



*The Mineralogical Society of the
District of Columbia*



THE MINERAL MINUTES

Vol. 75, No. 9 Founded 1942 November 2016

- November's Meeting is Wednesday, 2 November. We will be meeting at 7:45pm in the lobby of the Museum of Natural History. Dinner at the Elephant and Castle at 6pm for those interested in dining beforehand.

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Prez Says...

By David Nanney,
MSDC President

I'm writing this while watching the Cubs break a very long tradition of losing 70 years in a row. I am not a major baseball



fan, but you have to cheer for them this time. They just won the pennant so by our meeting, we should know if they made it all the way. Good luck.

My first comment has absolutely nothing to do with minerals. November 8 is coming soon, thank goodness. Everyone must vote. It is critical for so many reasons. I hope you are brilliant and agree with my choices, but regardless, the majority must win. Please make sure your

opinion is represented by your vote and don't let those who stay home in either frustration, or anger, determine the future of our county. This is a big one and I cannot encourage you strongly enough, that you must vote.

I wanted to thank the officers of MSDC for their efforts at our board meeting. We met for two hours over dinner, and worked through a long list of topics. We confirmed recommending donations to the Smithsonian and to a GWU student as we have for many years. We will ask for approval at November's meeting so hope for a large participation for this important vote. We also will present the slate of officers for 2017, basically retaining everyone and rotating Ken Reynolds in as new director with a three year term replacing Susan Fisher. This slate will be voted at our annual business meeting at the Christmas party. Ken, thank you for

November Program – “Some History and Minerals of Franklin and Sterling Hill, New Jersey”

.Presented by
Mark Dahlman



The mines of Franklin and the Sterling Hill Mine in Ogdensburg, Sussex County,

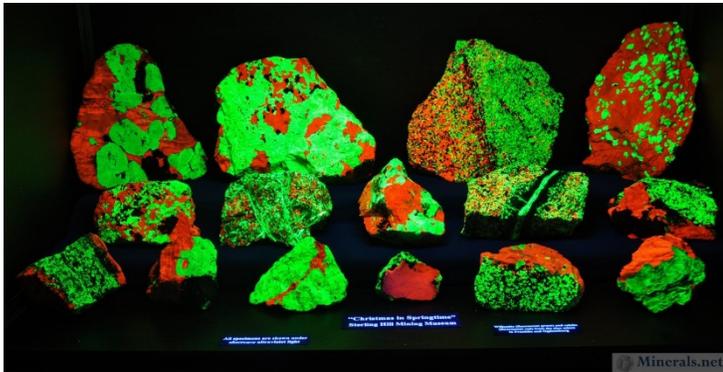
stepping up and continuing your active involvement with MSDC.

The Fishers have once again graciously agreed to host our Holiday party. They are currently on the road in Texas, so details, including the date, will be discussed with them before our November meeting. We are going to make a big effort to relieve them from doing all the work, so at the November meeting consider offering your assistance with the party.

My final comment is simply an observation. We had nine people at the Board of Directors meeting. With our normal attendance now at 20-25 people, this means over 1/3 of our membership is actively involved in the leadership of our group. That is simply awesome. I thank each and every one of those people and look forward to including each of you as you join in the active participation of the Mineralogical Society of DC, currently in its 74th year.

New Jersey, are world famous. No other site can boast the same assortment of rare and interesting minerals. More than 365 different minerals have been found at these mines including 74 for which Franklin and Sterling Hill are the type locality. Among those, 27 have been found nowhere else. Many of the minerals found here are fluorescent and the borough of Franklin has been called the "The Fluorescent Mineral Capital of the World". It is impossible to imagine a fluorescent mineral collection that would not include minerals from Franklin and Sterling Hill.

Our presenter this month is Mr. Mark Dahlman, who will discuss the fascinating history and minerals of Franklin and Sterling Hill. He is the current president of the Franklin-Ogdensburg Mineralogical Society



(FOMS) and a director of the Franklin Mineral Museum. He is also a past president of the Gem Lapidary and Mineral Society of Montgomery County (GLMSMC) and currently leads their Future Rockhounds of America program, for up and coming mineral collectors, ages 1015. Mark is a native of the Washington, DC area and a graduate of Virginia Tech (Go Hokies!). He, his wife, Rebecca, and his

Business Meeting Report for 5 October 2016

Andy Thompson, Secretary

President Dave Nanney began by thanking the past MSDC presidents who were in attendance for their service to the club, namely Ed Fisher, Steve Johnson and Andy Thompson. He also extended a warm welcome to Craig Moore, a former and now renewing his MSDC member, Sheryl Sims, Sandy and a substantial number of neighbors of Charlie Berry, the evening's presenter, including Arlene, Dave and George.

Treasurer's Report – John Weidner provided updated balances on the club's checking and savings account.

daughter reside in Montgomery County, MD. In his real life, Mark is an engineer working on air traffic control programs. In his fantasy life, he is a miner in the Franklin Mine who comes home each night with a lunch bucket full of rare and beautiful treasures.

Please join us for dinner on November 2nd before the club meeting. We will be meeting at 6:00 pm at Elephant & Castle Restaurant, 1201 Pennsylvania Ave, NW, Washington, DC, about 2 blocks from the Smithsonian Institution National Museum of Natural History (NMNH) where our club meeting is held. If you cannot make it to dinner, we will meet in the NMNH lobby at 7:30 pm (Constitution Avenue-side lobby) from which we will head up to the Cathy Kerby Room for Mark's presentation.

Minutes of the September Business Meeting – A motion was made to approve last month's minutes, as published in the newsletter. It was seconded and unanimously voted approval.

The Co-Webmasters' report by surrogate Thompson highlighted the site is up to date including the October Mineral Minutes newsletter. Also, the site now has a new domain name provider.

The By-Laws Committee Chair, Leslie, said they had no news to report but will be gearing up, proposing changes and down the road requesting members' feedback.

Geology in the News

- The Smithsonian National Museum of Natural History, in partnership with NIH in Bethesda announced the opening of a display of over 40 minerals essential for

human health. It is located in the lobby of the Clinical Center (Building 10). For more information see:

<http://www.mdlinx.com/internal-medicine/washington-report/2016/09/09/6855496>

- Northern Virginia Community College (Annandale) has now been authorized to purchase an X-Ray Diffraction device. Once it is up and running, it may become available on a limited basis for mineral club members to help identify their specimens.

- After a dozen years in transit, the Rosetta orbiter completed its mission discussed in an earlier issue of Mineral Minutes and purposefully crashed into comet P-67 in order to get as many close-up photos as possible.

- Geologists discovered a new fault line paralleling the San Andreas Fault in California. Members discussed the theory that this may be taking some of the pressure off the San Andreas Fault which

October Program Synopsis: “Living with a (Growing) Mineral Collection”

Presented by Charlie Berry
Synopsis by Andy Thompson, Secretary

Vice President for Programs, Dave Hennessey, introduced the evening’s speaker, Charlie Berry, by saying he discovered Charlie by noticing his consistent discerning mineral purchases at the annual Northern Virginia Mineral shows. Charlie has a professional background as a physicist and astrophysicist but his love of minerals began in childhood and reemerged later in adulthood.

might explain why it has not had recent dislocations.

