



The Mineral Newsletter

Next meeting: September 18 Time: 7:30 p.m.

Virtual Meeting Through Zoom



Palygorskite

Ohio Mines, Imperial Heights, Baraga
County, MI

Source: Mindat. Photo: John Krygler.

Volume 63, No. 6

September 2023

Explore our [website!](#)

September Meeting Program:

Sharing Summer Stories

details on page 10

In this issue ...

- Mineral of the month: **Palygorskite** p. 2
- Program: Cyprus geology/minerals p. 10
- President's collected thoughts p. 11
- Diamond discovered in Arkansas p. 13
- Club origins p. 14
- Annual show coming up** p. 15
- Ancient "pipes" in China caves p. 16
- Upcoming events p. 17



Mineral of the Month Palygorskite

by Sue Marcus

For our September Mineral of the Month, I chose a mineral that is fun and one of my favorites, palygorskite. It is fun when it occurs in large sheets because it is flexible, bending in any direction.

The type locality for palygorskite is in Russia. It was named for the locality Second Mine, Popovka River, Palygorskaya Distance of Perm Railways, Perm Krai, Russia. T. von Ssaftschenkow described it in 1862, believing it to be part of the asbestos group of minerals. It is now considered to be its own formal mineralogical group, closer to clays like sepiolite than to asbestos. Another oddity about palygorskite is that it seems to have two crystal morphologies. Some palygorskite is monoclinic, whereas the mineral is orthorhombic at other localities.

It is also called “mountain leather,” probably due to its characteristic leatherlike flexibility. Palygorskite is known by several other names too. Attapulgit was the term used in the United States for many years and is still used for some industrial applications. This short-fiber form occurs in southern Georgia and northern Florida. Some sources consider attapulgit to be primarily palygorskite though mixed with other clay minerals. Other sources consider attapulgit synonymous with palygorskite.

Palygorskite is usually a sedimentary mineral. It is found in lithified, shallow warmwater environments—in sediments from nonsaline lakebeds, brackish lagoons, or shallow seas. It may also occur as a hydrothermal alteration product in volcanic rocks. Another geologic environment for this mineral is the sheared rocks in fault zones. It is found in some magnesite and talc deposits. Calcite crystals are the most common mineral association.

Palygorskite is also reported in its long-fiber habit in hydrothermally altered volcanic rocks. Single crystals are unknown. Short-felted mats of light gray fibers are the usual form obtained by mineral collectors. Some scientists have described other splits in the forms of palygorskite based on variations of aluminum or magnesium contents in the molecular structure of the specimen being studied. Massive deposits are more common but do not produce interesting specimens for mineral collectors.

Fall is almost here!



Northern Virginia Mineral Club members,

No in-person meeting in September!

***** Zoom meeting this month *****

See details on page 10.



Silky white palygorskite on calcareous dolostone, Lone Jack Quarry, Glasgow, Rock Bridge County, VA. Source: Mindat; photo: John Krygler.

J. De Lapparent gave the mineral the name attapulgit in 1935, after the town of Attapulgis, GA, where it was first mined in the United States. It was considered a form of “fuller’s earth.” Wool was cleansed of lanolin and other materials by “fulling” or working absorbent clay into the raw wool by workers called fullers. The palygorskite deposit at Attapulgis is more than 60 kilometers (37 mi) long and extends into Florida. It formed from Miocene marine sediments. This deposit is actively mined and is the largest source of industrially used palygorskite in the world. I could find no



*Palygorskite from Virginia. **Top:** Lone Jack Quarry, Glasgow, Rock Bridge County. **Right:** ACCO Stone Quarry, Blacksburg, Montgomery County. Source: Mindat; photos: David Fryauff (top), John Rakovan (right).*

mention of interesting (meaning not solid fine-grained chunks of rock) specimens from this deposit.

Did you know about palygorskite occurring in Virginia? It is hosted in altered calcareous dolostone at the [Lone Jack](#) Limestone Company's quarry near Glasgow in Rockbridge County. The three specimens shown on Mindat appear to have formed in faults or rock surfaces that slipped past each other. Two of the samples exhibit more linearity of the fibers than the "mountain leather" form of this mineral.

One of the images was posted by a club member, Dave Fryauff, thanking Jim Kostka, a former active member, for the gift of the specimen. Jim was always generous in sharing his minerals. Another minor location for palygorskite was posted on Mindat by John Rakovan. The single specimen is from the [ACCO](#) crushed rock quarry near Blacksburg. Rakovan, now the museum director at the New Mexico Bureau of Geology and Mineral Resources, probably collected the piece in 1997.

I hadn't known of palygorskite from Michigan (see the cover). Two mines, together called the [Ohio Mines](#), were worked for iron in the Upper Peninsula. The

white, gold, and brown leathery examples portrayed on Mindat show three-dimensional threads and flakes in specimens almost 8 centimeters (3 in) long.

[Metaline Falls, WA](#), is the most famous palygorskite locality. The mineral occurs in several places in Pend Oreille County. The Grandview and Pend Oreille Mines, now closed, extracted zinc ore. Palygorskite was a secondary or tertiary mineral in the Metaline Formation. The limestones formed from 520 to 470 million years ago in the Middle Cambrian to Middle Ordovician Eras.

Specimens from the Metaline Falls area are the fun, classic light gray mountain leather types, some of which can be gently rolled and unrolled. Some specimens are sprinkled with sparkling clear or light yellow calcite crystals. Others feature larger single, clear calcites and, more rarely, tiny golden barite crystals. Any of these can be several centimeters long. They make interesting, different additions to a collection.

