



The Mineral Newsletter

Next meeting: December 4 Time: 6:30 p.m.

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



Titanite

Tormiq Valley, Skardu District, Pakistan

Source: Wikipedia Photo: Carles Millan.

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Explore our [website!](#)

December Meeting:

Holiday Party

Details on page 9

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Mineral of the Month Titanite

by Sue Marcus

We have a mineral with two names as our November Mineral of the Month. Some of us know it as sphene, but the accepted mineral name is titanite. The reason for the two names may have been two mineralogists describing the same substance while unaware of each other's work.

Names and Type Localities

In 1791, William Gregor identified a previously unknown element in ilmenite, which Martin Klaproth described later that year. Klaproth named the new element titanium after the Titans of Greek mythology, who were the children of Gaia (Mother Earth) and Uranus (Father Sky). Klaproth bestowed the titanite moniker on the mineral when he described it in 1795, recognizing the titanium in his new mineral's chemistry.

In 1801, famous mineralogist René Just Haüy named the same mineral sphene: based on its wedge-shaped crystals, he derived the name from the Greek word for wedge (pronounced "sfina"). Mindat lists four localities as "co-type localities," meaning the sources of the originally described materials.

We're now led into unknown territory (at least to me).

Klaproth's 1795 report is in his native German; Google Translate provided some useful translation and some gibberish. Klaproth obtained the material from "Prof. Hunger," and the original description mentions the locality as *von Passau* (or from the area of Passau, a city in Bavaria, Germany).

What about Haüy's specimens? Two co-type localities are New York sites, Phillipsburg in Putnam County and Rossi in St. Lawrence County. Presumably, Haüy's specimens came from these New York sites, though I did not find any written record of that.

In 1801, however—the same year that Haüy reportedly described sphene—he published a *Treatise on Mineralogy*, with a drawing of "*titane siliceo calcaire*." Titanite is a calcium titanium silicate. There is no reason to doubt that Haüy named that same mineral "sphene," although the book is not digitized and I did not have a copy to confirm that.

According to Mindat, a variety of titanite has a distinct parting, originally mistaken for cleavage. Because



Merry Christmas!

Happy Hanukkah!



Northern Virginia Mineral Club members,

Happy holidays! We will hold our annual holiday party at the Dunn Loring Fire Station (our usual meeting place) on **December 4, 6:30 p.m.**

See details on page 9.



Titanite with fluorapatite, Miller Property, Sebastopol Township, Renfrew County, Ontario, Canada. 5.1 centimeters.

Specimen and photo: R. McDougall.

titanite has no such cleavage, this variety was described as a separate species in 1840 by Charles Upham Shepard. Shepard called the variety *lederite* in honor of Alois Joseph Xaver Freiherr von Lederer, a mineral collector and the Consul General of the Austrian Empire to the United States in 1820-42.

Titanite can occur in igneous, metamorphic, or sedimentary rocks. It is found as a minor constituent of plutonic igneous rocks like granite or syenite. It is more likely to be concentrated in metamorphic rocks like marble or gneiss. Though it breaks through parting, the grains can be tough and concentrate in sediments that become sedimentary rocks.

We will now review some of the titanite localities around the world. In addition to those discussed below, titanite occurs in New Mexico, Sweden, Myanmar (Burma), India's Mettur area, and elsewhere.

Canada

Many localities in Canada have produced titanite specimens, and I will mention only a few. Canadian titanite specimens are normally dark brown to black. Twinning is less common than in specimens from many other countries.

An exception to the opacity of most Canadian titanites is the [Poudrette Quarry](#). This quarry in Mt. Saint Hilaire, Quebec, is famous for its many crystallized mineral species; it is the type locality for more than a dozen minerals. Titanite, like many other minerals from here, is typically in micros. The crystals are pink, yellow, brown, and (more rarely) colorless, and they are usually transparent.

Well-formed opaque black titanite crystals reaching at least 4 centimeters (1.6 in) in size, some on matrix, were found in the [ZEC Bras-Coupé-Désert](#) area of Quebec. The French acronym [ZEC](#) stands for *zone d'exploitation contrôlée* (controlled harvesting zone), an area where the government controls recreational activities like hunting and fishing. Most collecting here seems to have been done in 2015.

The [Yates Mine](#), near Otter Lake, Quebec, was the source of sharp opaque black titanite crystals, some attractively perched on contrasting cream-colored scapolite. Specimens from [Bear Lake, Quebec](#), are opaque, black, and lustrous.