- Calendar dates to make note of include: A field collecting trip on 29 October to the VA Vulcan quarry sponsored by the Gettysburg Mineral club. The Northern VA club, on 24 October will have the pleasure hearing Professor Shelly Jay give a presentation on the geology evident along Corridor H in WVA. The same club holds its annual sale at George Mason University on the 19th and 20th of November. On the 28th of January, Dr. Lance Kearns will welcome mineral club members to visit the geology department at James Madison University.

Dave asked for volunteers to bring snacks for the November 2nd club meeting. John Weidner, Ken Reynolds and Susan Fisher stepped forward. He called for a motion to close the Business Meeting which was unanimously approved..

Charlie said his intention for the evening was to share information about his collection, offer a few reflections and conclusions. He introduced himself as starting his collecting career as a child in the Louisville KY area where he had access to abundant marine fossils in the famous Devonian coral beds at the Falls of the Ohio River near his hometown. His interests expanded to include petrified wood and quartz geodes, which soon numbered in the thousands, mainly from the Cincinnati and southern Indiana areas.

A pause in collecting was necessitated by his career in astrophysics, working to support NASA programs. Thereafter he returned to his fascination with minerals and began building a collection of over 3900 specimens found in the U.S. and overseas.

During those years, the writings of John Sinkankas, a former president of MSDC, supported Charlie's growing knowledge of minerals.

By reflecting on his decades of collecting and organizing his minerals, he offered the following observations.

- He felt it was very important, especially for young collectors with rock fever, to seek out specimens that have sufficient size to fit in one's hand so they can be directly experienced, readily examined and repeatedly studied. He contrasted that hands-on approach to one mainly rooted in book knowledge which he thought was not as motivating for young collectors.
- For the young and old alike, mineral dealers are a very valuable resource.
- In addition, having access to a good library, the internet and to other collectors are important tools for the collector to expand his or her understanding as the collection grows and matures. Dave Nanney provided a case in point and circulated *The Geology of Virginia* by Christopher M. Bailey et al. published by the Virginia Museum of Natural History (538 pp) See: <http://www.vmnh.net/news/details/id/345/the-geology-of-virginia-is-now-available>
- "Trust but verify" was Charlie's recommended stance with regard to labels one comes across. Sometimes they incorrectly identify the minerals on display.
- He also recommended collectors find out the history of the mineral specimen, how it was named, its chemistry, crystal morphology and provenance.
- Very dear to Charlie's heart is having a proper home for the crystals. So he set about building proper cabinets whose pull-out drawers safely accommodate the crystals, display each with its label, and which are readily visible to the examiner. The same principle applies to the cabinets

and stand-up display cases which he found satisfying to personally construct and to house his collection.

Having concluded his observations and recommendations, he then provided an extraordinary power point presentation which displayed a sampling of his numerous beautiful specimens. Geologists tell us there are over 4,400 minerals and I came away from the evening feeling I had gotten a unique glimpse of fine representative examples of many. They included: a 57 pound pyrite from Huanzala, Peru; an extremely dark smoky quartz in albite from Whitehall MT; franklinite from Franklin, NJ; willemite from Sterling Hill, Ogdensburg NJ; calcite from the Elmwood/Gordonsville zinc mine in TN; green elbaite tourmaline from Cruziero Mine, Minas Gerais, Brazil; potosiite from the Siglo Veinte Mine, Llallagua, Bolivia; topaz from Marambaia, Galileia, Brazil; friedrichite and krupkaite from Julcani Mine, Peru.

Charlie identified the mine, region and country from which each mineral was collected. But to give readers a further taste of the international extent of the minerals he presented, they included: siligmannite from Peru; gratonite from Peru; stephanite from Mexico; two forms of silver from Mexico and Kongsberg Norway; greenockite Germany; pligionite from Germany; fizdyite Romania; platinum from Russia; realgar PRC; pyrophyte China; beryl Pakistan, torbernite from Zaire, and many other locations. My favorite was a beautiful large vanadinite from Arizona.

By way of some final observations, Charlie emphasized how important he has found dealers to be the go-to-place for getting great specimens. He found it helpful to remind himself of his shopping patterns and to reflect on his habits. He never sells any minerals. And lastly, he finds buying large "honker" specimens a particularly satisfying commitment because, in part, they

are more likely to stay in the average collection and are more difficult to sell or trade.

Although Charlie's presentation was extensive, many came away knowing we were just scratching the surface of his collection. Attendees and Dave expressed in word and applause their gratitude to Charlie for sharing his extraordinary expertise and specimens with MSDC. It was a great night for mineral collectors.

For a quick conclusion to the evening, Dave Nanney invited a quick show and tell.

What's going on with the MSDC website and Facebook?

by Betty Thompson

Members Ken Reynolds, Steve Johnson and Dan (NJ minerals) spoke briefly about a few of their items including muscovite, an aqua marine, pink smithsonite, chrysocola and natrolite. Dave thanked all for sharing their finds, as well as Alyssa, Leslie and Andy for the evening's snacks and Ken, John and Susan in advance for their volunteering to provide goodies for our November meeting.

more photos or a new page – involves both of us.

The website started with Casper's generosity: Around 2000, before he was an MSDC member, Casper was at the NoVa show. He heard me thinking out loud about how I could possibly build an MSDC web page. He very kindly offered to create the platform for an MSDC site. He set it up and taught me how to use the software.

Early 2016 website revisions: I did some big edits to make the online content cleaner and more modern. I got rid of dense text. I added stuff, too – using award-winning mineral-club websites for inspiration.

Tech news: A few months ago, member Brian Silver contacted the board to say the website was down. Casper very quickly used up-to-the-minute software to set up a new website with the same domain name, which he hosted on his own server. He also found us a cheaper way to register our domain name each year. This will net annual savings for MSDC of over \$100.

Construction underway: The crash washed away the early-2016 revisions. The new version, underway, will be better than



Where does MSDC live online?

- Website home:

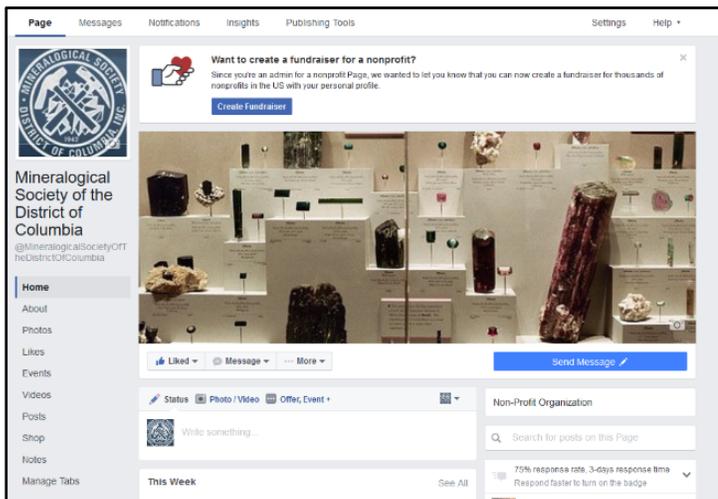
<http://www.mineralogicalsocietyofdc.org/>

- Facebook page:

<https://www.facebook.com/MineralogicalSocietyOfTheDistrictOfColumbia/>

Meet your web team: Casper Voogt does the tech part. Casper owns Plethora Design, a great professional web-design and -hosting company with big-deal clients. I write, find, and post the content. Changing the structure of the website – like adding

ever because Susan Fisher very generously offered a lot of fantastic photos.



