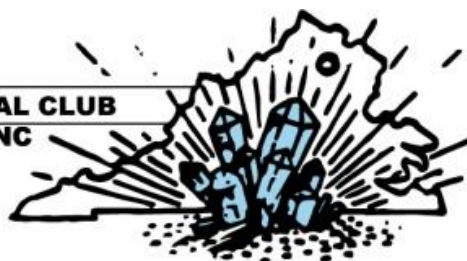




THE NORTHERN VIRGINIA

MINERAL CLUB
INC

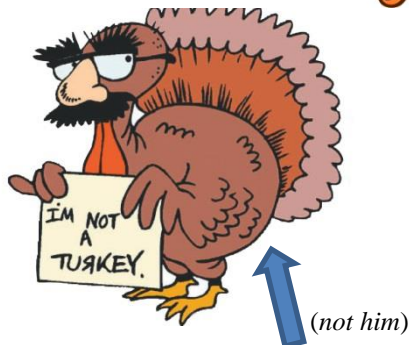


The Mineral Newsletter

Meeting: November 24 Time: 7:45–9:00 p.m.

Long Branch Nature Center, 625 S. Carlin Springs Rd. Arlington, VA 22204

*Happy
Thanksgiving*



The “Chicken from Hell” and the Last American Dinosaurs November 24 Program

Recent finds have revealed the existence of an extraordinary creature dubbed the “Chicken from Hell.” Attaining a length of 11 feet and a weight of 500 pounds, this dinosaur, named *Anzu wyliei*, had a bird-like beak and a tall crest on its head. Its long arms ended in digits with huge claws, and feathers fanned from the end of its long tail. Anzu, along with the fearsome predator T. rex and the large-horned Triceratops, were among the last dinosaurs to roam the North American continent.

Hans Sues, paleontologist at the National Museum of Natural History and one of



Volume 55, No. 9

November 2014

You can explore our club website:

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

Northern Virginia Mineral Club members,

Please join our November 24 speaker, Hans Sues, for dinner at the Olive Garden at 6 p.m.

*Olive Garden, Baileys Cross Roads (across
from Skyline Towers), 3548 South Jefferson St.
(intersecting Leesburg Pike),
Falls Church, VA
Phone: (703) 671-7507*

Reservations are under Kathy Hrechka, Vice President, NVMC. Please RSVP to my cell at (703) 407-5393 or kshrechka@msn.com.

Anzu’s discoverers, will discuss this and other discoveries from the Hell Creek formation, a famous fossil area that covers much of eastern Montana and extends into North and South Dakota. It dates back to the time just prior to the mass dinosaur extinction that ended the Cretaceous Period 66 million years ago.

GMU Club Show Coming Up!

It’s your show—so please volunteer! Just type or copy and paste the following spot link into your browser: <http://vols.pt/fmg5iM>.

—Jim Kostka, Club Co-Chair



Sues will talk about the Chicken from Hell, T. rex, the Triceratops, and other dinosaurs, mostly smaller, many of which are still not widely known. Find out about the new discoveries and what science is revealing about their lives and times! ➤



The Prez Sez

by Wayne Sukow



How many of you have been reading the Eastern Federation newsletter? Who's ready to report at the November NVMC meeting on one of the committees or activities of the Eastern Federation? If you let me know, I'll place it on the agenda for the meeting.

Need I say more? Yup!

While all club members are aware that the NVMC has a Website, my question is: How many know what happens when you send a note requesting information using the <info@nova-mineralclub.org> button? Perhaps only a few members do. How do I know? I am the recipient of all inquiries from this source.

What kind of inquiries do we get? Let me share some examples:

1. Sat, 8 Nov 2014, 11:40 p.m.:
Hi, I'm a mineral collector in S. Calif., with extra tourmaline, mostly from the Himalaya mine in Mesa Grande, San Diego Co., CA. There are some extra small terminated specimens, cab rough, and facet grade rough that I'd like to dispose of. If you think this material would sell at your show in Nov., please tell me the details about the price and availability of a minimum size booth. My wife and I will be travelling to your area mid Nov., to spend some time with our daughter and her family in Burke, VA. Thanks, regards, Ed
2. Tue, 28 Oct 2014, 8:11 p.m.:
Would like to join and attend meetings. Just found out about the gem, mineral and fossil show! thank you
3. Tue, 11 Nov 2014, 9:19 a.m.
Hi, I am bringing a group of Girl Scouts to the GMF Show on Sunday 11/23 and wanted to confirm that they, too, will receive free admission if they wear their uniforms? (I saw that Boy Scouts do, but Girl Scouts are mentioned) Thanks! Karrin [*the answer was yes*]

In this issue ...

Previous meeting minutes	p. 3
Designer malachite cabachon	p. 5
Annual GMU club show coming up!	p. 5
Geology station for Webelos	p. 6
National Fossil Day	p. 9
Fourmarierite	p. 10
AFMS contest winners	p. 10
Our local bedrock	p. 12
101 geotrips	p. 14
Nevada's Virgin Valley opal	p. 14
My first micromounts	p. 16
Upcoming events	p. 17
Homegrown geodes	p. 17



The Rocks Beneath Our Feet

As editor of our newsletter, I am beginning a series of short articles exploring local and regional questions of geological interest. My inspiration came from comments by Sue Marcus and Roger Haskins. The first piece in the series begins on p. 11. If you would like to contribute to the series, please send your piece to hutchbrown41@gmail.com.

—Hutch Brown



At the October club meeting, President Wayne Sukow encouraged club members to read the EFMLS newsletter

4. Mon, 10 Nov 2014, 11:31 a.m.
Can you provide timing for the cub scout geology belt loop on 11/22 - 11/23? thank you, Bettina
5. Sat, 8 Nov 2014, 7:54 p.m.
could I please have a list of this year's vendors?
Chris
6. Fri, 7 Nov 2014, 1:10 p.m.
I'm looking for someone in the northern Virginia area who polishes mineral and petrified wood slabs. Could you possibly recommend someone?
Thanks, Elaine
7. Fri, 7 Nov 2014, 9:15 p.m.
Wayne, Jim Kostka is better set up for slab polishing than I am currently.
8. Tue, 30 Sep 2014
I am looking for someone who could appraise a lamp made of beige onyx, I'm told originally purchased in Turkey in the 70s. Interested in the value as either a lamp or just the stone - 17lbs Bob
9. Thu, 6 Nov 2014, 11:55 a.m.
Hi I am rocks and mineral dealer, most of my products are from Pakistan and Afghanistan. I am new dealer in US. If you have any space available in your show please let me know. Thanks Mamun

Each request gets a reply, and in some cases there's a followup or two. My reply is often copied to an NVMC club member who I deem is better qualified to answer the request. Sometime I send it to an EFMLS officer if it's the most appropriate thing to do.

