

May 25 Time: 3-6pm Kings Park Library in Burke, VA

Program: "Talk Micros"

by Dave Fryauff, Vice president

We have decided to meet in person, to reconnect with our micromineral club members. We have reserved a room at the Kings Park Library in Burke 3-6pm. Let's bring our microscopes, microminerals to share, and collect interesting stories. Bob Cooke will bring George Reimherr's microminerals to the meeting for members to review.

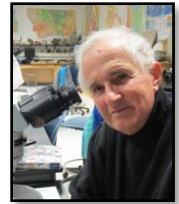
Kings Park Library
9000 Burke Lake Road
Burke, VA 22015



President's Message:

by Dave MacLean

We meet finally IN PERSON after a long night of Covid-19 and an exciting adventure of interesting talks on Zoom and two Mid Atlantic micromounter conferences on zoom 2021 and 2022 one with an auction. Thank you, Kathy, Michael Mark Kucera, and speakers.



We will meet on Wednesday May 25, 2022, at the Kings Park Library, 9000 Burke Lake Road, Burke, VA 22015-1683, which is visible at the corner of Burke Lake Road and Rolling Road. Come, we look forward to seeing you. 2022 dues are DUE. When you come, please bring \$15 individual and \$20 family for your 2022 dues in cash, check, or other coin of the realm.

We expect we will meet on June 22 at the same time and place. We must decide about a meeting place such as Long Branch Nature Center LBNC which requires that an Arlington County Park staff person is present at our cost of \$30 per hour.

Last month David Fryauff talked about "Gag Island Indonesia, My small Moment in the Great Global Search for Strategic Minerals". David was a US navy medical officer who went on an expedition to evaluate laterite nickel and cobalt deposits in Indonesia. His specific concern was insect borne diseases especially Plasmodium Falciparum and Plasmodium Vivax two types of Malaria.

Mystery Micro Mineral of the Month



Clue: Locality Riviéral, Le Bosc,
Lodève, Hérault, Occitane, France. FOV =2.5mm.
Type locality. Photomicrography by Pete Chin

continued next page

President's Message continued

Iron and nickel came to the earth in meteorites during the Hadean period 4.5-3.5 billion years ago. Much of the iron and nickel was incorporated in peridotite. The weathering of peridotite in wet tropical regions results in a cap of limonite and hematite with the nickel in weathered rock below it. Lateritic nickel is found in tropical places such as Cuba, and New Caledonia. There is nickel mining on Sulawesi and other eastern Indonesia islands including Gag Island near Irian Jaya (New Guinea). Nickel is found in the Temperate zone as a sulfide, often associated with copper.

Mystery Micro Mineral for May

The Answer is **Metalodèveite**, Riviéral, Le Bosc, Lodève, Hérault, Occitane, France. FOV = 2.5mm. Type locality. Photomicrography by Pete Chin

Mystery Micro Mineral - April Solved

by Dave Fryauff, Vice president

The mystery mineral is from the Haines Kibblehouse Penn-Md quarry in Fulton Township, State Line Chromite Mining District, Lancaster County, Pennsylvania. I am relying on you for identification. FOV is 12 mm, done with iPhone 12 stabilized to shoot through the ocular of my Leitz binocular scope with only LW 365 nm UV as the light source. FOV 12mm



The mystery minerals are **magnesite** crystals, identified by Pete Chin from Honolulu, Hawaii.

Previous Program Reviewed

by Kathy Hrechka

David Fryauff presented “Big Global Search for Strategic Minerals”. David recalled his career as a Naval Officer from 1991 to 1999 in the Medical Service Corps assigned duty to Jakarta, Indonesia, where he ran the Parasitology program of the Naval Medical Research Unit. He conducted studies in malaria epidemiology, drug treatment and prevention, and malaria drug resistance.

This work got the attention of Broken Hill Proprietaries (BHP) the huge Australian mining company. BHP contracted Naval officer Fryauff's Medical Service Corps in 1997, a joint American-Indonesian institute to conduct studies to determine the threat of malaria, filarial, and rickettsia disease to a large work force needed for full scale mining and on-site refining of the ore. Dave spoke about Indonesia holding the world's largest deposits of laterite Nickel deposit on Gag Island having Ni ore reserves of 185 million tons containing 1.49% Ni and 0.11% Co. The Gag Island Project is currently the 4th largest Ni mine in Indonesia and produced 27K metric tons of ore for offshore refining in 2020.



**Nickel Sulfides and Arsenides:
Nickelskutterudite and Gersdorffite
and Nickeline**

by Michael Pabst PhD, Treasurer

In the last article we looked at one of the most interesting and beautiful nickel sulfides, Millerite, which is NiS. There are many other nickel sulfides and arsenides. I have good examples of two such minerals, Nickelskutterudite and Gersdorffite, which are shown in the photos below. I also borrowed a photo of Nickeline because I don't have a specimen.



Nickelskutterudite is $(\text{Ni},\text{Co},\text{Fe})\text{As}_3$. It forms shiny metallic crystals in the isometric system, $m\bar{3}$ – diploidal (like Pyrite). If cobalt predominates, the mineral is Skutterudite, which explains the name Nickelskutterudite. (We will talk about cobalt minerals in later articles.) My specimen comes from Thuringia in Germany. On Mindat, there is a single photo from this locality by Frank Hrouda: <https://www.mindat.org/photo-1126690.html>



Nickelskutterudite. Burgk Quarry, Burgk, Schleiz, Saale-Orla District, Thuringia, Germany. Specimen is 22 mm wide as shown. Photo by Michael Pabst, using Olympus 60 mm macro lens, stacking 22 images.