The website's cousin – Facebook:

Around 2014, Steve Johnson had the great idea of setting up a Facebook page so MSDC can reach new people. Steve gave posting rights to a number of members. So far this year, I'm the sole poster. Dave Hennessey has written content that I've posted.

Why do we have a Facebook page, too? 'Cause we're cool? Or because different people look in different places to find stuff, so being in two places is better than just one.

What's the difference between our website and our Facebook page? Both start with the same foundation: Since our club's start in 1942, MSDC has stayed a great place for friendly people who are curious and want to go a bit in depth to learn about minerals and geology. I aim to have that message come through in every page and in every post.

- Both our website and Facebook tell about our next meeting.

- The website aims to be a broad, informative introduction and welcome to MSDC and to the overall world of minerals and geology. It has MSDC info, lots of links, a calendar bigger than just MSDC, info about mineral museums, info about other clubs, etc. I usually update it approximately monthly, but more now, to rebuild it. Once in a while, a teacher someplace in the US emails to let us know she used something.

- Facebook is a changing series of brief posts that aim to attract people to a meeting, to the website, or to the hobby, and to share news and info with people who follow MSDC on Facebook. Facebook posts are diverse and always try to be eye-catching. Posts often share links about DC-area minerals or geology, in hopes that local people will find us and join the club. I usually post 2-4 times per month.

How can YOU help?



- Please "Like" or share any post that you actually do like. It gives me helpful feedback.

- If you have favorite links related to minerals or geology, email them to me. I can add them to our website, so others discover them. bdthompson01 at yahoo dot com

- If you have feedback about any of this, please email me. If you'd rather talk, we can do that at a meeting or you can email and I'll send my phone number

Report from Member George Loud on Hurricane Matthew



Hurricane Matthew was a Category 2 hurricane when the northern wall of its eye passed over Hilton Head Island. A further piece of bad luck was that the hurricane's storm surge arrived at high tide. However, most homes on the island, including ours, were unharmed. Our home now has a city issued notice on the front window declaring the house to be fit for habitation. Inspection of the exterior of every structure on the island will be completed by this Friday. This morning's issue of our local newspaper reported that about 28% of structures on the island suffered at least some damage. Of course, some areas on the island were hit much harder than others. We live in Indigo Run Plantation which fared much better than other areas. However, even here in Indigo Run the number of downed trees and debris is mind-boggling. Ours is one of 5 homes on a cul-de-sac and as I sit here at my computer I can see the island of the cul-de-sac completely covered and piled high with tree sections and tree debris. Our parish center is now home to a number of families awaiting repair of their homes.

A "mandatory evacuation" of this entire county (and other coastal counties in SC) was ordered by our Governor on October 4th with a deadline of 3:30 PM Wednesday, October 5th. In an attempt to beat the traffic I and Molly (a 7 month old lab) left for Macon, GA. Tuesday evening, the 4th. The hurricane did not arrive on Hilton Head until Saturday, 8th, but with the evacuations of coastal areas in 3 states, state officials wanted to stagger those evacuations in an attempt to minimize traffic

jams on roads headed north. On the 4th Karen was still in San Antonio on a chick outing but she was able to change her return flight and I picked her up in Atlanta Wednesday afternoon, the 5th. We spent 8 days in Macon, first at a no-tell motel (5 days) and then at a very nice La Quinta (3 days). When dining out (we had no dining in) we left Molly in the car. During one of our meals Molly chewed off one end of my hard eyeglass case, tore off the zipper and demolished my prescription sunglasses, the third pair of prescription glasses the dog has ruined. When the island was opened and we returned home on the 12th we found that we were not allowed to flush a toilet or take a shower. Some trees had roots around water mains and sewer lines and when such trees fell the lines their roots entrapped were broken. A day or so later when these restrictions were lifted I found joy in the flushing of a toilet like I never would have imagined. By some miracle Karen and I left Macon, survived the restrictions, and still remain on friendly terms.

I have an accession notebook with info on almost 10,000 specimens, including price paid for those obtained by purchase. When I left on the evening of the 4th I took with me that notebook and a plastic box containing, marriage certificates (including those of our parents), birth certificates, baptismal certificates, our living trust, and insurance policies. Having all of the latter together in one box was one bit of preparedness for which I was very thankful. I considered wrapping and taking some of my better mineral specimens but I did not know where to begin and, in the end, evacuated without a single specimen. During the eight days in Macon I worried more about my books, including a few rarities, than I worried about the minerals. A tree falling on a skylight would have allowed in rain (15" in one hour) and

perhaps ruined a number of books.
Fortunately, no water entered our home.
We have much for which to be grateful
– George

MSDC History – A selection from the Mineral Minutes of June 1964

REPORTS ON REGENT FIELD TRIPS –

On March 21, an astonishingly large number of collectors met at the Rocky Gorge Lake in the rain to hunt in the pegmatites near Henryton Hospital, just west of Marriotsville, Md. By the time the group arrived at the quarry parking lot, which was an abandoned railroad cut, the steady drizzle had changed to snow. Several collectors remained in their cars, preferring, no doubt, to collect game of wisdom from books and magazines, but the others followed Roger Williams, our rip leader, east along the bank of the river and across the railroad tracks to the pegmatites. The quarries are in a highly quartzose dike. Some small beryls, a little mangan-apatite, and much mica was recovered. As the snow got worse, collecting ceased. Some of the group met back at Marriotsville and agreed to try again on April 4.

We met again on April 4, and Roger Williams took us to the old Frost Feldspar

quarry which is between Route 99 and the Patapsco River, a few miles east of the “One Oak” Farm leads to the quarry, which is on the left side of the right fork of the dirt road, a short distance north of an old stone foundation. The quarry is in a deep ravine, is quite grown over, and has a small stagnant pool. It turned out that several collectors collected collections of poison ivy at this locality. Others collected some beryl, feldspar, large masses of horblende, pyrite, limonite, pyroxene variety cocolite, garnet, dolomite cleavage fragments, and an unknown while microcrystalline mineral. The Pegmatite is in contact with the Cockeysville marble, which accounts for some of the unusual minerals.

The field trip to the H.T. Campbell Co. Quarry at Texas, Md., on May 2, was conducted under sparkling clear blue skies. Although only a few people showed up, interesting specimens of pink dolomite crystals, phlogopite mica masses, and tremolite masses were collected. Bill Cordun found the prize specimen, calcite crystals on pink dolomite crystals.

