THE NORTHERN VIRGINIA MINERAL CLUB INC

The Mineral Newsletter

Next meeting: June 3 Time: 7:30 p.m.

Dunn Loring Fire Station, 2148 Gallows Road, Dunn Loring, VA



Volume 64, No. 6
June 2024
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June Meeting Program:

The Rutherford Mine, Amelia, VA

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Epistilbite

Nashik District, Maharashtra, India

Source: Mindat. *Photo: Maggie Wilson.*

Mineral of the Month
Epistilbite

by Sue Marcus

Many mineral collectors are familiar with stilbite. It is one of the zeolite minerals occasionally found in our local northern Virginia trap rock quarries. Our mineral for June is epistilbite, meaning "near stilbite" because the two minerals have some similar characteristics and form in the same geologic environments.

Name

Stilbite was named for its shiny luster based on ancient Greek *Στίλβη* ("glittering" or "gleaming"), a reference to the mineral's pearlescence, which was thought to be a bit mirrorlike. Although that would be a bit of a stretch in describing epistilbite crystals, in 1826 the German mineralogist Gustav Rose bestowed the name epistilbite on the new mineral he described due to its similarities to stilbite and heulandite. "Epi," in the context of this mineral name, means "near" in Greek.

Rose's description is based on material from two places, Iceland and the Faroe Islands. He did not give specific locations for either place. Mindat mentions two cotype localities for epistilbite, both in Iceland.

Geologic Environment

Epistilbite is rarer than many of its zeolite family members. It occurs in macroscopic crystals much less frequently than in microscopic ones.

Like other zeolite minerals, epistilbite usually forms in vesicular basalts, less frequently in vesicular andesitic rocks. These are extrusive volcanic rocks containing vesicles (holes) caused by gas bubbles in the magma. As the rocks cooled and the gas escaped, some of the vesicles filled wholly or partly with minerals. In the right geologic environment—with relatively low-temperature fluids containing the necessary chemicals—zeolites and other minerals like prehnite, quartz, and calcite crystallized in the open spaces.

Some epistilbite-bearing rocks, such as the Deccan flood basalts, are about 65-66 million years old. Others are much younger, like the Honolulu Volcanics on the Hawaiian island of Oahu, which are less than a million years old.

Summer break ahead!

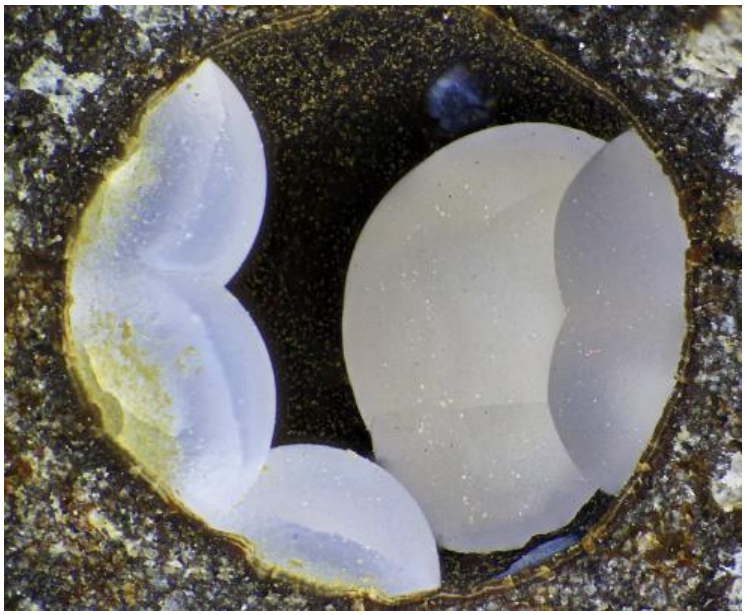


Northern Virginia Mineral Club members,

Please join our June speaker, Scott Duresky, for dinner on June 3 at 5:30 p.m. at:

BJ's Restaurant & Brewhouse
8027 Leesburg Pike, Suite 100, Vienna, VA
Phone: 703-356-7305

Reservations are under Craig Moore, Vice President, NVMC. If you plan to attend, please email Craig at vicepresident@novamineral.club by noon on the day of the meeting.



Epistilbite, Padernal Roadcuts, Candelarita District, Costa Rica. Source: Mindat; photo: Rudy W. Tschernich.

Zeolites, including epistilbite, occasionally occurred in hydrothermally altered pegmatites or in contact zones where plutonic rocks like granite heated the rocks they intruded. The heat of the intrusion and the fluids associated with it caused hydrothermal metamorphism that could lead to zeolite crystallization.



Epistilbite, Big Tree Creek, Yacolt, Clark County, WA. Source: Mindat; photo: Rudy W. Tschernich.

Localities

Washington. Rudy Tschernich was a famous zeolite collector, geologist, curator, and sometime dealer who wrote *Zeolites of the World* (he literally wrote the book on zeolites). In the late 1980s, Tschernich collected epistilbite along with other zeolites from a forest road near Big Tree Creek east of Yacolt in Clark County, WA. His Mindat photos show colorless microcrystals of single crystals and tiny sprays of epistilbite. In his description of the collecting site, he explains that zeolite-bearing boulders were removed during roadbuilding and pushed into the surrounding forest, requiring an extra level of rock hunting. The road and property are private and the locality probably long gone.

The 200/237 Road Quarry near Wolf Point, WA, was a relatively prolific epistilbite specimen producer, although the crystals were always microscopic. Unusual sixling-twinned epistilbite images were posted on Mindat by Donald Howard. These images of colorless 0.04-centimeter (0.02-in) crystals were taken through a scanning electron microscope. Rudy



Epistilbite, 200/237 Road Quarry, Wolf Point, Cowlitz County, WA. Source: Mindat; photo: Rudy W. Tschernich.

Tschernich photographed tabular, pseudohexagonal epistilbite crystals from the quarry. Other forms of epistilbite crystals from the locality include sprays and radial orbs, with rare isolated crystals.

Epistilbite in similarly diverse crystal habits was found at another Wolf Point locality, the Baird Creek Quarry. Both quarries are probably gone, although the local geology is opportune for zeolite formation, so new sites may be discovered.

Elongated prismatic epistilbite crystals from 1 to 2.5 centimeters (0.4-1 in) in size came from Riffle Lake near Morton, WA. These are relatively large crystals for this mineral. They were found by Tschernich, so we can trust the identification, although there are no known images of these specimens.

