



MNCA Website dcmicrominerals.org

The Mineral Mite



Vol. 50 – No. 7 Washington D.C. – A Journal for Micromineralogists September 2017

50 Years 1967 - 2017

September 27 Time: 7:30 p.m. – 10 p.m.

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

Program: "Bisbee Arizona: Queen of Arizona's Copper Camps and King of Arizona's Mineral Localities"

By David Fryauff, Vice President

DVD presentation (2012 Dallas Mineral Collecting Symposium) by Les Presmyk who has specialized in Arizona minerals since 1980 and is an authority on the history of Arizona mining, particularly that of the Bisbee District. Members are requested to bring in their favorite Bisbee Arizona specimens for show & tell. The remaining half of the meeting time will be a micromount workshop.



Photo of the Month



Solar Eclipse in Glendo, Wyoming August 21
500mm lens photo by Alec Brenner on a Harvard
Grad student trip to Glendo, Wyoming

President's Message:

By: Dave MacLean



Welcome home from a hopefully enjoyable summer. We will meet Wednesday 26 September at Long Branch Nature Center.

Our fall events include our demonstration of the craft of micro mineralogy at GMU promoting the NVMC Show on November 18 & 19. Consider 10-1800 on Saturday and 10-1600 on Sunday. We need volunteers both days to man our table.

MSDC will celebrate its 75th anniversary just like we celebrated our 50th anniversary. Many of us are members of MNCA and MSDC. Let us honor MSDC in their 75th anniversary year.

In October, we will need a nominating committee to recruit club officers for 2018.

On Colorado Public Radio CPR, I heard a presentation on the co-evolution of both the minerals and life on the earth and how each was dependent on and altered the other. The discussion made me think of the consequence of the development of photosynthesis and its waste product oxygen which created the Great Oxidation Event 2000-2300 million years ago MYA and the high CO₂ hothouse earth ending the Snowball Earth 640 MYA.

High temperatures and moisture vigorously leached nutrients from the land to feed algae which provided food for rapidly evolving sea animal life into the Cambrian.

The interaction of life and mineral formation and alteration is worth considering.

Previous Meeting Minutes: 6/28/17

By: Secretary Bob Cooke

Due to travel, Bob was unable to attend the June meeting. Our editor forgot who took minutes, so we have no recording as of this month's publication.

Membership Dues are Due: 2017 Single = \$15. Family = \$20.

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



**Julia Hrechka Receives Award
AFMS Website Competition**

www.dcmicrominerals.org

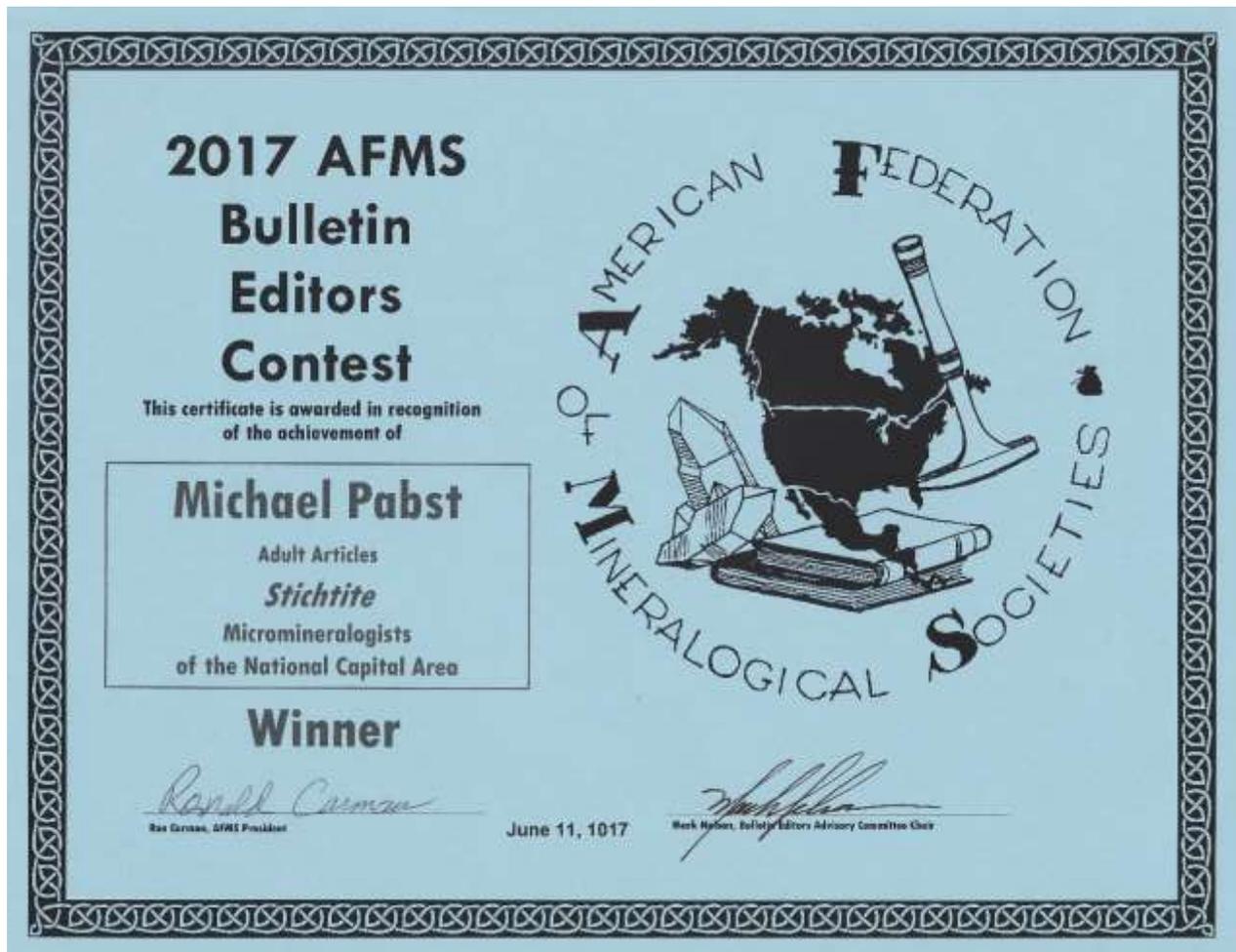
The American Federation of Mineralogical Societies awarded our webmaster, Julia Hrechka 11th place at the CFMS-AFMS Convention in Ventura, California on June 11, 2017.