**An Article from the Hot Springs
Bulleting, September 2016, Vol 16,
No. 6, Issue 92**

**Blanchard Springs Caverns, Ozark
National Forest, Arkansas**

by Ray Lynch

Blanchard Springs Caverns

are located in the Sylamore District of the Ozark National Forest, 15 miles northwest of Mountain View, Stone County, Arkansas. The cave was developed for tourism by the Ozark National Forest in a carefully planned, ten-year project. The cave was explored in 43 expeditions over 4 years. The members of

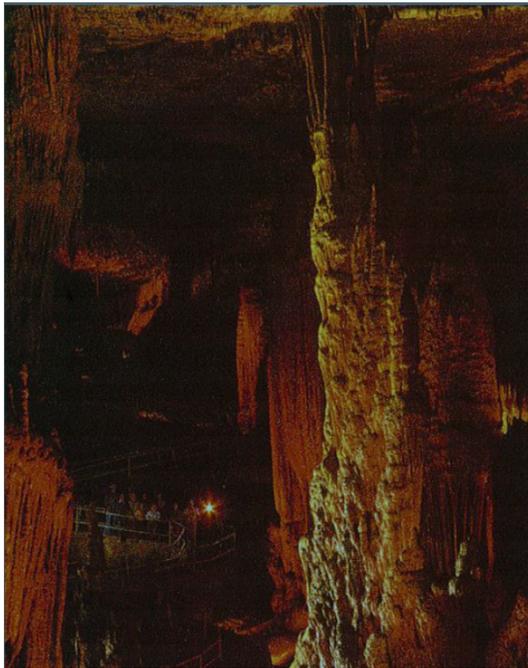


the team were Hugh Shell, Hail Bryant, Paul Buchanan, Charles Rogers, Mike Hill, Ronnie Sims, Robert Handford and Billy Sneed. Paul Buchanan, editor of the Batesville Guardian-Record, was the one who publicized their findings. The team discovered and surveyed 2,182 meters of the cave and made more than 1,000 pictures.

The cave has some huge caverns and many **speleothems***, including soda straws, bacon formations and rimstone pools.

Impressive is the spring which gave the cave its name: Blanchard Springs, a typical karst spring where the cave river leaves the cave with a waterfall. However, the spring was named after John H. Blanchard who homesteaded nearby and built an undershot grist mill here.

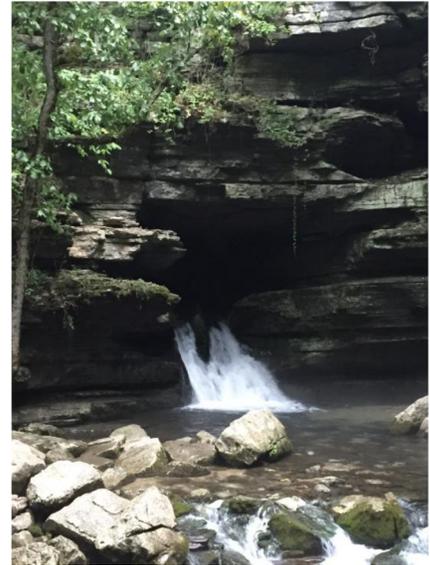
***Speleothems (from the Greek for “cave deposit”)** is a formal term for what is also known as cave formations, or amongst cavers, collectively known as pretties. They are the result of the interaction of water, rock and air within caves.



Cathedral Room with 65 ft. tall column.

The Springs

The old mills that once used this water for power – to grind corn and wheat, cut lumber, and gin cotton – are silent now, or gone. But in days past, they heard many a tall tale and somber discussion as



Blanchard Springs emerging from the Cave. Photo 6/6/2016 by Ray Lynch.

residents gathered on Saturdays to socialize and talk about everything from politics to crops.

After the Civil War, a young veteran, John H. Blanchard, left his family’s plantation home in Kentucky to search for a place of greater solitude. A place in the peaceful Ozarks, which could offer escape from the aftermath of war. He had enrolled as a private on July 23, 1861, to serve with the Kentucky Volunteers of the Confederate Army. During four years of bitter conflict, Blanchard fought in several campaigns and was wounded at Chickamauga. By the time the war ended, Blanchard had been promoted to lieutenant and cited for gallant and meritorious conduct. Before his death in 1914, at the age of 74, he was elected to two terms as county treasurer.

Some things in the natural system seem exempt from the passage of time, Blanchard Springs is one of them! Today water still pours abundantly from the spring. A scenic trail and pedestrian bridge leads visitors back to John Blanchard’s spring. Here in 1971, scuba divers entered to explore the

mysterious waterway all the way to the natural entrance. In 4,000 feet of unexplored, mostly water-filled passageways, the scuba divers mapped five inaccessible air filled rooms and corridors. They returned with photographs of remarkable cave formations, waterfalls and cave life. They determined that it takes eighteen and a half hours for water to flow through 1,000 feet of cave passages full of water, and five hours to flow through 3,000 feet of stream in the air-filled rooms. A cave journey of less than a mile takes almost 24 hours.

Cave Geology

The limestone rock from which these caverns and incredibly varied formations develop was laid down in an ancient sea more than 350 million years ago. We can only speculate on how old the formations are. Take, for example, the impressive Giant Column which towers about sixty-five feet high. It was formed by a stalactite, lengthening from the ceiling, and a stalagmite rising from the floor. No one knows how many thousands, hundreds of thousands, or millions of years it took for dripping water to deposit the calcite and other minerals that you see in the column's color.

As water seeps through cracks in rock, it dissolves the limestone which is composed of calcium carbonate. At first this water creates passages which grow larger over time, forming a cave. Millions more years pass, and the stream or river erodes and drops to a new, lower level, deeper and deeper into the limestone. The surface of the land began to show signs of sinkholes, where rain water drained directly into the limestone below. The cavities formed beneath the surface in the saturated limestone joined into one continuous channel as the underground river moved sideways between the layers of rock. The

water continued to seep and move through the rock, dissolving and enlarging the soon-to-be caverns.

Eventually, these voids within the rock grow large enough. The water drains from the underground river, leaving the cave high and dry and the seeping water contacts air, causing its dissolved minerals to precipitate. This precipitation may be a function of mineral concentration (calcium carbonate) through water removal or through the loss of carbon dioxide. Over tens of thousands of years, these drops cause speleothems or cave formations to form.

While another system of caves was forming at a new water level below, dripping water entering the dry rooms and passages started depositing calcium carbonate and other minerals in the form of stalactites, stalagmites, and numerous dripstone features. The speleothems grow as long as groundwater enters the cave.

