The Northern Virginia Mineral Club Inc

The Mineral Newsletter

Meeting: November 16 Time: 7:30 p.m.

The meeting will be remote due to the coronavirus pandemic. Details to come.

Scolecite

Junnar, Pune District, India

Photo: Bob Cooke.

Deadline for Submissions

November 30

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

Volume 61, No. 9
November 2020
Explore our website!

November Meeting Program:

Geology of Manitoba

(details on page 5)

In this issue …

Mineral of the Month
Scolecite

by Sue Marcus

Scolecite, our mineral of the month for November, is part of the zeolite mineral group—a large family of minerals. The name comes from the Greek word for worm, *skolex* or σκώληξ.

Now, let's use our imaginations. In 1813, Adolph Ferdinand Gehlen (a chemist from Pomerania in Prussia, now Poland) and Johann Nepomuk von Fuchs (a Bavarian mineralogist) used a blowpipe to test the unknown mineral. To use a blowpipe, you light a flame (commonly an alcohol lamp), then blow air steadily across the flame through a pipe and onto the sample being tested. The air becomes superheated. In the case of scolecite, the sample curls into a worm shape—and thus the name. The two German scientists called the mineral *Skolezit* (SKO lets eet), which later became scolecite.

The type locality is disputed. It has been cited as Kaiserstuhl, a range of volcanic hills in the southwestern German state of Baden-Württemberg. Alternatively, Iceland might be the source of the original material: in 1816, 3 years after describing scolecite, Fuchs mentioned the Faröe Islands in Iceland, along with Staffa in western Scotland, as sources of the specimens he was analyzing. Other, later sources refer to Iceland as the type locality but none mention Scotland.

Scolecite and other zeolites most commonly form in the amygdules (empty vesicles) left by gasses trapped and later released in basalt. The finest scolecite crystals, like many other zeolites, come from the Deccan flood basalts in India. Several sources note that scolecite can be confused with its look-alikes, natrolite and mesolite. These three minerals are chemically related, with scolecite being the calcium (Ca) end member of the series and natrolite as the sodium (Na) end member.

In my experience, scolecite crystals are chunkier—that is, broader and more robust, like fettucine compared to spaghetti or spaghetti to angel-hair pasta. The three minerals are usually acicular, forming tufts or sprays radiating from a central point or area. I think of the typical scolecite specimen as being white, with well-formed crystals often more than 2 inches long and sometimes 4 inches or more. Although the specimen appears white overall, the individual scolecite crystals are clear, appearing white as they converge towards their meeting point, which can be matrix free. This look for scolecite is different than for natrolite and mesolite, which rarely form as long crystals that are transparent and matrix free. Instead, natrolite and mesolite are more likely to form tufts or short, fuzzy

Happy Thanksgiving!

Northern Virginia Mineral Club members,

No in-person social events for now!

Scolecite from the Ahmednagar District, Maharashtra, India, with a "bowtie" of white needle-like scolecite crystals in two sheaves extending away from each other. Photo: Tom Tucker.

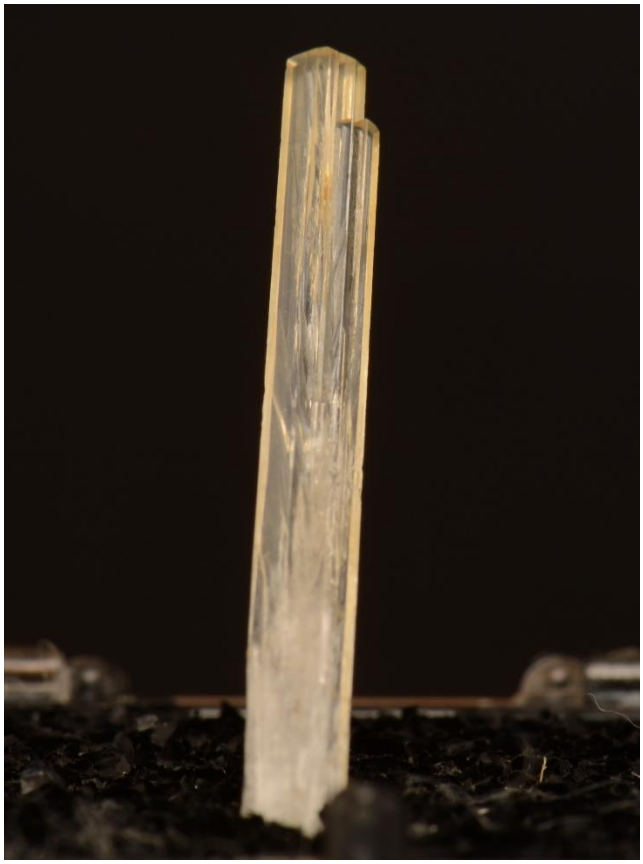
mounds. However, accurate identification cannot be done by sight.

Scolecite is brittle—it breaks easily. When not handled carefully, pieces of your specimen can break off, giving you more pieces of a broken, less valuable scolecite specimen. Scolecite is brittle because the aligned chains of silicate that form its structure weaken the bonds between chains of molecules, making the molecular chains cleave in their alignment. Scolecite crystals can be twinned, with terminations showing the V shape of the twinned crystals.

Although the finest scolecite comes from India, the mineral is not uncommon; it has even been reported from the Vulcan quarry in Manassas, VA. Does anyone have a verified specimen from there? Or one that you would like to have checked as possibly scolecite? Even Mindat doesn't have a photo of a Virginia specimen!

Scolecite is also reported from a roadcut near Doe Hill, VA. The Virginia occurrences are in dikes—that is, magma intrusions into older rocks. The host rock (basalt) is the same as the Indian occurrences, although the way the basalt was emplaced is different.

The quarries around the cities of Pune and Nashik in Maharashtra, India, have provided collectors with beautiful sprays of crystals for several decades. These are probably the most world famous and the most sought after by collectors. They can include transparent sprays, with individual crystals reaching 3 inches or more in length, notably from Pune. This crystal habit is also found at Nashik, where it also forms delicate balls of needle-like crystals. This latter habit is difficult to tell from natrolite and mesolite, also found there. Maharashtra state, which includes a large part of the Deccan flood basalt, also hosts scolecite in other places, such as Jalgaon, where aesthetic sprays have been recovered; and Rankhamb, where specimens were extracted from bored or dug wells. Quarries near Maharashtra's capital city of Mumbai also produce fine scolecite crystals, including some stout individuals that measure at least 4 inches long and almost 1 inch across.



Scolecite from Teigarhorn, Berufjord, Djúpavogshreppur, Eastern Region, Iceland. Photo: Bob Cooke.

Scolecite from the, Ahmadnagar District, Maharashtra, India. Acicular colorless scolecite crystals in a group with pale green apophyllite and very light pink stilbite. Source: Wikipedia; photo: Carles Millan.

