



The Mineral Newsletter

Meeting: December 20 Time: 7:00 p.m.

In-person holiday party. Details on page 7.



Shattuckite with malachite
Kaokoveld Mine, Kunene, Namibia

Source: Wikipedia Photo: Rob Lavinsky.

Volume 61, No. 10

December 2021

Explore our [website](#)!

December Meeting:

Holiday Party

Details on page 7

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Mineral of the Month Shattuckite

by Sue Marcus

Shattuckite is a beautiful mineral, the color of tropical seas. Like those seas, the color of our December mineral is hard to define precisely—cerulean blue? I checked a well-known internet browser for that color and found a wide variety of paints, crayons, and other art-related items named cerulean blue. Maybe turquoise blue? Those of us who know turquoise realize that it too comes in a range of colors. That lack of precision suits shattuckite. Read on, as we learn together.

For once, our monthly mineral's name is straightforward. Shattuckite was named for its type locality, the [Shattuck Mine](#) in Bisbee, AZ. It was found in 1913 in the underground workings of the [mine](#) owned by the Shattuck and Arizona Copper Company. Phillip Wilson, the company's chief geologist, noticed the unusual pale blue mineral mixed in the silica breccia in the hanging (or upper) wall of a fault zone. He sent samples to W.T. Schaller, a geologist with the U.S. Geological Survey. In 1915, Schaller wrote a brief description that included the formula and little else but named the new mineral and specifically stated that it was different from plancheite. The official description of shattuckite, also by Schaller, appeared in the third appendix in Dana's System of Mineralogy in 1915.

Shattuckite usually forms fibrous carpets or balls or aesthetic botryoidal forms (possibly over another mineral or matrix rock). This mineral is pleochroic, meaning the light (color absorption) is different along different crystal axes. The apparent difference in color (pleochroism) may account for some of the color differences in photographs of shattuckite specimens. Good photographers using lighting enhancement techniques can also contribute to the variation in photo imagery.

Macroscopic crystals are rare, although Namibia has produced some very attractive specimens. African sources have made a once very uncommon mineral more available to collectors in the past decade. African specimens come from several countries, as we shall see. New discoveries have helped flood the market and bring down the price of a collectible mineral. Good news for us!

Shattuckite is geologically possible in locations hosting copper deposits that have oxide caps or zones.



Merry Christmas!

Happy Hanukkah!



Northern Virginia Mineral Club members,

Happy holidays! President Tom Kim has graciously invited us to celebrate the season at his home on **December 20, 7:00 p.m.** (2301 Stokes Lane, Alexandria, VA).

See details on page 7.



Shattuckite from the Kaokoveld Plateau, Kunene, Namibia.

Photo: Bob Cooke.

Many famous copper mines are in regions eroded below the oxide cap or where supergene (near-surface) oxides never formed. So, for example, the South American deposits in Chile that stretch into other countries along the Andes are too young to have formed these shattuckite-producing environments.



Shattuckite (pseudomorph after malachite) from the Okenwasi Mine, Kunene, Namibia. Source: Wikipedia; photo: Rob Lavinsky.

Specimens from the type locality, the Shattuck Mine, vary from desirable acicular tufts, to shattuckite pseudomorphing after malachite, to massive shattuckite in chunks that are solid enough to cut and polish. A radiating ball—or a few of them—should delight any micromounter. Specimens up to more than 5 centimeters (~2 in) in size, with rich, deep blue acicular crystals solid enough to be cut and polished, are the exceptional macrospecimens.

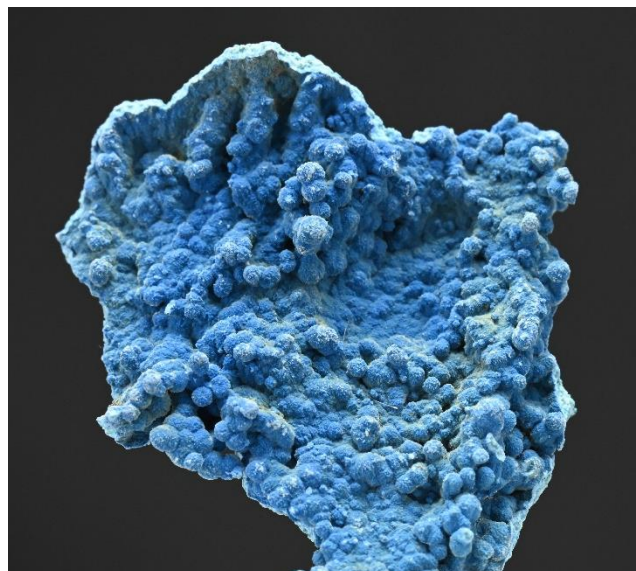
Multiple sources state that Bisbee shattuckite is not rare, but good specimens are not common either. It has been found in at least two other mines in the Bisbee area, though not in the same abundance as at the Shattuck Mine. Graeme family members have lived and worked in Bisbee mines for generations. Their website estimates that there are “a couple hundred” type locality Shattuck Mine shattuckite specimens “in collections worldwide,” although they also note that “a few dozen” (more?) specimens were extracted in the 1970s when the mine was briefly reactivated. The mine and the company that owned it went through several name changes since 1913. Those who know Bisbee well can distinguish Shattuck Mine, or at least Bisbee shattuckite, from specimens coming from Ajo or other localities.