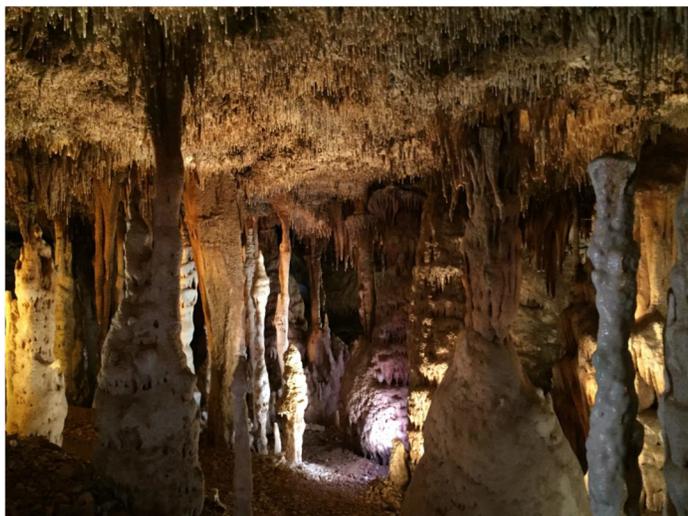
Blanchard Springs Caverns offer practically every type of calcite formation found in limestone caves. Everything from delicate, hollow soda straws to massive flowstones and stalagmites The Dripstone Trail takes you through two major rooms in the upper level of the cavern system. The Cathedral Room is long enough, 1,150 feet, to hold three football fields and still have space left over. The many snow-white formations in the 700-foot-long Coral Room are pure calcite, or calcium carbonate, the mineral that makes up limestone. Depending on the amount of water that seeps into the caverns from the surface, formations grow as much as an inch or more in a few years, or as little as a fraction of an inch in one hundred years, or not at all during dry epochs.

Cave Formations

Speleothems (from the Greek for "cave deposit") is a formal term for what are known as cave formations.

Calcite is dissolved from the limestone when surface water, containing carbonic acid absorbed from the air and soil, percolates down through the rock and into the cave. When this acid water – carrying a calcium bicarbonate solution – encounters the air inside of the cave, the carbon dioxide is released. The water then deposits calcite. Layer upon layer of calcite deposit will eventually shape the speleothem.

Many factors determine the shape that speleothems will take. How the water enters the cave – by dripping, flowing, seeping, splashing – and how it flows or stands after entering, are just two of these factors. Sometimes the calcite speleothems have pastel and earth colors, indicating that other minerals were deposited, continuously or at intervals. Iron oxides account for the shades of brown, yellow, and red, while manganese gives shades, of blue, black, and gray.

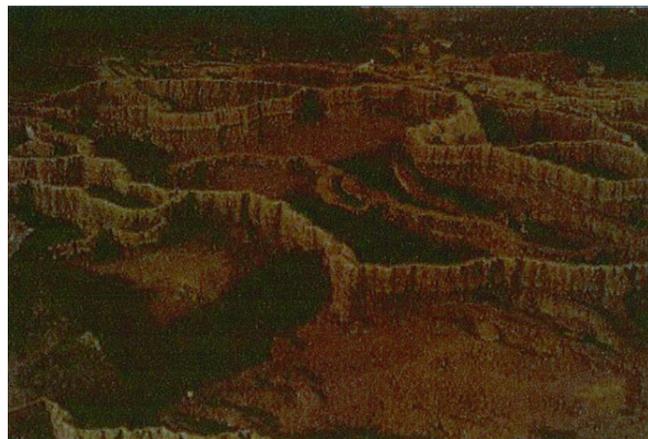


Stalactites (soda straws), stalagmites and columns in the Soda Straw Room, Blanchard Springs Caverns. Photo 8/7/2016 by Ray Lynch.

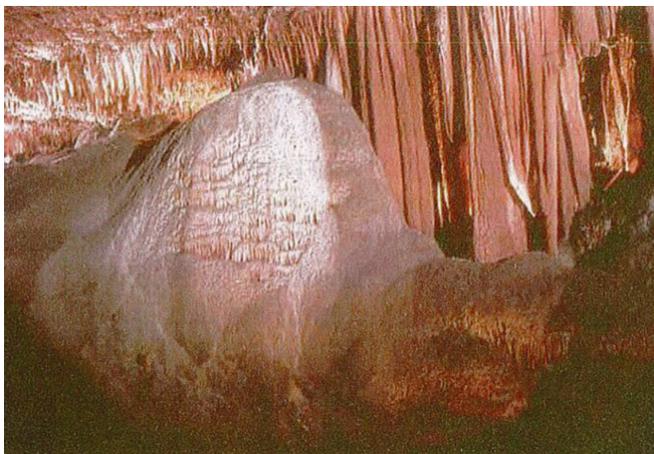
- Soda Straws (first stage stalactites) grow from the ceiling as water runs down inside them and deposits rings of calcite at their tips. When the soda straws are plugged, water trickling down their outside turns

them into larger carrot – or icicle - shape stalactites.

- Stalagmites, which rise from the floor when dripping water deposits minerals, are usually larger in diameter than stalactites and are more rounded on top.
- A stalactite and stalagmite may meet midway, forming a column. Or, one or the other may grow all the way to the floor or ceiling to form a column. On an inclined ceiling, water may deposit calcite in thin, translucent sheets, producing draperies that hang in delicate folds. At times, water forming the draperies contains minerals in addition to calcite, resulting in dark orange or brown bands called bacon formation.
- Flowstone, forms when considerable water flows down walls, over floors and older formations, building up sheets of calcite like icing on a cake.
- Rimstone dams and terraces often build up and trap the water in pools – the home of tiny blind, white creatures that dwell in caves. Cave Bacon formation



The Coral Pond formed by Rimstone dams and terraces, are a delight on the Dripstone Trail. This material is not really “coral” at all, but calcite. These lacy patterns are formed on top of calm waters at the point of air contact. As water levels slowly rise and fall, different calcite levels are deposited.



The Ghost Room, with its shimmering, crystalline flowstone, is one of the “beauties” of the Discovery Trail at Blanchard Springs Caverns.

The Coral Room, only a portion of which is visible (this room is y-shaped and 700 feet long at its longest point and 50 to 80 feet wide except at the point where the arms and leg of the Y join, where it is 130 feet wide and varies from head-high to an estimated 55 feet) in this picture, with its massive formations stained red by iron oxides. For scale a person would be about as tall as the white cone shaped formation at right-center bottom. Note trail step-handrails at lower left corner and people at right for scale. Also see cover picture. Photo by Ray Lynch.

Giant Flowstone, forms when considerable water flows down walls, over floors, and older formations, building up sheets of calcite like icing on a cake. This is believed to be one of the largest, approximately 125 feet long and 40 feet tall, flowstone formations known in the world. At its base is a pool of crystal clear water.

Cave Life

The entrance zone is most like the surrounding surface area. Some shade-loving green plants grow in the twilight zone, but extend only to the deepest point where light penetrates. Temperature in the

variable temperature zone fluctuates with the weather outside the cave. Deeper into the cave, in the constant temperature zone, the temperature stays at 58 degrees regardless of the weather on the surface.