Hawaii. Let's go to Hawai'i, a chain of beautiful islands with some equally beautiful minerals. Because volcanic rock forms the geology of the islands, the basalt flows provided the right geologic environment for zeolites to form in the vesicles. (For a good explanation of vesicles, vugs, amygdules, and more, check out this geocaching site.)

The Pu'u o Ehu Quarry on the island of Oahu is a source of lovely epistilbite microcrystals. Though tiny, they can be water-clear, reaching up to just over 1 millimeter (0.04 in) in size. That's too small for me but worthwhile for any micromounters.

Mindat shows the quarry location (the "pin drop") along the shoreline of the town of Kailua. A quarry



Epistilbite, Pu'u o Ehu Quarry, Kailua, Oahu, HI. Source: Mindat; photo: Chinellato Matteo.

on the shore seems unlikely. It may be the same as the HC&D Kapa'a Quarry, which lists a Kailua address. The Pu'u o Ehu Quarry reportedly produces gravel for roads and other industrial purposes, as does the HC&D quarry.

The host rock was generated by "rejuvenated-stage" eruptions of the Ko'olau Volcano's Kailua Caldera as recently as about 40,000 years ago and possibly as much as 110,000 years ago. Zeolites, including epistilbite, formed later, filling vesicles in the amygdaloidal basalts.

Other States. Other places in the United States are noted zeolite localities, but all I could find were inclusions of epistilbite in lists of minerals from them. They include the trap rock quarries of Virginia—anyone have an epistilbite specimen from one of these in your collection? If you do, please let me—and others—know about it.

New Jersey was known for zeolites from the Patterson area, though only one image is shown on Mindat. It is a specimen with 0.1-centimeter (0.04-in) crystals that was found in the 1960s. The area is now covered by houses.

Oregon is another zeolite hotspot, although epistilbite was apparently either never identified there or not abundant enough to be photographed.

Canada. The basalts of eastern Canada are famous for zeolites. Parrsboro, Nova Scotia, is the best known zeolite locality, and epistilbite is reported from there. But Mindat shows no corresponding photos, implying that epistilbite was neither abundant nor attractive there.

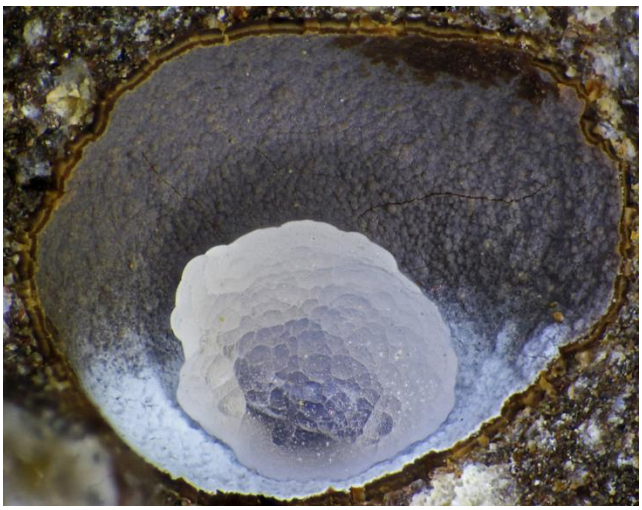
Mindat shows an image of a unique specimen from Ross Creek, another Nova Scotia locality. The photo shows an amygdule that has been sawn open to reveal concentric rings of different minerals. Epistilbite fills the center, leaving no space for terminated crystals. That core is ringed by a darker, fine-grained mixture of Fe-Mg-Na aluminosilicates and mordenite, which in turn is surrounded by subcrystalline mordenite.

Epistilbite was found on at least two places on Grand Manan Island, New Brunswick (Whale Cove Cliffs and Seven Days Work Cliff). Mindat authors caution collectors to watch the tides so they are not cut off by the sea.

Costa Rica. Costa Rica is rarely mentioned for its minerals. In 1993, however, Rudy Tschernich recovered some lovely epistilbite specimens from a roadcut north of Pedernal. His images on Mindat show beautiful translucent white or golden yellow epistilbite in radiating crystal aggregates or botryoidal forms. The host rock for these matrix specimens, unlike the more common basalt matrix, is andesite conglomerate tuff. Moral: Don't forget to check out roadcuts!

Brazil. Relatively large specimens of macroscopic epistilbite on matrix have been found at the Ribas Quarry in Rio do Sol, Brazil. Crystals up to 0.7 centimeters (0.3 in) in size grew on drusy quartz in vesicular basalt, with the matrix specimens reaching more than 4 centimeters (1.6 in) in size.

Iceland. Iceland hosts epistilbite's type localities at Teigarhorn and Berufjörður, both in eastern Iceland.



Botryoidal epistilbite, Padernal Roadcuts, Candelarita District, Costa Rica. Source: Mindat; photo: Rudy W. Tschernich.

Mindat shows colorless and transparent crystals that are white and translucent from Teigarhorn. The largest crystals are 2 centimeters (0.8 in) long, formed into small parallel clusters. Heulandite and other zeolites were probably more abundant.

Berufjörður seemed to be the more important locality, according to Rudy Tschernich, who referred to C.A.F. Hinzte's 1897 *Handbook of Mineralogy*. Tschernich, quoting Hinzte, reported "transparent to milky-white, bluish, or yellow, multiple epistilbite crystals, up to 2 cm long."

I acknowledge that I cannot pronounce this next locality, Fossárfell, located in eastern Iceland. This locality has produced miniature specimens sporting epistilbite crystals up to at least 1.5 centimeters (0.6 in) in size. The finest are colorless, transparent microcrystals. Larger crystals may also be clear but appear whitish due to their size. Thumbnail-size specimens (1.2 centimeters (0.5 in) in their largest dimension) of epistilbite crystal groups without matrix were collected by Volker Betz in the 1970s. He also collected somewhat larger (2.8-centimeter (1.1-in)) matrix specimens. Some specimens seem to be slightly stained by iron. Hairlike fibers of mordenite add textural contrast to some specimens.

Fossárfell is a series of lava flows forming steps or terraces due to erosion. Like many similar areas in Iceland, waterfalls grace the cliffs—and erode the basalt.