As you've probably guessed, this is one of those "shadow volunteer jobs" in the club. "The Shadow knows!" I've been this shadow since the inception of the NVMC Website, and it's time for a new one. Volunteer! Thanks. ➤

Your shadowy Prez

Previous Meeting Minutes October 27, 2014

by Ti Meredith, Secretary

President Wayne Sukow called the meeting to order at 8 p.m. at the Long Branch Nature Center in Arlington, VA. He started the meeting by welcoming Donnie Chandler as a guest.

Wayne recognized past presidents in attendance, including Sue Marcus, Rick Reiber, Barry Remer, and himself.

News and Announcements

Jim Kostka announced the November GMU club show coming up on November 22–23. He urged members to take cards with information about the show and pass them out. Dave MacLean noted that he routinely passes out dozens of cards to people he meets in Springfield, which is typically heavily represented at the show as a result. Jim also said that more volunteers are needed to help out at the show. It's easy to sign up—just follow the directions in his article below on page 5.

Door Prizes

Door prizes this month came from Ti Meredith and Cynthia Payne. Winners included Tom Benedict, Donnie Chandler (who donated his back to the club), John Kress, Jim Kostka, and Dave Hennessey.

In a correction to the minutes for the club's September meeting, Sue Marcus provided a tray full of minerals for door prizes in 2015. Other than that, the last meeting minutes were approved. There was no old business.

New Business

Kathy Hrechka mentioned that we need members to volunteer for club offices in 2015. Several positions need to be filled. Our club will not survive unless members step up and volunteer!

Program: Cabochon Making

Club member Michael Smith proceeded to hold a workshop in basic cabochon making. After retiring as Vice-President of Training and Development for a local company, Michael learned cabochon making from a good friend, who was teaching a class in it. Since then, he has created over 500 self-cut and self-polished cabochons.

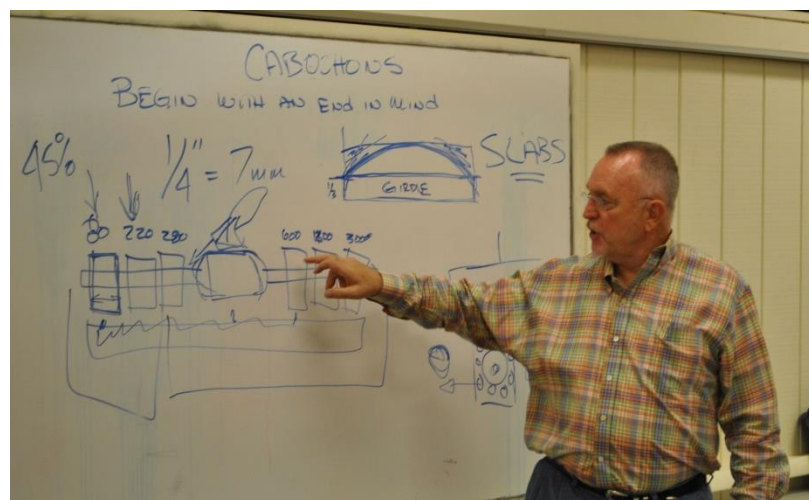


Michael explained the process of cabachon making, from cutting the slab, to marking the outline, to using various sizes of grinding wheels to shape and polish the stone. He also talked about finding materials for mounting the cab.

Michael showed off dozens of beautiful cabachons he has made, describing the sources of some of the materials. The results were astonishing.

Michael's presentation was informative, dynamic, and entertaining—even for club members with no experience in cabachon making!

The meeting was adjourned at about 9 p.m. ➤



Michael Smith outlines principles of cabachon making: begin with an end in mind; normally use a slab a quarter inch thick; create the dome beginning a third of the way up from the base; and use grinding wheels of various sizes to shape and polish the cab.



Material for the cab, cut into slabs, then marked in the desired shape and rough-cut to begin the process ...



... and some pretty spectacular results!



Designer Malachite Cabochon

by Denise Harrison

Editor's note: The piece is adapted from the Website of the Clackamette Gem and Mineral Society in Oregon (<http://www.clackamettegem.org>).

Collector designer cabochons are large cabs that are created to maximize the potential that a material like malachite has to offer. These cabs are a nice addition to any collection; due to their size, they display well. This malachite cabochon measures 1-1/32 by 2-21/64 by 5/16 inches.

Inspiration comes from the most unusual places. The sharp points and curves on this cabochon were inspired by my cat, who likes to rub his fang on my cheek.

I prefer to use a thick slab of material so I can create a high dome, resulting in a shinier surface. Low-domed cabs do not attract as much light. I sketch my pattern onto the back of the slab using an ultrafine permanent marker. I use my Genie diamond hard wheels to shape my cabochon. The shape will be the foundation of my work and the lower bevel line.

The curve in the cabochon is created by holding the slab's edge against the diamond hard wheel, either 80 or 100 grit. I use gentle pressure to allow the diamonds to do their work. I grind until I have achieved the desired curve. Then I proceed to the outside curve, paying special attention to the area where the inside curve meets the outside curve. I want a well-defined point at the end of my cab.

After the lower bevel is established, I draw a line one-third of the distance from the bottom of the material. This line is where the top of the bevel ends and the dome begins. Then I grind my way around the top edge of the cabochon, creating my dome on the upper two thirds of the stone.

I visually inspect my work by rotating my cab so that my dome is in the center and my angle is the same all the way around the cabochon. I remove all the trim



saw scratches, fractures, pits, and unattractive imperfections.

When my dome is complete, I move to the 280, 600, 1200, 3000, and 8000 soft diamond wheels of my Genie to remove scratches from the previous wheel. I use a magnifier to inspect the cabochon before moving to the next wheel. This important step ensures that my end result will be flawless and I will achieve the maximum polish the material has to offer.

I like to finish the back of my cabochon by removing the sharp edge and any nicks. I hold the back of the cabochon at a sharp angle on the 600 diamond grit wheel, using gentle pressure. I remove the permanent marker line by holding the back of the cabochon flat against the 600 diamond grit wheel.