Nickelskutterudite is black with black streak, but it is so shiny that it appears silver at certain angles, making it tricky to photograph. Hardness: $5\frac{1}{2}$ - 6. (“Chloanthite” is an obsolete synonym of Nickelskutterudite, and “Smaltite” is an obsolete synonym of Skutterudite.)

Gersdorffite is nickel sulfoarsenide, NiAsS. It crystallizes in the isometric system and is a member of the Cobaltite Group (isometric $m\bar{3}$ – diploidal), like Pyrite. Hardness 5.5. My specimen comes Morocco. It features lustrous octahedral crystals.



Gersdorffite. Ait Ahmane, Zagora Province, Drâa-Tafilalet Region, Morocco. FOV 22 mm, height 27 mm. Photo by Michael Pabst, using Olympus 60 mm macro lens, stacking 41 images.

Because of the shiny metallic faces on the Gersdorffite crystals, I photographed it without lights in my dim basement, using long exposure time. To see the problem, here is a photo provided by a good photographer, Christian Rewitzer, who sold me the specimen:

continued next page

Nickel Sulfides continued



Gersdorffite photo by Christian Rewitzer, showing mirror luster and bright faces with reflections. Looking at both photos provide the brain with a better idea of what this specimen really looks like.

Nickeline. Gersdorffite (isometric $m\bar{3}$ - diploidal) contains both arsenic and sulfur. The corresponding mineral with arsenic alone is Nickeline, NiAs, which is copper red, or Rammelsbergite, NiAs₂, which is black. Rammelsbergite is in the Löllingite Group (orthorhombic mmm). Nickeline is hexagonal $6/mmm$. Nickeline was originally named Kupfernicker from the German nickname for Satan or Nick, because the ore appeared to contain copper but yielded no copper when smelted. Renamed nickeline in 1832 by François Beudant for its nickel content.

Nickel minerals with sulfur alone include Millerite NiS or Vaesite NiS₂. Millerite is trigonal $3m$ and Vaesite is in the Pyrite Group (isometric $m\bar{3}$ - diploidal). There are other nickel sulfide minerals with various ratios of nickel and sulfur, some featuring rare crystal forms, like Krutovite NiAs₂, which is isometric $2\bar{3}$ - tetartoidal, and Maucherite Ni₁₁As₈ which is tetrahedral $4\bar{2}2$ - trapezohedral.

I don't have any nice specimens of these minerals in my collection, and I found it difficult to locate attractive photographs of these nickel minerals on Mindat.

But I have looked through hundreds of photos on Mindat, and here are a few worth clicking on:
Vaesite NiS₂ with Jamborite NiCo(OH)(SO₄)·(H₂O):
<https://www.mindat.org/photo-800439.html>

Nickeline NiAs with Pecoraite Ni₃(Si₂O₅)(OH)₄:
<https://www.mindat.org/photo-590495.html>

Rare Nickeline crystal,
<https://www.mindat.org/photo-614285.html>

(This photo of a Nickeline crystal was taken by Christian Rewitzer who permits its use through a Creative Commons license from Wikimedia Commons, so I can reproduce it below:) This is by far the best photo of Nickeline on Mindat.

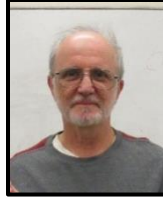


Nickeline. Eisleben, Mansfeld-Südharz, Saxony-Anhalt, Germany. Photo by Christian Rewitzer. FOV 2.3 mm.

Nickel and cobalt are next to each other in the Periodic table, so in the next article we will look at some cobalt sulfides and arsenides, which resemble those of nickel. Eventually, we might be able to see some nice colors again, thanks to cobalt.

Potomac River Zircon

by Erich Grundel, New York



In recent years we have heard several presentations by Alec Brenner on his research on zircons and other minerals from Australia. You don't have to travel to Washington's antipode, which is in Western Australia, to find zircons. They are here in the Washington area. If you know where to look you will find them literally under your feet.

Purse State Park, which is now part of the Nanjemoy Wildlife Management Area, is located along the Potomac River in Charles County, Maryland. It has long been a popular recreational site. Under low traffic conditions it is a 30-40-minute drive from the Indian Head Highway exit on the Beltway. Paleocene age fossils, especially shark teeth and the corkscrew internal mold of *Turitella sp.*, are the attractions that draws collectors. These fossils and others are abundant and easy to collect. This stretch of the river is tidal, so collecting is easiest at low tide. Check the tide tables for nearby Liverpool Point to time your arrival.

At low tide the shoreline is mostly a tan colored sandy beach varying in width from about 5'-15'. If you look closely, you will see a few areas where there are some highly contrasting black streaks. These are the heavy sands that have been naturally separated by the tidal and wind-blown waves. This is analogous to panning for gold. It is in the heavy sands that one can find zircons.