Colorless, microscopic epistilbite crystals were found during excavation of the Vaðlaheiði Tunnel near Svalbarðsstrandarhreppur. (I have no idea how to pronounce either Icelandic word!) Tom and Julia Burke, my husband Roger Haskins, and I drove through the tunnel not knowing about the minerals found there. According to Mindat, when the tunnel was drilled, geothermal waters were accidentally released. A lay-by in the tunnel has been used for hot yoga!

It is not surprising that Iceland has other epistilbite localities, since the island is literally covered by volcanic rocks. Mindat notes several places, either with the mineral shown on a list of minerals reported at the locality or with one or two images, most of which are not worth mentioning. One citation that *is* worth mentioning includes an image by Volker Betz showing microcrystals of colorless epistilbite from Titlingshagi looking like beautiful shards of clear glass.



Epistilbite, Fossárfell, Berufjörður, Iceland. Source: Mindat; photo: Volker Betz.

Denmark (Faroe Islands). The Faroe Islands are a cluster of small isles that form an autonomous part of Denmark. The precise location of the type locality for the epistilbite specimen described by Gustav Rose is unknown; only one specimen from the Faroe Islands is pictured on Mindat, without a precise location. The caption states that it was purchased in 1990.

Rudy Tschernich observed that no epistilbite specimens have been found recently in the Faroe Islands (probably meaning in the 20th century), although he also mentioned that researchers found epistilbite crystals up to 0.6 centimeters (0.2 in) in size in 1974. Tschernich hypothesized that Rose received material that originated in Iceland and passed through the Faroe Islands since both were then Danish territories.

Rose mentioned the Faroe Islands twice in his description, and many zeolites have been found there. Sounds like we need a field trip to the Faroe Islands to solve the mystery.



Epistilbite, Faroe Islands, Denmark. Source: Mindat; photo: Alessandro Cantamessa.

Scotland. For those brave or crazy enough to scale a cliff, epistilbite occurs at Sgurr nam Boc on the Isle of Skye. Attractive specimens feature colorless to white epistilbite in clusters or small spheres of radiating crystals, with individuals up to 0.5 centimeters (0.2 in) in size. For those who prefer not to descend from the top of the cliff, apparently a water route to the base of the cliff may also lead to zeolite-rich boulders at the cliff base. Most collecting seems to have been done in the late 1990s.

Colorless microcrystals were found near Creag Brimishgan on the Scottish Isle of Mull. The host rock is vesicular basalt. A Mindat photo shows rockhounds collecting there along the shore of Loch Na Keal on a gray day. Epistilbite has also been found occasionally at other Scottish zeolite localities.

Hungary. Hungarian epistilbite specimens may appeal to micromounters. Transparent, slightly yellow sprays of tiny crystals were found with heulandite and quartz at an andesite quarry on Csák Hill in the Carpathian Mountains.

Italy. The Italian region (and island) of Sardinia hosts epistilbite near Osilo. Crystals are usually small but can reach at least 1.5 centimeters (0.6 in). Pink crystals range from pale through darker shades of pink, with the color unevenly distributed within most crystals. The color may be caused by inclusions or possibly staining, although I did not find any explanation for it. Crystals are usually colorless at their tips, becoming cloudier towards their bases. Since most specimens exhibit sheafs or clusters of crystals on matrix, the cloudiness may be because they are thicker when more tightly packed at their bases.

Pink crystals offset by colorless (often appearing white) quartz and calcite, sometimes with pale yellow chabazite, are quite attractive. Mindat also shows one specimen with light yellow epistilbite crystals perched on pale lavender amethyst. Entirely colorless epistilbite crystals exist but do not seem to be as abundant as the pink ones from this locality. Most specimens came from a roadcut called Su Marralzu, although some also came from the nearby Crastu Muradu Quarry.

Switzerland. Mineral collectors can sometimes be elusive about the precise locations of their discoveries. Here's a minor mystery that I came across while researching epistilbite localities in Switzerland.

Mindat and several online mineral sales sites show epistilbite from Gibelbach, near Fiesch, Switzerland. There is a river or stream named Gibelschbach near Fiesch, but there is no place with that name. Mindat locality photos show a rock face that is whitish and looks highly altered. The epistilbite crystals are colorless to slightly yellow and transparent to translucent. Most are microcrystals, although one epistilbite and stellerite specimen is 13 centimeters (5 in) long and belongs to the British Natural History Museum in London.



Epistilbite, Su Marralzu, Osilo, Sardinia. Source: Mindat; photo: Volker Betz.



Epistilbite with heulandite and quartz, Jalgaon District, Maharashtra, India. Source: Mindat; photo: Rob Lavinsky.

India. Maharashtra, India, is known to mineral collectors for its exquisitely aesthetic zeolites that occur in amygdaloidal basalts of the Deccan Traps. The Deccan Traps are extremely voluminous flood basalts formed about 65-66 million years ago. Multiple flows erupted roughly 1 million cubic kilometers (200,000 mi^3) of basaltic lava. (Volume estimates range from an extremely low 500,000 cubic kilometers (12,000 mi^3) to 2 million cubic kilometers (500,000 mi^3); the surface extent has changed and erosion has occurred.) Fortuitously for mineral collectors, this became a fertile environment for zeolite crystal formation.

Epistilbite crystals occur at several localities in the state of Maharashtra. The sites are usually trap rock quarries, meaning that the rocks are extracted for aggregate and road construction. These quarries have produced fine epistilbite crystals, including bright to pale salmon-colored ones.

Maharashtra is divided into several political divisions, in turn divided into districts. We will examine those where epistilbite has been found, starting with the Nashik Division, which includes the Jalgaon and Nashik Districts.

Jalgaon may be the most prolific producer of fine epistilbite specimens, probably the world's best. The salmon-colored ones are my favorites, though other colors and several habits are found there too. Colorless and amethyst quartz is the most common perch for epistilbite crystals, though calcite, goosecreekite, heulandite, stellerite, and stilbite can be accessory minerals. Along with fans and, more rarely, bowties or crystals, epistilbite forms subcrystalline spheres in which individual crystals cannot be distinguished. Clusters of epistilbite grew up to at least 5 centimeters (2 in) in size, and individual crystals grew up to at least 1 centimeter (0.4 in) in size. Specimens more than 14 centimeters (5.5 in) across were recovered, although the surface areas covered by epistilbite are much smaller.