Malachite is a soft material (3.5 to 4 on the Mohs Hardness Scale), so I use 8000-grit diamond wheels for my final polish. ↗

The Annual NVMC Mineral Show—Volunteers Needed!

Jim Kostka, Show Co-Chair

Our annual mineral show is coming up on November 22–23. This is *your* show—we need your help!

It's easy to sign up online. Just type or copy and paste the following spot link into your browser: <http://vols.pt/fmg5iM>. Then enter your e-mail address twice.

You'll see a range of activities you can sign up for. Just click on whatever appeals to you. Even if you can't participate this year, just click "No, thanks." Maybe next year!

If you have a great display case available, please let Jim Kostka know.



Your rocks are needed for the show! Please give generously! This is a great time to clean out your garage and basement and donate to the club!

In particular, we need moderately sized specimens suitable for the kids' tables, door prizes, and the silent auction.

- Kids Mini Mines—the size of a quarter to a half-dollar is best. Detailed information on the specimen is not necessary. Also needed are loose Herkimer diamonds for the Herkimer bin and lapidary scraps (small slabs, cabs, and cuttings) for the lapidary bins.
- Door prizes—pretty specimens are best, but relatively small (under 4 inches). Labels are desirable but not required.
- Silent auction—labeled and well-identified specimens are best. Again, the specimens should be moderately small.

If you have something to contribute to the cause, bring it to the show—or contact Tom Taaffe, Jim Kostka, or Rob Robinson. ➤



Scenes from the November 2013 GMU Club Show featuring NVMC volunteers Silvia Kerry and Roger Haskins (upper right), Brian Whiteley (above), and Leslie Nanney and Cynthia Payne (right).



Colonial District Webelos-Ree Mason Neck, VA

by Kathy Hrechka, Vice-President

Eagle Scout Jim Kostka and Kathy Hrechka, both from the Northern Virginia Mineral Club, demonstrated geology at a Boy Scout weekend campout at Gunston Hall on October 18.

Two hundred Cub Scouts rotated through seven stations: astronomy, geology, engineering-trebuchet, bicycling, hiking, fishing, and communications. Jim and Kathy presented various aspects of geology, including element–mineral–rock study boxes, the three rock types, Moh's Hardness Scale, erosion, volcanoes, "minerals in our home," and "minerals in my cell phone." We taught with posters designed by club member Conrad Smith for his Eagle Scout project.

Jim assembled 30 Scout leader packets with the geology requirements we taught, along with the answer key and a Scout starter rock and mineral collection. The collection included granite, apache tears, lava,



***"The best way to find yourself
is to lose yourself in service
to others."***

~ Mohandas Kharamchand Gandhi



Kathry Hrechka (left) and Jim Kostka (above) at the geology station for Cub Scouts.

limestone, conglomerate, coal, soapstone, marble, unakite, serpentinite, quartz, fluorite, celestite, feldspar, and muscovite. Jim also included a postcard for our November 23–24 GMU club show, which now advertises the STEM event we are planning. Jim also included links to Conrad Smith's entire geology poster selection (15 in all) on the national Boy Scout Website for education and outreach. ➤

Author's Note

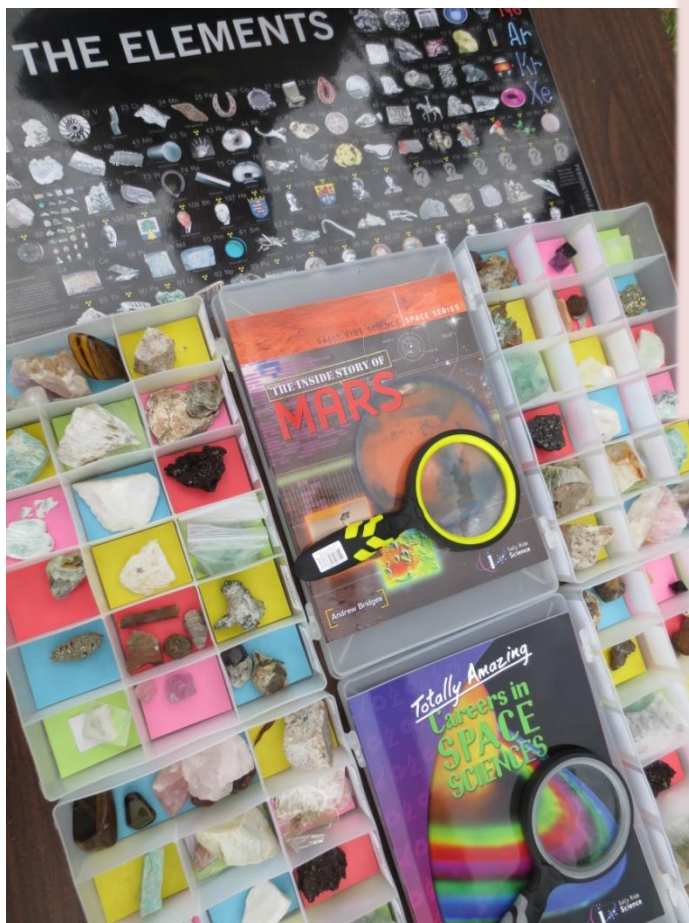
I am very grateful to Jim Kostka for marketing our club for this event so well. The boys and adult chaperones were genuinely impressed with our passion for teaching geology. The sun warmed our mineral exhibits, making the day bright with plenty of Cub Scout cheer and excitement!

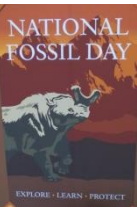
—Kathy Hrechka





Scenes from the
Webelos-REE
geology station ...
thanks to
Kathy Hrechka for all the
great photos!





National Fossil Day at the Smithsonian

by Kathy Hrechka, Vice-President

On October 15, 2014, five NVMC members volunteered at National Fossil Day: Dr. Steve Noel and his wife Marge, Sue and Genny Haskins, and Kathy Hrechka. The event was sponsored by the Smithsonian Museum of Natural History, the National Park Service, and the American Geoscience Institute.

Sant Director Dr. Kirk Johnson welcomed over 500 students in an opening ceremony on the first floor around the elephant. The students recited a Junior Paleontologist Pledge before exploring various activities throughout the museum. ↗



Dr. Kirk Johnson leading students in reciting the Junior Paleontologist Pledge. All photos: Kathy Hrechka.



Sue and Genny Marcus with Kathy Hrechka.



Sue Marcus: "Zoom into Rocks."



Genny Marcus: "Sharks."



George Loud discovered in Q?rius.



