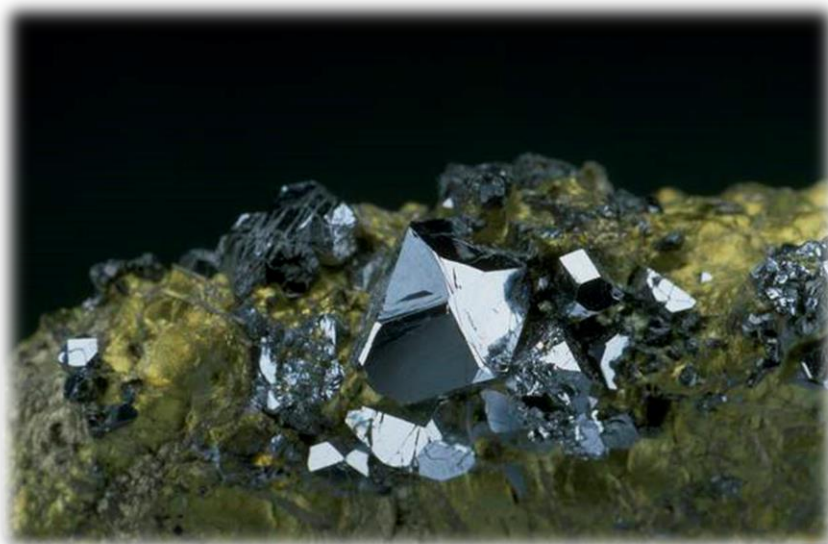




# The Mineral Newsletter

**Meeting: June 26 Time: 7:45 p.m.**

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



## Sperrylite

on chalcopyrite

Talnac Ore Deposit  
Krasnoyarsk Kray, Russia

[Smithsonian National Mineral Gallery](#)

Photo: Chip Clark.

Volume 58, No. 6

June 2017

Explore our [Website!](#)

### June Meeting Program:

Detrital Zircons of Australia

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### Deadline for Submissions

July 20

Please make your submission by the 20th of the month! Submissions received later might go into a later newsletter.



## Mineral of the Month Sperrylite

by Hutch Brown

Sperrylite, as you can tell from the cover, can come in gorgeous crystals. It looks a lot like pyrite—in fact, it is part of the Pyrite Group—but it is silvery white rather than brassy yellow in hue.

Sperrylite is a commercially viable ore for one of the world's most precious metals: platinum. That, plus their rarity, makes collectable specimens of sperrylite very expensive. Good specimens can range in price from hundreds to thousands of dollars.

Sperrylite was discovered in 1887, when Francis L. Sperry, a chemist for the Canadian Copper Company in Sudbury, Canada, collected it in the Vermillion Mine in the District of Algoma, Ontario. The mine was for gold ore in quartz; Sperry found the mineral in loose gravel together with copper and iron pyrites. He sent it to Horace L. Wells for testing, and Wells identified it as a hitherto unknown “arsenide of platinum” ( $\text{PtAs}_2$ ). He named it “Sperrylite” in honor of Francis Sperry.

Though rare, sperrylite is the most common platinum mineral. It generally occurs with other unusual minerals, such as cooperite ( $[\text{Pt}, \text{Pd}, \text{Ni}]_3\text{S}$ ), laurite ( $\text{RuS}_2$ ), and niggliite ( $\text{PtSn}$ ).

Formed by contact metamorphism, sperrylite crystals vary in size and shape; they are usually enclosed in a variety of host minerals, such as the chalcopyrite on the cover. With a specific gravity of 10.58, sperrylite is unusually heavy, about as heavy as silver.

Other technical details:

Crystal system.....	Isometric
Crystal habit.....	Well formed finely crystalline, massive to reniform
Cleavage .....	Indistinct on {001}
Fracture .....	Conchoidal
Tenacity .....	Brittle
Mohs scale hardness .....	6–7
Luster.....	Metallic
Streak.....	Dark gray to black

Sperrylite resists decomposition through weathering, so it can be found in alluvial deposits. In 1898, for example, it was reportedly found together with small

## Summer break ahead!



### Northern Virginia Mineral Club members,

Please join our June speaker, Alec Brenner, for dinner at the Olive Garden on June 26 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 Ti Meredith, Vice-President, NVMC. Please RSVP to me at [ti.meredith@aol.com](mailto:ti.meredith@aol.com).

garnets and corundums during alluvial gem mining in streams draining Mason Mountain in Macon County, NC.

Sperrylite is the only commercially important platinum ore besides native platinum. The only place where sperrylite is found in abundance is in the Sudbury Basin of Ontario, Canada, where it is mined for its extremely valuable metal. Other localities include the layered igneous complex in the Bushveld region of South Africa and the Oktyabr'skoye copper/nickel deposit in eastern Siberia, Russia. ➤

### Sources

Amethyst Galleries. 2014. [The mineral sperrylite](#). Mindat. 2017. [Sperrylite](#). Webmineral. N.d. [Sperrylite mineral data](#). Wells, H.L. 1889. [Sperrylite, a new mineral](#). American Journal of Science 37(217): 67–70. Wikipedia. 2016. [Sperrylite](#).



*Sperrylite crystal from Siberia. Source: Wikipedia; photo: Rob Lavinsky.*



**Alec Brenner**  
**Detrital Zircons of the**  
**Jack Hills, Western**  
**Australia: Rock**  
**Magnetic and**  
**Mineralogical**  
**Assessments**  
**June 26 Program**

Alec Brenner is a longstanding member of our club and a recipient of grants from the NVMC's

Fred Schaefermeyer Scholarship Fund. He is currently a senior geology major at the California Institute of Technology (Caltech), where his work with Professors Joe Kirschvink, George Rossman, and Woody Fischer focuses on reconstructing early Earth history. The early history of the Earth comprises the geological events, environments, and processes during the first 4 billion years of our planet (often referred to as "deep time").

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

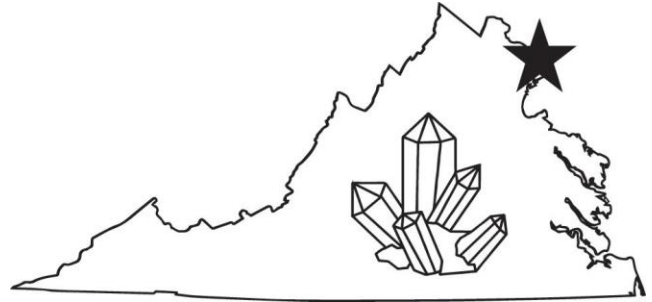
Starting this fall, Alec will attend graduate school at Harvard University, studying under Professors Roger Fu and Francis MacDonald. Alec will use paleomagnetism, microscopy techniques, and extensive field work to explore the early rock record and probe the Earth's formative years. After graduate school, Alec hopes to pursue an academic career in geological research. ♪



**The Prez Sez**

*by Bob Cooke*

I'm not sure about the rest of the world, but I am feeling much better after our last monthly meeting. This nametag issue has taken more effort than I ever thought I'd have to put



forth. To have a nametag design with a new logo accepted by the membership was quite a relief. (The new nametag logo is shown above, without the associated lettering.)