Nashik, adjacent to Jalgaon, is also famous for zeolites, and epistilbite occurs in many forms. Crystals may be blocky and clear to translucent; specimens might have light pink tabular crystals or groups of tiny crystals gathered into wormlike or tubular formations. Quartz, sometimes as amethyst, is the most common associated mineral, with calcite and mordenite also reported. Epistilbite crystals can reach at least 3 centimeters (1.2 in) in size, even the pink ones.

Pune is another Maharashtra division. It includes the Pune District, noted for beautiful zeolite specimens. Epistilbite does not seem to be as abundant in this district as in some others, although it occurs in diverse forms. Translucent white epistilbite crystals up to about 2 centimeters (0.8 in) in size grew into fans and clusters. One Mindat photo exhibits a bowtie habit, while others show balls of aggregated epistilbite with indistinguishable individual crystals. Pink crystals also were found, though rarely.



Epistilbite, Nashik District, Maharashtra, India. Source: Mindat; photo: Maggie Wilson.



Epistilbite, Malad Quarry, Malad, Mumbai Suburban District, Salsette Island, Konkan Division, Maharashtra, India. Source: Mindat; photo: Dan & Diana Weinrich Minerals.

Epistilbite also occurred in the Malad Quarry in Maharashtra's Konkan Division. Rosettes and fans of epistilbite were found with calcite and prehnite. The crystals are colorless and transparent, though the clusters look translucent and white. Epistilbite formed at a relatively low temperature (190 °C (380 °F)) at estimated depths of about 2,000 meters (6,500 ft). The quarry has been overtaken by urban development and is now closed. Satellite imagery indicates that the area is now used for housing.

Other Countries. Epistilbite occurs around the world in the same geologic environment as other zeolites. It is found with them in many places, though rarely in collectible specimens. For a more comprehensive description of epistilbite occurrences, including many where he collected specimens, see Tschernich (1992). These places include Antarctica (no collecting allowed!), Argentina, Australia (on an island that is part of the Five Islands Nature Reserve and in Tasmania), Austria, China, Finland, Germany, Japan, Jordan, New Zealand, Poland, Slovakia, South Africa, Spain (Grand Canary Island), and Ukraine.

There are no confirmed reports of epistilbite from either Russia or China, large countries with diverse geologic environments. I found one 1926 reference to possible epistilbite from the Kola Peninsula in eastern Russia, but it came with a question mark. Other sources note that Russia has more than 70 zeolite occurrences without any specific mention of epistilbite. Zeolites occur in China too, although I found no references to epistilbite.

Uses

Epistilbite is a mineral for collecting. It serves no economic purpose, in part because it is not sufficiently abundant. Moreover, I could find no examples of or references to faceted or cut epistilbite.

A nice pink thumbnail-size Sardinian epistilbite was for sale on eBay for about $33 on May 18, 2024. A miniature with minor wulfenite was listed for $17. A nice orangish epistilbite specimen from India, about 5 centimeters (2 in) in size, was listed for $45; the epistilbite covered only a small part of the matrix specimen. A high-end deal offered a 13-centimeter (5.1-in) Indian specimen with green fluorapatite setting off a 5-centimeter (2-in) cream-colored ball of epistilbite for $950. There were also specimens for sale online from questionable localities.

Technical Details

Chemical formula..... $Ca_3[Si_{18}Al_6O_{48}]\cdot 16H_2O$ (International Mineralogical Association); $CaAl_2Si_6O_{16}\cdot 5H_2O$ (Mindat); $|(Ca,Na_2)_3(H_2O)_{16}|[Al_6Si_{18}O_{48}]$ (International Zeolite Association). The significant difference is the possibility of sodium (Na) in the formula given by the IZA.
Crystal form..... Monoclinic (most sources; Tschernich states it can also be triclinic)
Hardness 4
Specific gravity 2.22-2.28
Color..... Colorless, pale yellow, tan, shades of pink from pale to deep rose
Streak ..... White
Cleavage ..... 1 perfect
Luster ..... Vitreous

Sources

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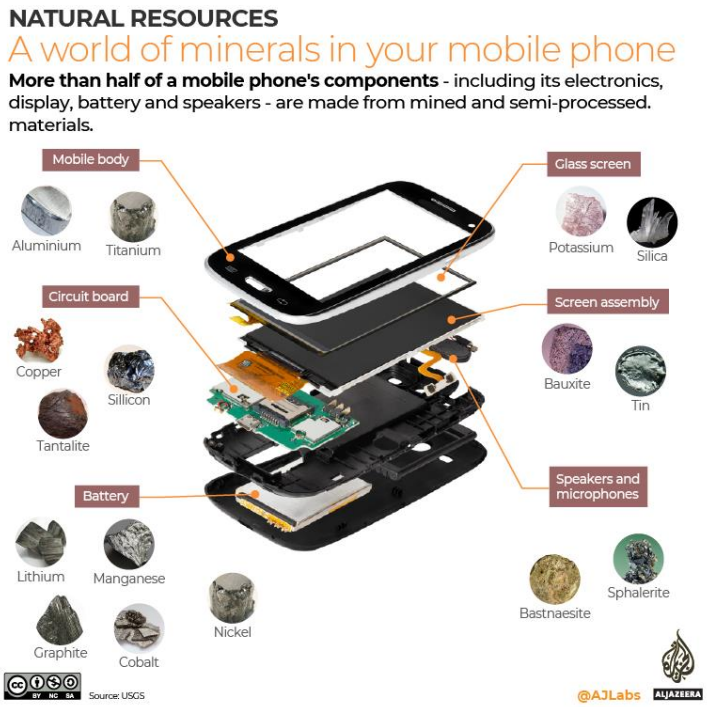
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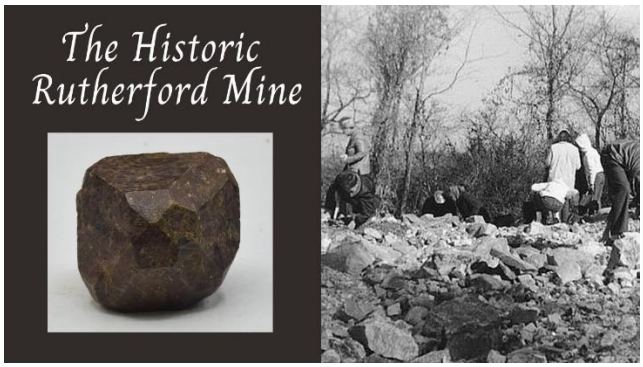
Minerals in Modern Technology

by Geoscience Australia

Editor's note: *The article is from the monthly volunteer newsletter for the Geology, Gems, and Minerals Hall, National Museum of Natural History, Smithsonian Institution (April 2024). Thanks to Sue Marcus for the reference!*

We all use minerals in our daily lives. They are the naturally occurring substances that are the building blocks of rocks. Minerals are necessary for fertile soils and the food we eat; they provide the materials with which we build houses and other structures. Minerals are also used to make machines and the technologies we now rely on in the modern world.