Marge Noel: "Fossil Shifting."



Geologist Laura Dwyer, newest volunteer in Q?rius.

Fourmarierite

by Michael Pabst

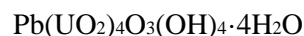
Editor's note: The article is adapted from The Mineral Mite (newsletter of the Micromineralogists of the District of Columbia), September 2013, pp. 6–7. It won first place in the 2014 AFMS Bulletin Editor's Contest for original adult articles.

Recently, I have been studying secondary uranium minerals, of which fourmarierite is a beautiful example. Fourmarierite was discovered at the famous uranium mine at Shinkolobwe, located in the Katanga



Copper Belt of the Democratic Republic of Congo, formerly called Belgian Congo or Zaire. Fourmarierite was discovered by Henri Buttgenbach in 1924 and named in honor of Paul Fourmarier (1877–1970), professor of geology at the University of Liège in Belgium.

The chemical composition of fourmarierite is:



Fourmarierite features uranium in a +6 oxidation state, giving it a bright orange color. Lead is also an essential element; together with uranium, lead contributes to the high density of fourmarierite and its

AFMS Bulletin Editor's Contest, 2014 1st Place Award Winners

In our September newsletter, Matt and Jean Charsky reported on attending the annual AFMS convention in Oklahoma, including the Bulletin Editor's Contest for 2014. First-place winners are shown below.

The entries came from newsletter editors, who submitted nominations to their regional organizations (in our case, the EFMLS). The regional competitions came first, with winners announced in the spring. The regional organizations then forwarded the top three winners in each AFMS category on to the national organization, which announced its own winners in the summer.

Newsletters are judged in four categories: mini (5 pages or less), small (6 to 11 pages), large (12 pages or more), and "new editor." Articles are original submissions at least half a page long. "Advanced" authors are professionals in fields related to our hobby or authors who have won first place in the past.

New Editor

Kristin Lolmaugh, *The Rockhounder*
Gem, Lapidary and Mineral Society of
Montgomery County, MD

Mini-Bulletins

Don Shurtz, *Chips & Chatter*
Pleasant Oaks Gem and Mineral Club of Dallas
Richardson, TX

Small Bulletins

Mark Nelson, *Rockhound Ramblings*
Pasadena Lapidary Society
Pasadena, CA

Large Bulletins

Beth Heesacker, *Clackamette Gem*
Clackamette Mineral and Gem Club
Oregon City, OR

Original Adult Articles—Advanced

Lawrence Skelton, "The Organic Gems: Amber, Ammolite, Coral, Ivy, Jet, Pearls—Part II," *Quarry Quips*, Jan. 2013, Wichita Gem and Mineral Society

Original Adult Articles

Michael Pabst, "Fourmarierite," *The Mineral Mite*, Sept. 2013, Micromineralogists of the National Capital Area

Written Features

Neal Immege, "Slab Happy," *The Backbender's Gazette*, Sept. 2013, Houston Gem and Mineral Society

Drawn Features

Steve Veatch, "Artwork for Poetry Chapbook," Sept. 2013, Lake George Gem and Mineral Club, Lake George, CO

Adult Poetry

Otis Kidwell Burger, "On the Rocks," May 2013, *Bulletin of the New York Mineralogical Club*

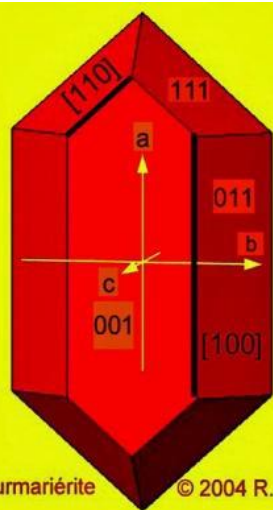
Junior Poetry

Jackson Skubal (age 11), "Mining in the Rocks," *The Backbender's Gazette*, Houston Gem and Mineral Society



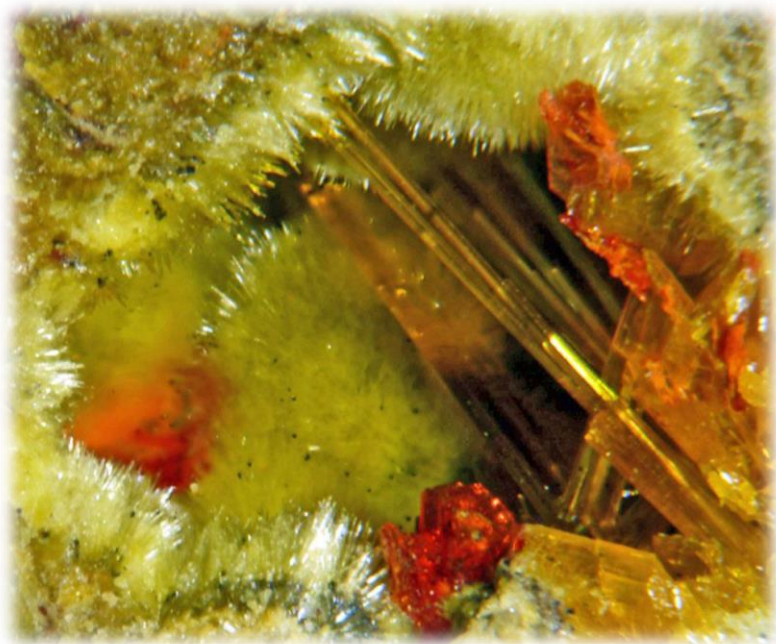
high refractive index.

Fourmarierite is orthorhombic, but its exact crystal structure has only recently been clarified. One ideal form is illustrated on the left. Complete crystals of this form are rare, judging from photos on www.Mindat.org and in the *Photo Atlas of Minerals*. Most specimens show only the top half of the form, so I hope that you enjoy seeing the specimen shown on the right.



This fourmarierite crystal is nestled among other secondary uranium minerals, but I can only guess at their identity, probably uranophane, becquerelite, and studtite. The whole assemblage is on a matrix of black uraninite (not visible). I took the photo through a stereomicroscope and used the image-processing program CombineZP to stack six images to improve depth of field.

A picture from another specimen (below) shows “half” crystals of red-orange fourmarierite, along with orange prisms of becquerelite and yellow sprays of uranophane, all in a vug in black uraninite.