Then, when I expected a stream of agitated discussion about the color scheme, someone (I think it was Tom Taaffe, but bless his soul whoever it was) suggested the dark blue background with white engraving of the old nametag. Unanimous consent! Total relief!

Now all we have to do is figure out a scheme to finance this endeavor.

Also at the last meeting, we had our initial discussions about the November mineral show. Scheduling conflicts at George Mason University have forced us into a new venue: Dewberry Hall. This is a large hall in GMU's Johnson Center, about 200 yards from The Hub. Overall, I think this is a better location, although there will be some challenges—excuse me, I mean opportunities to excel. Tom Taaffe and Julia Nord are well on their way in planning for these opportunities. I, on the other hand, am still trying to get a handle on everything Jim Kostka did when he was show co-chair—the online volunteer signup pages, the database of show attendees to be updated, the address labels to be printed, the Boy Scout interface, the minerals to be scrounged for the Kids' Mini-Mines, and countless other things. Jim: We miss you!

As a final thought, I want to ask everyone to be especially nice to Ti Meredith. She not only plans and organizes our monthly programs but also acquires door prize materials and runs the door prize lottery every month. And next month, she also gets to cover for Dave MacLean and me as we escape the DC area on vacations. I'll be in England visiting my son and his fiancé, planning a December wedding, and sampling—Carolyn would probably call it guzzling—all that English real ale and cider. ♪

*Bob*





## Meeting Minutes May 22, 2017

by David MacLean, Secretary

President Bob Cooke called the meeting to order at 7:45 p.m. at the Long Branch Nature Center in Arlington, VA.

The minutes of the April 24, 2017, club meeting were approved as published in *The Mineral Newsletter*.

The president recognized the two past presidents in attendance, Barry Remer and Sue Marcus. After hearing Caspar Voogt's presentation on mineral collecting in Myanmar, the guests left before the business meeting.

### Old Business

The president showed club members the design of a new NVMC nametag. The design is based upon the most popular design elements to emerge in the April nametag contest.

The members agreed upon the same color components as for the old nametag—dark blue with white engraving.

The expected price per nametag is \$10, with each additional line of writing costing \$1.25.

### New Business

The 2017 NVMC mineral show will be on Saturday, November 18, and Sunday, November 19. Setup will be late afternoon on Friday, November 17.

The show will be at a different location at George Mason University than in the past. The new location

is the Johnson Center, Dewberry Hall. The main room has enough space for the dealers, the four NVMC exhibit cases, the kids' table, the micromineral viewing table, and other activities. Electrical outlets are on the floor, so there is no need to run electrical cords across the floor from the walls to the dealers.

The loading dock is designed for trucks; therefore, all items must be lifted onto the chest-high loading dock. A hydraulic lifter will be needed. Dealers will need help bringing their wares into Dewberry Hall.

Show Chair Tom Taaffe distributed printed show flyers and cards for members to distribute.

### Announcements

At the next club meeting (on Monday, June 26), Alec Brenner will present a talk on detrital zircons from Australia.

Upcoming field trip dates include:

- May 27, 6:30 a.m. to noon, Vulcan Materials Quarry, Manassas, VA.
- June 3, 8:30 a.m. to 4 p.m., National Limestone Quarries 1 and 2, Mt. Pleasant Mills and Middleburg, PA.
- June 17, 8 a.m. to noon, Vulcan Quarry, Stafford, VA.

By motion duly made and seconded, the members adjourned the meeting. ➤

## May 22 Program, Casper Voogt Mineral Collecting in Myanmar

by Sue Marcus

Club members and guests were treated to a virtual trip to Myanmar, also known as Burma, by Casper Voogt. Casper joined a gem-and-mineral adventure trip sponsored by Mindat.org, the online public database of mineralogical information used by many of us.



Scenes from Casper Voogt's mineral-collecting trip to Myanmar.  
All photos: Sue Marcus.

This Mindat trip began and ended in Yangon. As Ken Rock notes in his article beginning on page 7, names have changed, so some people may recall the name Rangoon for what is now called Yangon. The Mindat group visited the Yangon jade market before heading out on an overnight bus trip to the gem region of Mogok.

After passing through internal checkpoints and entering the controlled access area of Mogok, the participants were able to visit corundum and spinel mines. Many deposits are in alluvium, though some are worked through small underground mines, powered by hand tools or generators. Mining safety was mentioned, although enforcement may be another matter. The mine sites were usually remote, some requiring lengthy hikes along footpaths.

Casper shared some of the cultural aspects of his trip as well, including photos of beautiful golden Buddhist temples—some huge, some small, all lovely. We also learned that women are not allowed in many of the highest (literally) holy places.

The Mindat group also enjoyed having mineral dealers come to their hotels. Casper showed off some of the specimens he purchased, including a beautiful topaz that looks just like the back cover of the latest *Mineralogical Record*—and Casper's specimen may be from the same locality. He also let us ogle his gorgeous red spinels.

There have been several Mindat trips, and Casper has been on most of them. The next one is to Russia's Kola Peninsula this summer. Casper is planning to go—All Aboard! ➤



*In Myanmar, Casper Voogt collected a large topaz (top) and a nice spinel (bottom), along with an old coin. Photos: Casper Voogt.*

#### November 8: Topaz mine

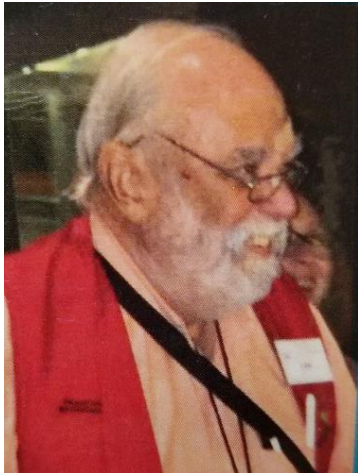


But then we caught a ride ..

### Interested in Paleontology?

The **Paleontological Society of Washington** has regular programs by experts on such topics as "The Natural History of Horses" and "The Miocene Planet of the Apes." The talks are typically held in the evening at the Smithsonian National Museum of Natural History. For more information, go to [http://nmnh.typepad.com/paleontological\\_society](http://nmnh.typepad.com/paleontological_society).






## Smithsonian Honors NVMC Member Lewis Holt

*Editor's note: The Smithsonian National Museum of Natural History honored volunteer and NVMC member Lewis Holt in the May issue of its newsletter for the Geology, Gems and Minerals (GG&M) Department, as adapted below. Thanks to Sue Marcus and Kathy Hrechka for the reference!*

Congratulations to our very own GG&M volunteer Lewis "Lou" Holt.

Lewis Holt worked in construction for over 40 years before becoming a dependable force as a Geology, Gems and Minerals volunteer. He was recruited to volunteer by other GG&M volunteers who are in his local mineral club. During his free time, he likes to look for minerals in Manassas, VA.

Lewis also enjoys hanging out by the volcanos and engaging with kids and their parents. He often uses a pumice stone to encourage and excite the learning in our visitors. You can find him in the GG&M Hall on every Saturday and Sunday morning shift.

Lewis Holt has been a solid rock in our volunteer corps, and in FY16 he donated 240 hours of his time. Thanks, Lewis, for all your hard work and dedication! 