As a mineral that forms at low temperatures and contains no rare elements, scolecite is relatively easy, geologically, to create. Teigarhorn, Iceland, has produced both sprays and stocky single crystal forms of scolecite. Localities that have provided collectable specimens include Elk Mountain, northeast of Pigeon Springs, WA, where specimens were found when a logging road was cut. The scolecite from this locality usually formed needle-like crystals in amygdules, although a few larger opaque specimens were also recovered, along with small geodes filled with scolecite crystals. Some Elk Mountain crystals are composed of scolecite in one section and mesolite in another section *of the same crystal*, meaning that the chemistry of the solution changed as the crystal formed. Scolecite occurs with other zeolites in many localities throughout the world.

Mineral collectors often specialize by specimen size (from micromounts to "cabinet" sizes) or by species, locality, or other feature, such as fluorescence. If you consider specializing, think about focusing on zeolite minerals or at least having a collection of zeolites within your larger collection. Why? Because some can be found locally if you enjoy field collecting.

You can also assemble a collection of attractive specimens of diverse minerals, especially smaller but still pretty specimens, through purchases for relatively small sums. Don't forget to include scolecite.

Scolecite can fluoresce blue-white under longwave ultraviolet light and yellow under shortwave ultraviolet light. It is both pyroelectric and piezoelectric. With a pyroelectric mineral, you can polarize it and generate heat energy by changing its temperature through heating or cooling, A piezoelectric mineral can generate electricity when stress is applied.

Natural zeolites can be used as filters for products ranging from beer to swimming pool water. Once scientists determined the molecular general structure of zeolites, they were able to synthesize them. Synthetic zeolites are cheaper and can be designed for separate purposes. Natural zeolites are now left to collectors—all the better for us!

The heaviest and probably largest reported faceting scolecite is a 4.8-carat stone. Scolecite seems to be infrequently cut, probably because it is brittle and has a low refractive index of 1.512 to 1.523, so it won't sparkle. A clear cut stone that doesn't sparkle is boring and

Scolecite from the Pune District, Maharashtra, India. Photo: Bob Cooke.

won't sell. Once again, this is a boon for mineral collectors.

Characteristics

Chemical formula	$CaAl_2Si_3O_{10} \cdot 3(H_2O)$
Crystal form	Monoclinic
Hardness	5–5.5
Specific gravity	2.25–2.29
Color	Clear, white, light pastels of yellow/pink/green
Streak	White
Cleavage	One perfect, one distinct
Fracture	Uneven, though brittle
Luster	Vitreous, silky

Sources

Amethyst Galleries. N.d. (no date). The mineral scolecite.

Barmarin, G. N.d. Database of luminescent minerals: Scolecite.

Coombs, D.S.; Alberti, A.; Armbruster, T. [and others]. 1998. Recommended nomenclature for zeolite minerals. Mineralogical Magazine 62(4): 533–71.

Scolecite from the Nasik District, Maharashtra, India. White scolecite blades with yellow powellite crystal. Source: Wikipedia; photo: Robert M. Lavinsky.

Gehlen, A.F.; Fuchs, J.N. 1813. Über Werner's Zeolith, Haüy's Mesotype und Stilbite. Schweigger's Journal of Chemistry and Physics 8: 353–366.
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Wikipedia. N.d. Adolph Ferdinand Gehlen.
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Wikipedia. N.d. Scolecite.

Roger Haskins

Exploring the Geology of Manitoba, Canada

November 16 Program

Roger Haskins will present a newly completed slide show on life as an exploration geologist in the forests of Manitoba. It's about his life and work more than 40 years ago in some of Canada's most remote locations.

Roger, now retired, had a long and illustrious career in geology and mineralogy, in part with the Bureau of Land Management. A longstanding member of the Northern Virginia Mineral Club, he has served as NVMC Treasurer since 2018.

President's Collected Thoughts

by Tom Burke

After much agonizing (mostly from me...), we now have a full slate of excellent candidates for our election of 2021 club officers. I will soon be emailing to current NVMC members an announcement with the details.

And speaking of the NVMC election, our December online meeting is currently very much up in the air. Normally, the December meeting is a combination of our holiday party and election. But this year the election will be held online via email, and our usual party activities wouldn't really work online. So, we're looking for ideas for fun and relevant activities for our online party, and suggestions would be very welcome. If you have any ideas please email me, president@novamineral.club.

Tom

Elected Club Officer Duties

We have many club officers (see the list on the last page of this newsletter), but only four positions are elected each year:

- The ***president*** presides over club meetings and helps to coordinate club activities, ranging from auctions and the annual club show to field trips and the club newsletter.
- The ***vice president*** assists the president and coordinates programs and speakers for the monthly club meetings.
- The ***secretary*** takes minutes at club meetings for the newsletter and summarizes presentations at club meetings, again for the newsletter.
- The ***treasurer*** collects club dues, keeps records of club members, and handles all club financial transactions.

Self-nominations are nominations! Fresh ideas from newer members and the experience of valued longer term members are all welcome in officer positions for the leadership we will need in the future. Former club officers are willing to mentor new officers as needed. Please send your nomination(s) to me (Tom Burke) at president@novamineralclub.org.

Club T-Shirts Available

Presents for all occasions! Our NVMC T-shirts are available in sizes 3T (very limited) to S for $15 each. Contact Sue Marcus at akumaldreams@gmail.com.

NVMC Hall of Fame: Club Officers, 2011–2020

Year	President	Vice President	Secretary	Treasurer
2020	Tom Burke	Ti Meredith	David MacLean	Roger Haskins
2019	Sue Marcus	Ti Meredith	David MacLean	Roger Haskins
2018	Bob Cooke	Ti Meredith	David MacLean	Roger Haskins
2017	Bob Cooke	Ti Meredith	David MacLean	Rick Reiber
2016	Bob Cooke	Ti Meredith	David MacLean	Rick Reiber
2015	Wayne Sukow	Kathy Hrechka	David MacLean	Rick Reiber
2014	Wayne Sukow	Kathy Hrechka	Ti Meredith/ Laurie Steiger	Kenny Loveless/ Rick Reiber
2013	Rick Reiber	Kathy Hrechka	David MacLean	Kenny Loveless
2012	Sue Marcus	Barry Remer	Kathy Hrechka	Rick Reiber
2011	Barry Remer	Sue Marcus	Kathy Hrechka	Rick Reiber

Member Profile

How I Became Interested in Rocks

by Sue Marcus

Editor's note: *All of us have a backstory, so why not share a few paragraphs? Up to 500 words or so—more if you have a longer story to tell! A photo of you would be nice too! Just send your contribution to editor@novamineral.club.*

I started collecting rocks on the playground when I was in the sixth grade, and one rock led to another. I wondered why each one looked the way it did.