The joint event was hosted by the Ventura Gem and Mineral Society of California. Julia is currently working on her Master's in Business Administration at Mount Saint Mary's University in Emmitsburg, Maryland. She is also working at the St. Bernadette gift shop, as an inventory control specialist and cashier. Julia continues to pursue her dreams of eventually working for Disney.

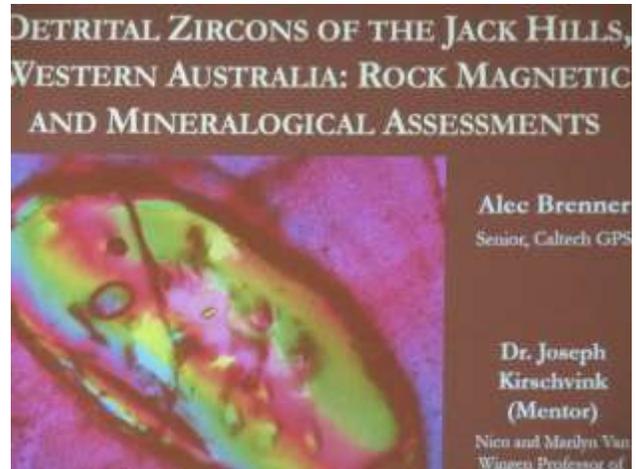
Congratulations!

**Michael Pabst Receives
2017 Award
AFMS BEAC WINNER**

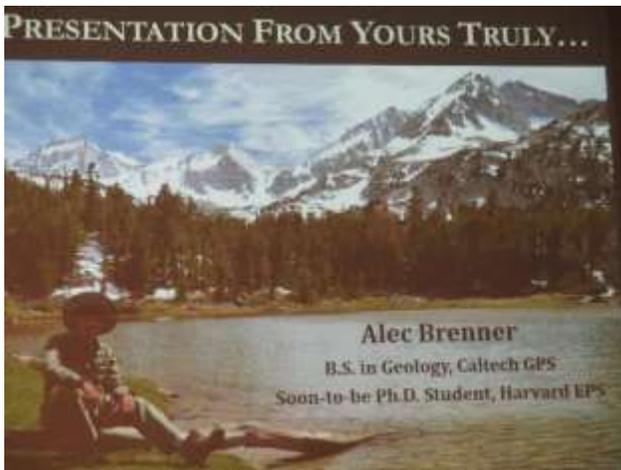


Previous Program Reviewed: 6/28/17
Detrital Zircons of the Jack Hills, Western Australia: Rock Magnetic and Mineralogical Assessments
By Alec Brenner

Alec Brenner presented “Detrital Zircons of the Jack Hills, Western Australia: Rock Magnetic and Mineralogical Assessments.” Alec is a recent graduate from the California Institute of Technology where he focused on reconstructing early Earth history.