The [Mammoth-St. Anthony Mine](#) near Tiger, AZ, produced specimens of palygorskite with mimetite. The specimens pictured on Mindat are described as having two phases of palygorskite growth. Fibrous mats



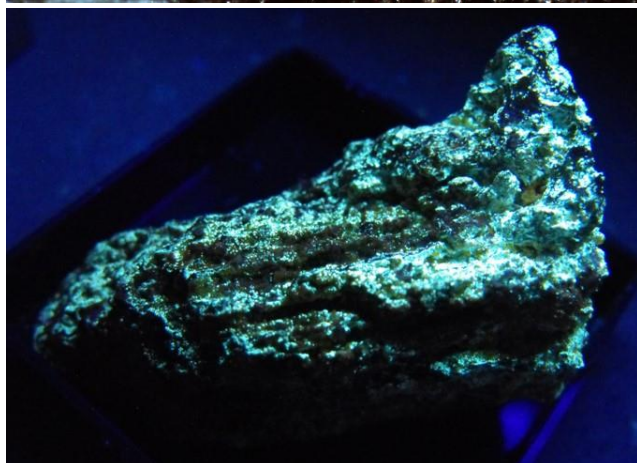
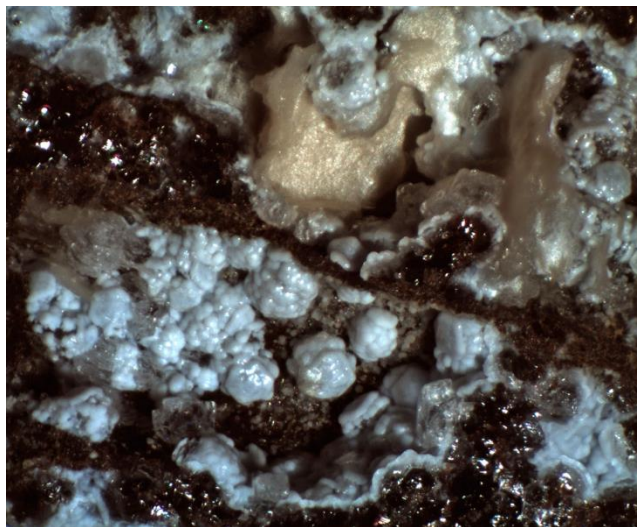
*Palygorskite, Pend Oreille Mine, Metaline Mining District, WA.
Source: Mindat; photo: Paul Bongaerts.*

probably formed first, followed by odd palygorskite spheroidal structures. The specimens were reported to fluoresce white under shortwave light, but there was no mention of whether it was the palygorskite or the mimetite that fluoresced. The images were posted on Mindat by Rolf Luetcke. I contacted Rolf to confirm that it is palygorskite that is fluorescing, not mimetite. He checked and we have a cool new fact—at least some palygorskite fluoresces. Collectors, check your specimens.

California's [New Melones Dam](#) spillway in Calaveras County was the source of a few tan to light gray, fibrous or gel-like palygorskite cavity fillings surrounding other minerals. Palygorskite formed in extension fractures in metamorphosed volcanic rocks. Specimens are unlikely to interest most collectors. I came across one specimen from Mountain Springs Canyon in Inyo County. It belonged to a rockhound who collected in southern California. Abandoned iron and gold mines were reported in the canyon, though it is unknown where, more specifically, this piece was found. The roughly 10-centimeter (~4 in) specimen was offered on eBay for the steep price of \$188.99.

A single specimen of felted palygorskite called “mountain cork” from Vancouver Island, BC, Canada, is shown on Mindat. The image shows this mineral's leathery form. If the locality could be found and explored, there are probably more where this one came from.

Naica, Mexico, is home to the famous [Cave of Swords](#)—huge gypsum crystals as long as the Statue



*Palygorskite, Mammoth-St. Anthony Mine, Mammoth Mining District, AZ. **Top:** Two forms, spherical white and off-white fibrous. **Bottom:** Fluorescing under shortwave light. Source: Mindat; photos: Rolf Luetcke.*

of Liberty is tall (40 meters (131 ft)). A single palygorskite specimen is shown on Mindat for this locality. It appears to be a thick wad of fibrous palygorskite with the tips of quartz crystals poking out of the top, like a sparsely quilled hedgehog. The palygorskite is bright white; the quartz crystals look gray in comparison, with clear terminations.

Mexico's Yucatan Peninsula is notably barren of interesting localities for mineral collectors. But a possibility awaits a determined collector who wants to pursue palygorskite in that region. A locality described as near Maxcanú (southwest of Merida) has “yellowish, plastic palygorskite-rich mudstone” that is at least 12 meters (39 ft) high and 10 meters (33 ft) wide. It might



Palygorskite, Black Angel Mine, Maarmorilik, Avannaata, Greenland. Source: Mindat; photo: Harold Moritz.



Palygorskite, A/S Granit Quarry, Vestfold og Telemark, Norway. Source: Mindat; photo: Atle Michaelsen.

be useful as an industrial product, and there might also be some specimens there. A report on palygorskite in that area mentioned “bundles of fine feathery crystals.” A unique use of this palygorskite for pigment is described below in the section on uses of the mineral.

The remote [Black Angel Mine](#) in Greenland exploited a zinc-lead-silver deposit. Yet a lovely three-dimensional (not flat) golden-yellow palygorskite specimen was found measuring about 9.5 by 9.5 by 4 centimeters ($\sim 4 \times 4 \times 1.6$ in). The specimen was not analyzed, and Harry Moritz, the photographer, notes that it could be sepiolite.

In England, palygorskite from the [Mill Quarry](#), Derbyshire, was reported to form small white botryoidal surfaces on white to yellow calcite. Specimens were probably not abundant. Limestone was extracted from the quarry, which operated intermittently from 1880 to the 1990s. Fluorite was probably also produced since the property was partly flooded with “fluorspar slurry.”

Farther south, in Devon, palygorskite was found near [Seaton](#). The varietal or alternative name of “pilolite” was used, but this is a discredited term. Most samples were fibrous coatings on matrix, though one image of mountain-leather-type palygorskite, labeled “pilolite,” is shown on Mindat for the locality.

Attractive, very light gray, leathery palygorskite was found at [Troms og Finnmark](#), Norway. Aggregate, graphite, and iron were extracted from different properties in this area. The specific source of the palygor-

kite was not provided. A whitish specimen of palygorskite, looking like a piece of wadded paper, is shown on Mindat from the A/S Granit Quarry near Larvik, Vestfold og Telemark, Norway. Coatings of white to tan palygorskite were found at two reported localities in [Varmland County](#), Sweden.