Biologists recognize three kinds of cave animals. Those that live above ground, but often retreat to caves – bats and crickets – are troglaxenes, “cave guest”. One troglaxenes in Blanchard Springs Caverns is the Indiana bat, an endangered species. Animals living mostly in the cave, but with the ability to survive outside it – salamanders, frogs harvest men (daddy longlegs) - are troglaphiles, “cave lovers”. Animals which spend their entire lives in the cave’s total darkness and uniform environment are troglabite, “cave dwellers”. Like the white Ozark blind salamander, many are sightless and without pigment. This four-inchlong salamander, native to Blanchard Springs Caverns, was the first cave dwelling amphibian found in America.

After the mosses and ferns of the entrance zone, little plant life – except for bacteria, mold, and fungi – occurs further back in the cave. The reason is obvious. Some animals can return to the surface for the food and energy they need to exist, but plants growing in the cave must be able to find a source of energy already “packaged” – in the form of decaying wood, leaves and organic matter.

Natural Entrance to Blanchard Springs Caverns a crevice leading to a 70-foot vertical shaft.

You may see some of the cavern’s creatures along the way, particularly near the natural entrance because more food is present there. Organic materials, like leaves, fall down the shaft. The underground stream also brings in leaves, twigs and aquatic life. Some animals of the cave occasionally return to the surface for brief periods. This brings most of them to the

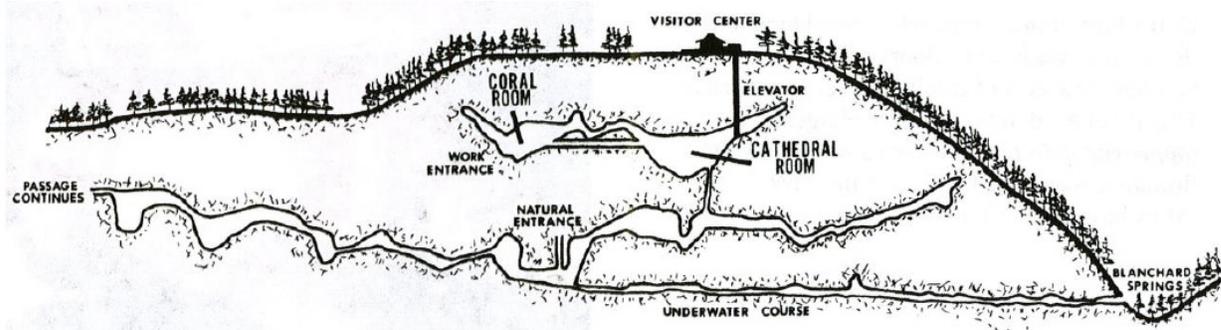
natural entrance where they become prey to certain surface predators. Still this area has far less animal life than a similar area on the surface.

Bacteria in the debris washed into the caverns by floods and runoff sustain some form of life. Microscopic organisms are food for slightly larger aquatic cave animals. – flatworms, isopods and amphipods, few of them even an inch long. They are devoured by still larger animals, such as salamanders

and crayfish, major performers in the cave food web.

Even with washed in debris, many cave animals could not survive without the troglaxenes that regularly return to the surface for food. Bat droppings, or guano, supplement bacteria, mold, and fungi as food sources for the smaller non-aquatic cave animals – millipedes, snails, beetles, and other insects – which, in turn, are eaten by salamanders, spiders and crickets.

Cave Life	
	
<p>Cave Salamander, a troglophile, or cave lover. Living mostly in the cave but with the ability to live outside.</p>	<p>Ozark blind salamander, a troglobite, or cave dweller. This four inch long creature was the first cave dwelling amphibian found in America.</p>
	
<p>Blind crayfish, as a troglobite or cave dweller, it spends its entire life in the cave's total darkness.</p>	<p style="text-align: center;">Indiana Bats Eastern Pipestrell Bat</p> <p>Bats are troglaxenes, or cave guests.</p>



SIMPLIFIED CROSS SECTION of Blanchard Springs Caverns with its three levels.

Above articles and photos from National Forest website, various books, photos and websites.

From an article originally published in the HSGC Bulletin, September 2005, by Ray Lynch.
Fleming, John - The Blanchard Springs Story. Gallinule Society Publishing Co., Inc., 1973.



A Word from the AFMS President

by Ron Carman,
President

Editor's note: The
article is adapted from

A.F.M.S. November newsletter.

For the second time I am taking this position and again I have some big shoes to fill (no offense intended, Matt!) I'm following some very capable presidents who have done much to help bring all the federations together and I will try to continue with this work.

Many of you may know me from various shows around the country. For those who don't, I am a member of three clubs in the South Central Federation and I enjoy collecting minerals (although I appreciate fossils and gemstones too) and visiting shows all over. In the coming year, I

hope to attend each regional federation convention and become better acquainted with the folks in all seven federations, starting with the Southeast Federation show in Marietta, Georgia in November. The coming year will have conventions all around the U.S. so I will have the chance to travel and visit places I haven't been before.

One thing Matt encouraged during his presidency and I do also, is for all our members, no matter where you live, to get involved with your clubs and federations. Every club has numerous jobs it needs to fill, and the willing volunteers who fill them are the backbone of the clubs and federations. Also, if you see something that you think needs improving or could be done better, speak up and tell someone about it. And don't be afraid to do something to help improve things if needed.

Here's looking forward to a great year and I hope to meet many of you in person.

Ron

Mineralogical Society of America Editors' Picks

With the permission of Keith Putirka, the following are the Editor's picks of Highlights and Breakthroughs & Invited Centennial Articles from the July 2016 issue of the *American Mineralogist: Journal of Earth and Planetary Materials*. <http://www.minsocam.org>

Highlights and Breakthroughs

Invited Centennial Review

Magmatic Flare-ups Explained

On page 2133 of this issue, Kirsch et al. compare zircon ages along several arc segments that span nearly the entire North and South American Cordillera, from 400 to 80 Ma. They find that age distributions,

both within and between arcs, are non-uniform: peaks and lulls are often separated by intervals that fall within a 50 to 80 Ma range. Moreover, while some flare-ups are localized, these inferred (from zircon age dates) magmatic maxima and minima are "nearly synchronous for thousands of kilometers" in many arcs. They suggest that plate tectonic factors (rather than intra-

crustal magmatic differentiation, cooling or transport) may control magmatic input. Some authors have rejected this idea, but perhaps too quickly, having examined smaller-scale spatial and temporal patterns. Rather, by accounting for a lag time between tectonic forces and magmatic responses, correlation coefficients between the two are increased.

Additional Notable Papers

Graphite in the Diamond Stability Field

On page 2155 of this issue, Mikhailenko et al. combine Raman and FTIR spectroscopic studies to investigate graphite inclusions in diamond, from eclogite xenoliths in the Udcahnaya kimberlite. Their Raman data show graphite inclusions retain a large residual stress, both within the graphite and the immediately adjacent diamond. This observation, combined with petrographic observations and existing experimental work, leads these authors to conclude that the graphite did not form from diamond on a retrograde path, but rather that graphite existed metastably in the diamond stability field. These authors also find that N in diamond is “highly aggregated”, which may mean that diamond hosts for highly stressed graphite grains are quite old. This work implies that metastable graphite might persist within at least the immediate reaches of the diamond stability field for perhaps billions of years.