The zircons are about 1 mm in size. Zircon is a hard mineral (H=7-8) and therefore more resistant to wear. The crystals have rounded edges, indicating they have travelled a fair distance, show the unmistakable diagnostic tetragonal prism with pyramidal terminations and are euhedral. They are universally gemmy in pink- and sherry-colored shades. Some have inclusions that are beyond the limits of my microscope to resolve. Now and then a crystal shows up that has been less abraded. They make nice single crystal micromounts.

The procedure I used to isolate the zircons is as follows. I skimmed off the black sand into a small plastic container with a lid. The first thing I did when

I got home is add an equal volume of water and bleach to cover the sand in the container. I stirred it with a disposable stick and let it stand for half an hour. The bleach is necessary to kill microorganisms. The river is much cleaner than it was 50 years ago, but the site is downstream from the Blue Plains Sewage Treatment Plant.

I decanted the liquid and rinsed with stirring several times. I then spread out the sand on a Styrofoam tray like the ones that are used for packaged food like meat, produce and baked goods. If the weather was right, I put it outside in the Sun and let it dry. Once dry I used a magnet to separate the magnetite, which is responsible for some of the black color, from the mixture. Be sure to cover the magnet before attempting the separation otherwise the miniscule magnetite particles are impossible to completely remove. I then transferred the remaining sand, it stays dry, to a pie tin and used the swirling motion used in gold panning to further separate the contents. There are other non-magnetic, heavy dark minerals that separate from the preponderant quartz grains. It is in the dark material where you will find the zircons. They are, relatively speaking, not rare. I have isolated dozens of them among the many in the residue.

It remains a mystery to me where the source of the zircons (also the magnetite) is. Without a boat most of the river upstream is inaccessible and therefore tracing the zircons to their source like a prospector would is not possible. The abundance and uniformity of the crystals at the single site that I sampled tells me the source must contain quite a few of them. The only reference that I have found about zircons along the Potomac River is USGS Bulletin 1471, available online. Here it mentions zircons were used to date basalt layers that intruded in the region 550 million years ago. This does not mean the zircons I have are that old. Until their age is determined, correlating them to an existing formation and then finding their outcrop will remain unknown.

MNCA editor's note:

Erich Grundel has been the longest standing member of our club, including attending most Atlantic Micromounters' Conferences since 1969. Erich now resides in New York. Photo by Kathy Hrechka



Requesting EDS Analysis & SEM of Niobokupletskite from Auction Winner

by David Fryauff, Vice president



S-Niobokupletskite, Poudrette Quarry, Mont Saint-Hilaire, Quebec, Canada - Rob Rothenberg photo

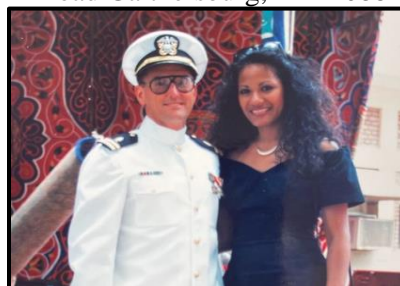
The above photomicrograph was produced by our friend, Rob Rothenberg approximately 2015. It is a stacked shot of a rare TL mineral from the Poudrette Quarry, Mont Saint-Hilaire, Quebec that I 'found' among rough pegmatite rocks set on the giveaway tables by one of the Canadian micromounters who attended the 2015 Paul Desautels Symposium in Baltimore. As time went on, I processed through ~1 kg of this interesting Poudrette Quarry rock and came upon several other nice micro (1.0 mm) specimens of this astrophyllite-kupletskite series mineral, virtually all of them attached to needles of aegerine. I donated one of these extras to the Atlantic Micromounters' Conference for auction. I believe it was the last AMC we held before Covid shut us down in 2020.

Along with this specimen I included a paper printout of the EDS profile, (performed by Lance Kearns at JMU), a glossy SEM photo of the specimen, and a paper copy of the SEM photo showing where the probes for multiple EDS spectra had been focused. I believe those papers simply referred to the specimen as MSH Sample #6 (or #7) Some "Lucky Person" bid on, and won that specimen along with the photos & EDS printouts.....

If YOU were that lucky person, would you please send me Pdf scans of those EDS & SEM results that went home with you and your specimen.

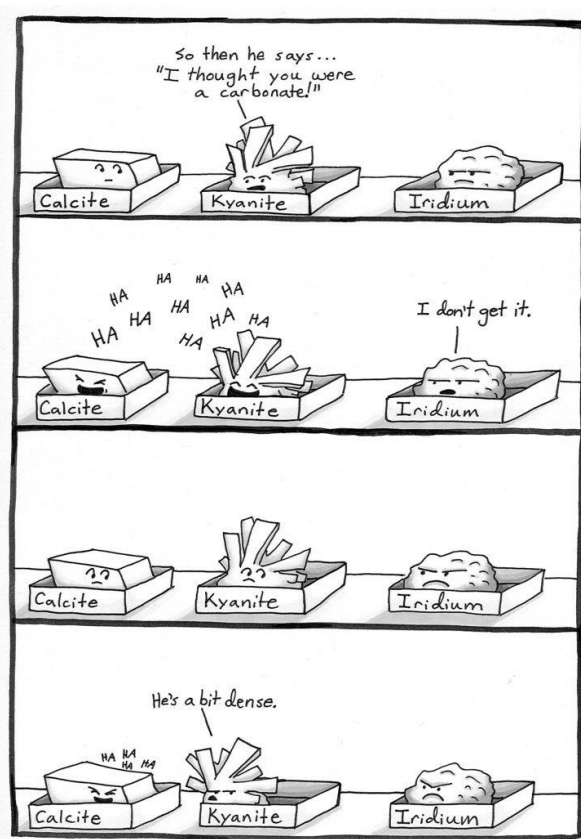
I foolishly lost the photocopies which I kept for that specimen. That turns out to be the critical EDS profile that identifies that specimen as niobokupletskite TL. THANK YOU SO MUCH!!!