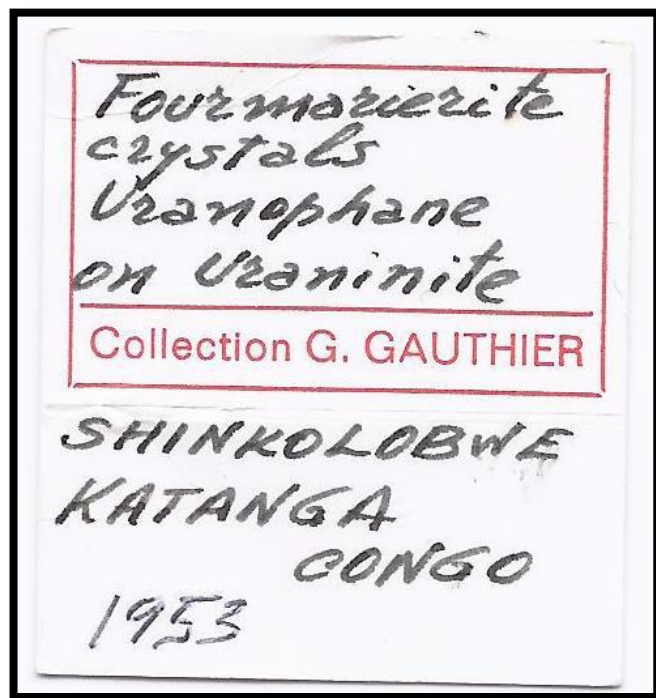


Fourmarierite crystals on uraninite. Field of view is 8 mm. Photographed through a stereoscope using CombineZP to stack 10 pictures.



Fourmarierite crystal on uraninite. Field of view is 2.5 mm; the crystal is about 1 mm wide. All photos: Michael Pabst.

I purchased these specimens at different times many years ago from the Belgian dealer Gilbert Gauthier (1924–2006), who worked at Shinkolobwe as a geologist. He was a wonderful man whose charm helped to offset his high prices! ↗





The Rocks Beneath Our Feet: A Look at Our Local Bedrock

by Hutch Brown, Editor

I live in Arlington, VA, near a greenway called Lubber Run Park. Lubber Run is a tributary of Four Mile Run—as is Long Branch, the creek outside the nature center where our club meets. The greenways are all connected.

Due to development and stormwater runoff, every creek in our area has worn away its bed, exposing the bedrock underneath; you can see it outside the Long Branch Nature Center. It is a medium gray to brown in color, with visible bedding, glittering bits of mica, and a grain ranging from coarse to moderately fine.

When I first went to work for the U.S. Forest Service, I had no background in natural resources, so I took night courses through the USDA Graduate School at the Woodend facility of the Audubon Naturalist Society in Chevy Chase, MD. One course was in geology, and the teacher (a retired geologist) shrugged when I showed her my Arlington bedrock samples. Without seeing where they came from, she couldn't be sure, but she said that they looked like something called metagraywacke.



Indian Run sedimentary melange. Note the bedding and the embedded rock fragments (a rounded piece of quartz and an unidentified rock).



Bedrock exposed along Lubber Run. Photos: Hutch Brown.

Graywacke, pronounced “gray-wackee,” is the anglicized form of *Grauwacke*, the German word for an intermediate rock between shale and sandstone (*grau* means gray and *Wacke* refers to sandstone). Metagraywacke is a metamorphic rock common in the Piedmont—you can find it along the Potomac.

Problem solved—or so I thought. For years, I thought that our local bedrock was metagraywacke.

But I recently ran across a geologic map of Arlington County based in part on research in the 1980s by the USGS scientist A.A. Drake, Jr. (referenced below). Lo and behold, our local bedrock isn't metagraywacke after all! It is something called Indian Run sedimentary melange.

The bedrock in our area was first recognized through Drake's seminal studies along Indian Run in Annandale, VA. You can see evidence of ancient sediments in the gray-brown boulders along our local creeks. The finer grained rocks have distinct layering, formed as one bed of sediment settled over another. Sediments ranged from silt to coarse sand; some boulders contain sizable rock fragments, often pieces of quartz. That's why it's called a sedimentary melange (derived from *mélange*, the French word for mixture and pronounced in English “muh-lawnj”).

According to geologists, the melange formed in a unique way. Undersea rock slides carried sediments of various sizes into an ocean trench. As the trench filled, the sediments thickened and hardened into sedimentary rock, and the rock was eventually lifted by mountain-building forces onto dry land.

What caused the trench? No one knows for sure, but one theory comes from plate tectonics—the shifting of the Earth’s surface as great plates of crustal material float across the underlying magma.

The bedrock in the Piedmont is ancient; in northern Virginia, it mostly originated in the Cambrian and Ordovician Periods (545–435 million years ago). Most of it formed in terranes, fragments of oceanic plates that are now grafted onto the North American continent.

The terranes originated as volcanic arcs, archipelagos like Japan that moved across the Iapetus Ocean (forerunner of the Atlantic), pulled by subducting ocean crust where oceanic plates collided (fig. 1). The subducting ocean crust formed a trench (circled in figure 1, top) where it plunged beneath the leading edge of a terrane (labeled “Continental lithosphere” in figure 1, bottom). Sediments accumulated on the terrane shelf, causing debris slides into the trench—and laying the foundations for the Indian Run sedimentary melange.

Over hundreds of millions of years, the Indian Run formation underwent multiple mountain-building events. The final one placed the melange where it is today, shaping the Piedmont’s underlying geology.

In the process, tremendous heat and pressure changed the makeup of the rock. Although the sediments are still partially recognizable, there are new mineral components, notably the bits of mica that sparkle in the sun.

The Indian Run sedimentary melange is prone to weathering. Along the creeks, you can find pieces of crumbling gray-brown rock that are in the process of becoming the red clay soils so distinctive of our area.

So if you get a chance, take a good look at the bedrock along Long Branch creek. It formed in an ocean that no longer exists; it underlay mountain ranges long since gone. In the process, it has undergone tremendous changes, and it is more than half a billion years old. ↗

Acknowledgments

Thanks to Sue Marcus and Roger Haskins for reviewing and commenting on the article. The author is solely responsible for any errors.