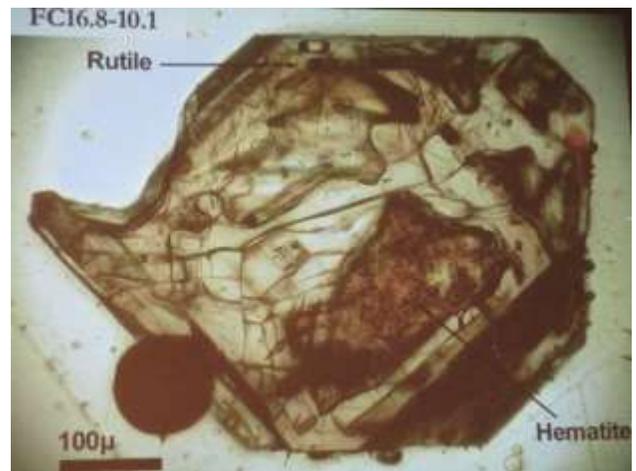


Detrital Zircons of the Jack Hills, Western Australia: Rock Magnetic and Mineralogical Assessments

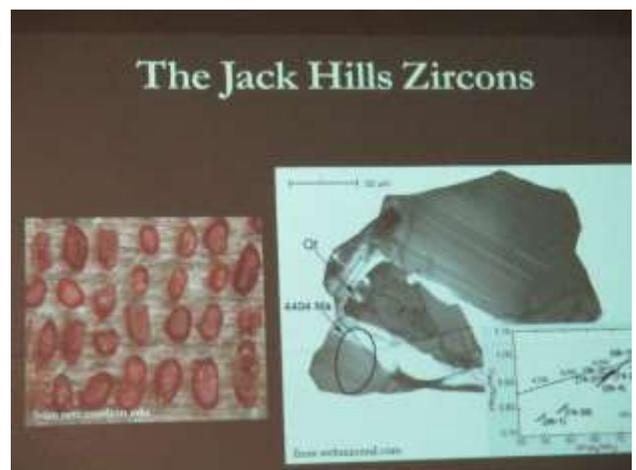


Alec spoke about his research during his senior year at Caltech. His work is part of a larger effort to determine when the Earth’s core dynamo and magnetic field originated by using measurements of zircon crystals from the Jack Hills of Australia. The crystals are up to 4.4 billion years old, making them the Earth’s oldest known materials.

During the summer, he performed field research in Western Australia, searching for the zircons of Jack Hills. This fall, Alec is attending graduate school at Harvard University, studying under Professors Roger Fu and Francis MacDonal. Alec will use paleomagnetism, microscopy techniques, and extensive field work to explore the early rock record and probe the Earth’s formative years. After graduate school, Alec hopes to pursue an academic career in geological research



Rutile and Hematite inclusions in zircon



The Jack Hills Zircons

Continued on page 4

Micromineralogists of the National Capital Area, Inc.



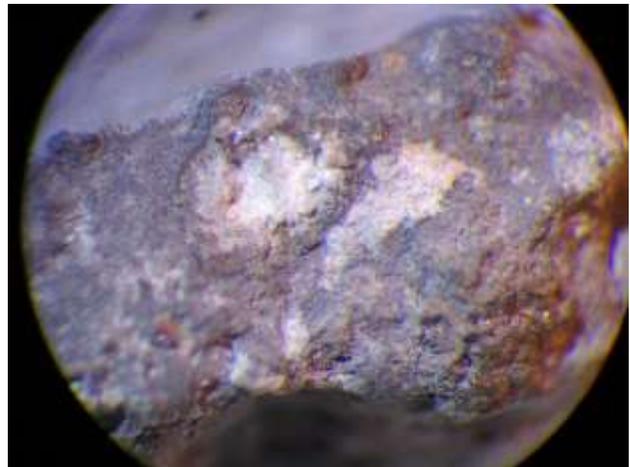
Zircon photographed through Alec's homemade microscope, assembled by himself while attending college at the California Institute of Technology



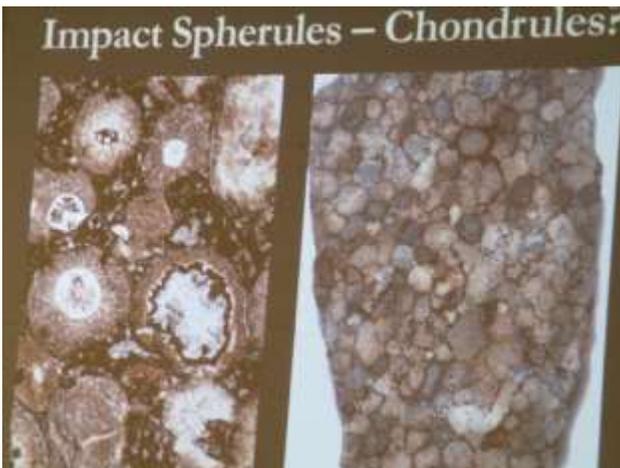
Allende Meteorite, from Alec's collection