## Whirlwinds of Crystals

*Thanks to Sue Marcus for the reference!*

The May 13, 2017, issue of *Science News* has an article about "gravel devils" in the Andes Mountains of South America. Towering crystal-

filled twisters periodically swirl in a valley nestled between two volcanoes. The odd weather events are the first record of large pieces of gravel efficiently moving across a landscape by suspension in air. Gypsum crystals form from evaporating volcanic pools of salty, acidic water. When the pools dry, exposing the

## Bench Tip Making Wire for Filigree

Brad Smith


It's quite simple: Take a double strand of 24–26 gauge silver wire, twist it tightly, and then flatten it a bit. While the basics are straightforward, here are a few tips that will quickly make you an expert with filigree.

Filigree looks best when the wire has a very tight twist. The way I do this is to start with dead soft wire and twist it until it breaks. It always seems to break on one end or the other. I like to use a screw gun, although a Foredom also works well. Be sure to keep a little tension on the wires as you twist. Then, to get a real tight twist, I anneal the wire and twist it a second time until it breaks.

The final step in prepping the filigree wire is to flatten it slightly with a planishing hammer or rolling mill. The amount of flattening is a personal preference. I like to reduce the diameter by about 25 percent. The wire will be quite stiff at this point, so it's best to anneal it again before starting to make the filigree shapes.

See Brad's jewelry books at [amazon.com/author/bradfordsmith](http://amazon.com/author/bradfordsmith)



crystals within, whirlwinds as big as half a kilometer across can sweep the crystals aloft. [Read more.](#) 

## Looking for Jade in Myanmar

by Ken Rock

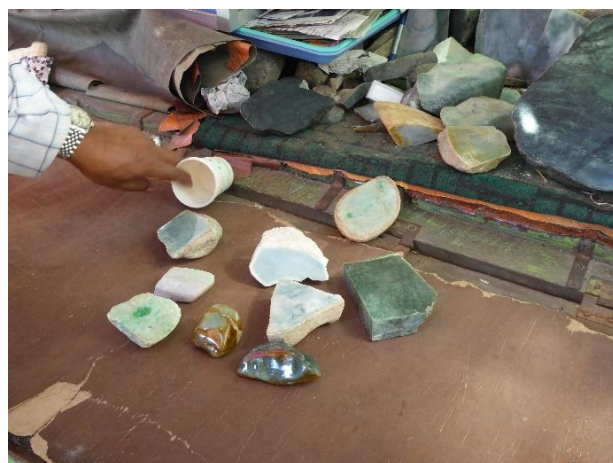
Being a mineral collector always adds an extra fun dimension to travel. I recently had the good fortune to go on an organized group vacation trip to Myanmar that included stops at many pagodas, stupas (pagodas with no doors), Buddhist temples, and working pottery villages. We also did lots of looking at gemstones and jade that Myanmar (formerly called Burma) is famous for—among other things.

Two highlights that I will mention here are an early-morning visit to the famous jade market in Mandalay and a trip to the national gem museum in Yangon (formerly called Rangoon). My first exposure to jade in Myanmar was close to the hotel—even the streets of Yangon have an area where the jade vendors seem to congregate, offering a variety of types and colors of commercial-quality jade.

### Mandalay Jade Market

The jade market of Mandalay is the world's largest. It is located in central Myanmar, south of Mogok, the area famous for fabulous rubies. Each year, billions of dollars worth of jade are cut, polished, and traded in this market.

My group was in the area for a boat trip on the Irrawaddy River, but my suggestion for a group visit was rejected for lack of time (and, of course, not everyone is interested in jade). Our guide said that he would take me and other interested travelers to the market the next morning, but only if we would promise to get back in time for the morning's scheduled activities.



Upon arrival, we paid a small admission fee and noticed that the market was almost empty because we had arrived before trading had begun. Our guide chatted amiably with some young guys in the street who, we were surprised to learn, were professional jade buyers.

*All photos by Ken Rock.*





Buying jade, as it turns out, is always a gamble. The idea is to make an educated guess about the quality of a boulder based on appearance (such as cracks and uniformity) and small “windows” cut into the stone to reveal color—at least in that part of the stone. These folks are experts and do it every day.

The Myanmar government also charges a tax at the wholesale jade markets. But it is not clear to me when this tax is paid or, for that matter, how much of the jade market eludes government taxation altogether.

We did manage to see some jade cutters at work. By the time we left, a few of the stores outside of the jade market were open. Although I am most fond of lavender jade, I found the Imperial Jade the most interesting because having a top color is only part of the game. Another key factor affecting value is translucency. Holding some of the finest pieces up to the light reveals this remarkable property of high-end jade. The bottom line: It’s all about color, uniformity, and translucency—but mostly color.

### **National Gem Museum**

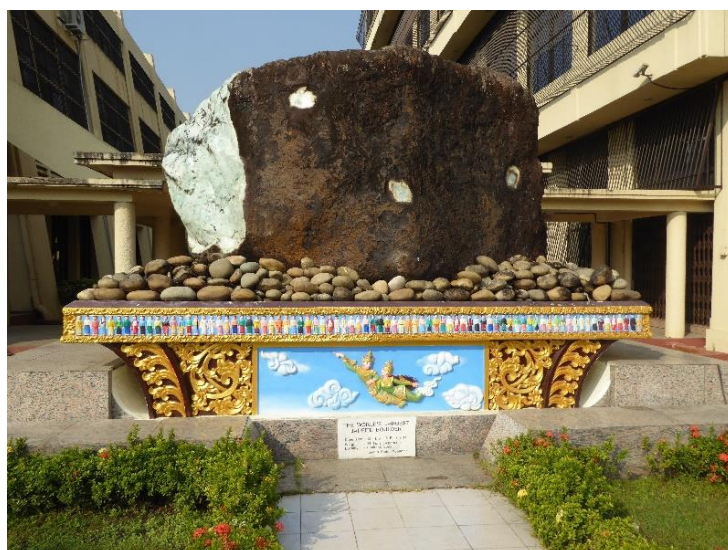
This museum, on the top floor of an older office building in Yangon, is basically one large room that demonstrates the broad range of minerals and gemstones found in Myanmar. About half of the room is dedicated to jade, with the remainder showing many of the ore minerals that are found in all parts of the country.

On the lower floors of the building are government-approved vendors selling both tourist items and low-



value products. A few vendors have some very cool minerals, including very large nongemmy sapphire crystals, chunks of ruby and spinel crystals, and Myanmar’s unique red “mushroom” tourmaline.

A boulder in front of the museum (shown below) is said to be the world’s largest jadeite boulder. ➤





## Earth's Most Common Mineral

by Fred Haynes

**Editor's note:** The piece is adapted from Wayne County Gem and Mineral Club News (*newsletter of the Wayne County Gem and Mineral Club, Newark, NY*), February 2015, p. 2.