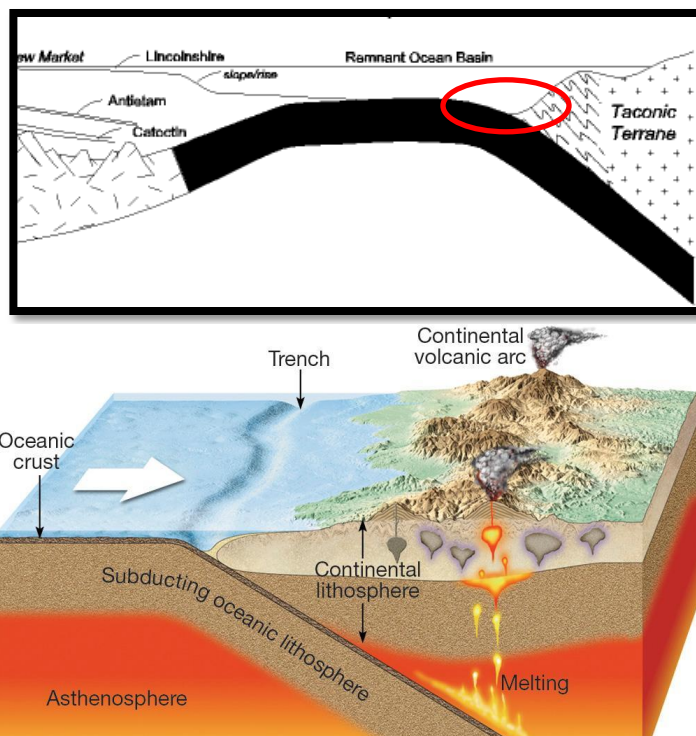


Figure 1—On the eve of a mountain-building event (top), ocean crust (black bar) subducts under a terrane (right), drawing it toward proto-North America (left). The plunging ocean crust forms a trench against the leading edge of the advancing plate (bottom). Sediments accumulate on the shelf, causing submarine debris slides into the trench. Over time, the trench fill forms sedimentary rock. Sources: Fichter and Baedke (1999), PBWorks (2010).

Sources

Drake, A.A., Jr. 1985. Tectonic implications of the Indian Run formation—A newly recognized sedimentary melange in the northern Virginia Piedmont. USGS Prof. Pap. 1324. Reston, VA: U.S. Geological Survey.

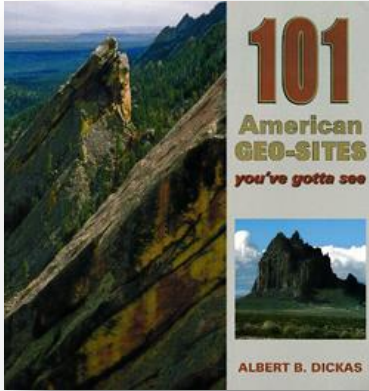
Fichter, L.S.; Baedke, J.K. 1999. The geological evolution of Virginia and the mid-Atlantic region. Harrisonburg, VA: College of Science and Mathematics, James Madison University.

<http://csmres.jmu.edu/geollab/vageol/vahist/index.html>

Frost, W.; Ernest, T. 1999. Simplified geologic map of Arlington County, Virginia, and vicinity. Arlington County, VA.

PBWorks. 2010. Cossience1: Lesson 10-5—Convergent and transform boundaries.

<http://cossience1.pbworks.com>



Geotrips: 101 Special Sites

by Jim Brace-Thompson

Editor's note: The piece is adapted from The Hound's Howl (newsletter of the Aiken Gem, Mineral, and Fossil Society, Aiken, SC), November 2013, p. 5.

When we think “field trip,” we usually think “collecting,” and we drive off with our heads filled with dreams of stuffing our backpacks with rocky treasures. But field trips don’t always need to be about taking home rocks. Some allow us to take home a more valuable commodity: knowledge.

A couple of years ago, a neat guidebook was published with field trip localities geared toward educating rather than collecting: Albert B. Dickas’s *101 American Geo-Sites You’ve Gotta See* (Mountain Press, 2012).

Dickas leads you to sites that tell unique geological stories. For instance, you can see dramatic evidence of an ancient meteorite strike in Alabama, a view of the Pacific plate sliding by the North American plate along California’s San Andreas fault, fossil-bearing ash beds in Nebraska that tell of an unimaginably immense volcanic eruption in ancient Idaho 12 million years ago, and evidence of a tropical sea as well as massive glaciation in Ohio. With 101 sites included across all 50 states, you should be able to find a locality within reasonable distance for a day or weekend trip.

The book opens with a brief Earth science primer on the rock cycle, geological dating, plate tectonics, and “A Short History of the Earth,” giving a quick walk-through of Earth history eon by eon, period by period.

Then comes the real meat of the book: the 101 sites from Alabama to Wyoming. Each site entry consists of a two-page spread.

For each site, the first page provides GPS coordinates, a one-sentence overview of the significance of the site, and an overall description and history. The second page provides colorful supporting illustra-

tions, maps, and photos. Printed on high-quality glossy paper, the photos make it a wonderful coffee-table book in addition to an informative read.

But to maximize its use, go beyond the pictures and get out to a site near you to see it up close and personal. Rather than stuffing your daypack with rocks, stuff your head with a little knowledge—and a whole lot of fun! ↗.

Virgin Valley Opal

by Evelyn Cataldo

Editor's note: The piece is adapted from Goldrush Ledger (newsletter of the Charlotte Gem and Mineral Club, Charlotte, NC), October 2012, p. 8. It first appeared in The Rockcollector (newsletter of the Rochester Lapidary Society, Rochester, NY), April 2007.



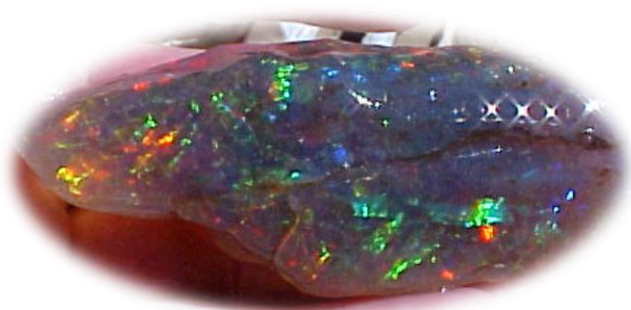
Hidden in the high desert region of northwestern Nevada lies the Virgin Valley, famous for its opal mines. The area is known for black opal, which occurs in only one other place on Earth (New South Wales, Australia).

Opal Origins

The area was once a large lake surrounded by forest. Over time, the forest was devastated by a series of volcanic eruptions. Twigs, limbs, and rotting wood collected in the coves of the lake.

The forest, lake, and driftwood were buried under layer after layer of ash. The buried wood decayed and left cavities. Over millions of years, heat and pressure filled the cavities with silica that percolated through the ash, gradually hardening into opal.