Solar panels, wind turbines, electric vehicles, medical devices, lights, lasers, satellites, fiber optics and batteries as well as mobile phones have all become essential technologies in our lives. New and innovative technologies are always being developed, and each might require new or different mineral resources. Uncommon minerals could become important—even critical—in meeting future needs. … *Read more.*



Scott Duresky

The Rutherford Mine in Amelia, VA

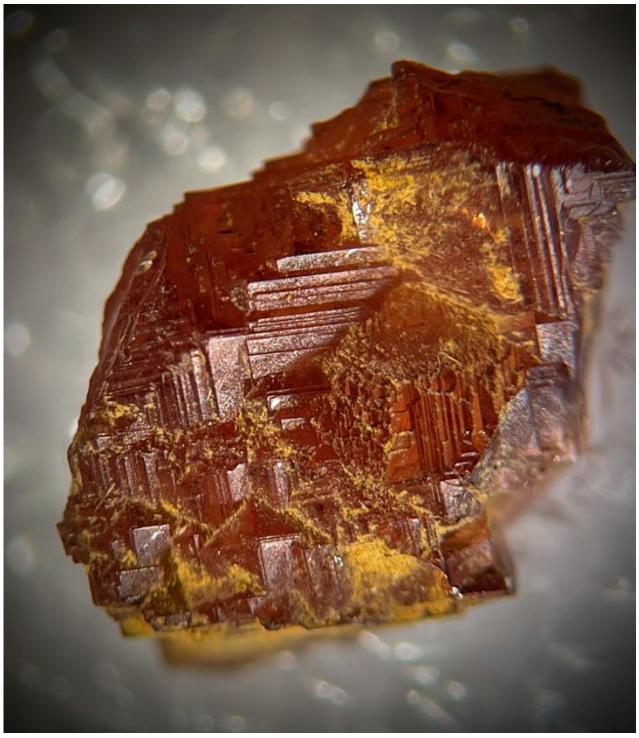
June 3 Program

The Rutherford No. 2 Pegmatite, located in Amelia, VA, was one of the most important pegmatites in North America, with over 40 rare and exotic pegmatite minerals, many of which are represented in Europe's great museums. Join us as Scott Duresky, one of the leading experts on the pegmatite's history and minerals, discusses the results of his extensive research, including new discoveries from the Microlite Group in the Pyrochlore Supergroup. The presentation will include new information about the chemistry of the Rutherford Mine, with new photomicrographs showcasing some of Rutherford's rarer specimens.

A long-time member of the Richmond Gem and Mineral Society, Scott collected extensively at the Rutherford Mine in the 1960s-70s. He recently presented his research at the annual geological symposium sponsored by the Virginia Department of Geological and Mineral Resources. He has donated his entire collection for the purpose of making it available to future generations of collectors and researchers.

In addition to making presentations throughout Virginia and to the New York Mineralogical Club, Scott's projects include working with the Amelia County Planning Commission to determine areas that contain complex pegmatites and should be protected from future development. This could include working with Dr. Eric Pyle from James Madison University to preserve the geoheritage of Virginia's minerals.

Scott will also continue his work with the Lora Robins Gallery on the campus of the University of Richmond on identifying its large display of Rutherford Mine minerals. The goal is to make the display as accurate and aesthetic as possible, as well as representative of mineral species in the pegmatite.



Spessartine, Rutherford Mine, Amelia, VA.
Source: Mindat; photo: Dave Fryauff.

Scott is also developing a shortened version of his presentation suitable for use in classes on the geological sciences. If you have Rutherford Mine specimens, please bring them. Scott will have portable light sources to help you find the special goodies in your specimens that you might have missed.

Christmas in July Extravaganza

Lancaster County Fossil and Mineral Club

Sat, July 27, 9 am-5 pm; Sun, July 28, 10 am-4 pm

Location: Farm and Home Ctr, 1383 Arcadia Rd, Lancaster, PA

Features: Fossils, trilobites, Paleozoic wonders

Joggins Nova Scotia collection on display

Gems, minerals, crystals, hand-crafted jewelry, free expert mineral analysis

Family-friendly educational learning activities

Cash only: Adults $4; Seniors (63+) $3
Students (K-12) $1; Kids (under 5) free

Parking: Free



President's Message

by Jason Zeibel

Greetings from the airport in Albuquerque, NM. I have some time on my hands due to the unpredictable behavior of Mother Nature at this time of year, so it is a good time to write my monthly column.

Unfortunately, I did not have time to explore the beautiful countryside here for minerals because I was here for work on a tight schedule. That did not keep me from enjoying the beautiful panorama of the Sandia Mountains just to the east. I encourage you to travel to this part of the country every so often to take in the wide-open spaces and clean, dry air. For most of us East Coasters, this environment makes for a strange and beautiful change.

Before my trip to New Mexico, I traveled across the pond again to the Netherlands, where I found two stores in central Amsterdam that sell mineral specimens—Sharp Gear and Salt & Stone (fig. 1). Sharp Gear had a limited selection, but Salt & Stone had more to choose from. Both had numerous patrons on a windy and rainy Monday afternoon, but neither offered anything from the Netherlands. In fact, most offerings came from western North America, such as Arizona copper, turquoise, and a host of Mexican agates and geodes.

Because it felt somewhat artificial to buy a specimen from somewhere else, I chose a mineral that wasn't from anywhere. The Salt & Stone had a selection of lab-grown minerals, and I chose a pretty red pruskite (potassium ferricyanide) specimen grown in Poland (fig. 1)—still not from the Netherlands, but at least from the same continent.

In May, we welcomed Chris and Cathy Haefner from Pennsylvania to give a talk on fossils in the Kinzers shale. My takeaway from the talk was that hard work and dedication can definitely pay off in our hobby.