A friend of my mom's gave me the mineral collection her son had when he outgrew it. I never outgrew mine!

To learn about what I'd been given, I contacted a mineralogist in Bethesda, MD (I lived in Wheaton at the time). His name was Dr. Edwin Roedder, and I didn't know he was an eminent mineralogist until decades later.

My parents would take me to his home, where he'd quiz me. Often, if I could identify the mineral specimen, I could keep it! I learned to guess sphalerite and learned what it looked like in its many forms. Turns out that Dr. Roedder was studying fluid inclusions in sphalerite to deduce the history of the emplacement of the lead–zinc deposits in the central United States.

The Montgomery County Gem, Lapidary, and Mineral Society was also an early source of mentors for me. I became a member of their active junior group, rising to president at some point. I learned from the adults. And we took great field trips to many now-closed quarries, like Hunting Hill/Rockville and the Chantilly quarries, even the Morefield and Amelia mines. I remember a wet Mother's Day at the Rockville quarry, with the moms as happy as anyone because we found the lovely garnets for which the quarry was known. I drove into that quarry on my learner's permit!

My dad was highly competitive. He pushed me to compete in mineral shows, which I did; we as a family also did (he specialized in fossils) at the Montgomery County show as well as in regional and national federation shows. In my first competition, I was blasted by the judges for decorating my case of minerals with tiny vases of flowers. No artsy stuff—strictly minerals, said the judges.

In high school Civics class, we had to do a community service project. Mine was volunteering at the Smithsonian's Mineralogy Department under Paul Desautels and helping to curate the Carl Bosch collection. The first moon rocks came in while I was there, and I was told that they were put into a vault so Paul wouldn't trade them.

There was also a drawer marked "Lost in Collections." What it really meant was that someone had sent something to the Smithsonian for identification, but they couldn't recall who so they couldn't send it back.

I wanted to be a mineral museum curator and travel the world spending someone else's money to buy minerals. Unfortunately, I was given bad advice on the courses I'd need to take, which discouraged me. I learned that, worldwide, there were only two job openings in the mineral museum field each year. So I got my bachelor's degree (another story) and became a regular economic geologist.

Michigan's Grand Valley State College (now University) gave me a husband and a degree. My collecting idled while studies and work took precedence. I did enjoy collecting Green River fish fossils while at field school in Wyoming.

After college, we moved to Manitoba, Canada, where Roger enrolled in graduate school and I got a job working as a lab tech for a mineralogist, a crystallographer, and a sedimentologist. The mineralogist was Petr Černý. I worked on the rocks Frank Hawthorne used for his doctoral dissertation under Dr. Černý. Dr. Hawthorne was the dissertation advisor for Dr. Mike Wise,

Grossular garnet from the Rockville Quarry in Maryland. Source: The Arkenstone; photo: Joe Budd.

now at the Smithsonian. Roger and I collected selenite (gypsum) at the famous Winnipeg Floodway, although nothing we found was exceptional. We also collected massive but unusual pegmatite minerals from the TANCO (Tantalum Mining Corporation of Canada) pegmatite in Manitoba.

We moved to Riverside, CA, where we both eventually worked for the Bureau of Land Management. That move was disastrous for our mineral collection. The movers wrapped several specimens together with no padding or protection, so I ended up with more specimens than when we started. For example, a lovely golden barite specimen from Gilman, CO, became two smaller specimens. The same movers packed one of Roger's self-made ship models on its stern, then put another on top of the bow, causing extensive damage.

When we confronted the insurance adjuster, he was willing to pay Roger whatever Roger estimated the value of the ships' damage to be—no debate. But with the minerals, he argued that they had become older, so their value had declined! Yes, that was really his reasoning. I had a mineral dealer write a letter establishing the absurdity of his position, and the insurance company paid for the damage, but of course the specimens could not be replaced.

We lived near the Riverside Quarry, famous for rare contact metamorphic minerals. We came home with blue calcite, although I don't recall any rarities. While living in Riverside, we collected dumorturite, but borates were the most fun. We went underground at the Billie Mine, where we collected colemanite.

We also collected ulexite, colemanite, and other minerals at Boron, CA, and we visited Trona, CA, for hanksite crystals. My best swap occurred at an event near Trona, when I spotted a new find of Yukon lazulite. I had a Brazilian eosphorite that I offered to swap. The other person said, "I assume that you want two lazulite specimens for your eosphorite?" I'd have been thrilled with an even swap; though taken aback, I was greedy and said yes.

When we moved to Sacramento, CA, our jobs and parenting precluded pursuit of our mineral interests, although I took my Mom panning unsuccessfully for gold in the American River. We also collected fossil crabs near Monterrey.

We moved back East, initially to Lake Ridge, VA, and then to Fairfax. We joined the Gem Hunters Club in Manassas and the Northern Virginia Mineral Club. By then, most of the local quarries had closed to collecting, and the silver pick (money) had become a more appropriate tool for acquiring high-quality specimens from locations worldwide.

I joined the U.S. Geological Survey and was setting up an exhibit at an event. I needed to borrow a knife, and there was my former mentor, Dr. Roedder.

I said, "Dr. Roedder, do you have a knife I may borrow to cut something?"

Dr. Roedder looked exactly like a stereotypical German mineralogist—with glasses and sideburns merging into a beard. His eyes twinkling, he put out his arms and broke into song and dance in the middle of the exhibit hall, singing the show tune "Call Me Doctor" to all of us setting up exhibits!

I visited friends in Botswana, including a remote sensing geologist who was a professor at the University of Botswana, though originally from England. I took the opportunity to go underground at the Selebi-Phikwe nickel mine and brought back samples. The mine had a cage of live canaries—I didn't ask if they were used for gas detection. The ore was heavy, but carry-on luggage wasn't weighed back then, so I put about 30 pounds of rock in my carry-on bags!

I also visited Jwaneng, now the world's richest diamond mine. It was a bizarre experience and tale for another day; suffice it to say that I saw no diamonds there. During a brief stop in Johannesburg, South Africa, I found a mineral shop and bought a mineral that "became" sturmanite—it might have been named but the name wasn't yet published when I bought it.