Sincerely, David Fryauff phone 240-277-7206
8200 Brink Road Gaithersburg, MD 20882



Dave Fryauff and Mani, 1990 when he was still a newly commissioned USN LT and assigned to the Naval Medical Research Unit No. 3 laboratory in Cairo, Egypt. The beautiful lady in this photo is his wife, Mani. Amazingly, David was wearing that same pair of "period" glasses in Indonesia when he researched Gag Island for BHP.

Mineral Humor from internet



**Lewis and Clark Trail of Discovery
Exhibition: Sand Samples**

by Bill Beiriger, sand collector from California and a member of the International Sand Collectors Society

I have been making sand displays since 2006, and they all have different themes. Coming up with thematic ideas is easy; geographic themes, sands from your home state, beaches you have been to, sand from along a certain river, a sand from each of the 50 states, etc. are all excellent ideas. Sometimes historical events offer excellent themes and that will be the topic of the display I will describe here

The Oregon Trail 1804-1806: I call my thematic exhibit on The Oregon Trail, “Lewis and Clark Trail of Discovery Exhibition”. The journey that Meriwether Lewis and William Clark led in the middle of the first decade of the 19th century took them from Wood River, Illinois (near St. Louis) to the mouth of the mighty Columbia River (where the town of Astoria, Oregon now exists). Quite a trip today, I cannot imagine what it was like back then.

It is certain that they saw a lot of sand along the way. It would have been blowing in their faces and sticking to their wagon wheels as they forded muddy creeks and even large rivers. I suspect no one on those expeditions gave one thought to collecting a bit of sand here and there along the way: you know, to later display once back in the east.

But some years ago, I had an idea to do so. I researched the route and set out to find individuals who would trade sands from as many locations along the trail as needed for an adequate collection to display.

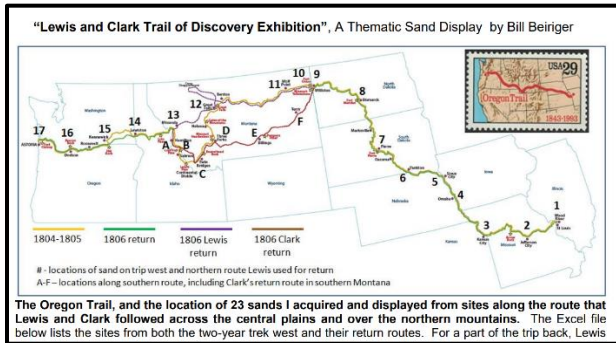
I ended up using 23 in my exhibit and I also included photographs from each site as support for the sand that is displayed in a vial just about each photo. The back of the case has a map that links the sand location to its position along the trail. A version of that map, modified for a presentation such as this and accompanied by a spreadsheet of the data can be found is included.

I did not get to all these sites to collect. Many were obtained by trade with other sand collectors. For others I wrote to schools, mineral clubs, or churches in the regions. It was sure fun when the mailman would bring me a sand for my newest exhibit.

“Lewis and Clark Trail of Discovery Exhibition”, a display of sands from along the Oregon Trail, by sand collector Bill Beiriger



Lewis and Clark continued



The Oregon Trail, and the location of 23 sands I acquired and displayed from sites along the route that Lewis and Clark followed across the central plains and over the northern mountains. The Excel file below lists the sites from both the two-year trek west and their return routes. For a part of the trip back, Lewis and Clark took different routes.

below lists the sites from both the two-year trek west and their return routes. For a part of the trip back, Lewis and Clark took different routes.