Figure 1—*Jason tracked down two mineral shops in central Amsterdam, Sharp Gear (top right) and Salt & Stone (bottom right), where he bought a lab-grown pruskite (potassium ferricyanide, bottom left) from Poland.*





NVMC Vice President Craig Moore (top) introducing our May speakers. Speakers Chris and Cathy Haefner (bottom) gave a Zoom presentation on fossils of the Kinzers shale in Pennsylvania.

Chris spent years looking through shale specimens in places that others had given up on or that were too deep for most surface collection. It ended up paying off; Chris found lots and lots of trilobites and was able to discover and name a species new to science. What a great story of perseverance!

Please continue to keep an eye out for good speakers and send a note about them to our club VP, Craig Moore, who has the difficult job of finding and coordinating our speakers. If you have a topic that you are excited about and feel motivated to present on it, then let Craig know! We will go out to dinner before the club meeting in June with our speaker Scott Duresky (see the details on page 2 of this newsletter).

I want to give a big thank you to the club member who came to see me after the May meeting and presented me with a specimen of llanite. After I recounted our family's travels to Texas in April for the eclipse and to go to the Perot Science Center in Dallas, she recognized the large mosaic of Texan mineral specimens in one of my pictures. In the dead center is Llano County, home to llanite. Now I am the proud owner of a rock from the heart of Texas (fig. 2).



Figure 2—*Llanite, a uniquely Texan mineral from Llano County, TX. Llanite features rhyolite (a volcanic rock) containing blue quartz phenocrysts.*

Once again, I ask you to please consider bringing something for the Rock-n-Talk segment of our meetings. Extra credit is offered to any of our young geologists. You don't have to give a long speech or cover the entire geologic history of the region—just bring a cool rock, mineral, or fossil and tell where/when you found it!

Please also try to bring a friend to a meeting.

Until then, go visit some of the amazing rock and mineral displays here locally or at some of the amazing museums and science centers around the area. Then you can go outside in the beautiful spring weather and imagine what it would be like to find something like that!

One scheduling note … please note that we do not have our regular meetings in July or August. Go on vacation and find some rocks!

We do, however, have our club picnic in August. This year, it is scheduled for Sunday, August 25, at the Zeibel house; watch for emails closer to the event. Please plan on bringing a side item or desert, as well as rocks to share and trade!

Jason



Meeting Minutes
May 6

by Almas Eftekhari, Secretary

President Jason Zeibel opened the meeting at the Dunn Loring Fire Station with about 20 people in attendance, including 2 visitors—Philip Scruggs and Ellys Malave.

Jason invited folks to help themselves to pizza provided by the club. He announced a decision by club officers to serve refreshments such as pizza at our monthly club meetings whenever we can't meet beforehand at BJ's for dinner with our speaker(s).

Field Trip Co-Chair Katy Johnson recapped our April field trip to view dinosaur tracks at the Luck Stone Quarry in Culpeper, VA. She had Luck Stone brochures available, along with a collection of rocks from the quarry for people to see.

Upcoming field trips include upper Accotink Creek at Country Club Hills Common Park in Fairfax, VA, on Saturday, May 18. Katy will send out details by email (also contained in the May newsletter).

Vice President Craig Moore announced that our June speaker will be Scott Duresky. Scott will give a presentation on the Rutherford Mine in Amelia, VA; as an expert on the mine, he will give us its history, mineralogy, and more. We will meet Scott beforehand for dinner at BJ's (see page 2 of this newsletter).

Jason announced the club's summer break coming up in July and August. However, he and his family will host our summer picnic at their house on August 25. He invited club members to bring specimens for a rock swap, and he asked everyone to bring a side dish or dessert. Kids and pets are welcome!

The club will hold its first meeting after the break on Labor Day, September 2. Our usual meeting place at the fire station will be closed, so the meeting will be virtual.

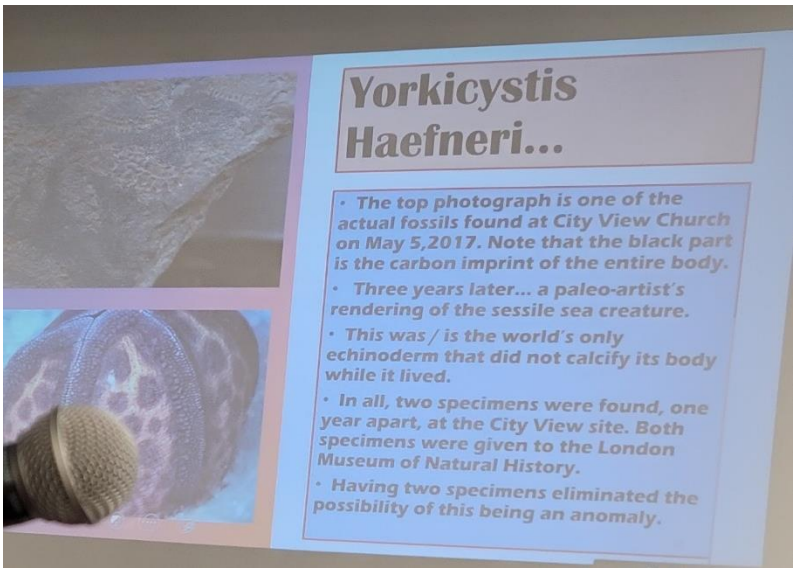
During Rock-n-Talk, Celia Zeibel showed a lab-grown ruby (red corundum) she found in a rock shop in Occoquan, VA. All rubies fluoresce, but this one showed extra fluorescence! Tom Taaffe brought various specimens of fossils from the Kinzers shale and other formations in Pennsylvania (see the photos).

Craig introduced Chris and Cathy Haefner, who delivered a remote presentation on fossils in the Kinzers shale, a 515-million-year-old formation in Lancaster County, PA. Chris is a field biologist and founder of the Lancaster County Fossil and Mineral Club. Chris and Cathy discussed the Cambrian Explosion, during the Cambrian Period about 540-515 million years ago when complex life forms rapidly radiated around the world. The presenters showed examples of various fossils found over the years in the Kinzers shale. They included what Chris and other scientists strongly believe is the ancestor of today's starfish, called the *Yorkicystis haefneri*.

After the lottery for door prizes, the meeting was adjourned.