Re-hydrated Clinopyroxene as a Magmatic Hygrometer

On page 2233 of this issue, Weis et al. examine the re-hydration of clinopyroxene

phenocrysts from various volcanic systems. As with prior studies, they find that hydration and de-hydration reactions are controlled by an equilibrium involving ferric Fe: $(\text{OH})^- + \text{Fe}^{2+} = \text{O}^{2-} + \text{Fe}^{3+} + 0.5\text{H}_2$. Their work indicates that clinopyroxenes phenocrysts may often dehydrate significantly during magma transport and eruption, and so untreated, can only be used to estimate minimum water contents in a magmatic system. These authors argue that pre-eruption magmatic water contents can be obtained using their methods to re-hydrate clinopyroxenes, with the implied argument that ferric Fe contents in clinopyroxene place a maximum on rehydrated water contents. However, ferric iron itself is not a good proxy for magmatic water contents, as it is not always linked to hydrogen associated defects, but may be part of other charge balancing processes (e.g., $\text{Na}^+ \text{Fe}^{3+}$ vs. 2Ca^{2+}).

Making Granite on the Moon

On page 2312 of this issue, Gullikson et al. conduct partial crystallization experiments to test hypotheses of granite genesis under lunar conditions. They show that lunar-like granites can be obtained by partial melting at low pressures of monzogabbro and alkali gabbro crustal rocks, at least when equilibration temperatures are < 1000 °C; but only the monzogabbro parent yields granite magmas in sufficient quantities to segregate from a solid residue. Some of their experiments also yield Fe- and Si-rich immiscible liquids, at $T = 1000\text{-}1050$ °C. But liquid immiscibility, at least for the examined starting compositions, can be rejected as a

means to make Th-rich Lunar granite, since Th partitions strongly into the low-Si, Fe-rich liquid. Granites appear to be uniquely abundant on Earth—this work is a step towards understanding their rarity elsewhere and thus for understanding what makes Earth exceptional among neighboring planetary objects.

Ti, V, and Cr in the Upper Transition Zone

On page 2322 of this issue, Zhang et al. explore the crystallography of transition elements and intra-crystalline partitioning of these into Wadsleyite. The inside-baseball result: Ni, Co, and Zn avoid the M2 site (in favor of M1 and M3), and do so in proportion to expected Crystal Field Stabilization Energies. Perhaps more significant, though, is that trivalent cations Cr and V (which strongly prefer M3 over M1 and M2), and tetravalent cations, such as Ti, appear to be much more soluble in wadsleyite compared to olivine. The authors suggest that the wadsleyite-bearing mantle (410-525 km) has the potential to absorb more of these elements compared to shallower mantle materials, and plumes that transit the wadsleyite stability field may be affected by this contrast in wadsleyite and olivine solubility.

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- Temporal histories of Cordilleran continental arcs: Testing models for magmatic episodicity. Moritz Kirsch, Scott R. Paterson, Florian Wobbe, Ana María Martínez Ardila, Benjamin L. Clausen, Pablo H. Alasino
- Graphite-diamond relations in mantle rocks: Evidence from an eclogitic xenolith from the Udachnaya kimberlite (Siberian Craton). Denis S. Mikhailenko, Andrey V.

Korsakov, Pavel S. Zelenovskiy, Alexander V. Golovin

- Association of cumulus apatite with compositionally unusual olivine and plagioclase in the Taihe Fe-Ti oxide ore-bearing layered mafic-ultramafic intrusion: Petrogenetic significance and implications for ore genesis. Zhong-Jie Bai, Hong Zhong, Chusi Li, Wei-Guang Zhu, Wen-Jun Hu
- Repeated, multiscale, magmatic erosion and recycling in an upper-crustal pluton: Implications for magma chamber dynamics and magma volume estimates. Scott Paterson, Valbone Memeti, Roland Mundil, Jiří Ák
- A new experimental approach to study fluid-rock equilibria at the slab-mantle interface based on the synthetic fluid inclusion technique. Alexandra Tsay, Zoltan Zajacz, Peter Ulmer, Markus Waelle, Carmen Sanchez-Valle.
- Fe-Mg interdiffusion in orthopyroxene. Ralf Dohmen, Jan H. Ter heege, Hans-Werner Becker, Sumit Chakraborty.
- Error sources in single-clinopyroxene thermobarometry and a mantle geotherm for the Novinka kimberlite, Yakutia. Luca Ziberna, Paolo Nimis, Dmitry Kuzmin, Vladimir G. Malkovets
- Experimental hydration of natural volcanic clinopyroxene phenocrysts under hydrothermal pressures (0.5–3 kbar). Franz A. Weis, Roland Stalder, Henrik Skogby
- Comparison of isoelectric points of single-crystal and polycrystalline γ -Al₂O₃ and γ -Fe₂O₃ surfaces. Yingge Wang, Per Persson, F. Marc Michel, Gordon E. Brown
- Visible and short-wave infrared reflectance spectroscopy of REE phosphate minerals. David J. Turner, Benoit Rivard, Lee A. Groat
- Protolith carbon isotope ratios in cordierite from metamorphic and igneous rocks. William H. Peck

- Empirical electronic polarizabilities of ions for the prediction and interpretation of refractive indices: Oxides and oxysalts. Robert D. Shannon, Reinhard X. Fischer
- A novel protocol for resolving feldspar crystals in synchrotron X-ray microtomographic images of crystallized natural magmas and synthetic analogs. Fabio Arzilli, Margherita Polacci, Patrizia Landi, Daniele Giordano, Don R. Baker, Lucia Mancini
- Silicic lunar volcanism: Testing the crustal melting model. Amber L. Gullikson, Justin J. Hagerty, Mary R. Reid, Jennifer F. Rapp, David S. Draper
- Transition metals in the transition zone: Crystal chemistry of minor element substitution in wadsleyite. Li Zhang, Joseph R. Smyth, Julien Allaz, Takaaki Kawazoe, Steven D. Jacobsen, Zhenmin Jin
- Experimental evidence of the formation of intermediate phases during transition of kaolinite into metakaolinite. Victor A. Drits, Arkadiusz Derkowski, Boris A. Sakharov, Bella B. Zviagina
- Synthetic olivine capsules for use in experiments. William Nash, Duane Smythe, Bernard J. Wood

- Further observations related to a possible occurrence of terrestrial ahrensite. William E. Glassley, John A. Korstgård, Kai Sørensen
- Chemical zoning and lattice distortion in uraninite from Olympic Dam, South Australia. Edeltraud Macmillan, Cristiana L. Ciobanu, Kathy Ehrig, Nigel J. Cook, Allan Pring

New Mineral Names – Dmitriy I. Belakovskiy, Fernando Cámara, Olivier C. Gagné

Book review by Michael W. Foerster: Layered Intrusions, ed. by Bernard Charlier, Olivier Namur, Rais Latypov, and Christian Tegner