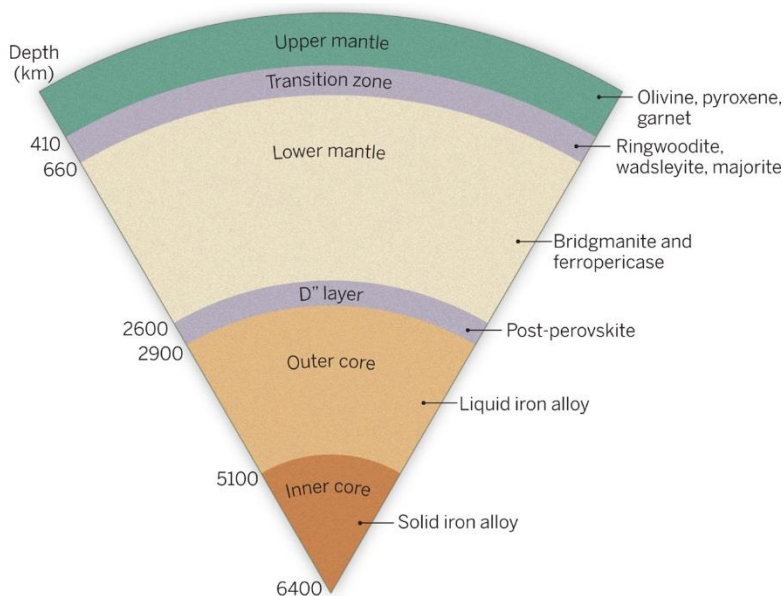
**D**o you know the most common mineral in planet Earth? Quartz? Nope. Feldspar? Nope. Ah, you say, all that limestone—the answer must be calcite. Wrong again. Okay, you think it is a trick question. Maybe it is ice, with all those polar ice sheets. Nice try—ice is a mineral, but it's still not correct.

What if I told you this mineral cannot be collected anywhere and that it was not officially named until 2014, even though it comprises about 38 percent of the Earth's volume? No one had been able to find a sample to analyze. Are you catching on?

The newly christened mineral is a magnesium–iron silicate called bridgmanite ((Mg,Fe)SiO<sub>3</sub>). Scientists have long known that a large part of the Earth's lower mantle is composed of a very dense magnesium–iron silicate mineral. But, lacking a sample, they couldn't characterize the material; and without crystal structure information, it couldn't be studied and named.

That changed in 2009 when scientists Chi Ma (of the California Institute of Technology) and Oliver Tschauner (of the University of Nevada–Las Vegas) began studying a meteorite that had struck Queensland, Australia, in 1879. In the 1960s, several high-pressure minerals had been discovered and characterized in this famous meteorite. But some of the silicate minerals in the black glassy portion of the meteorite were sensitive to conventional beams of electrons used in microscopes for mineral study. As a result, the mineral defied characterization. So the meteorite rested in peace for several decades.

It took Ma and Tschauner 5 years and many experiments to fully characterize the structure of the high-pressure silicate phase. They succeeded by using a sophisticated new technique called synchrotron X-ray diffraction. The technique generates microfocused X-rays that are five orders of magnitude more intense than conventional X-rays, permitting dramatically improved structural characterization of extremely small and sensitive material.



*Bridgmanite makes up most of the Earth's lower mantle.  
Source: Sharp (2014).*

Before it was characterized, the material was called silicate perovskite based on its chemistry and on the suspected mineral structure, which in turn was based on the response of earthquake waves coursing through the lower mantle. But this was not sufficient for mineral recognition.

In June 2014, the International Mineralogical Association accepted the work done by Ma and Tschauner. The newly characterized mineral was named bridgmanite to honor Percy Bridgman, a physicist awarded the Nobel Prize in 1946 for high-pressure research.

Formed under pressures 1 million times atmospheric pressure and at temperatures exceeding 3,500 °F, bridgmanite cannot be simulated in a lab. However, it is thought that as much as 70 percent of the lower mantle is composed of bridgmanite.

So ... at the next show, ask your favorite mineral dealers if they have any bridgmanite for sale. See if they know to turn to their meteorite collections. If so, tell them it needs to be from the 1879 Tenham L6 chondrite from Queensland, Australia. ♪

### Sources

Sharp, T. 2014. Bridgmanite—Named at last. *Science* 346(6213): 1057–1058.

Tschauner, O.; Ma, C. [et al.]. 2014. *Science* 346(6213): 1100–1102.

**Save the dates!**

## **Field Trip Opportunities**

Our club members have multiple opportunities in June and July for field trips related to our hobby.

### **National Limestone Quarries 1 and 2**

On Saturday, June 3, participants will meet at 8:30 a.m. at National Limestone Quarry 1, 3499 Quarry Rd., Middleburg, PA. After lunch, the group will move 5 miles to National Limestone Quarry 2 at 217 Quarry Rd., Mount Pleasant Mills, PA, for collecting until 4 p.m. These are great collecting sites for calcite, strontianite, celestite, fluorite, wavellite, quartz, cacoenite, and strengite (bring a hand magnifier for micromineerals). The number 2 quarry also has a good selection of Devonian marine fossils. Children over 10 years old, with full safety gear (helmet, long pants, steel-toed boots, and eye protection), and accompanied by a parent are permitted. Full safety gear is required; bring a signed, dated waiver. Please RSVP to Bob Cooke at [rdotcooke@gmail.com](mailto:rdotcooke@gmail.com) by May 31.

### **Vulcan Materials Quarry**

The Gem, Lapidary, and Mineral Society of Montgomery County in Maryland has invited NVMC members to join them on a field trip on Saturday, June 17, to the Vulcan Materials Quarry, 100 Vulcan Quarry Road, Stafford, VA. The quarry is about 25 miles south of the intersection between I-95 and I-495 (the Springfield mixing bowl). Participants will meet at the quarry before 8 a.m. for a safety briefing at 8 a.m. You must be on time for the briefing to be allowed to collect. Collecting will be until noon. Regular safety gear is required, including steel-toed boots, eye protection, and hardhats. Waiver forms, if required, will be distributed at the quarry. If interested in participating, please RSVP to Sam Linton at [cooldragonshirts@yahoo.com](mailto:cooldragonshirts@yahoo.com).

### **Northern Virginia Community College**

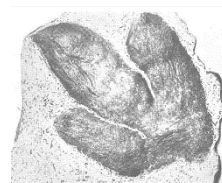
NOVA's Annandale campus offers 1-day weekend courses—essentially, field trips—related to our hobby. You can get more information at the [Field Studies in Geology—GOL 135 Website](#).

**Geology of Great Falls Park, VA.** The trip is on Saturday, June 3 (rain date: Sunday, June 4), with a posttrip meeting on Saturday, June 10. Study the modern and ancient forces that created Great Falls

National Park, including some easy to moderate hiking. Meet in front of NOVA's main Bisdorf entrance at 9:00 a.m., returning by 6:00 p.m.

**Miocene Geology of Calvert Cliffs, MD.** The trip is on Saturday, June 10 (rain date: Sunday, June 11), 9 a.m. to 6 p.m. Learn how the Miocene seas spread across Chesapeake Bay region about 10 to 20 million years ago. We will visit the Calvert Marine Museum collections and study ancient sediments, stratigraphy, and paleoenvironments preserved in world-famous Calvert Cliffs, MD, collecting fossils along the way.

**Triassic-Jurassic Rift Valley of Northern VA.** One-day field trip, Saturday, June 24 (rain date: Sunday, June 25), 9 a.m. to 7 p.m. Explore the geologic history of the famous Mesozoic rift basin, specifically across the Manassas, Leesburg, and Haymarket areas. Field stops will include quarry and roadside outcroppings of all rock types, dinosaur tracks, rift basin stratigraphy, and tectonic structures.