Palygorskite from Poland’s [Oberdorf](#) magnesite deposit looks like yellow tanned leather. Specimens from this deposit were not abundant, but at least one measured more than 15 centimeters (6 in). Palygorskite, like magnesite, contains magnesium. Magnesite was the commercial material in this deposit; palygorskite did not occur here in economic quantities. We mineral collectors can undermine our own opportunities, as when illegal collectors used explosives that damaged equipment at this mine. Afterwards, a permit was required for access. The [Regulice](#) quarry near Gmina Alwernia in Chrzanów County also produced specimens of the mountain leather form of palygorskite.

At a palygorskite locality in the French commune (analogous to township) of [La Table](#) in Savoie, specimens up to 13 centimeters (5 in) in size were found. Captions of the few specimens shown on Mindat mention the nickname “mountain pasteboard” and note that one piece occurred loose in a geode. This locality, an outcrop worked for specimens, is better known for faden quartz. Palygorskite, as leatherlike pieces and as growing over calcite, also was found at the [Maraval Quarry](#) near Cuzac in Occitanie.



*Palygorskite, La Table, Chambéry, Savoie, France.
Source: Mindat; photo: Michel Arliguie.*



*Palygorskite, Tremor de arriba, León, Spain.
Source: Mindat; photo: Angel Ortiz Maellas.*

There are several granite quarries in [Mauthausen](#), Austria. One unspecified quarry produced an aesthetic cream-colored palygorskite specimen exhibiting translucent petals of the mineral rising from a matrix covered by the same mineral. Palygorskite was reported on Mindat from several [additional localities](#) in Austria though the images were either of micromount-size specimens or of small single specimens.

The [Dúbrava](#) magnesite deposit in Slovakia's Carpathian Mountains yielded palygorskite in long bundled fibers, mats, and coating. Calcite is associated with the palygorskite here.

The small [Béke adit](#) from which sphalerite was produced also was the source of palygorskite in Parádsasvár, Hungary. The Hungarian specimens are similar to the ones from Metaline Falls, WA, forming white to light gray finely fibrous mats associated with calcite.

In the Crimean region of Ukraine, the [Lozovoye quarry](#) was the source of matted palygorskite. It is called "paper stone." As in several other localities, palygorskite occurs with small calcite crystals. Specimens grew to at least 24 centimeters (9 in) in size.

Palygorskite occurs at several Spanish localities in diverse geologic environments. The chemical structure also varies. Short-fiber palygorskite exhibits tight structures, whereas longer fibers show a more open structure. Hydrothermally formed palygorskite usually has longer fibers.

Light gray and tan mountain leather specimens are posted on Mindat from [Tremor de arriba](#) (tremor from above), northwest of León and [Los Ángeles de San Rafael](#) near Segovia. Both specimens are from the Spanish region of Castile and León. Given the proximity, the geologic origin may be the same, though that is not confirmed. Two other Spanish deposits were producing palygorskite for industrial purposes in 2018. A lengthy, detailed paper analyzing Spanish palygorskite deposits does not mention the Tremor de arriba occurrence.

A silvery gray, flexible specimen of finely matted palygorskite was found in waste piles at a talc mine near Lanzada in Lombardy, Italy. The specimen, from the [Brusada-Largone](#) talc deposit, is 26 by 14 centimeters (10 × 5.5 in) in size, as shown on Mindat. This is the only palygorskite specimen shown from this locality.

Many palygorskite localities have only one image posted on Mindat, even though palygorskite is relatively common there. Most localities are not mentioned in this article because the specimens are neither unusual nor terribly attractive. By contrast, the Brusada-Largone specimen is both large and attractive. It is probably not the only nice one at this locality; it seems geologically likely that there are many more.

Small specimens of silvery white palygorskite with calcite crystals were found at the [Grollo Quarry](#) north-



Palygorskite, Bagnada-Ponticelli Mine, Lanzada, Lombardy, Italy. Source: Mindat; photo: Luigi Chiappino.

west of Vincenza, Italy. This active quarry produces Italian marble, so more palygorskite may be recovered there.

Russia is home to the type locality for palygorskite, though there are no images of the type specimen and I could not readily find information about the type locality, the Second Mine in the Perm Krai region. Mindat shows a single specimen from the [Board of the Volga](#), Povolzhsky region; the specimen appears to be very finely matted and leathery. I could not determine why the locality is named “Board of the Volga.” Given the vastness of Russia, palygorskite is likely to be found or has been found in limited quantities (thus far) in other parts of the country.

Jumping to the Australian state of Tasmania, a chunk of massive white palygorskite measuring 6.5 by 5.0 by 2.0 centimeters ($2.6 \times 2 \times 0.8$ in) was found in the waste piles from excavating the [Tungatinah Tunnel](#). Logically and geologically, there must have been more palygorskite from this locality because the pictured specimen is a mass with rough rather than leathery edges, suggesting that part of it is missing.

The strangest palygorskite specimens I’ve seen are two from the [Mount Elliott Mine](#) in Queensland. These are gray-brown tubes that look like antlers. They are described as forming around calcite. They were posted by Costas Constantinides, who wrote, “Strange sensation putting hand in palygorskite to remove calcites.”



Palygorskite, Mount Elliott Mine, Selwyn District, Queensland, Australia. Source: Mindat; photo: Costas Constantinidis.

Palygorskite reports are missing from large parts of the world, such as the continents of Africa and South America. I found one specimen of brown to tan mountain leather (palygorskite) from the [La Serena](#) region of Chile. The 8-centimeter-long (3-in-long) piece has no more specific location information.

I also found reports of palygorskite in the Democratic Republic of Congo (DRC) and from South Africa; the reports were in academic papers. The paper on the DRC occurrences mentions macroscopic, fibrous samples and uses the term mountain leather, stating that massive palygorskite is more common than the leathery form. Palygorskite occurred as veins in fractured rocks. The association of fibrous palygorskite with calcite is common to other localities where collectible specimens of mountain leather have been recovered. The DRC is an unlikely destination for most mineral collectors, even though it is famous for its copper and uranium minerals and for fuchsia-colored cobalt-bearing calcite.