Most titanite specimens from Ontario are black or dark brown and opaque. Some localities might still produce specimens, whereas others have been reclaimed. Bad behavior by collectors has also closed some places to future collectors. Haliburton County, Ontario, includes several titanite localities, including one called Bear Lake (there are lots of bears in the North Woods); both Ontario and Quebec have titanite at their Bear Lakes. Ontario's [Bear Lake Diggings](#) produced a fractured



*Titanite (contact twin), County Highway 21, Haliburton County, Ontario, Canada. 6.2 centimeters.
Specimen and photo: R. McDougall.*

chunk of a titanite crystal measuring 12 centimeters (4.7 in) in size. Imagine the full size of the original crystal!

Black, opaque, occasionally submetallic titanite crystals up to 4 centimeters (1.6 in) in size were found in the [Tory Hill](#) area in Monmouth Township. Another Monmouth locality, the [Millar's Mine](#), produced similar specimens. Some titanite crystals from [Cardiff Township](#) have anatase overgrowths.

[Renfrew County](#), Ontario, is another source of titanite crystals from multiple localities. The [Smart Mine](#) (Miller's property) should not be confused with the Millar's Mine; both are Ontario titanite localities but in different counties. Smart Mine titanites can be large. A stack of sharp crystals pictured on Mindat was estimated to be 18 centimeters (7 in) long, with no evident point of attachment. Another twinned crystal measured 12 centimeters (4.7 in).

Titanite from [Turner's Island](#), as from most Ontario localities, is black and opaque. What stands out about this locality is the size of the crystals. A Mindat

description of the locality mentions titanite specimens weighing over 40 pounds (18 kg) and measuring up to 1 foot (0.3 m), although there is no photographic verification.

Lustrous titanite was also found near [Eganville](#). One single (untwinned) crystal from Renfrew (town area) measures 5 centimeters (2 in) across. At the [Faraday \(Madawaska\) Mine](#) in Hastings County, dark single crystals grew to at least 6 centimeters (2.4 in).

New York

Titanite has been found at several New York sites. Other than the famous Tilly Foster Mine, most seem to be one-time finds. Localities include [Manhattan Island](#) (nothing more specific); near [Monroe](#) and [Amity](#) in Orange County; and the [Farr property](#) in Lewis County.

The [Tilly Foster Mine](#) in Putnam County was an iron mine in the 1800s. More recently, it has become famous for its mineral specimens. Titanite from this mine is usually honey-colored and translucent to (rarely) transparent. Honey comes in many hues, as does Tilly Foster titanite. Famous mineral collector and dealer Rock Currier owned a gorgeous “butterfly” twin that was 2 centimeters (0.8 in) long. Some of a trove of gem-quality crystals found in 1891 were



Titanite, Tilly Foster Iron Mine, Putnam County, New York. Source: Mindat; photo: Heritage Auctions.

faceted. This is a closed locality, now partly flooded by a reservoir.

Maryland

Maryland is a minor source of titanite crystals. Dana's 1855 *Manual of Mineralogy* mentions titanite (as sphene) associated with iron ore 25 miles from Baltimore “on the Gunpowder [River].” Mindat has three titanite images from Maryland, one each from the Jones Falls Quarries (Baltimore), Frost Quarry (Howard County), and Vulcan Harve de Grace Quarry (Hartford County). At the last of these, Johnathan Harris recovered a titanite specimen with crystals up to about 2 centimeters (~0.9 in) in size during a 2011 field trip by the Gem, Lapidary, and Mineral Society of Montgomery County.

Mexico

Baja California isn't noted for minerals, but titanite is an exception. Some of the titanite from the [San Quintín Municipality](#) is colored green by chromium, resulting in rare and lovely specimens that lack the yellow influences of most titanites.

The International Gem Society's [titanite page](#), by Joel Arem, shows a blue-green faceted titanite, along with orange and yellow faceted stones from Baja. This source reports crystals up to 10 centimeters (4 in) in size, though there is no confirming image. John



Titanite, San Quintín Municipality, Baja California, Mexico. Source: Mindat; photo: Rob Lavinsky.



Top: Titanite, Capelinha, Minas Gerais, Brazil. **Bottom:** Titanite, Zillertal, Tyrol, Austria. Source: Mindat; photos: Dan Weinrich (top) and Rob Lavinsky (bottom).

Sinkankas reported titanite from other Baja California locations, though none could be confirmed.