**Building Stones of the National Mall, Washington, DC.** One-day walking tour, two different dates: Saturday, July 1 (rain date: Sunday, July 2); and Saturday, July 22 (rain date: Sunday, July 23), 9 a.m. to 6 p.m. We will visit over 20 sites on the Washington Mall, examining the geologic history and architecture, including the rocks used to construct the federal buildings and monuments. ↗



## **Field Trip Announcements**

Most field trip announcements come too late to go into the newsletter. Therefore, as club president, I have been sending them directly to club members by email.

If you have not been receiving email announcements about upcoming field trips, you're probably not on the distribution list. If you want to be added to the list, please send an email to me at [rdotcooke@gmail.com](mailto:rdotcooke@gmail.com).

Please note: Only dues-paying members are eligible for field trips. No dues ... no insurance coverage ... no field trips. Thanks!

*Bob*



## Book Review Fairfax Gold Fever

Hutch Brown

No one volunteered to publish my Ph.D. dissertation, so I paid a publisher to do it. (Not that anyone read it.) *Fairfax Gold Fever*, by Walter A. Goetz, is in the same self-publishing vein. In this case, however, you can actually order the book online. It has apparently resonated with readers, as it did with me.

Actually, it's not really a book—it's more like a college term paper. My copy is velobound on nice paper, with clean double-spaced typing. It dates to 1982, and the author, an engineer, was a gold-panning enthusiast in our area.

There's not much gold in them thar hills, but there is some. It all depends on where you look. And that's one value of this study: It lets you know where you might go to look.

Goetz outlines the discovery of gold in our area, alluding to the pyrite–gold belt, a Piedmont formation that traverses Fairfax County in Virginia. The “gold rush” in Virginia had its heyday in the 1880s–1890s. Then, in the 1930s, Depression-era wages created new opportunities for gold mining.

Goetz focuses on the two Kirk Mines in the general vicinity of McLean, VA. One operated in 1898, the other in 1937. Both were near Bullneck Run, a tributary of the Potomac River, just over the hill from the Scott's Run Nature Preserve along the Potomac.

You can still find gold in Scott's Run, Bullneck Run, Quantico Creek, and other streams in the pyrite–gold belt in our area. Gold flakes have weathered out of the metamorphic matrix rock and settled into creek-bed gravels and crevices.

To find the gold, you need the right knowledge and equipment. You also need to know county and federal regulations.

Generally, it's okay to pan for gold in creeks on county land, but not in a nature preserve like Scott's Run. The preserve, by the way, has a vestige of northern hardwood forest, with trees like eastern hemlock and black birch, highly unusual for our area.



And you're not allowed to pan for gold on lands managed by the National Park Service. The national parks are supposed to preserve a remnant of primordial America. Picking at the ground, even if you're just scrounging for gold in a creek-bed, defeats the purpose of preserving nature.

But that still leaves plenty of places along creeks in our area where you can pan for gold! This book, with the help of a map, can steer you toward some of them. ↗

## Gear for the Field Tripper

by Robert Windsor

*Editor's note: The piece is reprinted, edited and abridged, from the May 2011 issue of The Mineral Newsletter.*

If you are a new member and you are thinking about heading into the field to look for minerals, you might wonder what equipment is needed.

Probably the most important piece of equipment is inexpensive: a pair of safety eyewear. Hardware stores carry different types, so your options are numerous. For starters, try a set that has adjustable temples; avoid the elastic-band type, which can become uncomfortable after extended use and sometimes fogs up.



Then you will need a pair of good boots with ankle support to prevent falls and sprains. Steel toes are preferred (and required by some quarries), but you can get by with simple heavy work boots. Always wear heavy pants when climbing in rocks and boulders. A bare leg is an open invitation for a bad scrape.



Your next purchase should be a hardhat. You can find inexpensive ones at nearly any home improvement or hardware store. One size usually fits all, even kids (age 7 or older).



A pair of leather gloves is a good idea. Heavy rocks have jagged edges, and you can prevent bad scrapes just by wearing gloves. They can also reduce fatigue and blisters on hands from swinging a hammer.

A bucket or heavy-duty backpack is a good choice to carry the minerals you collect. Keep in mind that your collecting site will almost surely be far from your vehicle. Be prepared to carry your precious finds! Some people like to use two buckets—one for carrying hammers and chisels and the other for specimens. Carrying two buckets “evens the load” and actually makes it easier.

Baggies and small containers are good for carrying small specimens or fragile crystals. You can wrap small specimens in newspaper or paper towels and store them in egg cartons.

Next, consider getting a loupe. For about \$30, you can mail-order a nice 10x loupe with a lanyard to hold it around your neck. The loupe allows you to see details on your mineral find and can help with identification. Features such as crystal shapes tend to be better quality and more easily identifiable in small crystals (just ask any micromounter). Get yourself a loupe and start exploring the fascinating microcosm of small mineral pockets.

Finally, the hardware. The most common is the hammer and chisel or pick. You can kill two birds with one stone by purchasing an Estwing rock hammer, which is both a hammer and a pick but requires some practice to master. It is a good idea to have chisels as well. Always wear eye protection when using a rock hammer!

For heavy-duty work such as splitting larger rocks, you should use only chisels that have a hand guard. The hand guard is a rubber or plastic handle that wraps around the chisel (usually mounted to the chisel). These will help protect your hand from a hammer blow that misses the chisel. It is also a good idea to have a small set of



cold chisels. A set of three will let you chip away at very small features on a stone.

Then there are sledge hammers. How many and how big is largely a function of how much WORK you are willing to perform. Most rockhounds like to start with a small sledgehammer called a crack hammer. These 3- to 4-pound sledges are 12 to 18 inches in length, depending on the handle. Many rockhounds like to use these hammers to drive their large chisels or to hit larger rocks directly. The longer handled crack hammers tend to deliver more energy with each blow but also require more strength in the hand and wrist.

Then there are the serious sledge hammers. These have handles 24 to 36 inches long and heads that weigh anywhere from 6 to 16 pounds (imagine swinging a hammer with the heft of a bowling ball). The larger hammers can help you break up boulders too big to lift but movable into an orientation for breaking off a chunk with a few blows. These hammers can take lots of labor and are not for everyone!

Other useful hardware includes pickaxes and prybars, sieves and screens, and water sprayers. As your stash of tools grows, you might also want a tool belt (with pockets for stashing some of your finds). These are items you can add as you go along and become more skilled.

Ten items for the first-timer to have, in order of priority, might be:

1. Safety glasses
2. Heavy work boots (preferably steel-toed)
3. Hardhat
4. Leather gloves
5. Buckets and egg cartons with wrapping paper or paper towels (or a backpack, if you prefer)
6. Rock hammer
7. Magnifying loupe, 10x
8. Chisels with hand guards
9. Water sprayer
10. Tool belt

Enjoy, and happy hunting! 🏹







## Safety Matters Tote That Rock—Lift That Toolbag!

by Mel Albright, former AFMS Safety Chair

**Editor's note:** The article is adapted from A.F.M.S. Newsletter (April 1998).

One thing that we rockhounds do a whole bunch is pick up rocks: little rocks, bigger rocks, and big rocks. Rocks by themselves, rocks in boxes, rocks in buckets, rocks in sacks—all are ways we collect and move rocks. And heavy tool bags are lifted all too often.