State	City	Significance of this location on the Oregon Trail
1 Illinois	Wood River	Expedition Begins from Wood River (Camp Dubois) Eastern side of Mississippi River.
2 Missouri	Jefferson City	Expedition passes Arrow Rock Bluffs, Missouri River.
3 Kansas	Kansas City	They camped on the Kansas River, noting the colorful Carolina Parakeets, now extinct.
4 Nebraska	Omaha	Expedition camps near Fort Atkinson.
5 Iowa	Sioux City	Sargent Floyd was the only member to die on the expedition, he is buried at Sioux City.
6 South Dakota	Yankton	Lewis smoked 'Pipe of Peace' with Yankton Sioux.
7 South Dakota	Pierre	The L&C party and the Teton Sioux didn't see eye to eye for the trip west.
8 North Dakota	Bismark	Clark's return, group winters at Fort Mandan on the Missouri River.
9 North Dakota	Knife River	Earth Lodges of the Mandan and Hidatsas Indians. Sacagawea gives birth to Son.
10 Montana	Fort Union	Arrived Confluence Missouri and Yellowstone Rivers.
11 Montana	Wolf Point	Six members of the expedition encountered a Grizzly Bear near Fort Peck Lake.
12 Montana	Great Falls	Great Falls of the Missouri River. One month to portage the falls.
13 Montana	Missoula	Lewis and Clark enter the mouth of the Cleanwater River at the Snake River.
14 Idaho	Lewiston	Lewis and Clark enter the mouth of the Cleanwater River at the Snake River.
15 Oregon	Hat Rock	Expedition reaches Columbia River near present day Kennewick, Washington.
16 Washington	Stevenson	Lewis and Clark camped down stream from Beacon Rock near Stevenson.
17 Oregon	Astoria	Build Fort Clatsop on the South side of Columbia River.
A Montana	Hamilton	Expedition was lost and low on food. Lost Trail Pass.
B Idaho	Salmon	Shoshone Chief Cameeawait, Sacagawea's Brother, greets the expedition.
C Montana	Twin Bridges	Sacagawea recognizes Beaverhead Rock Near headwaters of the Missouri River.
D Montana	Three Forks	They reach the forks of the Missouri River, name them the Gallatin, Madison, & Jefferson.
E Montana	Billings	Clark names a rock outcropping Pompey's Tower near present-day Billings.
F Montana	Terry	Clark traveled through these Badlands: on his return trip East.

Bill Beiriger is a sand collector from California and a member of the International Sand Collectors Society.

Author, Bill Beiriger is a sand collector from California and a member of the International Sand Collectors Society. The article is adapted from WCGMCS Sand Times, a newsletter for sand collectors published by Wayne County Gem and Mineral Club in Newark, New York. Vol 3, no. 2, 2022, editors, Fred Haynes, and Jim Reinhardt

Report on Re-opening the Mount Pleasant Mills, Snyder County, PA Wavellite Occurrence

by Bill Stephens, PG EFMLS 1st VP & Region IV RVP FM-PA Chapter President



Many of you are aware of the Wavellite deposit at the National Limestone Quarry at Mount Pleasant Mills (NLQ-MPM), Pennsylvania, located approximately 40 minutes north of Harrisburg in Snyder County PA. Many of you have seen my power point presentation at least once. For those of you that haven't and by way of refresher for those that have, green was discovered by the Quarry owner Eric Stahl in the early 2000's while clearing a perimeter roadway on the southerly, upper bench of the quarry along the southerly property line. He invited a local rockhound/expert collector or two to investigate, they did some digging and confirmed the species to be wavellite. They mined a bit, word got out and clubs began asking permission to come and dig.

Wavellite and associated species identified at the site including planerite are phosphates, largely of mineralogical interest, though non-specimen grade wavellite had been mined around the turn of the 20th century at another site in PA for matches. It blew up and that was that (Stefanic, Michael, Master's Thesis). The type and classic locality for specimen quality Wavellite in the US is in Arkansas, and pretty much any mineralogy/mineral book you pick up that has examples of Wavellite will show a color specimen from Arkansas. What we now realize is that specimens from NLQ-MPM rival any from Arkansas in size and quality, and the deposit is just being explored. MPM Wavellite is not documented in the literature beyond an abstract two paragraphs long in a proceedings book from the mid-2000's.

I first visited this site in 2015 (I think) and had great success. I went back several times as the first time the adit was open and we were able to get at the veins in solid rock, not spoils. I and others got some killer specimens. I prepared my first Power Point Presentation that year and have updated and amended it every year since.

continued next page

Mount Pleasant Mills continued

In 2017 I started considering developing a peer-reviewed article, probably for Mineralogical Record and teamed up with Ron Sloto, formerly of the USGS and now retired but doing independent research at West Chester University on PA minerals, to work toward the goal of publishing the definitive guide to MPM Wavellite. A death in the family while onsite followed by other work-related commitments and the COVID forced me to post-pone my efforts until this year. Ron had already submitted his article, which has been accepted for publication in the Mineralogical Record.

I spoke with Eric again after several years, explained what I wanted to do and paid to conduct excavation work for specimen recovery and geological work before the first club was scheduled to arrive April 9th, 2022. Over the last few years, the site and road have become overgrown, and fresh specimens unobtainable on short half-day club trips, and as productivity dropped off to near nothing, so did the digging. As part of the excavation mission, I had Eric's son clear the road, so it was passable for any vehicle, and remove the waste overburden and expand the hole first downward, and then forward. We built up the ramped portion of the roadway with waste spoils to soften the grade change which left room to place new spoils in the old mined-out section and allow room to build a pad for the track hoe over the mined-out area. Machine-assisted excavation and documentation of wavellite veins was conducted 5 days over a period of about a month, with other geologic work ongoing. Take a look at the images below showing the quarry and westerly wavellite pit as of April 13, 2022.



“Peas Popping” My geological work is on-going and you may see me up there some Saturday during a club dig. If you are interested in going, you must belong to or join a club that is scheduled to or can schedule a trip with the quarry owner. Safety meeting and the owner's orientation and Christian testimony usually take place at the Middleburg quarry and collecting usually starts at Middleburg and ends up at MPM.

Both quarries produce nice calcite, Strontianite, some fluorite and occasional Celestite, but the Wavellite is only on the upper bench at MPM. No individuals are permitted in the quarry and safety gear as well as insurance and sign-in sheets are required. If you want to know more about this site, feel free to shoot me an email, check out my Facebook page or contact the quarry owner to schedule your club for a trip. Happy Hunting!