Muscovite in *Haute Culture*

by Ed Clopton

Editor's note: *The piece is adapted from an article posted by the author on Mindat (6 May 2024). Thanks to Sue Marcus for the reference!*

The March 2024 issue of *Vogue*, spotted in the lunchroom at the medical clinic where I work, contained a short article about the move to replace microplastics with less troublesome materials to impart sheen and sparkle to cosmetic and bath products. In October 2023, the European Union banned microplastics from shower gels and face wash by 2027 and from all cosmetics by 2035 (see Commission Regulation (EU) 2023/2055 – Restriction of microplastics intentionally added to products).

Our familiar friend muscovite has long been used as glitter for cosmetic and decorative purposes, but the enhanced optical possibilities offered by plastics—chiefly polyethylene terephthalate and polyvinyl chloride, interlayered with aluminum and styrene acrylate—made plastic glitter materials immensely popular over the last generation or two. As wearers of sparkly cosmetics and users of pearlescent shampoos shed their makeup and rinse their hair, vast amounts of plastic particles wash down the drain. From there, the particles make their way into every nook and cranny of the biosphere, with biological impacts that are only now being detected and documented.

The *Vogue* article mentioned numerous lines of posh cosmetics that have switched to or always used non-plastic glitter materials. Mica predominates, mostly natural but some synthetic. Some companies take pains to use ethically mined mica that doesn't depend on Third-World child labor. Other products derive their sparkle from synthetic borosilicate materials—the article called them borosilicate "crystals," but it's not clear whether that means borosilicate glass or truly crystalline borosilicates. Neither mica nor the borosilicates biodegrade; they behave in the environment like natural sand or silt rather than gumming up the works as plastics do.

Two Minerals Never Seen Before on Earth Found Inside 17-Ton Meteorite

by Ben Turner

Editor's note: *The piece is adapted from LiveScience (28 November 2022).*

Two minerals that have never been seen before on Earth have been discovered inside a massive meteorite in Somalia. They could hold important clues to how asteroids form.

The two brandnew minerals were found inside a single 2.5-ounce slice taken from the 16.5-ton El Ali meteorite, which was found in 2020. Scientists named the minerals elaliite after the meteor itself and elkinstantonite after Lindy Elkins-Tanton, the managing director of the Arizona State University Interplanetary Initiative and principal investigator of NASA's upcoming Psyche mission, which will send a probe to investigate the mineral-rich Psyche asteroid for evidence of how our solar system's planets formed. … *Read more*.



Field Trip Coming Up

Geology of Upper Accotink Creek

by Hutch Brown

On May 18, 2024, rain forced cancellation of an NVMC field trip in Country Club Hills Common Park in the suburbs of Fairfax city in Virginia. The purpose was to examine the metamorphic bedrock exposed by upper Accotink Creek, part of a major watershed in Fairfax County. **The trip will be re-scheduled (details to be announced).**

In preparation, I visited the site along with field trip leaders Roger Haskins and Sue Marcus.

Here are a few tips and images to help you prepare.

Itinerary

Country Club Hills Common Park is at 10050 Spring Lake Terrace, Fairfax, VA. From Route 29, take Blenheim Boulevard towards Fairfax city, then turn right on Brookwood Drive and left on Spring Lake Terrace; park on the street near the sign for the park.

The park is small (about 7 acres) and heavily wooded, lying along a bend of Accotink Creek. We will gather in the grassy area near the small pavilion. The park has no restroom facilities.

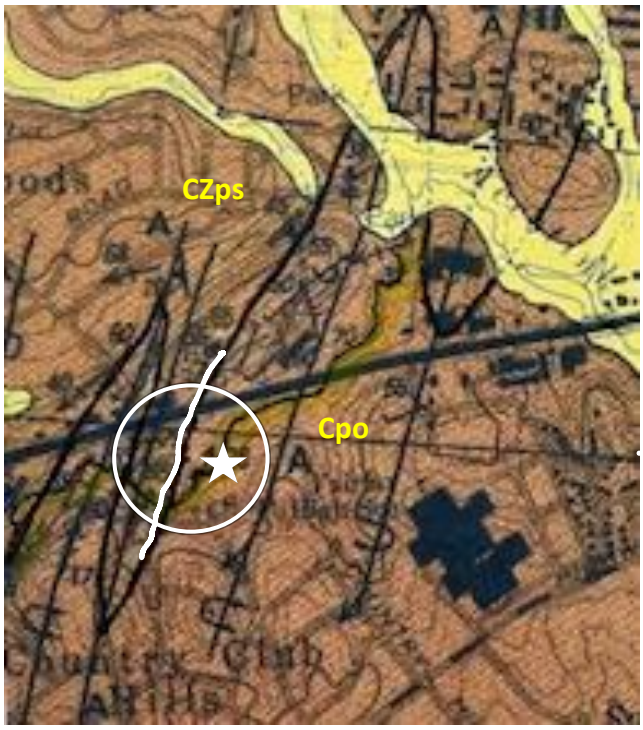
The walk to the creek is short, but the vegetation is dense, so wear appropriate clothing, such as long sleeves and pants. Expect to see poison ivy and possibly ticks and mosquitos, so bring bug spray.

The creek is small and easily waded, but it has no bridges and we will cross it, so wear creek shoes, rubber boots, or other foot gear that you don't mind getting wet. Bear in mind that your clothes might get wet and/or dirty or even a little muddy.

We will walk down to an exposure of the bedrock in the creek, and we will also examine rocks in the alluvium (on gravel bars), so bring a rock hammer and a loupe or magnifying glass, if you have them. We won't be there all that long (probably less than an hour), but bring water to drink.

Bedrock Types

The map (upper right) is a detail from the 1986 USGS geologic map for the Fairfax Quadrangle. I've marked it up so you can more easily see key features, such as Accotink Creek (traced in yellow); the field



trip location in the park (circled); and the bedrock exposure we will go to see (white star).

The map shows two geologic units, but they are hard to tell apart because (inexplicably) they were mapped in nearly identical shades of brown. To help you see the difference, I have highlighted the jagged boundary line between them in black. At upper left is the Peters Creek schist (**CZps**); at lower right is the Old Mill Branch metasiltstone (**Cpo**).

The boundary line between the units cuts straight through the field trip site (circled, with white line). The bedrock exposure we will see (white star) is in the metasiltstone (not the schist), according to the map. However, geologic mapping is imprecise, especially near boundary lines, so the bedrock could be either Peters Creek schist or Old Mill Branch metasiltstone. We could easily see rocks from both units.