The classic joke picture of rockhounds is a bunch of standing people bent over at the waist and touching the ground with their hands. It is too often true.

Another thing we rockhounds do is put those heavy tools and rocks into a vehicle—or take them out—often by swinging things.

And the result is a lot of bad backs, sore backs, back strains, sometimes even permanently damaged backs.

So we need to learn—and practice—the proper way to lift and lower stuff without hurting ourselves. In picking up a rock, you should follow seven steps:

1. Stand with your feet about shoulder width apart, the rock between your feet, and one foot slightly in front of the other (for balance).
2. Lower yourself by bending your knees until you can grab the rock. The rock should be close to your body. Keep your back straight and your chin tucked in.
3. *Slowly* lift the rock by straightening up your knees pushing with your leg muscles. Keep the rock close to your body. Do *not* twist sideways.
4. When standing, do *not* twist your back. To move the rock sideways, turn with your feet. Keep the rock in close to your body.
5. When you get where you are going with the rock, reverse the steps you used to lift the rock. Remember—keep your back *straight*!
6. If the rock must go into a trunk or car or whatever, set it down on the edge, keeping a straight back. Then slide it into the vehicle. Most of us will bend over at the waist and swing it in—a sure way to get a bad back!

7. You aren't superman or superwoman! If the rock or bucket or bag is too heavy for you to carry easily, do it another way! Get help. Use a skid made from a heavy cloth or a wood slat with a rope tied to the end. Roll the rock using a long handled tool to pry with. Use your ingenuity! ↗



## EFMLS News Internet Safety

by Mark Nelson

**Editor's note:** The article is adapted from EFMLS News (January 2017), pp. 4–5. It was originally in the CFMS Newsletter (December 2016).



We see a lot of advertising on the radio, television, and Internet—seeking to get our attention and our cash for purchases. Internet sales have increased by 15 percent on average per year over the last 3 years. Unfortunately, Internet thieves seek to get our attention and our bank and credit card information!

Here are five simple rules for safely operating your computers and Internet-connected devices.

### 1. *Never give strangers access to your computer!*

An elderly client of my wife called her to help him get back on his computer after having repairs done. She helped him with all of his Internet and financial affairs and was unaware that anyone had called a computer service company.

The client's operating system was Microsoft Windows 7, and he said that Microsoft had contacted him via email and notified him that his computer required an update. They gave him a toll-free phone number to call and said that they could fix it from their offices without his needing to bring in his computer—he would just give them access to his computer.

After the “Microsoft” tech was done, the computer password had been changed, and the client no longer had access to his own property. Furthermore, the credit cards he had used for online purchases were



being used for unauthorized purchases around the world!

Remember that Microsoft will never proactively reach out to you to provide unsolicited PC or technical support. Any communication they have with you must be initiated by you.

## ***2. Never open an email attachment from someone you don't know!***

Another scheme going around is for thieves to use a sender name, such as Susan Dayton, to send you a Word document or photo as an attachment. You might not know the name of the sender, or it might sound vaguely familiar. The reference section of the email will be vague, and you might not remember why this person might be sending you a document file.

But what you might not know is that viruses can sneak in through the Microsoft Word files that you receive via email. Your own documents could become an open door for viruses to wreak havoc with your computer.

Computer viruses are like small software programs. Typically, they are downloaded inadvertently, buried within a file. When you open the file, the virus activates. The virus could damage your system, steal your identity information, infect files that you send out, and even send itself to everyone in your email address book.

## ***3. Never use a thumb drive that you get for free at a convention or store!***

The latest craze in computer storage, the thumb-sized USB drive, is so convenient and small that it's become a fashionable accessory. The drives come on key fobs and in such novelty designs as Lego bricks or sushi. They're given out at conventions and trade shows on lanyards, complete with promotional materials that you can download later.

USB storage devices have gotten so popular that cybercriminals are starting to write viruses and worms that specifically target them. If you plug an infected USB drive into your home computer, you could inadvertently upload the bug and potentially cripple your ma-



chine. If you connect to your office network, the worm can upload and replicate itself.

## ***4. Never conduct private business on a public WI-FI system!***

We occasionally connect to an open Wi-Fi hotspot in coffee shops, libraries, airports, hotels, universities, and other public places. They are convenient, but often they're not secure.

Such Wi-Fi networks are generally unencrypted—you can tell because you don't have to enter a password when connecting. Your unencrypted network traffic is then clearly visible to everyone in range.

People who have certain computer tools can see what unencrypted Webpages you're visiting, what you're typing into unencrypted Webforms, and even which encrypted Websites you're connected to. So if you're connected to your bank's Website, they'd know. They can pick up everything you type; even if they don't know what you were doing, they can study it later.

To protect your information when using wireless hotspots, send information only to sites that are fully encrypted and avoid using mobile apps that require personal or financial information.

## ***5. Never post vacation plans on Facebook or Twitter!***

A great way of saying, "Rob me, please!" is posting something along the lines of: "Count-down to Maui! Two days and Ritz Carlton, here we come!" on Twitter.

Are you only sending information to your Facebook "friends"? Do you personally know all 600-plus friends (and their friends) enough to trust them not to steal from you? There are many reasons to stay off Facebook while on vacation, and returning to find your house robbed is a good one.

Robbers are searching Facebook and Twitter for people away from their homes on vacation. For examples, put "facebook robbery vacation" into your Internet search engine!

Post the photos on Facebook when you return, if you like. But don't invite criminals in by telling them specifically when you'll be gone.



## 6. Protect your computer devices!

Make sure that your computer has a good antivirus protection software installed—and that it is current. A few well-known antivirus programs are by Norton Security, Symantec, McAfee® AntiVirus, and Trend Micro™ Maximum Security. ➤

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### Humor

#### Those Stones Aren't Red!

**Editor's note:** The story is adapted from "[No Sale: Not Always Right](#)," a Website about incidents that defy the maxim that the customer is always right.

**I** work in a jewelry store, and one day a customer walked up to me.

**Customer:** "I'm hoping you have a particular red stone that I'm looking for ..."

**Me:** "Oh, garnet?"

**Customer:** "No ..."

**Me:** "Ruby?"

**Customer:** "NO! I want red! Those aren't red!"

**Me:** "Um ... yes, they are."

*(I show her a garnet ring.)*

**Customer:** "Oh. Well, it's a stone that sounds like it should be red."

**Me:** "Well ..."

**Customer:** "I think it's actually blue."

**Me:** "Uh ..."

**Customer:** "What blue stones do you have that sound red?"



Sapphires (corundum) in various hues.  
Source: [Smithsonian Mineral Gallery](#).

**Me:** "Um ... topaz?"

**Customer:** "No, it's not that one ..."

**Me:** "Lapis?"

**Customer:** "No ... oh! Sapphire! It sounds like it should be red, you know?"

**Me:** "Uh ... I never thought about it that way ..."

**Customer:** "Well, it should be!"

**Me:** "You know, there *is* pink sapphire ..."

**Customer:** "Oh. Who would want that?"

**Me:** "Not to worry, we don't have any."

**Customer:** "Any sapphires?"

**Me:** "No, any pink sapphires."

**Customer:** "Well, that name should belong to a red stone, anyway. They should think about these things when they name them ... who would I talk to about that?"