A scientific paper on palygorskite and sepiolite identifies both minerals in northwest South Africa, but the locations and descriptions are not useful to collectors. Similar publications of research results mention occurrences in Kenya, North Africa, Turkey, and China, though again there are no indications of specimen-quality samples. Geologists were describing economic or potentially economic industrial mineral deposits.



*Mexican palygorskite and Mayan blue artwork. **Top:** Palygorskite with quartz crystals, Naica, Saucillo Community, Chihuahua, Mexico. **Right:** Mayan warrior on Mayan blue backdrop. Sources: Mindat; photo: Rob Lavinsky (top). Wikipedia; photo: Constantino Reyes (right).*

In other areas, people may not recognize an odd, sometimes easily overlooked mineral that, though interesting, does not have showy crystals. The lack of specimens and locality descriptions is probably due to lack of awareness. Although the right geologic settings for palygorskite might exist in many places, only the sales value of crystals or cutting material motivates people to actively seek and try to recover a mineral. Palygorskite lacks such value.

This was not an exhaustive around-the-world tour of palygorskite localities—well, maybe not “exhaustive” (that is, exhausting) for *you*, dear reader. This mineral has been reported in many places. I have tried to find and share information on those of greatest interest to my fellow collectors.

The chemical structure of palygorskite allows for different morphologies (shapes) of its component molecules. That diversity results in different forms of the same mineral. The internal structures permit different industrial uses.

Palygorskite was originally used by Indigenous Americans for paint and in Europe for pottery and natural oil removal during textile manufacturing. Palygorskite from Georgia is mixed with barite and water for use as

a thickener in drilling mud. Palygorskite can also be ground and used as an absorbent in products like kitty litter. However, it is less abundant than bentonite clays, so it is used less frequently for such industrial and pet care products.

Because it is absorbent, palygorskite can also be used as in antidiarrheal medications and to reduce stomach acids. For most medicinal uses, however, palygorskite has probably been replaced by synthetic compounds.

Palygorskite has been studied as a possible human carcinogen. No known studies show that it is carcinogenic in humans, although animal studies have raised the possibility. If carcinogenic, it would be so by inhalation rather than ingestion, its medicinal use—a respiratory process rather than a digestive one. Dust from mining and processing is a general human health concern, rated as a “nuisance” concern by the U.S. Occupational Safety and Health Administration.

Exposure by collectors who view or handle palygorskite specimens is unlikely to cause any health problems. I have had my specimen for more than 50 years. I want to preserve it because it is relatively fragile, so I don’t handle it often and I certainly don’t inhale it.

“Mayan blue” is a paint color named for its use by the Mayans and Aztecs in frescos and artwork. The indigenous artists made it from plants and palygorskite, with other ingredients added occasionally. The palygorskite occurrences in the Yucatan may have been particularly valuable since these deposits are not widespread in Mexico and Central America. The color was used for at least 700 years, from about 800 to the 16th century. Its durability is evident in some of those frescos today.

I didn’t expect that palygorskite, a fibrous clay-type mineral, could be used in jewelry. I have relearned the lesson that lapidarists like a challenge. Pure or unsilicified palygorskite does not seem to be used in jewelry. A piece of mountain leather on a chain might be interesting, though not my preferred use of a nice specimen.

The mineral is used in lapidary work when it occurs as inclusions in opals; the material is called “angel skin opal.” The opal is reportedly colored pink (sometimes light gray or yellow) by palygorskite inclusions. Palygorskite furnishes the suspected inclusions and was tentatively identified as such by RAMAN spectrography, but sepiolite is a similar mineral that could form the inclusions and provide the color. These types of opal were found in lithified lakebeds in volcanic rocks in Mexico and Peru.

Palygorskite prices vary widely. Searching online sources on August 19, 2023, I saw a 10-centimeter (4-in) nice leathery specimen from Washington for \$40, one from Spain being auctioned at a price of \$6.52, and several Peruvian palygorskite/pink opals at prices from \$40 to \$300. Low-quality specimens (with little palygorskite or small amounts coating calcite) are offered on eBay for less than \$20. One distinctively shaped specimen was offered at two different prices (\$44+ and \$73+) by the same dealer. I also saw several specimens that do not show what I would identify as palygorskite.

Technical Details

Chemical formula:(Mg,Al)₂Si₄O₁₀(OH)
 Crystal form.....Monoclinic, orthorhombic
 Hardness2-2.5
 Specific gravity2.1-2.6
 Color.....Gray, light tan or beige, white, shades of off-white
 Streak White



*Pink opal containing up to 40 percent palygorskite, Acarí Mine, Acarí District, Arequipa, Peru.
 Source: Mindat; photo: Karel Bai.*

Cleavage..... 1 good
 Fracture Not mentioned
 Luster Matte, dull, earthy, occasionally slightly shiny in large matted specimens

Acknowledgments

I would like to acknowledge the many people who contributed to the article. Dr. Jeff Post confirmed that palygorskite can be either monoclinic or orthorhombic; many sources had indicated that it was only monoclinic, whereas academic papers had stated that both are possible. Rolf Luetcke tested his palygorskite specimen from Arizona and confirmed that it is fluorescent, a fact that I could not find elsewhere. Several people graciously gave their permission to use their photos.

Sources

Active Minerals. N.d. (no date). [Attapulgitite](#).
 Arem, J 2023. [Palygorskite value, price, and jewelry information](#). International Gem Society.
 Arnold, D.E.; Neff, H.; Glascock, M.D.; Speakman, R.J. 2007. [Sourcing the palygorskite used in Maya Blue: A pilot study comparing the results of INAA and LA-ICP-MS](#). Latin American Antiquity 18(1): 44–58.

Christ, C.L.; Hathaway, J.C.; Hostetler, P.B.; Shephard, A.O. 1965. Palygorskite: New x-ray data, *The American Mineralogist* 54(Jan-Feb): 198-205.

Fritsch, E.; Gaillou, E.; Ostrooumov, M. [and others]. 2004. [Relationship between nanostructure and optical absorption in fibrous pink opals from Mexico and Peru](#). *European Journal of Mineralogy* 16: 743-752.

International Agency for Research on Cancer. 1997. [Silica, some silicates, coal dust and para-aramid fibrils](#). IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 68: 256-271.