Copper was always the primary ore at the Shattuck Mine. The oxidation zone, with malachite, shattuckite, and other minerals, provided the ore that was closest to the surface and the easiest to process and therefore cheapest to mine. Geologic processes began introducing ore minerals in the Jurassic Period, about 180 million years ago. Pulses of intrusive rocks combined with

faulting by tectonic forces drove concentrated ore-bearing fluids to form the deposits near what is now Bisbee. Later, time and oxidizing forces leached the upper parts of the orebodies and led to the formation of shattuckite.

Other Arizona localities like Ajo, particularly the [New Cornelia Mine](#) there, also produced shattuckite. The best of the Ajo material was solid and excellent for lapidary uses. Micromounters may want to seek specimens from the [Eagle Eye Mine](#), where light blue transparent crystals forming delicate tufts were found; Mindat has a photo of a transparent quartz crystal with shattuckite inclusions. This quarry, once mined for copper and other ores, is now used for landscape rock and is private property, with access prohibited. A few small, rare specimens of shattuckite have been obtained from mines and prospects like the Peabody Mine and the Gold Camp Mines (Cochise County), the Evening Star Mine (Maricopa County), and the Surprise Mine and the Silver Reef Mining District (Pinal County). Most specimens recovered from these localities show sparse microcrystals.

The [Milpillas Mine](#) in the Mexican state of Sonora began mining in 2006 and ceased in about 2012. More ore has been found, but most of it is sulfide rather than the oxide ores that have to date produced spectacular specimens of azurite, malachite, and some shattuckite too. The late Cretaceous to early Eocene Laramide Orogeny introduced plutonic and volcanoclastic rocks, along with metalliferous fluids. Volcanoclastic rocks



Shattuckite from the Kaokoveld Plateau, Kunene, Namibia. Photo: Bob Cooke.



Shattuckite from the Ojikikotu, Kunene, Namibia.
Source: Wikipedia; photo: Rob Lavinsky.

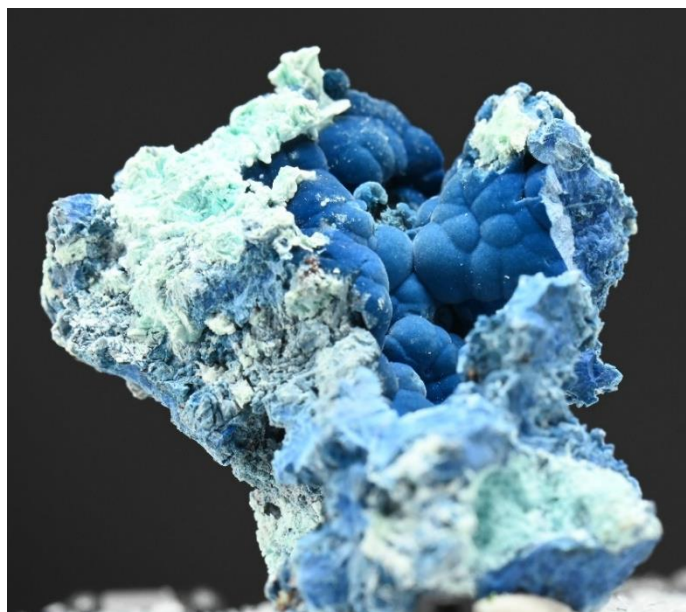
consist of small fragments, usually silica rich, that can form breccias, graywackes (dirty sandstones), and other types of clastic sedimentary rock. Several overlapping zones of supergene mineralization provided the geologic environment favorable for forming the beautiful oxide mineral we collectors enjoy.