**Me:** "... Adam?" ➤

### GeoWord of the Day

*(from the American Geoscience Institute)*

#### alexandrite effect

Said of a mineral or gemstone the color of which changes in hue when it is viewed under two different light sources.

*(from the [Glossary of Geology](#), 5th edition, revised)*



## The Rocks Beneath Our Feet Lake Drummond: Fiery Origins?

by Hutch Brown

**Editor's note:** This is the second in a series of articles on the origins of Virginia's Lake Drummond. The first, on the area's geology, is in the [April 2017 newsletter](#).

Virginia has only two natural lakes, and Lake Drummond is one of them. Lake Drummond lies in the Great Dismal Swamp. About 20 miles long and 10 miles wide, the swamp is a national wildlife refuge that straddles the border between Virginia and North Carolina on the Coastal Plain.

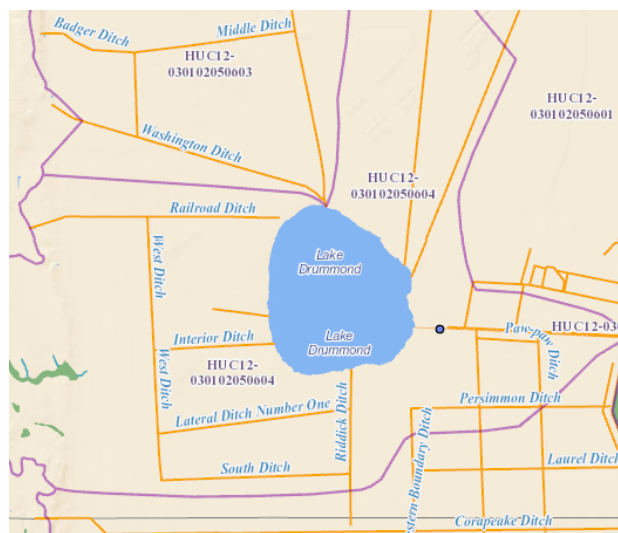
Nearly circular in shape (fig. 1), Lake Drummond is huge (about 2-1/2 miles across) but no more than 6 to 7 feet deep. Fed by ground water, it is a high point in the swamp, with outflows but no major surface inflows. Therefore, it has never filled in with sediment and has no natural dam to wear through. In effect, it is a huge natural hole in a swamp.

How did the hole get there?

### Peat Deposits

No one knows for sure. No one even knows for sure how the lake got its name (see the sidebar on the next page).

The swamp began forming along rivers and streams in the area about 11,000 to 12,000 years ago, when



**Figure 2**—Centuries of efforts to drain the Great Dismal Swamp have left a baffling criss-cross of drainage ditches, affecting the swamp's hydrology. Source: U.S. Geological Survey.



**Figure 1**—Lake Drummond lies in the Great Dismal Swamp on the Coastal Plain in southern Virginia. The swamp is a national wildlife refuge managed by the U.S. Fish and Wildlife Service. The lake's main outflow is a drainage ditch into the Dismal Swamp Canal (arrows), which borders the swamp on the east. Sources: Top—Harper (2009); bottom—U.S. Geological Survey.

the climate got wetter as the Pleistocene ice sheets retreated from New Jersey, Pennsylvania, and points north. A layer of impermeable marine clay underlies the swamp, trapping water in the overlying sandy sediments. Ample rains drenched the soils, and decaying vegetation over thousands of years created a layer of peat up to 15 feet thick.

Swamps are not necessarily wet year-round, and the Great Dismal Swamp certainly isn't. When the rains stop, as they often do in summer and fall, the swamp tends to dry out, in part because of its altered hydrology. Beginning with George Washington, would-be developers of new agricultural land have dug an extensive set of ditches to drain the swamp (fig. 2).

Although such efforts failed to get rid of the swamp, the ditches remained, changing the swamp's hydrology. They have helped to create conditions in the Great Dismal Swamp for severe wildland fires during periods of relative drought.



## Swamp Fires

Peat forms the swamp's soils, and dry peat is highly combustible, making for an excellent fuel. Burning underground, a peat fire can smolder and spread for months or even years, sending overlying vegetation up in flames. And because the fire spreads underground, firefighters can do little to stop it.

Not that they necessarily should. Peat fires, typically ignited by lightning, have been burning in the Great Dismal Swamp for millennia. The ecosystem is adapted to such fires, which play a natural role.

But wildfires in peat dried out by past drainage practices can be unnaturally severe and destructive. In the 1920s, extensive logging in the Great Dismal Swamp left piles of woody debris (what foresters call slash). Ignited by sparks from logging equipment, the slash started a great wildfire that lasted for 3 years (from 1923 to 1926), spreading underground through the peat. Known as the Great Conflagration, the fire ultimately burned about 150 square miles, an area almost as large as the entire wildlife refuge today.

Since 2004, the Great Dismal Swamp has been drier than normal (a possible effect of global warming). In 2008 and 2011, the swamp had two major wildfires that burned for months. The Lateral West Fire in 2011 (named for drainage ditches) burned a large area south of Lake Drummond (fig. 3). Smoldering underground, the peat fire persisted for 111 days (from August into November), even after Hurricane Irene dumped 2 inches of rain. It went out only after a second tropical storm drenched the area.

## Did Fire Create the Hole?

So we know that the Great Dismal Swamp can burn in huge wildland fires under the right conditions. The Lateral West Fire burned an area adjacent to Lake Drummond that was larger than the lake itself (fig. 3). The lake even has the fan shape typical of wildland fires, with its narrowest part in the northwest, the possible point of fire origin. Driven by the prevailing winds, the fire would have spread to the southeast along the lake's flanks, just as the smoke from the Lateral West Fire suggests (fig. 3).

So one theory is that a lightning strike about 9,000 years ago caused a great conflagration (Grymes 2014). Under drought conditions, the fire might have burned for years. An extremely intense fire would have burned out the peat down to the mineral soil that

## Lake Drummond: What's in a Name?

One theory, based on a record from the 1830s, is that a hunter named Drummond got lost in the Great Dismal Swamp in the 1750s. He stumbled across the lake, which subsequently bore his name.

Another theory is that an immigrant from Scotland named William Drummond discovered the lake in 1655. Drummond rose from indentured servitude to become sheriff and justice of the peace in James City County. Sent to the new Albemarle Sound colony in North Carolina, Drummond became its first governor. On the way, he discovered the eponymous lake.

Now, does that seem likely? The main mode of travel in the 1600s was by water; Virginia's roads were few and poor. The most obvious route from Jamestown to Albemarle Sound for a distinguished government official was by sea, not cross-country on horseback through a trackless swamp.