Over time, the entire area has been uplifted and eroded, exposing the opal deposits. It took Mother Nature 20 million years to make a single Virgin Valley black opal!



Black opal features a rainbow of colors in an iridescent black matrix. Source: Virgin Valley Opals, <http://www.goldnuggetwebs.com/VVOPALS/>.

The Virgin Valley area has been inhabited for more than 10,000 years. The Last Supper Cave in the southwestern portion of the valley held bones and artifacts that have been carbon-dated to 10,000 to 12,000 years ago.

During the late 1800s and early 1900s, cowboys and shepherds found some opal specimens, and they were reported in the press. Soon thereafter, prospectors found their way to Virgin Valley.

Opals were first mined commercially in the area in 1905 with the discovery of what became the Bonanza Mine. Other early mining operations included the Rainbow Mine. Both are still in production.

Most opal in Virgin Valley is in the form of replaced wood and limb casts. Opalized bones of vertebrate animals have also been found, as well as opalized bark, roots, pine cones, and seeds.

The opals are found in layers of clay. The opal-bearing layers can be as much as 10 to 30 feet below the surface of the Earth and range in thickness from 2 to 12 feet. Common opal is abundant throughout the layers of clay and ash, but precious opal is rare.

Collecting

The opal mines at Virgin Valley are fee-dig areas. Some mines allow digging through the tailings, some allow digging in the clay wall, and Rainbow Ridge offers loads of virgin material. Prices are subject to change, but they have ranged from \$50 per day for going through tailings to \$400 for a load of virgin material.

Carefully examine anything that resembles petrified wood. Keep your eyes open for other fossils and artifacts as well. Look for specimens that appear glassy, whether they are black, clear, milky, brown, or any other color. The background color does not matter;

some of the most beautiful opal specimens do not show color immediately. Good pieces of opal are sometimes covered with a white, chalky coating. A small percentage of the opal found in Virgin Valley is valued at more per carat than diamonds!

Virgin Valley is high desert, so expect warm days and cool nights. Bring a variety of clothing, plenty of liquids, sunscreen, a hat, and chapstick. Food, fuel, and lodging are available at Denio, NV, 35 miles away.

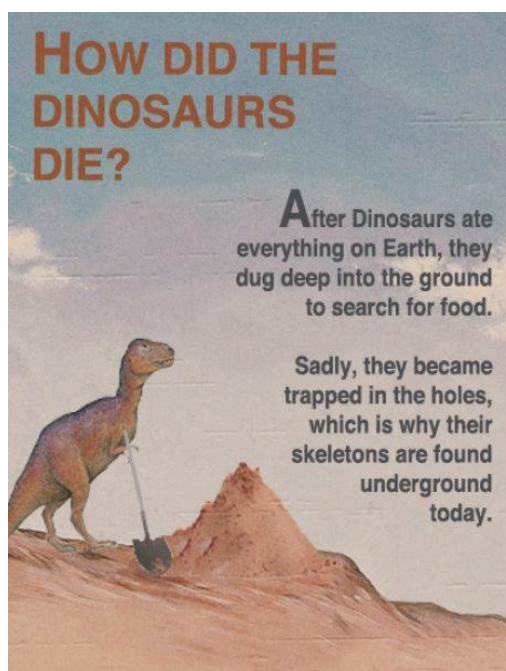
Camping is available at the CCC campground, about 5 miles from the mines. The campground is free. There are no hookups, but outhouses are available, along with a shower room and swimming in the hot spring. There are firepits for the cool evenings, but you need to bring your own firewood.

Other items you will find useful are a small pick, a small garden rake, a small shovel, a spray bottle with water, a bucket for sitting on, gloves, and some zip-lock bags for your specimens.

Sue Marcus and Roger Haskins were lucky enough to visit Virgin Valley and do some collecting when they lived in Sacramento, CA. They confirm the remoteness of the area. Though not precious, the opalized wood is beautiful!

Check out the Virgin Valley Opals Website at <http://www.goldnuggetwebs.com/VVOPALS/>.

Happy hunting! ↗



Source: Pinterest, Rock Humor, at <http://www.pinterest.com/zuhlmuseum/rock-humor>.

My First Micromounts

by Mike Seeds

Editor's note: The piece is adapted from The Mineral Mite (newsletter of the Micromineralogists of the National Capital Area, Inc.), January 2014, p. 6. The author is a Professor of Astronomy at Franklin and Marshall College, Lancaster, PA, and editor of The Conglomerate (newsletter for the Baltimore Mineral Society, Inc.).

I was about 8 years old when I received my first micromounts, and although I don't have them anymore, they still come to mind. Perhaps I became a micromounter 50 years later because of those first rocks.

The mineral specimens were given to me by my Uncle Bill and Aunt Mary. They never had children; consequently, according to my father, they had plenty of money. They always gave my brother and me nice presents, and they seemed to understand that I didn't want footballs or toy guns. My presents were always related to science or nature, and the best one of all was a collection of mineral specimens.

The collection is long lost now, but I remember that it contained 100 specimens in a shallow cardboard box about a foot long and 10 inches high. Inside was a grid made of up slotted strips of cardboard assembled into a lattice like an eggcrate. Each little opening was padded with a wad of cotton, and each specimen had a tiny bit of paper glued to it with a number from 1 to 100. Inside the lid was a printed list of the specimens identified by number.

Each specimen was about a centimeter in diameter, so these weren't really micromounts. But they were small, and I had a magnifying glass that I used to study them. I tried to look at them under my microscope, but it was a little Gilbert 'scope with illumination from below by a little round mirror. I didn't have a way to illuminate the specimen from above even if I had thought of it. All I saw was a dark silhouette, so I had to rely on my magnifying glass.

Some specimens were rocks: limestone, granite, sandstone. But some were true minerals, and I remember the muscovite especially because it flaked apart so easily and soon became a pile of thin plates. There was one specimen that shed red dust and stained its cotton. I don't recall what it was, but it was probably an iron oxide.



Mostly, I recall sorting the rocks. My little brother and I shared a room, and my mineral collection had to be stacked with other toys. It often got dumped, and although it was never my fault, it was my job to fix it. I had to spread everything out on a table, reassemble the lattice, put the cotton balls back, and then sort the minerals back in numerical order.