Those lucky enough to be at Milpillas in early 2019 must have had a great time finding shattuckite in several forms. Unusual tiny translucent quartz crystals with bright blue—not pale—shattuckite inclusions were discovered. The largest dimension of these specimens is 2.4 centimeters (0.9 in). Another type found at the time consisted of specimens displaying two generations of shattuckite formation. The largest dimension of these specimens is 9.7 centimeters (3.8 in).

Africa is currently the world's best source of fine-quality shattuckite specimens. Which locality takes the honor of being "Best of the Best" depends on your aesthetic perspective. Namibia is the current source of the world's finest shattuckite specimens, if you like some color or texture contrast. Most localities are in the [Kaokoveld Plateau](#) region. Specimens from this region are noted for aesthetic color contrasts and textures of juxtaposed minerals. Mineralization was concentrated by tectonic forces causing folding and faulting that provided conduits for fluids. The Okandawasi or Kandesi Pit or Mine tops my list of these small mines for stunning shattuckite specimens of all types. The

Omaue Mine is another similar but smaller producer. Mindat galleries show 156 specimens, including blue velvet-coated surfaces and aqua acicular spheres stacked randomly, with a few narrow deep green elongated malachite crystals for contrast. Like Milpillas, there are tiny quartz crystals with shattuckite inclusions, shattuckite with diopside, macrocrystals and specimens, and microcrystals and specimens. A few images show sprays of large shattuckite crystals up to 1 centimeter (0.4 in) in size, with malachite; this is the largest individual crystal I have seen, although the shattuckite might be a pseudomorph after malachite. Also pictured was a 17.8-centimeter (7-in) matrix specimen riddled with vugs of botryoidal shattuckite; this is a 2.8-kilogram (6.2-lb) whopper. Some specimens show interesting paragenesis (order of mineral formation), with shattuckite coating or included in clear quartz or dusted by druses of quartz. Shattuckite pseudomorphs malachite, azurite, quartz, diopside, possibly chrysocolla, and wulfenite, and it crystallizes as a primary mineral. Specimen production might have peaked by 2013, although exploration is continuing, and local people might continue to extract specimens.

At the [Mesopotamia 504 Farm](#) (in Namibia), collectors have recovered spheres, carpets, and acicular tufts of shattuckite in a wide range of blue shades with well-covered specimens, including matrix up to 7 centimeters (2.8 in) in the longest dimension.



Shattuckite from Rancho Jacalito Cuitaca, Sonora, Mexico.
Photo: Bob Cooke.



Shattuckite on quartz from Mesopotamia 504 Farm, Kunene, Namibia. Source: Mindat.

Farther north, in another major African copper belt, the Katanga region unsurprisingly hosts shattuckite from several localities. Some collectors claim that *these* are the finest shattuckite specimens in the world, and they do seem the best to me for sculptural shattuckite. The [Tantara Mine](#) in the Shinkolobwe area of the Democratic Republic of Congo produced solid shattuckite for lapidary uses and radial balls that merge to form crusts with only the upper curves showing. Imagine blue cloth—your choice of shade, it is probably found here—draped tightly over anything round, then stud the cloth with the uppermost tips of minute shattuckite crystals; there you have it: each mental image, just as each specimen, will be different.

Like the Namibian occurrences, Tantara shattuckite replaces diopside; in some specimens, calcite is replaced by diopside, which is then replaced by shattuckite, with a second generation of diopside crystalizing later (calcite > diopside > shattuckite + later diopside). Every mineral specimen comes with a story! One 10.7-centimeter (4.2-in) natural sculpture of vertically arranged shattuckite balls looks like azurite, judging from the color in the Mindat image. Other specimens range up to 21.8 centimeters (8.6 in) in size, although I could see a tiny bit of matrix peeking out on that image, and some specimens weigh more than 2.3 kilograms (5 lb). One possible sliced stalactite was also shown among the Mindat images.

A few of the 118 shattuckite images from this Mindat locality mention chatoyancy—an optical property I have not seen in this mineral, although I'll now look

for it. Primary shattuckite occurs here, and some specimens display two generations of shattuckite formation. Most specimen removal occurred between about 2011 and 2017, although some specimens labels of shattuckite from this geologic region have labels from as far back as at least 1936. The [M'sesa Mine](#) was another copper mine in this area that produced smaller quantities of generally lower quality shattuckite specimens than the those from the Tantara Mine

Three shattuckite micromounts are shown on the Mindat pages for slag heaps near the church of [Madonna di Fucinaia](#), Campiglia Marittima, Tuscany, Italy. The color of the crystals shown in these images is chartreuse, suggesting a different chemistry than shattuckite. Further testing would be needed for accurate identification, although the specimens seem to have been small, scarce, and possibly from unnatural (slag) sources.