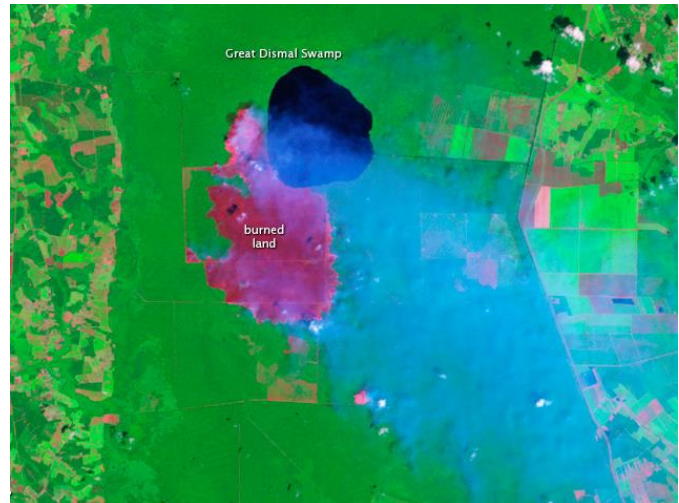
But it does make a good story. In 1676, upon returning to Virginia, Drummond joined Bacon's Rebellion against the colonial government. The rebel grievances included the governor's failure to drive native peoples fast enough from their homelands in western Virginia. Drummond managed to capture Jamestown and force the government to flee.

Then British troops reinforced the loyalists, and the rebellion failed. Drummond was executed in 1677.

And the swamp itself? The name comes from an 18<sup>th</sup>-century planter named William Byrd II. Byrd was appointed to survey the border between Virginia and North Carolina in the 1720s, and he left careful records. On an expedition in the 1730s, he described killing and eating "buffalo," part of the evidence we have for American bison in the East, long since extinct.

Because the swamp straddles the border, Byrd had to map its contours, but he apparently detested it. He called it a "horrible desert" without "beast or bird ..., nor so much as an insect or reptile" (TNC 2016).

So Byrd published a proposal, the first of many, to drain what he called "the Dismal Swamp." Later mapmakers added the word "Great," and the name stuck.



**Figure 3**—The Lateral West Fire in the Great Dismal Swamp ignited from lightning during an unusually dry summer in 2011, burning from August into November. The fire persisted even though the swamp still had areas of open water (above left). The area burned (above right, magenta) was even larger than Lake Drummond itself, and it had roughly the same shape, driven by winds from a point of origin in the north toward the southeast (as shown by the light blue smoke). The straight edges in parts of the area burned are due to drainage ditches that the fire failed to cross. Source: Grymes (2014)—U.S. Fish and Wildlife Service (left), National Aeronautics and Space Administration (right).

underlies the swamp, leaving a giant hole. When the rains finally returned, drenching the swamp, the hole would have filled with water, creating Lake Drummond.

It's an intriguing and plausible theory, but it isn't the only one. ↗

*Next: Another theory for the origins of Lake Drummond—a meteor strike.*

### Acknowledgment

The author thanks NVMC member Sue Marcus for reviewing and improving the article. Any errors are the author's alone.

### Sources

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## Lava Lake Revealed

*Thanks to Sue Marcus for the reference!*

A clear January morning allowed a helicopter crew to access the Pu'u 'Ō'ō on the Big Island of Hawai'i, capturing images of a very active lava lake. Skylights just east of the vent were accessible, but the crew was unable to see inside. This conduit feeds not only the ongoing 61g flow, but also the still-active additional flow just to the northeast of 61g, which is now 1.5 miles from the vent. [Read the story](#). ↗



## Columbia Scablands

Formed by megafloods, these strange landforms in eastern Washington had scientists fooled for decades. Then a high school teacher dared to question the scientific dogma of his day. [Read the story](#). ↗





## June 2017—Upcoming Events in Our Area/Region (see details below)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3 Field trips Show: Macungie, PA
4	5	6	7 MSDC mtg, Washington, DC	8	9	10 NOVA field trip
11	12 GLMSMC mtg, Rockville, MD	13	14	15	16 Show: Quarryville, PA	17 Show: PA; EFMLS picnic; Vulcan field trip
18 Father's Day	19	20	21 Summer begins	22	23	24 NOVA field trip
25	26 NVMC mtg, Arlington, VA	27	28 MNCA mtg, Arlington, VA	29	30	

### Event Details

**3: Macungie, PA**—Spring Mineralfest Show; Pennsylvania Earth Sciences Association; Macungie Memorial Park; 8:30–3; adults \$2, kids under 12 free; info: [www.mineralfest.com](http://www.mineralfest.com).

**3: Great Falls, VA**—Geology field trip; 9–6; NOVA; info, reg: [GOL 135 Website](http://GOL135Website.com).

**3: National Limestone Quarries 1 & 2**—Collecting field trip; 3499 Quarry Rd, Middleburg, PA; 8:30–4; RSVP: Bob Cooke, [rdotcooke@gmail.com](mailto:rdotcooke@gmail.com).

**7: Washington, DC**—Monthly meeting; Mineralogical Society of the District of Columbia; 1<sup>st</sup> Wednesday of the month, 7:45–10; Smithsonian Natural History Museum, Constitution Avenue lobby.

**10: Calvert Cliffs, MD**—Geology field trip; 9–6; NOVA; info, reg: [GOL 135 Website](http://GOL135Website.com).

**12: Rockville, MD**—Monthly meeting; Gem, Lapidary, and Mineral Society of Montgomery County; 2<sup>nd</sup> Monday of the month, 7:30–10; Rockville Senior Center, 1150 Carnation Drive.

**16–17: Quarryville, PA**—Annual show; Lancaster County Fossil and Mineral Club; Solanco Fairgrounds, Hoffman Bldg, 172 South Lime St; Fri

12–8, Sat 10–5; adults \$3; info: Eric Miller, [admin@millersmineralmine.com](mailto:admin@millersmineralmine.com).

**17: Gilbert Run Park, MD**—Region IV EFMLS Annual Picnic/Swap and Sale/Auction; Southern Maryland Rock and Mineral Club; Brookside Pavilion; 9–5; \$5 per car; info: SMRMC.org.

**17: Stafford, VA**—Vulcan Materials Quarry field trip; Gem, Lapidary, and Mineral Society of Montgomery County (host); 100 Vulcan Quarry Rd; 8–12; RSVP: Sam Linton, [cooldragon-shirts@yahoo.com](mailto:cooldragon-shirts@yahoo.com).

**24: Rift Valley, Northern VA**—Geology field trip; 9–7; NOVA; info, reg: [GOL 135 Website](http://GOL135Website.com).

**26: Arlington, VA**—Monthly meeting; Northern Virginia Mineral Club; 4<sup>th</sup> Monday of the month, 7:45–10; Long Branch Nature Center, 625 S Carlin Springs Rd.

**28: Arlington, VA**—Monthly meeting; Micromineralogists of the National Capital Area; 4<sup>th</sup> Wednesday of the month, 7:45–10; Long Branch Nature Center, 625 S Carlin Springs Rd.



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*Crystals are the flowers of the Mineral Kingdom*



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**Mineral of  
the Month:  
Sperrylite**

PLEASE VISIT OUR WEBSITE AT:

<http://www.novamineralclub>

## The Northern Virginia Mineral Club

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You can send your newsletter articles to:

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**Visitors are always welcome at our club  
meetings!**

**RENEW YOUR MEMBERSHIP!**

**SEND YOUR DUES TO:**

Rick Reiber, Treasurer, NVMC  
PO Box 9851, Alexandria, VA 22304

**OR**

Bring your dues to the next meeting.

**Purpose:** To 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](#)) and the American Federation of Mineralogical Societies ([AFMS](#)).

You may reprint materials in this newsletter.

**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.*