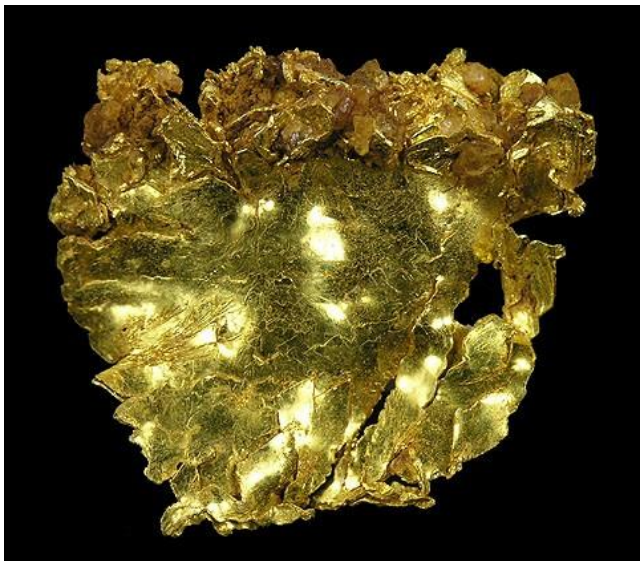
Lazulite from Rapid Creek, Yukon.
Source: Wikipedia; photo: Ra'ike.

We bounced back West, this time to Reno, NV. There was a small but active club of collectors, along with a large and active association of professional geologists, with some overlap. Dr. Fred Pough was a member of the mineral club when he was in town; though elderly, he traveled frequently. He joined us on field trips—lucky us: he could distinguish malachite from pseudo-malachite.

We collected orpiment and realgar at the Getchell Mine. We got a flat one time in the pit on a holiday weekend while our infant daughter was being babysat by the mine geologist's daughter. We had to stop collecting early to limp back into Winnemucca, hoping to get to a repair shop before they closed for the long weekend. We made it by minutes and collected daughter Genny.

Another highlight was a trip to the Round Mountain Gold Mine with Tom Lugaski of the University of Nevada museum. The mine geologist showed us the mine's collection of crystalized gold, which was literally awesome. Then he took us to a gouge zone in the active mining area where we could dig gold out of the mud (gouge) along a fault. We couldn't keep it, but it was thrilling.

Gathering up our boxes of minerals and books, we moved East again. We'd tried to train professional movers to treat the fragile specimens as *minerals*, not rocks, and we'd gotten used to, "What do you have in here, rocks?" But we'd learned to pack the most fragile specimens ourselves and take them with us.



Gold from the Round Mountain Mine, Nye County, NV. Source: Wikipedia; photo: Rob Lavinsky.

Orpiment from the Twin Creeks Mine, Humboldt County, NV. Source: Wikipedia; photo: Rob Lavinsky.

Back in Fairfax, we settled into our old neighborhood and rejoined the Northern Virginia Mineral Club. We still have boxes of rocks and minerals from earlier parts of our lives, although acquiring new specimens is so much fun!

I've been advised to collect smaller specimens. Lately, I've tended towards acquiring specimens about 2 to 5 inches in size. Although I know that micros and thumbnails are more practical, who said that collecting—at least my collecting—is practical?

When I have the time and the Smithsonian is open, I enjoy doing "Minerals Matter" demonstrations, showing the public the uses of minerals and how our decisions about their use have worldwide economic and environmental consequences. People of all ages and speaking all languages can understand a pencil and a chunk of graphite.

Let's talk minerals!

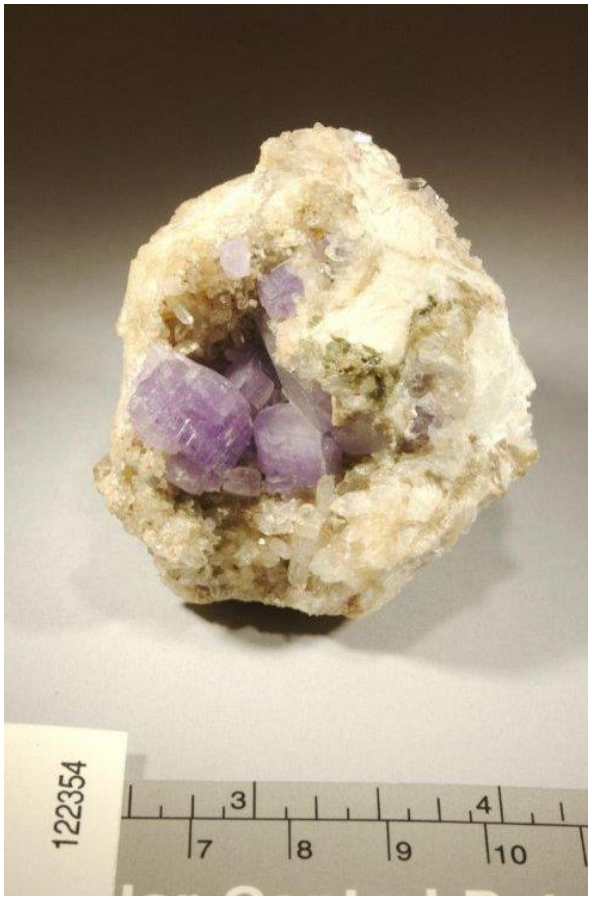
A Favorite Mine: The Harvard Quarry

by Mike Kaas

Editor's note: The article is adapted from ***Mining History News*** (quarterly newsletter of the Mining History Association), Fall 2020.

Every rock and mineral collector has a favorite mine or maybe even several. Many are located in obscure places, some in foreign countries that might never be visited by other collectors; however, they all have interesting histories and great minerals.

One of my favorites is the Harvard Quarry, located on Noyes Mountain near the tiny village of Greenwood in Oxford County, ME. That area of Maine is known for its many granite pegmatite mines, which produced rather mundane minerals. Feldspar is used in ceramics and also kitchen cleanser. Before plastics, mica was used in electronics, household appliances containing heating elements, and home heating stoves.



Fluorapatite. All images of minerals are courtesy of the Harvard Museum website.

Top: *Aerial view (Google Earth) of the Harvard Quarry at the top of Noyes Mountain, Greenwood, ME. The view of the scenic Oxford Hills from the mine is spectacular.* **Bottom:** *The feldspar mill in West Paris, ME (1925–60s), a few miles from the Harvard Quarry, produced pure feldspar for ceramics. (Maine Geological Survey.)*

However, as mineral collectors know, pegmatites sometimes also contain an array of rare and unusual minerals, including semiprecious gemstones like tourmaline and aquamarine. Mindat lists 33 mineral varieties found at the Harvard Quarry. During World War II and the Cold War era (1940s–50s), the federal government purchased mica, beryllium minerals, and columbium/tantalum minerals for defense purposes, all from pegmatites.

The quarry started in the late 1800s. It got its name from Harvard University, which operated the mine in 1923–24 for the study of pegmatite formations. The Harvard Mineralogical and Geological Museum has a wonderful collection from the quarry, but they only saved the choice specimens. Everything else ended up

Smoky quartz.

Lepidolite.

Almandine garnet.