Lighter blues of shattuckite are commonly found adjacent to the more aqua shades of chrysocolla, deep green malachite, quartz, and—less frequently—blebs of bright native copper or a copper oxide like tenorite. Any silicate minerals, especially chrysocolla, make the mineral assemblage attractive for diverse lapidary uses. In this mixed form, shattuckite is harder and more suitable for cabochons and carving. As readers might have guessed, polishing can be difficult due to the varying hardnesses of the different minerals in shattuckite copper silicate-mineral mixes, although the products are beautiful and many are highly priced. Some shattuckite used for lapidary purpose is



Shattuckite inclusions in quartz, Eagle Eye Mine, La Paz County, AZ. Source: Mindat.



Polished shattuckite with malachite from the Ajo Mine, Pima County, AZ. Source: Wikipedia; photo: Rob Lavinsky.

stabilized with epoxy to harden it, both for ease of working and for durability.

Most collectors who want a shattuckite specimen in their collection should be able to afford one. I saw a lovely [quartz-covered shattuckite](#) from Milpillas, 5 centimeters (1.9 in) in its maximum dimension, for sale on eBay for about \$30. You can find lovely smaller radiating balls of shattuckite from the Tantara Mine for less. ↗

Technical Details

Chemical formula $\text{Cu}_5(\text{SiO}_3)_4(\text{OH})_2$ IMA;
 $\text{Cu}_5(\text{Si}_2\text{O}_6)_2(\text{OH})_2$ Mindat

Crystal formOrthorhombic

Hardness3.5

Specific gravity4.1

ColorShades of blue (see text)

StreakBlue

Cleavage2 perfect, though most specimens don't show this.

FractureUneven, though brittle

LusterDull, velvety, silky

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Holiday Party December 20, 7:00–9:00 p.m.



The NVMC and the Micromineralogists of the National Capital Area are jointly hosting a holiday party again this year, resuming a seasonal tradition. Due to COVID-19, we canceled the event last year, and this year we're making it a low-key affair, with snacks and good company.

We're holding the party at the home of NVMC president Tom Kim, at 2301 Stokes Lane in Alexandria. We encourage you to RSVP to Tom at president@no-vamineralclub.org; please mention whether you will bring a snack, drink, or dessert.

For the welfare and peace of mind of everyone there, we ask you to come only if you are vaccinated against COVID and are in good health.

For anyone interested, we'll do our traditional gift exchange. If you want to participate, please bring a wrapped gift valued at \$5 to \$20 and mark it macro-mineral or micromineral. We'll have a table where you can leave the gift and take one for yourself. ➤



President's Collected Thoughts

by Tom Kim

It was around this time last year that Tom Burke, our stalwart president for NVMC, set an ultimatum. Someone else had to become president of the club or it would fold.

Very reluctantly, I sent an email to Tom and Sue Marcus, who served as club president before Tom. I was reluctant because I'm an introvert and didn't personally know many people in the club ... because I already had commitments to my family and church ... because I hadn't the faintest idea what the position entailed ... and because I actually don't know much about rocks or fossils and found others' knowledge and experience intimidating.

But the NVMC has been absolutely crucial to nurturing my son's passion for mineralogy. If absolutely no one else volunteered, I decided, then I'd consider it—if only to be a placeholder for a year.

Club T-Shirts Still Available

Presents for all occasions! Our NVMC T-shirts are available in sizes 3T (very limited) to S. \$15 S, M, L, XL; \$22 larger sizes. Contact Sue Marcus at 703-522- 9844, akumaldreams@gmail.com



Constantino (Dino) Psomopoulos from the Paraiba Mine in Brazil proudly wearing his NVMC club shirt. Dino was kind enough to deliver an outstanding remote presentation on tourmaline from the Paraiba Mine at the May 2021 club meeting.

They immediately responded. Don't worry, they said, it's largely a figurehead position. You just have to show up at the beginning of Zoom meetings, welcome people, and give announcements. The rest of the officers were well established, and Tom Burke himself would continue his involvement as our technology support officer, setting up the Zoom meetings. They would be there every step of the way.