James St. John Geology. N.d. [Palygorskite](#).

McShane, D. 2010. [Notes from the Metaline Formation Lead/Zinc District](#). Blog. 25 August.

Mees, F.; Adriaens, R.; Delgado-Huertas [and others]. 2019. Palygorskite-bearing fracture fills in the Kinshasa area, DR Congo—an exceptional mode of palygorskite vein development, *South African Journal of Geology* V.122(2): 173–186.

Mindat. N.d. [Palygorskite](#).

de Pablo-Galán, L. 1996. Palygorskite in Eocene-Oligocene lagoonal environment, Yucatan, Mexico. *Revista Mexicana de Ciencias Geológicas*, Vol 13(1).

von Safftschenkow, T. 1862. Paligorskit. *Verhandlungen der Kaiserlichen Gesellschaft für die Gesamte Mineralogie zu St. Petersburg* 1862: 102-104.

Suárez, M.; García-Rivas, J.; Morales Sánchez-Migallón, J.; García-Romero, E.. 2018. [Spanish palygorskites: Geological setting, mineralogical, textural and crystal-chemical characterization](#). *European Journal of Mineralogy* 30(4): 733–746.

Washington Minerals. N.d. [Pend Oreille and Grandview Mines](#).

Wikipedia. N.d. [Fuller's earth](#).

Wikipedia. N.D. [Maya blue](#).

Wikipedia. N.d. [Palygorskite](#).

Cyprus: Geology and Minerals September 18 Program

For our club meeting on **September 18, 7:30 p.m.**, Casper Voogt will speak about Cyprus, its geology, and its long history of mining. Casper recently went to Cyprus to collect serpentinite and visit archeological sites. For thousands of years, invaders from Rome, Great Britain, and elsewhere have used Cyprus for its strategic location in the Mediterranean Sea and for its mineral resources. Casper, the NVMC's webmaster, is a lifelong mineral collector who has visited localities in countries around the world.

At our meeting, we will also be sharing mineral-related finds and adventures over the summer. Please join us on Zoom at <https://tinyurl.com/ycx7tf8j>.

In addition, we will discuss the upcoming club show on November 19-20. We had a successful show last year, so let's build on what we learned. Show Chair Tom Taaffe will lead the discussion; see his article on page 16. We will need volunteers to play various roles needed for a successful show. ♪



President's Collected Thoughts

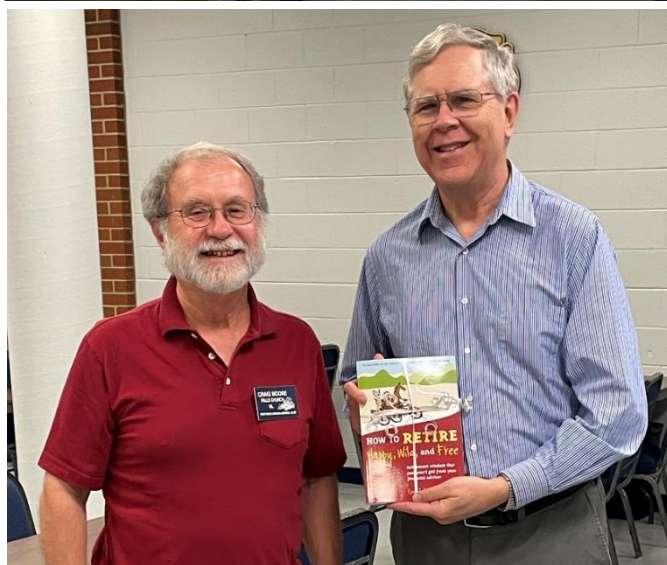
by Jason Zeibel

This summer has really flown by! As I write this, there is less than a week until our local schools start classes for fall. Pretty soon there will be football, Halloween decorations, and pumpkin spice everywhere.

Before that, let's look back at the last couple events for the club.

In June, we had a wonderful program presented by Dr. Jeffrey Post about his work with the Smithsonian's mineral collection. Dr. Post is an enthusiastic speaker, and I thank everyone who attended either in person or virtually. Dr. Post graciously autographed copies of his books and posed for many pictures with our members. We presented him a club t-shirt, and Vice President Craig gave him with a book on enjoying retirement. Germaine even brought a mineralogically themed cake with some of the institute's more famous holdings.

It was a wonderful evening, and we thanked Dr. Post for his dedication throughout his distinguished career to our nation's premier mineralogical collection—and for his support for our club in particular. (See the pictures from Dr. Post's visit and presentation.)



Dr. Jeffrey Post presenting at the June NVMC meeting (top); receiving a book on how to enjoy retirement from NVMC Vice President Craig Moore (middle); posing with Germaine Broussard, who baked a cake featuring geodes (bottom); and posing with club member Celia Zeibel (left). Photos: Jason Zeibel.

In August, the NVMC held its annual summer picnic at the home of yours truly. Nearly 30 people attended, and we were blessed with nice weather. We had plenty of food, fun, pool time, and fellowship. Many people went home with some new rocks and minerals. My daughter, NVMC member Celia Zeibel, got to show off her collection of ultraviolet fluorescing minerals to the partygoers. I was especially encouraged by the number of youth mineral enthusiasts at the party and hope to encourage that going forward.

I want to give a big thank you to all those who came and helped out with setup or cleanup and for all the wonderful food that you guys brought!

One event coming up is our fall gem, mineral, and fossil show at George Mason University. Please book your calendars for November 18-19. This will be our 31st annual show, and it will take many volunteers to run smoothly. Tom Taaffe, our show chair, will make printed handouts available at club events. I encourage you to leave them at appropriate community locations and bulletin boards to get the word out. Also, please consider signing up to help at the show. You can help in many ways, all appreciated. Tom and I thank you!

Our Vice President Craig Moore is always on the lookout for good speakers. If you have an idea for a talk, please reach out to Craig. It doesn't always have to be a fully developed hour-long event. We are also looking at putting a few short talks together for a club member night, with talks that are more relaxed and can come with or without slides. Of course, if you come across a good speaker or someone who might be of general interest to the club, please reach out!