According to my USGS sources, the Old Mill Branch unit contains, in addition to metamorphosed siltstone (metasiltstone), smaller amounts of metamorphosed shale (phyllite) and metamorphosed volcanic tuff (metatuff). All three components are described as fine-grained and greenish-gray, and all can have a micaceous sheen.

Shale, a sedimentary rock made up mainly of clay, can undergo grades of metamorphism ranging from slate to phyllite, schist, and gneiss. The Peters Creek

unit contains not only schist but also lesser amounts of mica-rich gneiss. The schist ranges from greenish-gray to gray in color, but it can weather to a reddish-brown. The gneiss is gray. Flecks of mica are visible in both the schist and the gneiss.

Overall, the similarities in greenish-gray color, reddish-brown weathering, and mica sheen or sparkle could make the rocks of both units hard to tell apart and difficult to identify with certainty in the field.

Whether schist or metasiltstone, the bedrock we will see exposed in the creek is brown and uptilted, with very fine layers. Crumbling is typical of the eroding metamorphic bedrock in our area; as it weathers, it turns into our red clay mineral soils. Where it underlies wet soils on streambanks, the bedrock transitions into what geologists call saprolite—a yellowish-brown material that looks like rock but is soft as clay and easily penetrated with a knife.

Here are some photos I took of the bedrock and of metamorphic bedrock pieces in the quartz alluvium. Want to try sticking your knife into some rock?

See you there!











June 2024—Upcoming Events in Our Area/Region (see details below)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 Shows, Macungie, PA; Colfax, NC
2	3 NVMC mtg	4	5 MSDC mtg	6	7 Show, Raleigh, NC	8 Shows, NC, MD
9 Shows, NC, MD	10 GLMSMC mtg	11	12	13	14 Flag Day	15
16 Father's Day	17	18	19 Juneteenth	20 Summer begins	21 Show, Swannoa, NC	22 Show, Swannoa, NC
23 Show, Swannoa, NC	24	25	26 MNCA mtg	27	28 Show, Concord, NC	29 Show, Concord, NC
30 Show, Concord, NC						

Event Details

1: Macungie, PA—Annual show, Pennsylvania Earth Sciences Association; Macungie Memorial Park, 50 Poplar St; Sat. 8:30-3; free; info: Mandy Apgar, pesanewsletter@yahoo.com.

1: Colfax, NC—Annual show, Greensboro Gem & Mineral Club; Piedmont Triad Farmers Market, 2914 Sandy Ridge Rd; Sat 9-5; free; info: KB Montgomery, 336-706-0061; ggmc.rocks@gmail.com.

3: Dunn Loring, VA—Northern Virginia Mineral Club; info: https://www.novamineralclub.org/.

5: Washington, DC—Mineralogical Society of the District of Columbia; info: http://www.mineralogicalsocietyofdc.org/.

7-9: Raleigh, NC—Raleigh Rocks, Minerals, Crystals, Beads and Jewelry Show; NC State Fairground (Scott Bldg), 4285 Trinity Rd; Fri 12-6, Sat 10-6, Sun 10-5; free; info: Ash, 919-257-8915, Jewelpassageshows@gmail.com.

8-9: West Friendship, MD—Annual show; Mid-Atlantic Gem and Mineral Association, LLC; Howard County Fairgrounds, 2210 Fairgrounds Rd; Sat 10-5, Sun 11-4; $6, kids under 12 free; info: Teresa Soltis Schwab, 301-807-9745, eventcoordinator@gemshow.com.

8-9: Gastonia, NC—Annual show; Gaston Gem and Mineral Club; Johan Newcombe Event Center/Habitat for Humanity, 1840 E Franklin Blvd; Sat 10-6, Sun 10-4; free; info: Eric Clymer; Email: clymeric@protonmail.com.

10: Rockville, MD—Gem, Lapidary, and Mineral Society of Montgomery County; info: https://www.glmsmc.com/.

21-23: Swannoa, NC—Show; Mountain Area Gem and Mineral Ass'n; Land of the Sky Shrine Club, 39 Spring Cove Rd; Fri 9-6, Sat 9-6, Sun 10-4; free; info: Richard Jacquot, 828-779-4501, rickjacquot@gmail.com.

26: Arlington, VA—Micromineralogists of the National Capital Area; info: http://www.dcmicrominerals.org/.

28-30: Concord, NC—Annual show; Southeastern Mineral Specimens; Cabarras Arena & Events Ctr, 4751 State Hwy 49, Gold Hall 1; Fri 10-6, Sat 10-6, Sun 11-5; $10 adults, kids 12 and under free; info: Mark Woods, 706-296-9467, imineral@bellsouth.net.

The Northern Virginia Mineral Club

Visitors are always welcome at our club meetings!

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

Please send your newsletter articles to:
Hutch Brown, editor
4814 3rd Street North
Arlington, VA 22203
hutchbrown41@gmail.com

RENEW YOUR MEMBERSHIP!

SEND YOUR DUES TO:
Roger Haskins, Treasurer, NVMC
4411 Marsala Glen Way, Fairfax, VA 22033-3136

OR

Bring your dues to the next meeting.

Dues: Due by January 1 of each year; $20 individual, $25 family, $6 junior (under 16, sponsored by an adult member).

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2024 Club Officers

President: Jason Zeibel
president@novamineral.club
Vice President: Craig Moore
vicepresident@novamineral.club
Secretary: Almas Eftekhari
secretary@novamineral.club
Treasurer: Roger Haskins
treasurer@novamineral.club
Communication: Vacant
Editor: Hutch Brown
editor@novamineral.club
Field Trip Co-Chairs: Katy/Mickey Johnson
fieldtrips@novamineral.club
Greeter/Door Prizes: Vacant
Historian: Kathy Hrechka
historian@novamineral.club
Show Chair: Tom Taaffe
show@novamineral.club
Tech Support: Tom Burke
tech@novamineral.club
Webmaster: Casper Voogt
webmaster@novamineral.club

Club 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—at http://www.amfed.org/efmls) and the American Federation of Mineralogical Societies (AFMS—at http://www.amfed.org).

Meetings: At 7:30 p.m. on the first Monday of each month (except possibly January and September) at the Dunn Loring Fire Station, 2148 Gallows Road, Dunn Loring, VA.* (No meeting in July or August.)

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

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