And they were. I am deeply grateful to Sue Marcus, Roger Haskins, David MacLean, Tom Burke, and Hutch Brown for holding my hand throughout this unusual year. In the end, being president did end up becoming a little more involved, especially in determining the fate of our annual show and in setting up hybrid

meetings. However, I felt completely supported by the graciousness of our entire club.

Sue Marcus will step down this year as our vice president, but she assures me that she'll continue to be available to advise and volunteer as necessary. (Believe me, I would quit if she didn't!) But we do need someone to take her place as vice-president—or to take my place as president, whereupon I'd happily step into the vice-president role.

There's a lot of love, loyalty, and generosity in our club, especially among members who've been around for a while. However, many of those members have already been officers of our club, sometimes several times over, or are already committed to leadership roles in other local clubs like MSDC, GSMSC, and MNCA. We need some tenderfoots to step forward and try helping out in a more formal way. Let me assure you that, from my experience, it's not as daunting as you might think. There is plenty institutional knowledge and experience for you to tap into ... and it's vital that some of that gets transferred to a new generation of leaders.

It's going to be an exciting year. God willing, we'll be able to return to some more of our prepandemic activities: in-person meetings, auctions, field trips, shows, and more. To do these things, however, we need more go-to people. I'd love to have someone to welcome aboard as vice president ... or president: your pick.

Tom

What Happens Without a Club President?

We violate our bylaws, and our insurance might no longer cover us. Do we dissolve the club? If not, do we change the bylaws? According to our constitution and bylaws, the executive board must have 60 days to consider any proposed changes to the constitution or bylaws before putting them to a membership vote.

2022 Club Officer Elections

by Hutch Brown, Editor

Our December 20 holiday party will include a short business meeting to elect club officers for 2022. 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.

NVMC Hall of Fame: Elected Club Officers, 2012–2021

Year	President	Vice President	Secretary	Treasurer
2021	Tom Kim	Sue Marcus	David MacLean	Roger Haskins
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

- 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.

Roger Haskins has agreed to stand again as Treasurer, but Sue Marcus will be stepping down as club vice president. So will David MacLean as club secretary after many years of outstanding service, though he is more than willing to support and mentor his successor, as is Sue.

As Tom Kim indicated in his reflections above, we might be able to persuade him to remain as club president or vice president—if someone else can take on one of those roles.

So we need volunteers!

President.....Your Name **HERE!**

OR: Vice President.....Your Name **HERE!**

Secretary.....Your Name **HERE!**

Treasurer.....Roger Haskins

Sue Marcus will always be there to support the next president and vice president, as will other previous presidents. If you might be interested in volunteering—or just finding out more—please contact Tom Kim at president@novaminalclub.org or Sue Marcus at vicepresident@novaminalclub.org. ➤

GeoWord of the Day

(from the American Geoscience Institute)

saltpeter

- (a) Naturally occurring potassium nitrate; niter.
Cf: Chile saltpeter; Peru saltpeter; wall saltpeter.
(b) A speleologic term for earthy cave deposits of nitrate minerals. Also spelled: saltpetre.

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

Bench Tip **Using Your Thumb**

Brad Smith

When using multiple bits in a Foredom, we often have to deal with different shaft sizes—the usual 3/32-inch burs, the larger 1/8-inch shafts sizes, and of course the many different sizes of twist drills. For some reason, I really dislike having to turn the key multiple times to open or close the jaws of the handpiece chuck.

So I have two ways to speed up that task. For opening up the jaws, I just remember "four," the number of turns I have to make to open the chuck just enough from the 3/32-bur shaft size to the larger 1/8-bur shaft size.

For closing the jaws around a smaller shaft, there's a neat trick. Hold the new bit in the center of the open jaws of the chuck, put your thumb lightly onto the outer toothed collar of the chuck, and gently start up the Foredom. As the chuck turns, it will naturally tighten the jaws around the bur shaft or the drill bit. Then all you have to do is a final tightening with the key.

See Brad's jewelry books at
amazon.com/author/bradfordsmith



All About Natural Bridge

Editor's note: The article was submitted anonymously.

Recently, my family and I had the pleasure of visiting Natural Bridge in southwestern Virginia. Natural Bridge is a giant arch with a stream flowing under it, about 215 feet tall! That's nearly 20 stories and about half the height of the Great Pyramid of Giza. When I saw it, I felt nothing but awe. Its sheer size was enough to blow me away.

