryauff, fryauffd@yahoo.com
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Conference: Kathy Hrechka, kshrechka@msn.com

The society is a member of:

- * Eastern Federation of Mineralogical and Lapidary Societies (EFMLS) www.amfed.org/efmls
- * American Federation of Mineralogical Societies (AFMS) www.amfed.org Affiliation

Dues: MNCA Membership Dues for 2016
\$15 (single) or \$20 (family)
Payable to MNCA - Michael Pabst, Treasurer
270 Rachel Drive
Penn Laird, VA 22846



Editor's Note:
By
Kathy Hrechka



Send your articles and photos to your editor.
Club Article Deadline is 5th of each month.
The Mineral Mite will be emailed on 10th.
No newsletter July/August

EFMLS Editor's Award
First Place 2016 - Small Bulletins



Member inputs:
* Dave MacLean
* Michael Pabst
* Bob Cooke
* Kathy Hrechka
* David Fryauff