I enjoyed sorting the minerals; each row contained ten, and when I picked up a specimen, I had to look at its number and then count ahead by row and column to find its proper place. Some had lost their little numbered bits of paper, so I had to put them aside and identify them later by looking to see which compartments remained empty. It was really satisfying to get them back in order neatly pigeonholed by number, and I would sit and enjoy the orderly display.

I don't know what happened to my first rocks. My mother probably gave them away with my comic books, American Flyer trains, and first telescope. Perhaps there is a cosmic law that mothers have to give certain stuff to kids down the block, and that's okay.

Nevertheless, I often think of my first rock collection when I am at my bench mounting specimens in little boxes and numbering them so I can put them into my collection in their proper place.

Want to know about micromounts—and save space in your collecting storage area? The Micromineralogists of the National Capital Area has lots of members who participate in the NVMC, too. Ask Kathy Hrechka to learn more about micromounting! ↗



Upcoming Events (of interest in the mid-Atlantic region)

November 2014

8: Mineral Swap; Richmond Gem & Mineral Society; Ridge Baptist Church Meeting Hall, 1515 East Ridge Road, Richmond, VA; 8–3/4

8–9: Bead Bazaar; Activity Center, Bohrer Park, 506 S. Frederick Ave., Gaithersburg, MD; Sat 10–5, Sun 11–5PM; <http://www.bsgw.org/nextbazaar>

22–23: Northern Virginia Mineral Club Annual Show; George Mason University; Braddock Rd. & Rte. 123, Fairfax, VA; 10–6, Sun 10–4. To volunteer, please click on <http://vols.pt/fmg5iM>

December 2014

13: Minerals, Fossils, Beads, and Jewelry Show & Sale; Holiday Inn Hotel, 9615 Deereco Road, Timonium, MD; 10–4:30; free admission; contact Mike at 330-726-9529.

January 2015

11: Rocks on the Mall; Audubon Naturalist Society; program led by Joe Marx, 1–4; 2-mile loop to see rock in facades, fountains & walls; Audubon members \$24, nonmembers \$34; information: www.ANShome.org/adultnatureprograms

March 2015

7–8: 52nd Annual Earth Science Gem and Mineral Show; Delaware Mineralogical Society, Inc.; Delaware Technical & Community College, 400 Stanton-Christiana Road, Newark, DE; Sat 10–6, Sun 11–5; \$6 adults, \$5 seniors, \$4 children 12–16, under 12 free; <http://www.delminsociety.org>

21–22: 51st Annual Gem, Lapidary & Mineral Show; Gem, Lapidary & Mineral Society of Montgomery County; Montgomery Co. Fairgrounds, Gaithersburg MD; Sat 10–6, Sun 11–5.

28–29: 46th Annual Che-Hanna Rock and Mineral Club Show; Athens Twp. Vol. Fire Hall, 211 Herick Ave, Sayre, PA; Sat 9–5, Sun 10–4; contact Bob McGuire uvbob@epix.net

28–29: 15th Mineral Treasures & Fossil Fair 2015 Annual Show; the Philadelphia Mineralogical Society & the Delaware Valley Paleontological Society; LuLu Temple, 5140 Butler Pike, Plymouth Meeting PA (2 miles from Norristown exit, PA

Turnpike); Sat 10–5, Sun 10–4; admission \$5, 11 & under \$1, uniformed Scouts free; information: www.philamineralsociety.org

28–29: 65th Annual EFMLS Convention and Show, sponsored by the Catawba Valley Gem and Mineral Club; Hickory Metro Convention Center, Hickory, NC.

April 2015

10–11: Symposium on micromounted minerals; Microminerologists of the National Capital Area; Alexandria, VA; registration recommended, walk-ins taken.

18: Annual Jewelry Gem & Mineral Show; Patuxent Lapidary Guild, Inc.; Earleigh Heights VFC on Rte 2 in Severna Park, MD; 10–5; 10 and over \$1, under 10 free.

Homegrown Geodes

by Sue Marcus

Since I never seem to throw out anything—and the house looks it—I came across an old (March 2002) *Mineral Newsletter*. It included a link that no longer works to a Website on creating geodelike objects.

Curious, I googled “Grow your own geodes” and found many sites, including those with the URLs shown below. (Martha Stewart’s might be copyrighted, but I don’t think the others are.) ↗

<http://www.marthastewart.com/343344/crystal-egg-geodes>

<http://chemistry.about.com/od/crystalrecipes/a/crystal-geode.htm>

<http://www.hometrainingtools.com/a/make-geode-project>





2014 Club Officers

President: Wayne Sukow
d8olite@fastmail.fm
Vice-President: Kathy Hrechka
kshrechka@msn.com
Co-Secretary: Ti Meredith
ti.meredith@aol.com
Co-Secretary: Laurie Steiger
steigerlm@mail.nih.gov
Co-Treasurer: Kenny Loveless
kenny53@verizon.net
Co-Treasurer: Rick Reiber
mathfun34@yahoo.com
Field Trip Chair: Ted Carver
jtcarve@msn.com
Webmaster: Casper Voogt
webmaster@novamineralclub.org
Communications: Jim Kostka
jkostka@juno.com
Editor: Hutch Brown
hutchbrown41@gmail.com
Show Co-Chair: Tom Taaffe
rockellctr@aol.com
Show Co-Chair: Jim Kostka
jkostka@juno.com
Greeter/Door Prizes: Ti Meredith
ti.meredith@aol.com

PLEASE VISIT OUR WEBSITE AT:
<http://www.novamineralclub>

The Northern Virginia Mineral Club

You can send your newsletter articles to:

hutchbrown41@gmail.com

Visitors are always welcome at our club meetings!

RENEW YOUR MEMBERSHIP!

SEND YOUR DUES TO:

Kenny Loveless, Treasurer, NVMC
PO Box 10085, Manassas, VA 20108

OR

Bring your dues to the next meeting.

Purpose: To promote and encourage interest in and learning about geology, mineralogy, lapidary arts, and related sciences. The club is a member of the Eastern Federation of Mineralogical and Lapidary Societies (EFMLS, <http://www.amfed.org/efmls>) and the American Federation of Mineralogical Societies (AFMS—at <http://www.amfed.org>).

Dues: Due by January 1 of each year; \$15 individual, \$20 family, \$6 junior (under 16, sponsored by an adult member).

Meetings: At 7:45 p.m. on the fourth Monday of each month (except May and December)* at **Long Branch Nature Center**, 625 Carlin Springs Road, Arlington, VA 22204. (No meeting in July or August.)

**Changes are announced in the newsletter; we follow the snow schedule of Arlington County schools.*