As I looked around, though, it was clear that its size was only one aspect of the whole structure. For instance, we noticed that there were engravings in the walls, which—upon closer inspection—were, in fact, initials! They were old initials at that, with most dating back to at least the 19th century. One pair of initials, 23 feet up one of the walls, supposedly originated in 1750 from a young George Washington. Rumor has it that he carved them when he came to the area as a young surveyor 26 years before America became a country.

You may ask yourself, “What created this enormous structure?” The leading theory is karst and stream erosion. Karst erosion is where groundwater seeps into underlying limestone and dissolves it over time. You may have seen it at work in the Shenandoah Valley and caves or sinkholes. The theory is that Natural Bridge formed when a sinkhole diverted Cedar Creek underground, making a subterranean stream that wore away the 470-million-year-old Beekmantown dolomite and Chepultepec limestone that make up Natural Bridge, leaving a tunnel. This tunnel collapsed, ending up with Natural Bridge, the last fragment of a subterranean tunnel.

Natural Bridge has a lot of historical significance. It was one of the sacred places of the Monacan Indian Tribe, later owned by Thomas Jefferson and used as a munitions plant of sorts and then for an important highway. In a Monacan legend, the people were once fleeing from enemies and stopped at a gap where they prayed for salvation, and the gods created a bridge across the gap. Since then, the tribe has called it “The Bridge of the Gods.”

In 1774, Thomas Jefferson bought the bridge and the 157 surrounding acres of land at an extremely low price for today: 20 shillings about \$2.40 in today's money. Skip forward a few years to the Revolutionary War, and the bridge was used as a drop tower, where



Natural Bridge over Cedar Creek. Source: Wikipedia.

soldiers dropped molten lead from the top of the bridge. It formed spheres as it fell, solidifying in the cold stream below. The spheres of lead were used as musket balls.

In the 1930s, Route 11 was built to run right over Natural Bridge. There had been a trail there since at least 1763, but it never had as much traffic as after Route 11 was built. In 2016, the Virginia Department of Transportation reported that at least 2,000 cars and trucks went over it every day.

Natural Bridge has always had economic significance. Thomas Jefferson first used a cave near the bridge to harvest bat guano to turn into saltpeter. In the early 20th century, it was discovered that the limestone that makes up Natural Bridge and the surrounding areas could be made into cement. Even today, Natural Bridge supports the town nearby because of the tourists it attracts, providing business for the shops and restaurants in town.

Natural Bridge is an awe-inspiring piece of geologic and historic importance. So if you ever have the chance, why not visit? ➤

New Book on Classic Minerals of New Jersey

by Peter Chin

A new book on the minerals of Franklin and Sterling Hill will be available for purchase in January 2022. The 1,400-page, three-volume set is a compendium of photographs of almost every known mineral species from the two deposits. It is a vital photographic update of Pete Dunn's 1995 monograph *Franklin and Sterling Hill, New Jersey: The World's Most Magnificent Mineral Deposits*. The book is, for a lack of a better word, a stupendium.

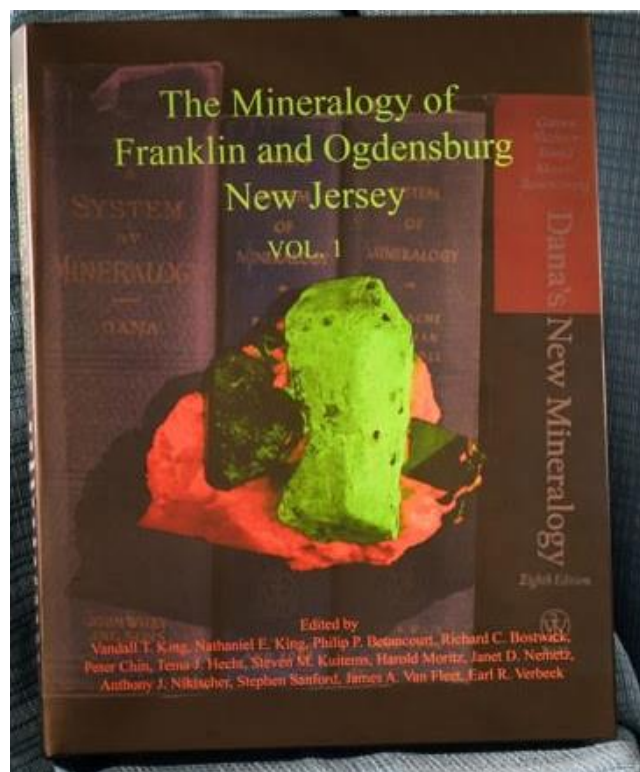
The mineralogy and geology of Franklin and Sterling Hill have been intensively studied and written about in hundreds of publications for about 2 centuries. Commercial mining activities ceased decades ago, but thousands if not tens of thousands of mineral specimens have been collected and scattered to the four corners of the Earth. Fortunately, a portion of the Franklin and Sterling Hill mineralogical legacy has been preserved in the museums and private collections of the world.