Finally, we have nailed down a meeting date of Monday, October 2. On that date, we will have a fall auction in person at the Dunn Loring Fire Department. You can plan on meetings typically being on Monday nights, but between holidays, other meetings, and site and personnel availability, we are still nailing down the details after October. Some meetings will be on Zoom, while others are going to be in person or hybrid. We are trying to stick to the first-Monday cadence, but watch your email for updates. Please remember to put the club's email address (members@novamineral.club) on your "good list" to avoid having updates and club communication sent to junk mail. Semper Gumby—Always be flexible! ♪

Jason



Scenes from the NVMC's summer picnic in August at the home of NVMC President Jason Zeibel (bottom, lower left) and his family. Club members enjoyed good food and company, along with games, pool time, and—best of all—free rocks and minerals. Photos: Jason Zeibel.



Diamond Discovered by Arkansas State Park Visitor

by Max Matza

Editor's note: The article is adapted from BBC News, 16 March 2023. Thanks to Sue Marcus for the reference!

A diamond discovered at an Arkansas state park was dubbed “Bud” by the man who discovered it. “That’s for ‘Big, Ugly Diamond,’” said David Anderson, a lucky tourist from Murfreesboro, TN.

Anderson found the 3.29-carat brown diamond on March 4, 2023, at Crater of Diamonds State Park. One or two diamonds are found every day at the park, which permits visitors to keep the diamonds they find.

The gem was found on a Saturday trip to the park's 37.5-acre diamond searching zone. “At first, I thought it was quartz but wondered why it was so shiny,” Mr. Anderson said. “Once I picked it up, I realized it was a diamond!”

Mr. Anderson said he has been travelling to the park since first hearing about it on TV in 2007. “After I found my first diamond, a 1.5-carat white, I was hooked,” he said, adding that he has found more than 400 diamonds since then. Other top finds he has made include a 3.83-carat yellow diamond found in 2011 and a 6.19-carat white diamond found in 2014. Like the others, Mr. Anderson says he plans to sell his recent discovery to jewelers in his area.

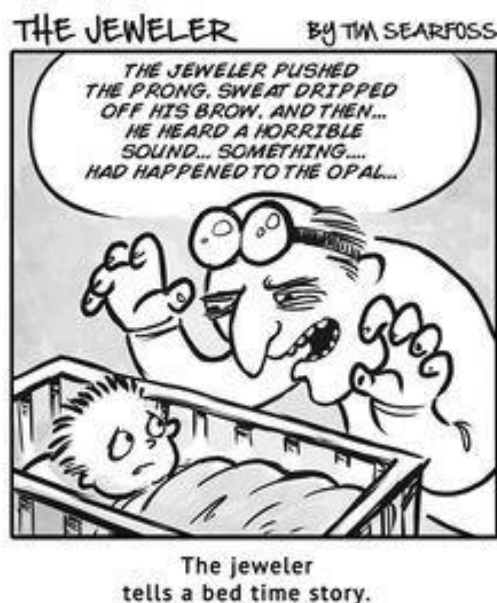
Park Interpreter Tayler Markham described the rare stone as “about the size of a pea, with a light brown color and octahedron shape.” The smooth, rounded edges on Anderson’s recent find are typical, given the “resorption” during the eruption that first brought the park’s diamonds to the surface. The diamond is the

NVMC Website Benefits Our Area

Our club website, maintained by Webmaster Casper Voogt, serves people from across our area. Proof came this summer from Piper Gianakas, a student in our area who was involved in the youth summer program at her local library and who put together a collection of geology-related references to help update a library guide. She used the [links](#) on our club’s website and then had her mother contact NVMC President Jason Zeibel to recommend a helpful teaching tool—[Rocks, Minerals, and Precious Stones](#). Thanks to Piper and Anita Gianakas!

largest found in the park since September 2021, when a visitor from Granite Bay, CA, found a 4.38-carat yellow diamond. So far this year, 124 diamonds have been found at the Crater of Diamonds State Park. Visitors can rent digging and sifting tools, and park rangers offer free identification for any rocks and minerals found in the park.

More than 75,000 diamonds have been found since 1906. Of those, more than 35,000 were discovered since the site became a state park in 1972. The site is also where the largest diamond ever found in the United States was discovered. In 1924, a white diamond with a pink cast weighing 40.23 carats was unearthed at the site. Dubbed the “Uncle Sam,” it is now on display at the National Museum of Natural History in Washington, DC. ↗





Club History Origins of the Club

by Marie L. Brown

Editor's note: This article begins an occasional series on the history of our club. It is based on excerpts from a short club history drafted by the author in December 1982 while she was serving as NVMC historian from 1981 to 1984.

The earliest club records, including the NVMC's first constitution, were lost when Raymond L. Peterson, who served as club president in 1961-62, had a fire in his home and then left the area.

However, Ray informed us that, a year or so after they were bitten by "the rock bug" (so probably in 1956-57), a small group of mineral enthusiasts started meeting as a club in his home. The first club members included John Wirts, Art Sims, Ben Wilkes, and Kirt Brickham and his mother.

Growing Membership

A gem show held in Annandale, VA, in the fall of 1959 inspired several new members to join the club. The meeting place then moved to the basement of the First Baptist Church in Annandale. Formal organizing of the club took place at that time.

The first club presidents included John Wirts, Art Sims, Dale Farringer, Don Higley, Bob Eisenhart, Bill Moran, Carl Oppenheimer, and Ray Peterson. The first newsletter editor was probably Ilene Wirts, followed by Mrs. Brickham, then George Brewster and our present editor, Ken Lawrence [the longest serving editor to date, serving from 1966 to 1982].

Fern Lindsay, who served as secretary-treasurer in 1966-67, wrote a short article for the *Annandale Globe* [a local newspaper], which attracted a few more members. Efforts to attract new members were aided by the donation of two large posters by Paul Kroger, a commercial artist and friend of a club member. The posters were rotated between various public libraries, and soon membership began to grow by leaps and bounds.

Club Emblem

In June 1969, a contest was held for the design of an emblem to be used on our newsletter letterhead. About six designs were submitted (with the artists' names withheld), and a committee was picked to select the winning design.



Ed Fouche, a founding club member who served as vice president in 1970. The photo is from January 1984.