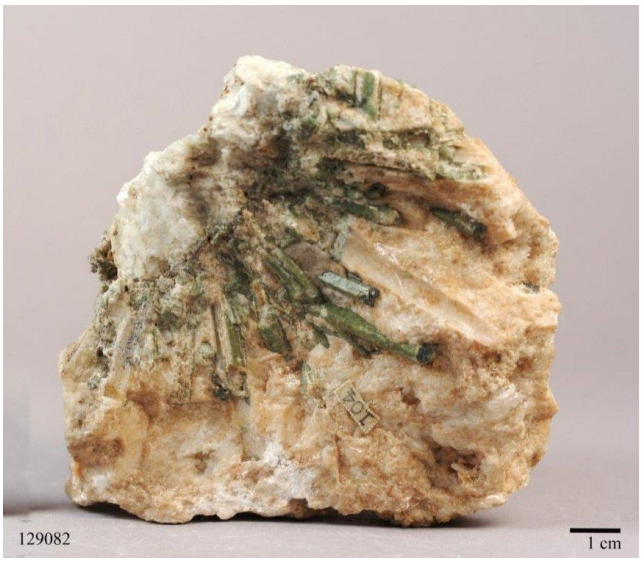
on the mine dump. The specimens shown in this article are courtesy of the museum website. Check the website for photos of dozens of other specimens from the Harvard Quarry.

As a kid from southern New Jersey, I spent summers in Maine and got interested in collecting rocks and minerals in the pegmatites. Stanley Perham operated quarries in the area and also a local rock shop, Perham's Maine Mineral Store, in West Paris, ME. He let anyone collect minerals at his mines, which included the Harvard Quarry. There were no fees or legal wavers in those days. Even a youngster could find very cool minerals there. Perham's daughter Jane, author of *Maine's Treasure Chest: Gems and Minerals of Oxford County*, operated the rock shop until it closed in the 2009.

The Harvard Quarry got me interested in mining. I soon discovered that you could order tons of free or low-cost publications from the state and federal geological surveys and mining bureaus. Many were loaded with information on possible collecting sites and their mining history. I was hooked on mining. While studying mining engineering, I had summer jobs at mines in Colorado, Pennsylvania, Minnesota, and New Jersey, each area with a different type of mining and different minerals.

During my working years, I had the good fortune to be able to visit dozens of mines and collect a few specimens along the way. I was always interested in the ore minerals, which in most cases are massive rather than nicely crystallized. Modern bulk mining methods and deeper ore bodies mean that most crystals end up in the crusher.

Spodumene.



Elbaite tourmaline.

I also gained a greater appreciation for mining history. Two books in particular fueled that interest.

Stan Dempsey and Jay Fell's *Mining the Summit* tells the story of mining in Summit County, CO, just north of Leadville, with its hundreds of old mines and the gigantic Climax Molybdenum Mine.

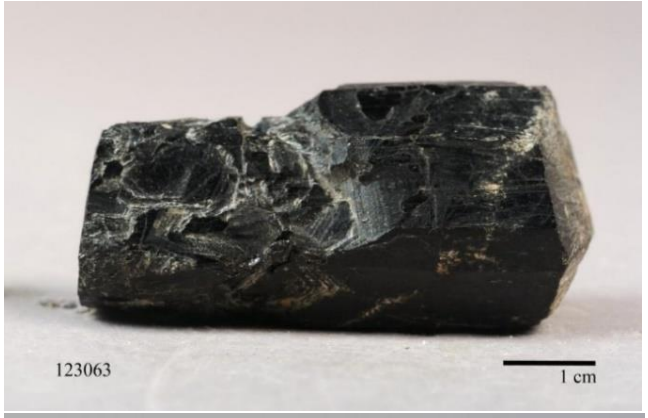
The second book, Charles Dew's *Iron Maker to the Confederacy*, sparked my interest in the mining history in our current "backyard" of Virginia. My wife and I spent a couple of years tracking down the locations of dozens of historic iron furnaces and mines throughout the state. Virginia was an important iron producer until around 1925, when competition from Minnesota and Michigan mines shut down the industry. Some of the old furnaces are in amazing shape. Most of the mines have been reclaimed by Mother Nature.

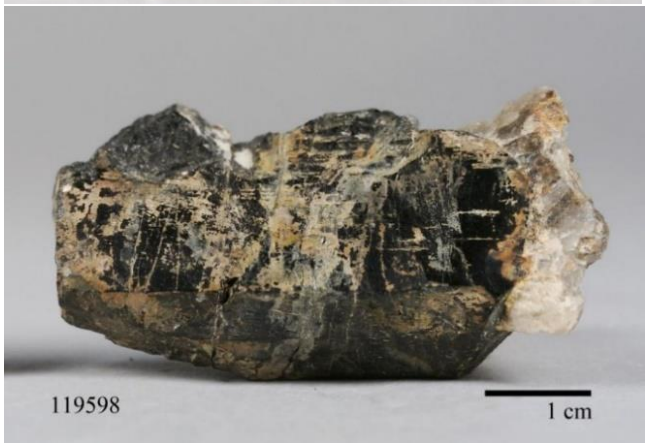
None of this would have ever happened in my life had it not been for those early visits to the Harvard Quarry. That's why it is one of my favorites.

All the Maine pegmatite mines are pretty quiet these days. Now and then, a miner hits a pocket of tourmalines. Growing demand for lithium may eventually cause a rebirth of mining.

Fortunately, people can hike to the quarry on the new Noyes Mountain Preserve Trail developed by the Western Foothills Land Trust.

And mineral collecting is still permitted!





Top: *Schorl tourmaline.* **Bottom:** *Columbite.*

2020 Newsletter Contest Results

by Hutch Brown, Editor

Each year, the regional and national club federations hold a contest for newsletters from the previous year. The 2020 contest winners reflect newsletters and articles from 2019.

Our club has participated in the contest since before I joined in 2012. For the 2020 contest, we entered the newsletter itself and three articles, all "Mineral of the Month" features. All three articles competed in the category for original educational articles (short research pieces incorporating historical, mineralogical, and/or geological information).

Our regional federation, the EFMLS, judges the submissions first, then sends the top three winners in each category to the national federation, the AFMS, for the national contest. At the regional (EFMLS) level, our club's submissions placed as follows:

2nd place: Sue Marcus, "Mineral of the Month: Cassiterite" (April 2019)

3rd place: Bob Cooke, "Mineral of the Month: Barite" (January 2019)

4th place: Sue Marcus, "Mineral of the Month: Galena" (September 2019)

Jeff Guerber's article "Researching a Mineral With a Historical Label" (September 2019) took the EFMLS trophy. Jeff submitted the original version, which appeared in *The Mineral Mite* (newsletter of the Micromineralogists of the National Capital Area). Kathy Hrechka's article "Rochester Mineralogical Symposium," which also appeared in *The Mineral Mite*, took

fifth place. Kathy is a longstanding member and officer of our club, so the Northern Virginia Mineral Club swept all five top awards for original educational articles in the EFMLS contest for 2020.