Alec with his father, Paul Brenner



Close-up of chondrule in Alec's Allende Meteorite



Impact Spherules - Chondrules

The Allende meteorite is the largest carbonaceous chondrite ever found on Earth. The fireball was witnessed at 01:05 on February 8, 1969, falling over the Mexican state of Chihuahua. After breaking up in the atmosphere, an extensive search for pieces was conducted and it is often described as "the best-studied meteorite in history".

https://en.wikipedia.org/wiki/Allende_meteorite

Submitted by Kathy Hrechka, Editor

Powellite

By Michael Pabst Ph.D.

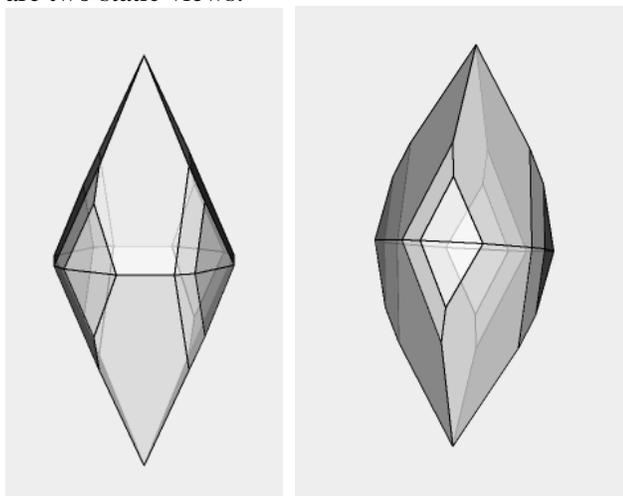
Our last molybdenum mineral is Powellite. Powellite is calcium molybdate, CaMoO_4 . Powellite is tetragonal $4/m$ – dipyramidal, so it has a four-fold axis of rotation, but only one mirror plane (top to bottom), so crystals can be asymmetrical right-to-left and front-to-back. Of course, a given crystal may appear to be more symmetrical if certain crystal faces are not evident. To see a diagram of this type of symmetry, go to the Mineralien Atlas website:

www.mineralienatlas.de/lexikon/index.php/MineralData?mineral=Powellit. Then scroll down to the crystal diagram, and select Kristall Nr. P230an. This diagram can be freely rotated in three dimensions, and you can see the absence of left-to-right symmetry, even though there is a four-fold axis of rotation. Here are two static views:



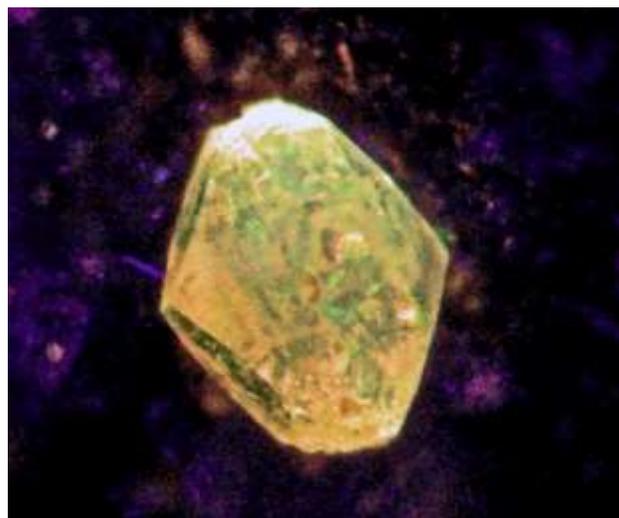
Powellite (yellow) on Brochantite or Atacamite (green) from Chuquicamata Mine, Calama, El Loa Province, Antofagasta Region, Chile. FOV 4 mm. Photo by Michael Pabst. (Stack of 16 images taken with 60 mm macro lens, using focus bracketing with my Olympus E-M5 MarkII camera.)

The Powellite in my specimen from Chile fluoresces bright yellow under either long-wave or short-wave ultraviolet light. The fluorescence intensity is greater with short-wave. Here is another smaller crystal of Powellite from the same specimen, shown either with short-wave UV (top) or with visible light on next page.