*Bill Stephens presenting wavellite
Contact Bill at bstephens@stephensenv.com*

2021 DRAFT LIST OF CRITICAL MINERALS

D Q V R M U N A H T N A L R D
 Y U A N I O B I U M G K U H E
 S E N C E F B I S M U T H O A
 P E A M C O B A L T H M A D L
 R N D U E W D N W E U N O I O
 O E I L R K I Y N I T M O U R
 S T U A I T S I M I U M T M A
 I S M T U K U Y M I U H M L P
 U G H N M M D O N I U M U B S
 M N I A W O N F N R R M I A R
 Z U G T E Y A A W M I Q R R B
 I T H S J H T A S N L Z T I U
 N G A L L I U M U Q Z K T T L
 C R J W T F B M K I D L Y E F
 P L A T I N U M M U I D I R I

26 of the 67 Critical Minerals are in this month's Word Search. Numbers behind each mineral is how they are listed for highest to lowest supply chain risk in the Federal Register. The entire list is found in the Federal Register / Vol 86, No 214 / Tuesday, November 9, 2021 / Notices.

<https://www.federalregister.gov/documents/2021/11/09/2021-24488/2021-draft-list-of-critical-minerals>

GALLIUM (1)
 NIOBIUM (2)
 COBALT (3)
 NEODYMIUM (4)
 RUTHENIUM (5)
 RHODIUM (6)
 DYSPROSIUM (7)
 ALUMINUM (8)
 FLUORSPAR (9)

PLATINUM (10)
 IRIDIUM (11)
 PRASEODYMIUM (12)
 CERIUM (13)
 LANTHANUM (14)
 BISMUTH (15)
 YTTRIUM (16)
 ANTIMONY (17)
 TANTALUM (18)

HAFNIUM (19)
 TUNGSTEN (20)
 VANADIUM (21)
 TIN (22)
 TITANIUM (26)
 ZINC (27)
 BARITE (31)
 LEAD (37)

Review: Light Bulbs for Mineral Collectors

by Bernie Emery and Mike Seeds

Article adapted from The Conglomerate Vol 17 No 4 April 2022, a newsletter of the Baltimore Mineral Society of Maryland, Editor Mike Seeds

You probably own minerals that change color under different kinds of lighting. Garnets, alexandrites, sapphires, and many other gemstones and minerals can flip their colors as you flip light switches. To learn more about this, visit the web site

<https://www.waveformlighting.com/high-cri-led>.

You will be amazed how what we see depends on the source of light we use.

The web site is interactive and allows you to look at the spectrum of different light sources. You can also adjust the lighting on a selection of objects and see how their colors change.

Just as an example, compare the spectrum of sunlight and fluorescent light shown here. Fluorescent lights work because there is a small bit of mercury inside the fluorescent tube. Electricity excites the mercury to emit light at specific wavelengths (emission lines) in the ultraviolet, blue, green, and yellow. Phosphor on the inside of the tube is supposed to absorb those colors and reemit the energy as white light, but some of the light from the emission lines leaks through the phosphor. That gives light from fluorescent lights a greenish cast, and snapshots of people taken under fluorescent lights make them look like they are sickly green. Imagine how bad your minerals would look under fluorescent lights.

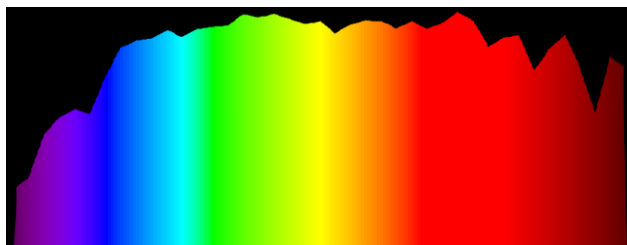
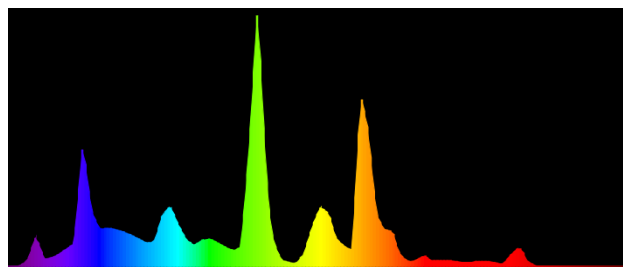


Fig 1 The spectrum of sunlight (top) includes roughly equal amounts of visible wavelengths to make what we experience as white light.



Light from fluorescent lights (lower spectrum), includes strong emission lines that change the colors of objects.

Visit the website and you can learn about CRI, Color Rendering Index, the ability of a light source to bring out the natural color of objects. The site allows you to perform experiments to try different CRIs and different sources of lighting. Waveform Lighting provides the website. They make and market different kinds of light sources including light emitting diode (LED) lighting.

The sky on Mars is pink because of all the dust in the atmosphere, so colors there are distorted. But are they less real than those we see on Earth? Philosophers might argue about what real color means, but mineral collectors know what an alexandrite should look like. You can learn all about light and color at this website.

Mineral Scrambles: Unscramble

Mug Spy _____

Poised ID _____

A Rue Zit _____

Mop Ensued _____

Oh Arena Pun _____

What do these minerals have in common?