Brazil

[Capelinha](#) in Minas Gerais State is one of the two most prolific producers of attractive titanite specimens. The crystals are normally slightly yellowish green, like peridot. Small transparent golden crystals were found less frequently. Feldspar-rich veins hosting titanite are thought to have originated from fluids during metamorphism of the surrounding shales.

Crystals up to about 16 centimeters (6.3 in) in size have been recovered. Some are floaters; others have matrix attached. Some collectors prefer floaters, which show off the crystals; others prefer matrix specimens because they provide some geological context. Twinned crystals are common, and some are gemmy.

Norway

An yttrium-bearing variety of titanite called keilhauite occurs in [Arendal, Norway](#). Keilhauite was initially thought to be a different mineral but was later relegated to varietal status. Specimens shown on Mindat seem to be massive and either black or pink, with one specimen exhibiting possible crude black crystals interlocked with the matrix. Perhaps the yttrium in the crystal lattice disrupts the formation of more well-formed crystals.

Other titanite specimens from this locality shown on Mindat exhibit the typical twinned titanite habit in yellow to brown crystals. Iron mines in Arendal were worked for 400 years before the last mine closed in 1975. These mines and a feldspar mine are the sources of titanite.

Austria

Near Innsbruck, Austria, in the [Zillertal](#) (Ziller Valley), stunning titanite crystals have been found, from microcrystals in matrix to a 6-centimeter (2.4-in) single crystal. The latter is a lovely yellow-orange transparent-to-translucent specimen. Crystals from this locality vary from light yellow through yellow green and light brown to orange. The transparency or translucence of specimens from this locality is unusual.

Professional specimen miners went underground at an [amphibole quarry](#) in Styria in 2016 and recovered a large titanite crystal, possibly 11 centimeters (4.3 in) long. Other large titanite crystals were also extracted.

Switzerland

Titanite specimens have been extracted from several localities in the Swiss Alps area of [Grisons](#) (or Graubünden) for more than a century. Microcrystals may be the most beautiful, with hues from yellow through green and brown and sometimes appearing as transparent crystals. Larger specimens have also come from here, commonly with yellow-green crystals that are (rarely) translucent. One specimen shown on Mindat exhibits zoning with inclusions of a Chlorite Group mineral. Single and twinned crystals were found, the largest measuring 6.9 centimeters (2.7 in). Small (up to 0.4-centimeter (0.2-in) x-shaped twin crystals) were floaters.

Gneiss quarries and other places in Switzerland's [Vallemaggia](#) are a similar source of fine but usually tiny titanite crystals. The best of these are transparent and the color of pink champagne, like Utah topaz. Colorless, green, and brown crystals were also found. One translucent green twin crystal, a floater, measured 5 centimeters (2 in).

Italy

Italy is the source of sparkling transparent-to-translucent titanite crystals. The orange color of some Italian crystals is unusual for titanite. [Spizzicatore Hill](#) produces lovely orange micros. The site, near the town of Allumiere northwest of Rome, is an ignimbrite quarry used for road gravel. Ignimbrite is a pyroclastic rock, meaning that it was detritus blown from a volcano.

Water-clear microcrystals from the [Rocca Predellara Quarry](#) near Varsi in Parma Province would be a nice addition to any micromount collection. Twins and single crystals were found. Opaque black microcrystals were also found, but these seem to be the exception here, where colorless crystals are more prevalent.

A different form of titanite occurs near [Saint-Marcel](#) in the Italian Aosta Valley. Greenovite is a manganese-rich form of titanite that is recognized as a formal variety. The original material, reported in 1841, came from this area. Specimens have been found more recently (in the 1990s). Most are opaque, with veining that looks perthitic (which occurs in some feldspars when one feldspar mineral evolves from another); the reason for the veining in greenovite is not known.

Greenovite is deep rose pink, similar in color to rhodonite, with small crystals up to slightly more than 1 centimeter (0.39 in) in size. Two Mindat images show



Top: Titanite, Montenero Quarry, Lazio, Italy. **Bottom:** Titanite, Rocca Predellara Quarry, Parma Province, Italy.
Source: Mindat; photos: Chinellato Matteo.

tiny (up to 0.3-centimeter (0.12-in)) translucent crystals on albite. Most specimens came from the former [Praborna Mine](#), from which manganese ores were extracted. Greenovite is rare. It has been found at the [Trimouns Talc Mine](#) in Luzenac, France. Unconfirmed reports of it come from the Ikalamavony District, Madagascar.