Congratulations, everyone!

In addition, the December 2019 issue of *The Mineral Newsletter* won the EFMLS trophy for 2020 and took third place at the national level. That's a tribute to everyone who contributes to our newsletter, which is highly regarded in both EFMLS and AFMS.

The entire club can feel proud!

Junior Activities

Helping Your Club Kids Find Fun in Communicating

by Jim Brace-Thompson, AFMS Juniors Program Chair

Editor's note: *The article is adapted from* A.F.M.S. Newsletter *(February/March 2019), p. 3. I would like to encourage members to submit articles for the newsletter from kids, even if the kids are not their own—and not club members! I promise to submit any article for judging in the annual EFMLS/AFMS bulletin editors' contest.*

I never thought I'd be one of those stodgy old-timers who proclaims, "I remember when!" I cringed and rolled my eyes whenever I heard them. "I remember when we had 200 exhibitors scrambling to enter competition. We had to beat 'em away with sticks!" "I remember when so many people wanted to join our club, we had to beat 'em away with sticks!" "I remember when 500 people showed up at a field trip! Why, we had to beat 'em away with sticks!"

I may have rolled my eyes and thought to myself, "Yeah, right," but alas, my rolling eyes have opened, and that is what I have become. To explain …

I've just finished the always enjoyable opportunity of judging junior articles for the annual AFMS Bulletin Contest. This year, the task was pretty easy given that we saw entries from just three of the seven regional federations, with a grand total of only five junior articles.

After mailing in this year's results, I was conducting some good old-fashioned Swedish death cleaning and came across a binder I used in judging articles back in 2007. After blowing away the dust and creaking open the binder, I found an eye-opening number: we had 25 junior articles entered a dozen years ago!

Ah yes, I remember when …

To all regional federation newsletter editors: please share this article and encourage all local clubs and societies within your federation to offer carrots (not sticks) to pebble pups and junior members to write a brief article or even a paragraph telling about a recent rock- of fossil-related field trip or experience, a museum visit, a favorite fossil or mineral (for instance, the child's birthstone), or anything rock related. CFMS President Tony Fender declared 2019 to be "The Year of Communication" as his presidential theme. It's a good theme that we all should pursue each and every day of each and every year.

When kids do write articles, each one should be sent in to the annual bulletin contests. Even if kids don't win, the very process of writing will help them learn while stimulating their active participation as club members, giving them pride as they see their words printed in their local newsletter. Plus, they can earn a Communications badge via the AFMS/FRA Badge Program regardless of how they do in competition.

Do not beat them away with sticks! Encourage kids along and help them learn by writing and communicating. Who knows? They just might have fun!

Safety Matters

Top of the List

by Ellery Borow, EFMLS Safety Chair

Editor's note: *The article is adapted from* EFMLS Newsletter *(October 2020), pp. 6–7.*

Just spoke with a physician who is head of a state's Center for Disease Control. One of the points made was that masks matter when it comes to preventing COVID-19 transmission—and so does other facial protection. Some notes:

- Keeping physically distant (over 6 feet) is good but sometimes insufficiently for safety due to aerosols and air currents.
- Mask wearing is a highly recommended complement to social distancing.
- The longer the exposure time to other people (even outdoors), the greater the risk.

Masks need not be hospital/surgical grade to protect you during brief passing contact. However, for contact times over 10 to 20 minutes, consider wearing a higher grade mask than those commonly sold in stores and catalogs or made at home. Because current commercial offerings adhere to no fixed standards, caution is warranted. Greater caution is advised for most homemade designs and fabrics.

Masks should fit well around the chin, cheeks, and especially the nose. Better masks have bendable strips that allow the mask to be contoured around and snugly fit the nose area. A tight-fitting mask affects airflow and levels of oxygen and carbon dioxide, so check with a professional for the right fit as well as suitability.

Masks are made with numerous fabrics. Some fabrics are better than others for preventing COVID-19 transmission. If in doubt, consult with a professional or use a surgical or N-95 mask.

Homemade masks convey some measure of protection but must be worn correctly. A mask must fit well and be worn to cover the mouth and nose. A mask is not an ornament but rather a measure of your commitment to safety. That said, many masks come printed with various imaginative designs. Your mask can make a statement.

Another mask to consider is a face shield that extends from the forehead to below the chin and from ear to ear. A face shield adds protection; choose your mask first, then consider adding a face shield. Goggles with side shields and eyeglasses also offer a modicum of protection. Combined with a mask, face and eye coverings aid in preventing COVID-19 transmission, especially when in prolonged contact with others. Remember, people who are asymptomatic can transmit COVID-19.

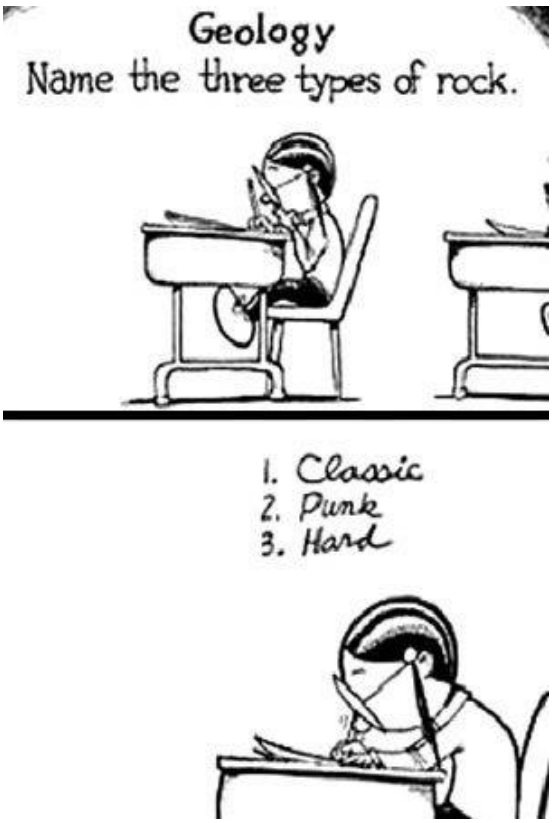
If you have difficulty breathing while wearing a mask, check with a professional; you might have an undiagnosed condition that needs treatment.

Use your commonsense in judging when you need additional protection. There are no one-mask-fits-all scenarios.

In addition to wearing a mask, consider wearing gloves, washing your hands, and social distancing. Sources of additional information include the World Health Organization, Centers for Disease Control, National Institutes of Health, the National Institute of Allergies and Infectious Diseases, the National Institute of Occupational Safety and Health Checking, and your own personal and trusted sources as well as your state and local government sources.

Your safety matters. Please be extra cautious in the current COVID-19 environment.