However, many mineral specimens, including type specimens, are locked away in drawers collecting dust. This book blows away some of that dust and reveals the significance and magnificence of the minerals from the two deposits.

Since at least the 1970s, efforts to produce a picture book of Franklin and Sterling Hill minerals have failed; that changed in 2012 when the Franklin Mineral Museum envisioned a photographic complement to Pete Dunn's 1995 monograph. The project has since expanded to include new minerals discovered since the publication of the monograph.

The project was backed financially by numerous donors, especially the Hauck family. A band of volunteers lead by Van King worked tirelessly to bring the project to fruition, the successful culmination of a 9-year cooperative endeavor involving international institutions, universities, analytical services, and individual collectors spanning two continents (North America and Europe).

The book is not merely a compendium of stunning photogenic mineral specimens, although there are quite number of those; it also serves as a vital visual resource to aid in mineral species identification, especially of rare species. To achieve this end, thousands



of specimens and photographs, including photomicrographs, were carefully reviewed and then selected to best represent the species, as well as to show important assemblages that contained them.

In order to do so, the specimens—especially of rare species—had to be as accurately identified. Van King and the editorial staff tried their best to avoid the rare-species syndrome (“so rare as to be not on the rock”) by selecting specimens of species with a proven pedigree/provenance or confirmed by EDS, XRD, Raman, and EMP analyses and even, in one case, synchrotron single crystal XRD. In the course of the analytical work, species new to the deposit were discovered, along with at least one mineral new to science. In fact, scientific work is still ongoing on a number of unknowns identified and depicted in the book.

The distribution date for the book is set for some time in January, with tentative target price of \$150 for the three-volume set. To reserve and order your copy of this monumental work, you can contact Van King at newryqs@gmail.com. ↗

A Very Cool (and Easy-to-Access) Maryland Copper Mineral Locality!

by Noah Fleischer

Editor's note: Noah Fleischer, then a student at James Madison University, received a Fred Schaefermeyer scholarship award from NVMC in 2017. In gratitude, he submitted this article to our newsletter for the June 2018 issue.

Hidden in the woods of Carroll County, MD, the Mineral Hill Mine, a pre-Revolutionary War copper mine, boasts an incredible array of copper minerals that can easily be collected.

Background

I first heard about this locality when, at a local rock shop, I bought a specimen that was collected there. I decided to look into it and came across some really interesting information on the web.

According to the Maryland Department of the Environment, the mine was opened in 1742 by John Diggs, who exploited a 2-½ foot thick hematite vein for copper ore. During its peak operation in the mid-1800s, the mine employed around 100 people, but it ceased operation by the end of the 19th century.

Collecting Opportunities

Mindat.com has a fantastic page about the [Mineral Hill Mine](#) that lists the 37 minerals that can be found at the locality. Some of the most visible and easy to find are malachite, chrysocolla, magnetite, hematite, and chalcopyrite. Actinolite crystals are also common.

Collecting is easy because much of the good material can be found simply by examining the surface. A small hand shovel or rock hammer is useful for digging into the tailings piles, but no heavy equipment is needed (or allowed, for that matter). At most, a small shovel may be useful to expose hidden specimens within the piles.

Access

Access to the mine is relatively easy for those willing to take the moderately level 2-mile round-trip hike. The trail is wide, likely a former logging road; you can find it directly off of Maryland Route 32 North. As you head north from Sykesville, MD, on Route 32, you will cross Liberty Reservoir. On the bridge, if you look to the right, you will notice a large pile of gray rock that appears to fall directly into the reservoir. That is the lower of the two tailings piles for the mine.



Top: The lower pile of mine tailings seems to drop directly into Liberty Reservoir. Bottom: Trail leading up to the mine.

All photos: Noah Fleischer.

Directly north of the bridge, you will find a small parking area; you can access the trail there. About a mile up the trail, you will walk up a hill, and at the top you will notice mounds in the woods: those are remnant piles from the mine.