Answers on page 13.

Mineral Scramble adapted from The Conglomerate Volume 17, Number 4, April 2022, a newsletter of the Baltimore Mineral Society of Maryland, Editor Mike Seeds

**Friends of Mineralogy VA Chapter
FMVA April 29th speaker recap
“Mineral Supply Chain Transparency
a Traceability” by Cameron Scadding
of Perth, Australia.**

by Kathy Hrechka

On April 29 Cameron Scadding from Perth, Australia presented “Mineral Supply Chain Transparency a Traceability” Does provenance matter in the mineral supply chain?

Cameron grew up in Western Australia on the family farm located in the wheatbelt region. He pursued a career in forensic science, which led him to become a forensic practitioner for the past eighteen years at Source Certain International. Source Certain International is an Australian scientific technology company with leading capabilities in provenance, analytical and forensic sciences. Their evidence-based provenance verification solution is used in programs for seafood, horticulture, agriculture, mining, and natural resource sectors. Their team is the leading supplier of forensic and analytical chemistry services in Perth, Western Australia.

Source International can verify product provenance to an unparalleled level of precision, allowing them to distinguish between two neighboring orchards, different kimberlite pipes within a single mine or a cage egg shed and the free-range field next door.

Gold-fingerprinting: When gold is mineralized of becomes solid in the Earth’s crust, it takes with it characteristic elements of specific origin or provenance. A sample of gold is analyzed with a laser for contaminant elements and isotope signature. This composition is used to build a pattern that is reflective of the gold’s locality.



Cameron Scadding in his laboratory

**Mineral Talks Live - May 4th recap
“Tsumeb” by Malcolm Southwood,
Melbourne Australia**

by Kathy Hrechka

Each month, Bryan Swoboda of Blue Cap Productions in Honolulu, Hawaii presents various mineral persons of interest on Zoom. On May 4, Bryan interviewed Malcolm Southwood from Melbourne, Australia who presented minerals from “Tsumeb”.



Malcolm sharing cuprite from Tsumeb, Namibia

Biography: Malcolm studied geology at Reading University in England and then earned a PhD in economic geology. In 1984 and 1985 he was assigned to a project team working at the Tsumeb mine in Namibia, which was the start of an enduring interest in all things related to Tsumeb mineralogy. He now lives in Melbourne and since retiring 10 years ago, spends most of his time researching the mineralogy and history of Tsumeb and one or two other interesting localities.

continued next page

Mineral Talks Live continued

Malcolm holds honorary positions at the University of Wollongong in New South Wales, as well as Geoscience Australia in Canberra, and has published more than fifty articles and papers, including Tsumeb related of which many are in the magazine, Rocks & Minerals. Malcolm is a consulting editor for R&M.

All MLT lectures are complementary to our geology community through Dr. Rachel Alanzo Perez from the Mineralogical & Geological Museum at Harvard University, and Dr. Eloise-Gaillou, curator of the Mineralogy Museum Paris School of Mines in France representing the Society of Mineral Museum Professionals SMMP. Each program is recorded, so you can view archived speaker topics.

<http://go.mineraltalkslive.com>

To join, register in advance for future webinars: <http://go.mineraltalkslive.com/register>

Scrambles: Answers from page 11

Mug Spy _____ Gypsum _____

Poised ID _____ Diopside _____

A Rue Zit _____ Azurite _____

Mop Ensued _____ Spodumene _____

Oh Arena Pun _____ Uranophane _____

What do they all have in common?
They all form monoclinic crystals.

Micromineral News from Australia May 17 @ 4pm ET on Zoom “Mines and Minerals of the English Midlands” by Martin Stolworthy

Steve’s website registration link is below:
<https://crocoite.com/index.php/2021/07/the-micromount-club-zoom-sessions/>

Steve Sorrell from Melbourne, Australia hosts a program every other Tuesday at 4pm (ET) with various geology persons of interest at their micromount meeting. You can sign up for Steve’s programs, and meet new presenters, while enjoying friendly faces within our geology community around the globe.



steve@sorrellpublications.com

The Micromount Club Facebook group has been meeting on Zoom every other week, hosted by Steve Sorrell in Australia. All presentations are available through the following link:

<https://www.youtube.com/playlist?list=PLwdOHcjmducFKcDw8d2qgAoEEEB0M7vht>

Steve Sorrell Mindat Photo of the Day!

8.5.2021 Ilmenite from Lethbridge Quarry, Victoria



MNCA Editor’s note: thanks to Steve, we have been connecting with new mineral friends around the world for the past two years. I have learned that he is a master photomicrographer, as well as a publisher of mineral books and a talented artist.

Micromineralogists of the National Capital Area, Inc.



American Federation of
Mineralogical Societies

(AFMS)
www.amfed.org

Please read the AFMS bulletin attached in original monthly email to MNCA members.

2022 Purpose of the AFMS: To promote popular interest and education in the various Earth Sciences, and in particular the subjects of Geology, Mineralogy, Paleontology, Lapidary, and related subjects, and to sponsor and provide ways to coordinate the work and efforts of all interested persons and groups; to sponsor and encourage the formation and international development of Societies and Regional Federations and thereby to strive toward greater international good will and fellowship.