Disclaimer: This article does not profess to offer medical advice but merely compiles data from several sources about masks and COVID-19.



The Rocks Beneath Our Feet

A Quartz Outcrop in Fairfax, VA

by Hutch Brown

Editor's note: *The article is a slightly revised reprint from* The Mineral Newsletter, *May 2015, pp. 9–12.*

When I was eleven, our family moved into one of the first suburban developments near what is now the Annandale campus of Northern Virginia Community College (which was entirely forested at the time). The area was mostly woods and old farmfields drained by creeks, with some of the last remaining habitat for bobcats and whippoorwills in our area (I remember both).

It was great for an outdoorsy kid like me. I would roam the woods and fish the creeks with my friends.

One of our discoveries was an outcrop of white boulders on a wooded slope overlooking Long Branch creek near its confluence with Accotink Creek. We called the outcrop Rock Fort, and we used its walls, crevices, and ramparts to stage mock battles.

Today, only a narrow greenway park is left along the creek, overgrown with invasive weeds. But Rock Fort is still there on the edge of county land, sandwiched between two suburban lots.

And, despite the trash and graffiti—signs of urban neglect—Rock Fort is still an impressive jumble of massive boulders made up of pure white quartz with tinges of red, pink, and orange in places. The outcrop is huge, covering an area the size of a small urban park, with boulders more than 14 feet high.

The outcrop is located in Virginia's Piedmont geologic province, where the predominant rock is metamorphic. So how did the quartz get there?

Quartz Lens

Rock Fort is embedded in a dark gray metamorphic rock called Lake Barcroft metasandstone (fig. 1). According to my sources, the metasandstone is variable in composition, ranging from a relatively coarse metaarenite (arenite is derived from *arena*, the Latin word for sand) to a finer grained metagraywacke (graywacke is an intermediate rock between sandstone and shale). Both formed from sands and silts that ocean currents laid down in the Iapetan Ocean, forerunner of the Atlantic Ocean hundreds of millions of years ago.

A massive quartz outcrop on a slope in Annandale, VA, about an acre in size. **Top:** *View from below of a boulder more than 14 feet in height.* **Bottom:** *View from the top of the site, a massive jumble of white quartz boulders with shades of red, pink, and orange (the black might be lichens and/or manganese oxide from weathering).*
All photos: Hutch Brown.

Figure 1—*Detail of a geologic map of the Fairfax quadrangle. The circled quartz lens (purple) crops out as Rock Fort on the slope above Long Branch creek. Yellow = alluvium; brown = Lake Barcroft metasandstone; burgundy = Indian Run sedimentary melange; lilac = Falls Church tonalite (an intrusive igneous rock similar to granite). Source: Drake (1986).*

Geologists believe that the Lake Barcroft metasandstone is early Cambrian or late Proterozoic in origin, making it more than half a billion years old. It started as sedimentary rock in a deep-sea trench at the edge of a volcanic island arc formed by an oceanic plate colliding with the proto-North American continental plate. (Island arc counterparts today include the Antilles Islands—such as Jamaica and Puerto Rico—on the outer edge of the Caribbean Sea.) Geologists call ancient island arcs "terranes," and this one is known as the Taconic Terrane.

About 450 million years ago, the Taconic Terrane slammed into proto-North America in a great mountain-building event. The Taconian Mountains have long since eroded away, but the underlying terrane, including the Lake Barcroft rock, is still sutured onto the continental plate.

About 320 million years ago, the proto-African continent closed the Iapetan Ocean, colliding with proto-North America and riding up over it to form a mountain chain as high as the Himalayas. In the process, it broke off entire sheets of underlying bedrock and transported them to the west on great thrust faults, folding and fracturing them and forming the Piedmont geologic province as we know it today. The bedrock underwent tremendous metamorphism, some of it becoming the Lake Barcroft metasandstone.

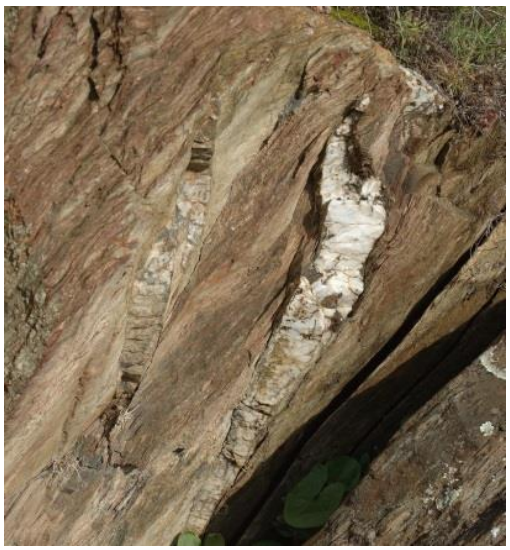
Lens Formation

So how did the Rock Fort quartz lens (circled in figure 1, partly hidden under alluvial debris) form in the Lake Barcroft bedrock? At least two possibilities exist, both associated with hydrothermal processes during mountain-building events.

One possibility is a quartz intrusion. Surface water seeping through cracks in the rock percolates deep underground, and porous rock layers such as sandstone can contain substantial amounts of groundwater. During mountain-building events, rising magma heats the water underground, saturating it with minerals and forcing it through cracks in the rock back up toward the surface.

Tectonic forces fold and fracture the overlying rock, creating fissures—some of them huge—for the superheated water to fill. Near the Earth's surface, the water gradually cools and the minerals precipitate out into the fissures; the chief mineral in the Lake Barcroft rock is silica, forming veins of massive quartz.

Another possibility is that the parent rock—whether sandstone or graywacke, whether sedimentary or already partially metamorphosed—underwent pressure from tectonic forces during mountain building, secreting quartz to form a thickening vein. Quartz veins that formed in this way, some of them massive, are common in metamorphic rocks. The process is called lateral secretion, and the result is known as segregation quartz. At Rock Fort, the quartz vein is absolutely enormous—many tens of feet thick.



Quartz lenses in schist, an example of lateral secretion of silica during a mountain-building event that formed segregation quartz. Source: The Quartz Page; photo: A.C. Akhavan.

Rock Fort quartz in various hues.

Some quartz veins contain minerals in addition to silica. The northern Virginia Piedmont is known for its gold-bearing quartz, and quartz veins in our area sometimes contain pyrite and black tourmaline. At Rock Fort, I checked many exposed rock surfaces but found only milky quartz, the cloudiness caused by minute inclusions of gas or liquid.

In places, the quartz ranges from pink, to orange, to reddish brown due to trace amounts of iron or manganese in the rock. Manganese oxide can form black surfaces on quartz, a possible explanation for all the black surfaces you see at Rock Fort. However, a geology instructor at Northern Virginia Community College (Joe Marx) has attributed the black surfaces on quartz outcrops in our area to lichens.