Diagrams of **Powellite** from the 3D image by U. Baumgärtl in Mineralien Atlas.

The specimen of Powellite in my collection comes from Chuquicamata in Chile. The yellow Powellite is associated with a green mineral, either Atacamite $\text{Cu}_2\text{Cl}(\text{OH})_3$ or Brochantite $\text{Cu}_4\text{SO}_4(\text{OH})_6$; I can't tell which, just by looking, because the crystals are a bit rough. Also present are nice little Quartz crystals and some dark Cuprite.



Powellite fluorescing under short-wave ultraviolet light.

Powellite continued



Same **Powellite** crystal with visible light. FOV 1.5 mm. Photos by Michael Pabst, using the Olympus camera on my stereo microscope. (For UV, exposure was 30 seconds, with ISO-1000, making the shot a little grainy. The yellow fluorescence emission is illuminating some of the green crystals in the background. Two images were stacked with CombineZP. For visible light, exposure was 1 second, with ISO-200. Stacked 8 images.)

My favorite photo of Powellite from the Chuquicamata Mine, taken by Antonio Zordan, is here: www.mindat.org/photo-726778.html. This photo also features some nice Atacamite $\text{Cu}_2\text{Cl}(\text{OH})_3$. The Powellite crystal shows a form much like that of the second diagram shown above.

Powellite is found in bigger crystals at the Deccan traprock quarries at the Nashik District, Maharashtra, India. They are too large (expensive) for my collection, so I allow others to care for them. Here is a Mindat link to one of my favorite Indian Powellites: www.mindat.org/photo-809096.html.

Powellite, calcium molybdate, CaMoO_4 , forms a series with Scheelite, calcium tungstate, CaWO_4 , which we will look at in the next article.

Photomicrography by Michael Pabst

Merelaniite: Mineral of the Year 2017

Article adapted from our Atlantic Micromounters' Conference 2016, The Mineral Mite Vol. 50 No. 4, and the Newsletter of the Smithsonian's Department of Mineral Sciences No. 7 Jan - Mar 2017



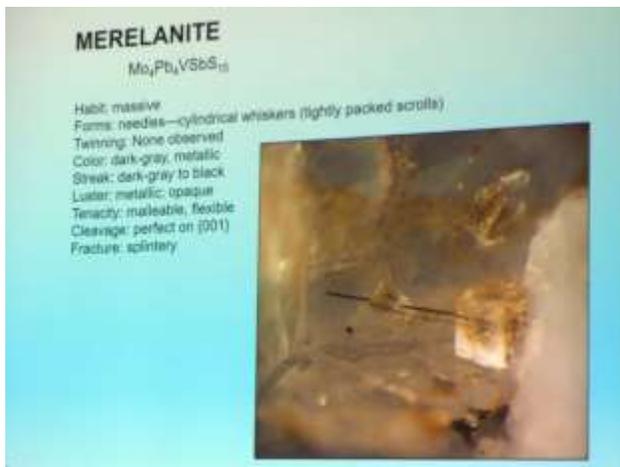
On April 1, 2017 Dr. Michael Wise, Department of Mineral Science, Smithsonian Institution presented Merelaniite, a new mineral species at our Atlantic Micromounters' Conference in Alexandria, Virginia.

Department of Mineral Sciences Newsletter No. 7 Jan - Mar 2017

On August 10, 2016, Michael Wise received confirmation that the mineral...merelaniite...had been accepted by the International Mineralogical Association's (IMA) Commission on New Minerals, Nomenclature, and Classification (CNMNC) as a new mineral species. Mike was a co-investigator of this new mineral, having first recognized it as something unusual and possibly new, during the summer of 2012 when he and intern Jessica Simonoff were examining mineral specimens she had acquired from the world-famous tanzanite locality. The two-noticed millimeter long "wires" and "whiskers" that had grown amongst crystals of prehnite, graphite, diopside and chabazite. Scanning electron imaging of the unknown material revealed that these "wires" were cylindrical in shape and their cross sections showed their scroll-like nature. Early chemical analysis indicated that molybdenum, lead and vanadium were major components of this unknown phase's composition.

Micromineralogists of the National Capital Area, Inc.

Collaboration with scientists John Jaszczak (Michigan Tech) and Mike Rumsey (British Museum) who conducted Raman and additional chemical studies, identified the optical properties and completed X-ray crystallographic investigations, eventually led to the submission of merelaniite to the IMA for approval as a new species. Merelaniite, $\text{Mo}_4\text{Pb}_4\text{VSbS}_{15}$, is named after the township of Merelani, Tanzania, in honor of the local miners, past and present, who work in the region primarily searching for the gem mineral tanzanite. Merelaniite is the first naturally occurring molybdenum-essential member of the cylindrite group of minerals, a group of minerals that naturally form “cylinder-shaped” or “scroll-like” crystals.