Book Review by James A. Saunders: Mineral Resources, Economics and the Environment, 2nd edition by Stephen E. Kesler and Adam C. Simon

Useful Mineral Links:



Eastern Federation of Mineralogical and Lapidary Societies (EFMLS)

www.amfed.org/efmls



American Federation of Mineralogical Societies (AFMS)

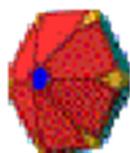
www.amfed.org



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WebMineral

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Mineralogical Society of America

www.minsocam.org



THE GEOLOGICAL SOCIETY OF AMERICA®

The Geological Society of America (GSA)

www.geosociety.org

Upcoming Local (or mostly local) Geology Events:

November:

2 MSDC November Meeting

- 5 – 6 47th Annual Fine Gem, Jewelry & Mineral Show – Gemarama 2016 sponsored by the Tuscarora Lapidary Society. Greater Philadelphia EXPO Center at Oaks, Hall C. Contact: Amy Karash <amy.karash@gmail.com>.
- 19-20 25th Annual Gem, Mineral & Fossil Show sponsored by the Northern Virginia Mineral Club. The Hub Ballroom at George Mason University. Braddock Rd & Rt. 123, Fairfax, VA. Contact: <novamineralclub.org>
- 23 Micromounters November Meeting (subject to change based on Thanksgiving)
- 28 NVMC November Meeting (subject to change based on show)

December:

- 7 MSDC December Meeting
- 5 – 6 47th Annual Fine Gem, Jewelry & Mineral Show – Gemarama 2016 sponsored by the Tuscarora Lapidary Society. Greater Philadelphia EXPO Center at Oaks, Hall C. Contact: Amy Karash <amy.karash@gmail.com>.
- 19-20 25th Annual Gem, Mineral & Fossil Show sponsored by the Northern Virginia Mineral Club. The Hub Ballroom at George Mason University. Braddock Rd & Rt. 123, Fairfax, VA. Contact: <novamineralclub.org>
- 26 NVMC December Meeting (may be adjusted to accommodate holidays)
- 28 Micromounters December Meeting

January:

- 4 MSDC January Meeting
- 23 NVMC January Meeting
- 25 Micromounters January Meeting

February:

- 1 MSDC February Meeting
- 9-12 2017 Tucson Gem and Mineral Show®, "Mineral Treasures of the Midwest", SMG-Tucson Convention Center. For days, times and discount ticket information: Click Here! Tickets available starting Thursday, January 12, 2017.
- 22 Micromounters February Meeting
- 27 NVMC February Meeting

MSDC Past Presidents

Name	Years served as President	Name	Years served as President
Charles H. Robinson	1941-1945	John W. Gruger	1970-1971
James H. Benn	1946-1947	Angelo G. Cicolani	1972-1973
John J. Livingston	1948-1950	William H. Wilkinson	1974
Phillip R. Cosminsky	1951	Ellsworth E. Sinclair	1975-1976
Benjamin J. Chromy	1952	Angelo Cicolani	1977-1978
John J. Livingston	1953-1954		1979
Paul J. Rees	1954	Cynthia C. Payne	1980
Antonio C. Bonanno	1955	Paul E. Smith	1981-1982
Paul E. Halter	1956-1957	Fred C. Schaefermeyer	1983-1984
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John Sinkankas	1959	James O'Connor	1986-1989
William R. Smith	1960	Erich Grundel	1990
Paul E. Desautels	1961	Wilson (Ed) Fisher	1991-1996
John R. Cranford	1962	Jennie Smith	1996-1997
Robert Highbarger	1963	Wilson (Ed) Fisher	1998-2003
Harry Van Tassel	1964	Andy Thompson	2004-2010
Grant C. Edwards	1965	Tom Tucker	2011-2012
Kenneth V. Zahn	1966	Stephen Johnson	2013-2015
Douglas C. Alverson	1967-1968	David Nanney	2016
Robert W. Dunning	1969		

AFMS Code of Ethics

- I will respect both private and public property and will do no collecting on privately owned land without the owner's permission.
- I will keep informed on all laws, regulations of rules governing collecting on public lands and will observe them.
- I will to the best of my ability, ascertain the boundary lines of property on which I plan to collect.
- I will use no firearms or blasting material in collecting areas.
- I will cause no willful damage to property of any kind - fences, signs, and buildings.
- I will leave all gates as found.
- I will build fires in designated or safe places only and will be certain they are completely extinguished before leaving the area.
- I will discard no burning material - matches, cigarettes, etc.
- I will fill all excavation holes which may be dangerous to livestock. [Editor's Note/Observation: I would also include wildlife as well as livestock.]
- I will not contaminate wells, creeks or other water supply.
- I will cause no willful damage to collecting material and will take home only what I can reasonably use.
- I will practice conservation and undertake to utilize fully and well the materials I have collected and will recycle my surplus for the pleasure and benefit of others.
- I will support the rockhound project H.E.L.P. (Help Eliminate Litter Please) and Will leave all collecting areas devoid of litter, regardless of how found.
- I will cooperate with field trip leaders and those in designated authority in all collecting areas.
- I will report to my club or Federation officers, Bureau of Land management or other authorities, any deposit of petrified wood or other materials on public lands which should be protected for the enjoyment of future generations for public educational and scientific purposes.
- I will appreciate and protect our heritage of natural resources.
- I will observe the "Golden Rule", will use "Good Outdoor Manners" and will at all times conduct myself in a manner which will add to the stature and Public "image" of rockhounds everywhere.

**MEMBERSHIP APPLICATION OR RENEWAL
THE MINERALOGICAL SOCIETY OF THE DISTRICT OF COLUMBIA (MSDC)**

Family ~ \$25.00 per year. One address.

Individual ~ \$20.00 per year.

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For new members who join in the last months of the year, membership will extend through the following year with no additional dues.

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Pay at next meeting or mail to:
Mineralogical Society of DC
c/o John Weidner
7099 Game Lord Dr
Springfield, VA 22153-1312

Name(s) (First and Last) _____

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OK TO INCLUDE YOU ON CLUB MEMBERSHIP LIST?

Yes – Include name, address, phone, email.

If you want any information omitted from the membership list, please note:

Omit my: Email, Home phone, Work phone, Mobile phone, Address,
 Name

SPECIAL CLUB-RELATED INTERESTS? _____

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Co-Web Masters: Betty Thompson & Casper Voogt, <http://mineralogicalsocietyofdc.org/>

Meeting Dates, Time, and Location: The first Wednesday of each month. (No meeting in July and August.) The National Museum of Natural History, Smithsonian Institution, 10th Street and Constitution Ave, Washington D.C. We will gather at the Constitution Avenue entrance at 7:45 PM to meet our guard who will escort us to the Cathy Kirby Room. Street parking:

Parking is available in the Smithsonian Staff Parking – Just tell the guard at the gate that you are attending the Mineral Club Meeting.



THE MINERAL MINUTES

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Newsletter of the Mineralogical Society of the District of Columbia

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