Russia

Exquisite bright-green chromium-bearing titanite comes from the [Saranovskii Mine](#) in Russia's Ural Mountains, the most beautiful titanite crystals I've seen. Most are micros, though Mindat shows crystals up to 3.2 centimeters (1.3 in) in size. Titanite from this locality is associated with clinochlore and occasionally with amesite. The source of the crystals is a chromite mine that has gone from an open pit to an underground operation. This is the type locality of uvarovite, a chromium-bearing member of the Garnet Group. The mine is probably still active, so collectors can hope for more attractive minerals from this locality.



Top: Titanite on amesite, Saranovskii Mine, Perm Krai, Russia. **Bottom:** Titanite, Dodo Mine, Saranpaul, Russia. Source: Mindat; photos: Eugene and Sharon Cisneros (top), Michael J. Pabst (bottom).

Another Russian source of titanite crystals is the Dodo Mine, also in the Ural Mountains but north of the Saranovskii Mine. Crystals from this location range in color from yellow brown through pinkish brown to dark opaque brown. Although many titanium minerals are reported from the mine, I could find out little about it. The largest crystal shown on Mindat is an 8.9-centimeter (3.5-in) floater; the size seems unusually large. A 3.1-centimeter (1.2-in) crystal perched on a 21-centimeter-tall (8.3-in-tall) hunk of rock studded with smaller titanite crystals seems more reasonable.



Titanite on feldspar with chlinochlore, Tormiq Valley, Gilgit-Baltistan, Pakistan. Source: Mindat; photo: Rob Lavinsky.

Radiating compact crystals of titanite from the [Kola Peninsula](#) have a different crystallization habit than specimens from other localities. These crystal aggregates do not show individual crystal terminations. Colors range from white to bright yellow and pink. Reddish-orange wedge-shaped crystals were also found.

Pakistan

Many collectible minerals come from the mountains of Pakistan, and titanite is one of them. Colors of titanite from the [Tormiq Valley](#) in the Gilgit-Baltistan region include light-brown, yellow-green (in lighter to darker shades), and (rarely) lovely yellow or orange crystals. Doubly terminated and twinned crystals have been found, many of which are transparent and some slightly etched. Specimens of all sizes have been extracted, with individual crystals up to 7 centimeters (2.8 in) in size. Some are floaters; others perch on nicely contrasting white albite. Chlorite inclusions cloud the interiors of some titanite crystals.

Tectonics related to the Himalayas created fissures in granitic and metamorphic rocks. The fissures were mineralized by fluids from the tectonism, resulting in the diverse suites of minerals found in this region, the Alps, and other mountains formed by these processes. Collectors are grateful for the beautiful minerals that crystallized in the openings (vugs) within the fissures.

Madagascar

Madagascar is the source of many beautiful minerals. A [claim](#) that was specifically for titanite in the north-eastern Sava Region was the most prolific producer. Specimens were extracted in the late 1990s and early 2000s; I couldn't tell whether specimens are still coming out. Titanite specimens from there are usually flattened twinned crystals in various shades of green. The best of them are transparent and gemmy; many are floaters.

Other parts of Madagascar have also produced small numbers of titanite specimens. An [emerald mine](#) in east-central Madagascar produced some titanite crystals resembling the brown-black ones from Ontario.

Titanite Uses

Titanite is used in geochronometry. Parsing that word, we learn that minerals can be used to determine the ages of the rocks that contain them. Atoms of uranium substitute in the titanite crystal lattice (atomic structure). The uranium-to-lead decay rate can be measured to determine the age of crystal formation, which is about the same as the rocks that contain it.

Titanite can also be a thermobarometer. Zirconium usually forms at temperatures above 600 °C. The amount of zirconium in the titanite lattice may indicate that a titanite-bearing rock formed under certain pressure/temperature regimes. Titanite helps tell the story of the geologic pressure/temperature/time conditions in the history of those rocks, giving the tectonic or other geologic context of the location.

Titanite can be a titanium ore, although it seldom occurs in sufficient concentrations to be economically mined. Titanium is used for specialized structural purposes that require light weight and durability, like aircraft engines and sports equipment. Because it is not



*Titanite, Ankarafa titanite claim, Sava, Madagascar.
Source: Mindat; photo: Rob Lavinsky.*



*Titanite, 43.52 carats, Madagascar. Source: Smithsonian National Museum of Natural History;
photo: Ken Larsen.*

bioreactive, titanium is also used in implanted medical devices and pins. Another significant use of titanium is as a white coloring agent in paints and plastics.