Photos were taken at the Atlantic Micromounters' Conference April 1, 2017. Dr. Wise was the featured conference speaker.



A cluster of **merelaniite** “whiskers” on a graphite crystal. Specimen photo by John Jaszczak. This is the first micromount of Dr. Wise, the Smithsonian’s pegmatite expert.



Dr Michael Wise and his wife Vickie Wise

Dave MacLean reported in the April 2017 edition of *The Mineral Mite*, that the new mineral merelaniite was found associated with the Tanzanite (variety of zoisite) deposit in the Merelani hills, Laletami Mountains in northeast Tanzania.

Dr. Wise’s 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, local geology club members bought blue prehnite from the Merelani Hills Tanzania at the Tucson Show. The rest was history in the making, for a mineral of the year 2017.

50th Anniversary: Part I of III Personal Origins of Micromounters

John R. Kress Falls Church, Virginia: “How I Spent My Summer Vacation – 1985”

Too many decades ago, while on vacation in Phoenix, I decided to drive around town while my wife took in the sun by the hotel pool. Paging through the Yellow Pages, I was surprised to see countless “rock and mineral” shops and related businesses. I dropped in on one and found glass cabinets filled with all manner of striking mineral specimens and related material. At my third stop, the owner said he had lots of material out back and sold it by the pound. Out I went and was confronted with a football field-sized fenced yard with dump truck loads of rock and mineral material all with projecting brown bag signs mounted on sticks with their respective minerals and cents/lb. affixed. The material was fascinating and I was hooked. Somehow, I crammed half a suitcase full of specimens from many of the piles in the yard.

Returning to Virginia, I joined the two Northern VA mineral clubs and the MNCA. For years, I went on as many field trips the clubs offered, work life permitting, and added to my AZ starter collection. I collected both large and small specimens. At club meetings, auctions, shows, swaps and visits to James Madison U. I also acquired numerous micro specimens loose or in their plastic boxes. While my prime focus was on larger specimens, I always loved looking at the smaller ones under an old medical microscope and marveled at the beauty of the crystals within those boxes. I knew someday I would focus on the smaller specimens. Someday arrived seven years ago, upon retiring from a career in health and public health administration. With a quarter of my basement filled with cut down copy paper boxes filled with large mineral specimens and looking ahead to a downsized future, I began to focus my attention on the micromount part of the hobby.

I re-read 20 years’ worth of *The Mineral Mite* newsletter and some of the books and articles I collected on micromounting for ideas and techniques. I attended more MNCA meetings and learned from other members’ experience. I experimented with labeling systems, various types of mounting techniques, storing of specimen’s alternatives etc. By the way, I now save my specimens in plastic boxes

stored in Punch President cigar boxes and can get 250 in each box. I sold off most of my large specimens excepting fluorescents and fossils in case my grandsons get interested. My next challenge is to take many nice specimens stashed away over the years that lacked proper labeling and at least get the minerals identified. Many of them were giveaways at club meetings. I never tire of looking at complex specimens only to discover new secrets often missed in past searches through the lens. Most of all, I am grateful to MNCA members, both here now and departed, for turning me on to this ever-engaging hobby and for sharing their valuable suggestions, advice, experience and friendship with this club member.

Kathy Hrechka, Alexandria, Virginia “My Mentor, Fred Schaefermeyer”

I remember my very first rock collecting adventure when I was in grade school. It was at Lake Superior, searching for agates. In 1985, I attended the Montgomery County Mineral Club Show, where my name was announced as a door prize winner. I took my new mineral to “those people with microscopes” for identification. More importantly, I wanted to meet new geology friends, as I had recently moved to Virginia for job as a flight attendant with USAirways. Fred Schaefermeyer, Jennie & Paul Smith invited me to join their club, and go rock collecting to Rockville Quarry. I’ll never forget that quarry trip. My car was covered in mud and white dust, even under the hood, and the trunk was loaded with my new rocks. I had so much fun. I still have the garnets and McGuinnessite in my collection from that adventure.

I purchased a microscope, and the rest was history. My focus was on “pretty microminerals”, garnets, then eventually diamonds. Since Fred lived close to me, we would carpool to meetings each month. When he became blind, I drove. The mineral hobby became a solace for me, as I felt appreciated and enjoyed the many new friends. When my airline career ended after twenty-two years, geology remained a constant in my life. I became editor of *The Mineral Mite*, and later our AMC Conference Chair. Eventually, I found my niche, volunteering at the Smithsonian in the Mineral Science areas. There is one thing unique about me. I am proud to say that I have learned to play the piano, as an adult while taking lessons from my kids’ piano teacher.