When you see the mounds, head off the trail to the left to reach the upper tailings pile. To the right, towards the water, you can reach the lower tailings pile.

Safety Precautions

I have found the lower pile to have the best specimens, likely due to the fact that it is much more difficult to reach and collect at than the upper pile. The route down to the lower pile is incredibly steep; once on the pile, it is easy to slip, so having sturdy boots is a must!

One more note of caution: the Maryland Department of the Environment has marked this location as a site with naturally occurring asbestos. Although the amounts there are minimal, a face mask is always a good precaution when collecting on windy days.

This locality has a wide variety of interesting specimens—and, due to its ease of access, it is a great place to collect! I have gone a handful of times and have always found it worthwhile!

Happy hunting! ➤



The upper pile of mine tailings.



Above: Malachite and chrysocolla.



Left: Malachite and chrysocolla on schist.



*Left, top: Chrysocolla vein in schist.
Left, bottom: Malachite on schist.*

Kyanite Collecting at Prospect Park, Philadelphia

by Justin Zzyzx

Editor's note: The article is adapted from [The Vug](#). Mindat notes the [Morton Homestead](#) locality (Prospect Park, Ridley Township, Delaware County) for kyanite, microcline, muscovite, and a few other minerals.

Outside of Philadelphia, behind a baseball field in an old suburban area, kyanite of a very decent quality can be obtained, but don't neglect to bring your rubber gloves!

Prospect Park is a town 11 miles southwest of Philadelphia; it is located right along the merge of I-95 with I-476, a good spot for city growth! Most of the growth in the area is in housing, so it is unlikely that this site will ever be closed off due to its location next to a place called the Morton Homestead, a protected state-owned example of the typical early Swedish cabins built along the coast of Pennsylvania. So the first couple times I got lost looking for this spot, I would just think to myself, "Those Swedish immigrants sure knew how to build a solid house" while I looped around it a couple times.

This location for kyanite is in the creek directly behind the Morton Homestead, alongside a baseball field (and the parking lot next to it). The best way to get to this location is by parking in the baseball field parking lot and walking into the woods into the small trickle of water that is home to this mineral!

A lot of trash is at the end the creek, but the best kyanite comes from the beginning of the creek. As a matter of fact, bring a trash bag and collect a bag of trash while you are at it. It's fun—and, hey, you are there getting free rocks, right? A great trade for yourself and the environment is to pick up a bag of trash on your way out. There are dumpsters near the baseball field.

The best technique for finding nice specimens is to scour the banks first and look for the bright blue material in the semicalm water. Next, start turning over material in the stream with a hoe and let the dirt settle and repeat, looking for more blue flashes. It works great.

The last time I was there, we used that technique and brought home a 2-gallon bucket of great gemmy blue material—lots of single blades but some excellent clusters as well.



Collected at Prospect Park, top: Kyanite (right) with pyrite (left); bottom: kyanite with biotite and pyrite.
Source: Mindat; photos: John Orange.

A few months after that dig, I read an article in *Rock and Gem* magazine about this location, but the writer lamented not finding much good material, just lots of black kyanite. Well, he went there within the week of us picking up all the easy stuff for that month. New material is being weathered out of the ground from the deposit directly under the stream. After big rains in the area is surely the best time to go collecting here!

To get to this location, take I-95 to exit 9, Wanamaker Ave/Rt. 420, Lincoln Ave., NW. The road will split in two and then come back together again, at which point you should turn left. This road takes you directly to a baseball field. Park in the parking lot, walk into the woods, and you are there.

Here is a [google map of the area](#). The stream is in the wooded area. ↗

December 2021—Upcoming Events in Our Area/Region (see details below)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1 MSDC mtg, Washington, DC	2	3	4
5	6	7	8	9	10	11
12	13 GLMSMC holiday party	14	15	16	17	18
19	20 NVMC/ MNCA holiday party	21 Winter begins	22	23	24	25 Christmas
26	27	28	29	30	31	
				Disclaimer All events are tentative during the coronavirus pandemic, and club meetings might well be remote. Check the website for each organization for more information.		

Event Details

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

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

20: Arlington, VA—Northern Virginia Mineral Club/Micromineralogists of the National Capitol Area; holiday party (details on page 7).

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The Northern Virginia Mineral Club

Visitors are always welcome at our club meetings!

PLEASE VISIT OUR WEBSITE AT:

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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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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 7:45 p.m. on the fourth Monday of each month (except May and December).^{*} (No meeting in July or August.)

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

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