The great quartz blocks loom over the site because the surrounding metamorphic rock is more vulnerable to weathering. It forms a red clay soil around Rock Fort, which owes its durability to the erosion resistance of quartz.

Other Quartz Outcrops

I hadn't thought of Rock Fort in nearly 50 years. What jogged my memory was a sign I saw along the W&O trail in Arlington, where I live. It was a trail marker pointing out a nearby rock formation called Brandymore Castle, another quartz outcrop on a hill overlooking a creek—in this case, Four Mile Run.

Before seeing Brandymore Castle, I decided to rediscover Rock Fort, and I was duly impressed. Rock Fort has dozens of boulders filling an area the size of two suburban lots (to the doubtless dismay of the developer), with boulders more than twice my height. As

Rock Fort (top), shown only in part, is far larger than Brandymore Castle (bottom), shown almost in its entirety. You can imagine kids having great fun in the former—in the latter, not so much. Photos: Hutch Brown.

kids, we really did use it as a fort, forming teams and utilizing its heights and recesses for defense and sneak attack.

By contrast, Brandymore Castle was disappointing. It fills a small area (perhaps 50 by 50 feet), with the tallest boulder no more than 5 feet high. To call it a castle is a stretch, whereas (in my humble opinion) Rock Fort was aptly named by us kids.

However, Brandymore Castle has a history. As a landmark, it was used as early as 1724 to survey property boundaries. Clearly visible on a hill at a time when Arlington was mostly open farmland, it might have resembled a ruined old castle, with Four Mile Run at the base of the hill as a moat.

Like Rock Fort, Brandymore Castle is part of a quartz lens embedded in yet another layer of metamorphic rock, this one called the Sykesville Formation. Quartz outcrops in the Piedmont are fairly common; you can

easily pick them out on any geologic map (they are typically long purple lenses). Arlington has only one (Brandymore Castle), but most map quadrangles in northern Virginia contain several. Unfortunately, the quartz seems to be largely underground (or on private land); I have yet to discover any other large outcrops.

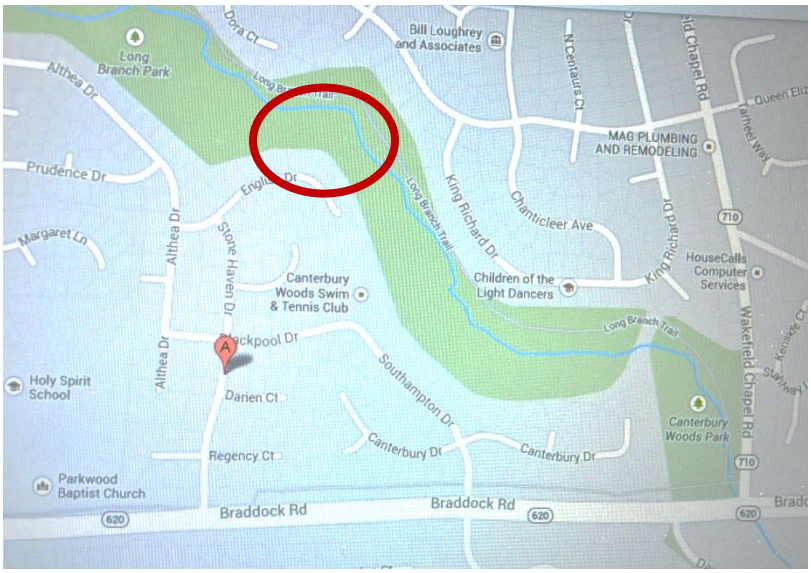
Visiting Rock Fort

Rock Fort has obviously been forgotten, given over to trash, graffiti, English ivy, and other invasive weeds. The greenway trail is on the opposite side of Long Branch; no marker announces Rock Fort, as it does for Brandymore Castle—no bridge over the creek invites you to see it, and no trail leads up to it.

Yet it is a striking geological feature, and it is easily accessible, right off a quiet street with plenty of parking in the Annandale neighborhood of Canterbury Woods. Because there is no trail, you will need to bushwhack down a moderately steep hill, but not far. The best time is from late fall to early spring, when the underbrush and poison ivy aren't an issue.

To get there, take Braddock Road toward Fairfax. After crossing I–495, watch for Wakefield Chapel Road on the right. After the intersection, take the second right onto (aptly named) Stone Haven Drive and follow it to the end. Turn right onto English Drive and look for the gap between houses on the left.

The gap leads into Long Branch Park. Rock Fort begins just a few feet away from the sidewalk and reaches halfway down the ridge toward the creek.



Location of Rock Fort (circled) along Long Branch in Annandale. The main cross streets are Braddock Road (bottom) and Wakefield Chapel Road (right), which goes to Northern Virginia Community College.

Acknowledgments

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Sources

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Rock Fort lies off the sidewalk next to a quiet suburban street in Annandale, at the top of a ridge overlooking Long Branch creek. Photo: Hutch Brown.

November 2020—Upcoming Events in Our Area/Region (see details below)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1 Daylight savings ends	2	3	4 MSDC mtg, Washington, DC	5	6	7
8	9 GLMSCMC mtg, Rockvl	10	11 Veterans Day	12	13	14
15	16 NVMC mtg, Arlington	17	18	19	20	21
22	23	24	25 MNCA mtg, Arlington, VA	26 Thanks-giving Day	27	28
29	30					

Event Details

4: Washington, DC— Mineralogical Society of the District of Columbia; meetings via Zoom until further notice; info: http://www.mineralogicalsocietyofdc.org/.

9: Rockville, MD— Gem, Lapidary, and Mineral Society of Montgomery County; meetings via Zoom until further notice; info: https://www.glmsmc.com/.

16: Arlington, VA— Northern Virginia Mineral Club; meetings via Zoom until further notice; info: https://www.novamineralclub.org/.

25: Arlington, VA— Micromineralogists of the National Capital Area; meetings via Zoom until further notice; info: http://www.dcmicrominerals.org/.

Disclaimer

All meetings/shows are tentative during the coronavirus pandemic, and club meetings might well be remote. Check the website for each organization for more information.

Hutch Brown, Editor
4814 N. 3rd Street
Arlington, VA 22203

THE NORTHERN VIRGINIA MINERAL CLUB INC
Crystals are the flowers of the Mineral Kingdom

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president@novamineral.club
Vice-President: Ti Meredith
vicepresident@novamineral.club
Secretary: David MacLean
secretary@novamineral.club
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treasurer@novamineral.club
Communication: Vacant
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greeter@novamineral.club
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historian@novamineral.club
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PLEASE VISIT OUR WEBSITE AT:
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The Northern Virginia Mineral Club

Visitors are always welcome at our club meetings!

Please send your newsletter articles to:
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).

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

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