Congratulations! Matt Charsky Arlington, Virginia was recently voted as 1st Vice President of the American Federation, representing the EFMLS.

University of Arizona Alfie Norville Gem and Mineral Museum at the Historic Pima County Courthouse, Is Now Open!

By S. Kaminski, Mineralogical Society of Arizona

A new gem, and mineral museum has opened in Tucson, Arizona. The University of Arizona Alfie Norville Gem & Mineral Museum (UAANGMM) is located within the historic Pima County Courthouse, an iconic and historic building of magnificent Spanish Revival architecture in the heart of Tucson

*Full article published in the AFMS News Sept 2021



Celebrating 50 years!

The Rock & Gem magazine is recognized as the official magazine of the AFMS.

Free archived downloads

[Rock & Gem Magazine Archive : Free Download, Borrow, and Streaming : Internet Archive](#)



Eastern Federation of
Mineralogical and Lapidary
Societies

(EFMLS)
<https://efmls.org>

**Communication and Involvement
Are the Keys to Our Success!**

Please read the EFMLS bulletin attached in original monthly email to MNCA members.

Local Geology Club Meetings:

May 2022

**4: Mineralogical Society of the District of Columbia
MSDC 7:30 Zoom**
www.mineralogicalsocietyofdc.org

**9: The Gem, Lapidary and Mineral Society of
Montgomery County, Maryland - GLMSMC
7:30 pm** www.glmsmc.com

**?: The Gem, Lapidary and Mineral Society of
Washington, DC - GLMS-DC meeting**
www.glmsdc.org

**18: The Baltimore Mineral Society BMS
7pm Zoom**
www.baltimoremineralsociety.org

**23: Northern VA Mineral Club – NVMC meeting
7:00 pm Hybrid Zoom/in person**
www.novamineralclub.org

**25: Micromineralogists of the National Capital
Area, Inc. - MNCA 3-6pm - Kings Park Library, 9000
Burke Lake Road, Burke, VA 22015-1683**
www.dcmicrominerals.org

**Eastern Federation event:
WILDACRES – 2022 Spring Session
May 16-22 in Little Switzerland, NC**



GeoWord of the Day and its definition:

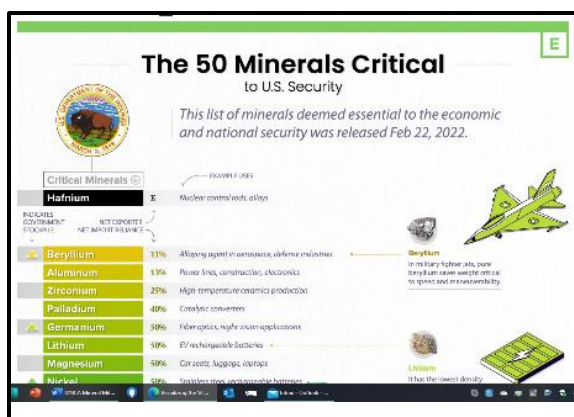
azurmalachite (az-ur-mal'-a-chite) An intimate mixture or intergrowth of azurite and malachite, usually occurring massive and concentrically banded, and used as an ornamental stone.

enhydrite (en-hy'-drite) (a) A mineral or rock having cavities containing water. (b) *enhydros*

All terms and definitions come from the [Glossary of Geology, 5th Edition Revised](#). GeoWord of the Day is brought to you by EnviroTech!

envirotechonline.comwordoftheday@agiweb.org

AGI was founded in 1948, under a directive of the National Academy of Sciences. It is a not-for-profit 501(c)(3) organization dedicated to serving the geoscience community and addressing the needs of society. AGI headquarters are in Alexandria, Virginia.



submitted by David Fryauff, Vice President

This graphic lists all minerals that are deemed critical to both the economic and national security of the United States. Read More Here:

<https://www.visualcapitalist.com/the-50-minerals-critical-to-u-s-security/>

Micromineralogists of the National Capital Area

www.dcmicrominerals.org

We are temporarily meeting at Kings Park Library in Burke, 3-6pm (forth Wednesdays) until we locate our permanent meeting place.

MNCA Purpose: To promote, educate and encourage interest in geology, mineralogy, and related sciences.

- President: Dave MacLean
- Vice President: David Fryauff
- Secretary: Bob Cooke
- Treasurer: Michael Pabst
- Editor/Historian: Kathy Hrechka
- Website: Kathy Hrechka
- AMC Conference: Kathy Hrechka

The society is a member of:

- * Eastern Federation of Mineralogical and Lapidary Societies (EFMLS) www.efmls.org
- * American Federation of Mineralogical Societies (AFMS) www.amfed.org affiliation

Dues: MNCA Membership Dues 2022

\$15 (single) or \$20 (family) donations

MNCA - Michael Pabst, Treasurer

270 Rachel Drive

Penn Laird, VA 22846

Editor's Note: By Kathy Hrechka

Send your articles and photos to your editor. **Club Article Deadline is 1st of each month.** *The Mineral Mite* will be emailed by 5th. **No newsletter July/August**

Inducted into Editor's Hall of Fame – 2018 EFMLS Trophy 2021 Small bulletins

Newsletter inputs:

- *Dave MacLean
- *Michael Pabst
- *Kathy Hrechka
- * Erich Grundel
- *David Fryauff
- *Pete Chin
- *Bill Stevens