David MacLean, Springfield, Virginia

I am David MacLean, fully retired since 2009, who in 1966 read articles in Rocks and Minerals on microminerals especially an article on a person who identified copper oxychloride minerals in vugs in brass mill waste dumped near Long Island Sound in New Haven CT in 1966. When I was teaching chemistry at DePauw University in 1967, I looked at minerals with a borrowed microscope from the geology department. I bought a ten-power loupe in 1967 and a microscope in 1969 and upgraded equipment later. My field and home micro tools are my dependable loupes and places with bright light. Sun light is the best. I love to show the public what one can see with a loupe and microscope.

With my background in chemistry, I consider minerals as solid structured chemical systems described as assemblies of large spherical cubic close packed oxide or sulfide ions with the cations like calcium, sodium, silicon, aluminum ticked into tetrahedral holes (four sided) and different cations octahedral holes (six sided). I then ponder what are the geologic and chemical processes that create specific micro minerals and the processes which change them into other sets of minerals. I am enthralled by the beauty of micro minerals and various particles in sands. I enjoy telling stories about the widespread occurrence of very small totally intact zircon crystals in sands eroded from igneous and metamorphic rocks and their use to determine the age of the rocks from which they came. I am interested minerals with unusual chemistry. *Personal narratives are published in the order they were received. We want to hear from you too!*

**50th Anniversary MNCA 1967-2017
We Want to Hear How You Became
Interested in Micromounting!**

As part of our 50th Anniversary 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:

deformation twin A crystal twin that is produced by gliding, i.e. deformation within a preexisting crystal. Syn: *glide twin; mechanical twin.*

sagenitic quartz (sag-e-nit'-ic) Transparent quartz, colorless to nearly colorless, containing needle-shaped crystals of rutile, tourmaline, goethite, actinolite, or other minerals. See also: *rutilated quartz.*

edingtonite (ed'-ing-ton-ite") A white, grayish, or pink zeolite mineral: $BaAl_2Si_3O_{10} \cdot 4H_2O$. An orthorhombic and tetragonal dimorphous pair occurs. It sometimes contains appreciable calcium.



All terms and definitions come from the [Glossary of Geology, 5th Edition Revised.](#)

GeoWord of the Day is brought to you by: Rayfract! Check them out at rayfract.com.

**Baltimore Micromount Conference
October 13-15, 2017**

The Baltimore Mineral Society is pleased to announce the 61st Annual Paul Desautels Micromount Symposium on October 13-15, 2017 at the Friends School of Baltimore, 5114 North Charles St. Baltimore, MD 21210

Micromounter's Hall of Fame Induction Ceremony:
Henry Barwood and Betsy Martin
Presentation by Betsy Martin, "Then and Now at the Morefield Mine"

Presentation: Adam Barwood, "Curiosity, Life and Times of Dr. Henry Barwood"

Presentation by Michael Pabst, "British Minerals: Close-up photos from the Natural History Museum in London"

Details, open link below

http://www.baltimoremineralsociety.org/uploads/1/6/6/3/16636366/desautels_17_registration.pdf

Micromineralogists of the National Capital Area, Inc.



American Federation of
Mineralogical Societies

(AFMS)
www.amfed.org



Eastern Federation of
Mineralogical Societies

(EFMLS)
www.amfed.org/efmls

AFMS Scholarship Foundation News: **\$4,000 to students in a Masters or Doctorate degrees in the earth sciences.**

By Lauren Williams, Scholarship Foundation
President

Over the past few months I've received several inquiries asking for information about how the Scholarship Foundation works. Briefly here's the process. Currently six of our seven regional federations participate in the Scholarship Foundation program. Southeast has their own Scholarship program and therefore does not participate in ours. Shortly after the 1st of November, I send e-mails to each of the participating regional federation presidents outlining the criteria for selecting their honoree and asking that they notify me who that individual is by a certain date. The honoree from each federation is the person who selects the two students who are studying to obtain either their Masters or Doctorate degrees in the earth sciences. Once I have the information, I send a letter of congratulations to each honoree and then outline the procedure for them to select their two student scholarship recipients. The students selected must be U.S. citizens and must be working towards either their Masters or Doctorate degrees in the earth sciences. Checks are then sent to someone at the University where the students attend so that we can be certain that the students are enrolled for the fall semester. A congratulatory letter is sent to each student's recipient indicating that they will receive their \$4,000 grant during August. Complete details are located on AFMS website.