The design submitted by Ken Lawrence, our newsletter editor, was chosen [a map of Virginia with crystals, below right]. The new club emblem was subsequently adapted for the design of our name tags and, more recently, our club patches and decals.

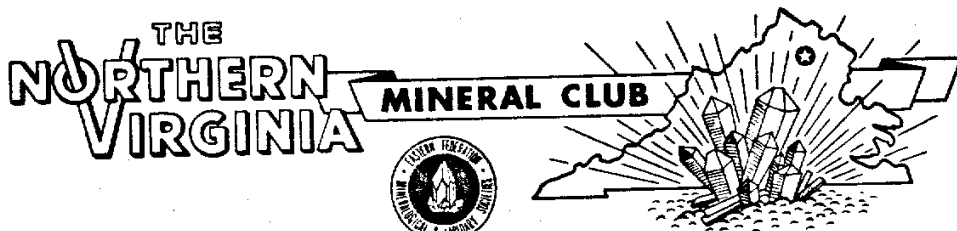
Organizational Actions

Because no copy of the original constitution could be found, a new constitution and bylaws were written and approved in October 1977 and amended in 1979-80 during the presidencies of Jim Legett, Dick Hronik, and Nancy Wiser.

In 1978, we reregistered with the EFMLS after dropping our membership in 1976 because members saw no benefits from EFMLS membership. Jim Legett [who served as EFMLS liaison in 1982-89] was instrumental in educating members about EFMLS programs and the benefits they confer to clubs like ours. It was also believed that the EFMLS was becoming more active and responsive to club needs.

In 1980, the club obtained insurance coverage; in 1982, a new and more comprehensive policy was taken out with the Insurance Associates Agency, Inc.

In 1982, during the presidency of Nancy Wiser, the club first incorporated, changing its name to The Northern Virginia Mineral Club, Inc. The club's letterhead was changed accordingly. ↗





Club Show Coming Up! November 18-19, 2023

by Tom Taaffe, Show Chair

After a successful show last year, the NVMC is holding our 31st Annual Gem, Mineral, and Fossil Show this fall with sponsorship by the Department of Atmospheric, Oceanic and Earth Sciences at George Mason University (GMU) in Fairfax, VA. The show will be on November 18-19 in Dewberry Hall, Johnson Center Building, GMU. After setup on November 17, show hours will be from 10 a.m. to 6 p.m. on Saturday, November 18, and from 10 a.m. to 4 p.m. on Sunday, November 19. Admission will be \$6 for adults, \$4 for seniors (65-plus years old), and \$3 for teens (13-17 years old). Admission is free for children 12 and under who are accompanied by a parent and for GMU students and faculty with ID.

Here are various suggestions for ways that NVMC members can help with this year's show.

Staffing the Show

You can volunteer to help during actual show hours on Saturday and Sunday. For example, we need volunteers for the **Kids' Activity Room**. This job entails administering quizzes, helping with puzzles, and awarding free specimens to kids who earn them. It also includes fielding any questions the kids have as well as helping with mineral and fossil identification. The Kids' Activity Room can get a little crazy at times, but it's lots of fun and very worthwhile.

Show volunteers needed!!

We also need volunteers to help with **setting things up** on Friday, November 18. That includes bringing items from the club's storage unit to GMU, helping to set up the Kids' Activity Room, and helping dealers at the unloading dock so that process goes smoothly.

We need volunteer help at the **admissions table**. If several club members take a shift or two, it will make the process less chaotic and more efficient.

When the show ends at 4 p.m. on Sunday, we need volunteers to help **teardown**. We will need volunteers to



Display at the annual club show in November 2015.

Photo: Sheryl Sims.

help pack up the Kids' Activity Room and gather all the club equipment and gear. We will need additional help with bringing it all back to our storage unit as well.

Donating Specimens for Kids

You can volunteer by donating mineral and fossil specimens for our kids' mines in the Kids' Activity Room. These should be suitable specimens for children, not too big or small (about 1 to 3 inches in size or weighing about 1 to 4 ounces). The specimens should be somewhat interesting and somewhat attractive and hopefully have some educational value.

Donated specimens should not be toxic, sharp, splintery, or otherwise dangerous. They would also be best in their natural unpolished state. Specimens from nearby localities are great choices, such as prehnite, amazonite, amethyst, and garnet.

Devising New Quizzes for Kids

You can volunteer to design or create a new mineral challenge, puzzle, or identification quiz for the Kids' Activity Room. Your new mineral quiz should not be too easy or too difficult; you want children to get some of the answers correct while still feeling challenged, and you want them to have learned something. If you have an idea and want feedback, please email me (Tom Taaffe) at rockcllctr@gmail.com.

For your newly designed quiz, you might want to use photos, line art, or even actual specimens. All of these ideas can work. Just remember that you want your quiz to be relatively uncomplicated and straightforward so

that it is easy enough to take and easy to grade. It's been a long time since anyone other than me designed a new quiz for the Kids' Activity Room, so please give it a try!

Getting the Word Out

You can volunteer to help promote our annual show and really get the word out. We always need help with show advertising and promotion. After 2 years of doing without a show during the pandemic, rebuilding our show's following remains important—one or two people taking it on won't be enough. We mail postcards to previous attendees, and we post our show on some rockhound show calendars; but we really could use much more help.

As you might know, myriad social media options and opportunities exist, including Facebook, neighborhood websites, the Patch, websites of regional mineral clubs, and so on. I am sure that several NVMC members are much more fluent in and comfortable with navigating and posting on the web than I am. So please volunteer to get the word out.

When you are ready, please send me (Tom Taaffe) an email at rockclctr@gmail.com, and I will give you all the specifics you will need to post our show on your selected spots on the web (show dates, place, hours of operation, admission fees, and so on). ↗

Ancient “Pipes” Found in the Caves of Mount Baigong

by James Felton

Editor's note: The article is adapted from *IFL Science*, 4 April 2023. Thanks to Sue Marcus for the reference!

Inside the caves of Mount Baigong and in the surrounding area in Qinghai Province, China, dozens of strange pipelike structures are subject to all sorts of conspiracy theories and rumors.