Slate of officers nominated for 2017-18. They included:
President – Sandy Fuller, MWF President Elect – Doug True, NFMS First Regional Vice President – David Wayment, SFMS Second Regional Vice President – DeLane Cox, RMFMS Third Regional Vice President – Margaret Kolaczyk, CFMS Fourth Regional Vice President – Carolyn Weinberger, EFMLS Fifth Regional Vice President – Roger Burford, SCFMS Treasurer – Pat LaRue. She was elected to a two-year term in 2016.
Secretary – Donna Moore

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

Geology Events: September

16-17: Gem, Mineral & Jewelry Show sponsored by the Central PA Rock & Mineral Club. Zembo Shrine, Third & Division Streets; Harrisburg, PA. Contact: Betsy Oberheim aoberheim3@comcast.net
16-17: 49th Annual Gem & Mineral Show & Sale sponsored by the Mid-Hudson Valley Gem & Mineral Society. Gold's Gym and Family Sports Center, 258 Titusville Rd; Poughkeepsie, NY. Info: Carolyn Reynard sunstone33@verizon.net



22-23: 53rd Annual Atlantic Coast Gem, Mineral, Jewelry & Fossil Show hosted by the Gem Cutters Guild of Baltimore. Howard Co. Fairgrounds, West Friendship, MD. Info: gemcuttersguild.com
23: THE MSDC ROCKATHON!!!!!!
Fisher's garage (14981 Gold Post Ct., Centreville, VA 20121; 10 AM - 3 PM. Email novaya2@cox.net
Our mineral community is celebrating two big anniversaries this year. MNCA is 50 years old and MSDC is in its 75th year. Details on page 11.
23-24: Franklin, NJ - Annual show; Franklin Mineral Museum, Littell Community Center; 10 Munsonhurst Road #12; Sat. 9-6, Sun. 10-5; Adults \$7, Children \$4 (6-16); 61st Annual Franklin-Sterling Mineral Museum Gem & Mineral Show with Outdoor Swap; contact Robyn Seger; e-mail: pesolutions.minerals@gmail.com
25: NVMC Meeting Long Branch Nature Center in Arlington, VA 7:45 – 10 pm
27: MNCA Meeting Long Branch Nature Center in Arlington, VA 7:45 – 10 pm

Micromineralogists of the National Capital Area, Inc.

October

7: Macungie, PA - 2017 Autumn Mineralfest the Biannual Mineral, Fossil, and Gem Show sponsored Pennsylvania Earth Sciences Association, Macungie Memorial Park, Poplar Street, Macungie, PA; Saturday 8:30 AM to 3:00 PM; One hundred tables overloaded with minerals, fossils, gems, jewelry, crystals and geodes from six continents - and possibly from outer space, Held rain or shine, Plenty of free parking, Breakfast and lunch available in the building, Adult admission only \$2.00, Free admission and mineral specimens for children under twelve, Multiple door prizes awarded hourly, Gold panning and sluicing demonstrations are favorites with kids. For additional information visit: www.mineralfest.com
13-15: Paul Desautels Micromount Symposium at the Friends School of Baltimore, 5114 North Charles Street, Baltimore, MD 21210

22: Bristol, CT - 45th Annual Gem & Mineral Show and 67th Eastern Federation Convention. Beals Community Center, 240 Stafford Ave., Bristol, Connecticut. Info: amfed.org/efmls EFMLS Annual Meeting: Friday, October 20.

THE MSDC ROCKATHON!!!!!!

WHERE - The Fisher's garage (14981 Gold Post Ct., Centreville, VA 20121

WHEN - Sat, September 23, 2017 10 AM - 3 PM.

The mineral community in this area is celebrating two big anniversaries this year. MNCA is 50 years old and MSDC is in its 75th year.

To help us to hold an appropriate and festive celebration in December, we are having a fund raiser at the Fisher's garage. It will be a rock, mineral and book sale in the form we have enjoyed at James Madison University - no prices - just come, look, pick out some books and/or rocks and minerals and leave a donation.

MSDC received many books from Cynthia Payne, and rocks and minerals from other members' estates. These will be available along with items donated by current members.

(If you would like to donate minerals or books to this effort, please contact Susan Fisher by email, at novaya2@cox.net.) Please join us, visit with your friends and take home some treasures.

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
Secretary: Bob Cooke, rdocooke@verizon.net
Treasurer: Michael Pabst, Michaeljpabst@yahoo.com
Editor/Historian: Kathy Hrechka, kshrechka@msn.com
Website: Julia Hrechka, dcmicrominerals@gmail.com
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
* Kathy Hrechka
* John Kress