Known as Baigong Pipes, the structures were first noted by the Chinese state-media-affiliated [Xinhua News Agency](#). According to the article, the pipes comprise “30 percent ferric oxide [iron oxide] with a large amount of silicon dioxide and calcium oxide.” Eight percent of the makeup of the pipes could not be identified by the scientists studying it.



The intrigue of unidentified material, coupled with large iron oxide deposits and the fact that they do sort of look a lot like pipes, has led to wild speculation by conspiracy theorists. According to various [YouTube videos](#) and articles on websites that also carry a lot of Sasquatch content, the pipes are evidence of ancient advanced civilizations or else ancient [aliens](#).

So what are the Baigong pipes? Well, they do appear to be ancient, as conspiracy theorists would have you believe. But that's because they were likely formed by [geological processes](#).

Structures similar in look and/or composition to the Baigong pipes have been found in southern Louisiana, and elsewhere. The “pipes” in Louisiana, like the Baigong pipes, are probably fossilized trees, according to the geologists who [studied them](#).

“The cylinders are inferred to be tap-root casts of fossil trees in which sediments replaced wood and pedologic and diagenetic processes caused the external form of the tree root to be preserved while the internal structure was lost,” one team explained in a 1993 study.

Minerals formed around the roots before they rotted away inside, leaving the hollow-pipe effect. The same explanation has been given for the Baigong pipes, according to [Atlas Obscura](#), with experiments confirming that the “pipes” themselves contain organic plant matter.

Another [source](#) suggests that the pipes were made in a sort of natural cast. According to this theory, fissures were left in sandstone by the [Tibetan Plateau uplift](#), which were then filled with iron-rich sediment during flooding in the area.

Either way, neither process requires aliens—or pipes to take away the alien waste. ↗

September 2023—Upcoming Events in Our Area/Region (see details below)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Shows: Tucson, AZ; Raleigh, NC	2 Shows: Tucson, AZ; Raleigh, NC
3 Shows: Tucson, AZ; Raleigh, NC	4 Labor Day Show: Raleigh, NC	5	6 MSDC mtg, Washington, DC	7	8 Show: Winston-Salem, NC	9 Shows: Winston-Salem, NC; Mont Clare, PA
10 Show: Winston-Salem, NC	11 GLMSMC mtg, Rockville, MD	12	13	14	15	16
17	18 NVMC mtg, Arlington, VA	19	20	21	22 Shows: Richmond, VA; Fishersville, VA	23 Fall begins Shows: VA, MD
24 Shows: VA, MD	25	26	27 MNCA mtg, Arlington, VA	28	29	30

Event Details

1-3: Tucson, AZ—Annual show; Tucson Expo Center, 3750 E Irvington Rd; Fri 10-5, Sat 10-5, Sun 10-4; admission \$0-20; info: Colin Geal, 213-629-3030, info@jogsshow.com, www.jogsshow.com.

6: Washington, DC—Mineralogical Society of the District of Columbia; Smithsonian Natural History Museum, Constitution Ave lobby; <http://www.mineralogicalsocietyofdc.org/>.

8-10: Winston-Salem, NC—Annual show; Forsyth Gem & Mineral Club, Inc; Educational Bldg, Winston-Salem Fairgrounds, Gate 9, 412 27th Street, NW; Fri 10-6, Sat 10-6, Sun 11-5; adults \$3, kids thru grade 12 free with adult; info: Arvil Marion, marional@vadtel.net, forsyth-gemclub.com.

9: Mont Clare, PA—Annual show; Philadelphia Mineralogical Society; St Michael's Picnic Grounds, 400 Jacobs St; Sat 10-5; adults \$5, under 13/Scouts in uniform free; info: Donald McAlarnen, 610-247-5097, donmcarnen@outlook.com

11: Rockville, MD—Gem, Lapidary, and Mineral Society of Montgomery County; Rockville Senior Ctr, 1150 Carnation Dr; <https://www.glmsmc.com/>.

18: Dunn Loring, VA—Northern Virginia Mineral Club; Zoom mtg (normally at Dunn Loring Fire Station, 2148 Gallows Rd; <https://www.novamineralclub.org/>.

22-24: Richmond, VA—Show and sale; Treasures of the Earth, Inc; Richmond Raceway Complex, 600 E Laburnum Ave, Old Dominion Bldg; Fri 12-6, Sat 10-5, Sun 10-5; adults \$8, 16 & under free; info: Ellen White, 757-641-2124, Ellen@TreasuresOfTheEarth.com, www.treasuresoftheearth.com.

22-24: Fishersville, VA—Annual show; Shenandoah Valley Gem & Mineral Society; The Augusta Expo, 277 Expo Rd; Fri 2-6, Sat 10-6; adults \$5, students/seniors \$3, children 12 & under/Scouts/military in uniform free; info: Scott Gregory, 727-542-9723; sgregory357@hotmail.com.

23-24: W Friendship, MD—Annual show; Gem Cutters Guild of Baltimore; Howard Cty Fairgrounds, 2210 Fairgrounds Rd; Sat 10-6, Sun 10-5; adults \$6, children under 12 free; info: David Mitchell, myokenite@gmail.com, www.gemcuttersguild.com

27: Burke, VA—Micromineralogists of the National Capital Area; Kings Park Library, 9000 Burke Lake Rd; <http://www.dcmicrominerals.org/>.



2023 Club Officers

President: Jason Zeibel

president@novamineral.club

Vice President: Craig Moore

vicepresident@novamineral.club

Secretary: Vacant

Treasurer: Roger Haskins

treasurer@novamineral.club

Communication: Vacant

Editor: Hutch Brown

editor@novamineral.club

Field Trip Chair: Vacant

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

The Northern Virginia Mineral Club, Inc.

Visitors are always welcome at our club
meetings!

PLEASE VISIT OUR WEBSITE AT:

<http://www.novamineral.club>

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).

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 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.*

This publication may contain copyrighted material for the noncommercial purpose of advancing the understanding of subjects related to our hobby. This "fair use" of copyrighted material accords with section 107 of the U.S. Copyright Law.

You may reprint the materials in this newsletter, but if you use copyrighted material for purposes beyond "fair use," you must get permission from the copyright owner.