Titanite is an appealing gemstone. Transparent faceted titanite sparkles because light is readily dispersed into its rainbow of colors. A nice yellow or green cut titanite sparkles with all colors, like a colorless diamond. Titanite breaks light into its component colors even better than diamonds do, so gemologists say titanite has more “[fire](#)” than diamonds.

Titanite, often called sphene in the gem trade, isn't as hard or as rare as diamond, so titanite gemstones are not as valuable as diamonds—but much more affordable. Sphene breaks relatively easily due to its cleavability. This makes cutting it difficult, and the finished stones must be treated gently.

Some rare specimens and cut stones from Pakistan and Afghanistan change color from yellow or green in daylight to brown or orange in incandescent light. The largest cut stone that I saw online was a [yellow-green 43.52-carat stone](#) from Madagascar in the Smithsonian Institution's collection. A runner-up was a [beautiful orange gemstone](#) from Myanmar (Burma) weighing 40.33 carats and measuring 2 by 2 by 1 centimeters (0.8 × 0.8 × 0.4 in) in an unknown collection.

Small single titanite crystals are available for \$3. You can buy small miniature matrix pieces with nice crystals at prices ranging up to \$30,000. The less expensive

specimens, both singles and on matrix, come from Pakistan and are yellow through green. The \$30,000 asking price was for a lustrous twinned crystal from Brazil that was 13.9 centimeters (5.5 in) high. (Prices were found online on November 21, 2023.)

Technical Details

Chemical formula	CaTi(SiO ₄)O or CaTi(OSiO ₄) or CaTiSiO ₅
Crystal form.....	Monoclinic
Hardness	5-5.5
Specific gravity	3.48-3.6
Color.....	Black, brown, red, orange, yellow, green, colorless
Streak	White, pink
Cleavage	1 good (parting)
Fracture	Conchoidal
Luster	Adamantine, vitreous, resinous

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*Titanite on amphibole, Wannenköpfe, Eifel, Germany.
Source: Wikipedia; photo: Fred Kruijen.*

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Holiday Party December 4, 6:30–8:30 p.m.



The NVMC and the Micromineralogists of the National Capital Area are jointly hosting a holiday party this year, continuing a seasonal tradition.

We're holding the party at the Dunn Loring Fire Station, 2148 Gallows Road, Dunn Loring, VA. The clubs will furnish the main course(s) and drinks; we ask you to [sign in here](#) to RSVP and to volunteer to bring a side dish or dessert.

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 related to geology, rocks, fossils, or minerals. We'll have a gift exchange for those who want to participate. ➤



President's Collected Thoughts

by Jason Zeibel

First of all, I want to thank all the club members who stepped up at our November meeting to give a presentation or talk about a collecting locality. I found them all very interesting and

hope that we can regularly have members share with each other.

In general, I think a monthly show-and-share would be a great opportunity to enhance a sense of community in our organization.

For now, I want to start by challenging our members to come up with a catchy name for this part of our meeting. Use your imagination here—perhaps something like “Rock’n-share” or “Rock-on-Guys” or “Can-You-Dig-It.” Perhaps, given the demographics, we could even do a “fossil’s fossils.” I’m sure you guys can come up with some catchy ones as well, so let me hear them!

Club Show

In November, we held our 31st Annual Gem, Mineral, and Fossil Show at George Mason University. We had a full room of dealers as well as an extensive Kids’ Room, a STEM display, a micromineralogy exhibit, a successful silent auction, and some high-quality exhibit cases.

All this was thanks to our club member volunteers. I want to give a big thank you to all the members who donated their time and energy to making our show a success. Celia and I spent most of our time helping out with the youth activities. We saw lots of smiles on the faces of both kids and the young at heart.

I tried to talk to most of the dealers over the 3 days of the show. All were quite happy with both the facilities and the level of attendance. Most seemed to do quite well in terms of sales.

I also want to send a big shout out to the George Mason students who volunteered to help. They did the heavy lifting, shuttle driving, table moving, and all those things that you old rockhounds were advised by your doctor to stop doing! In addition, they brought some youthful enthusiasm that made the weekend truly memorable.



Many club members, along with faculty and students, helped make the club show a success (top). The NVMC club booth had many visitors, with door prizes for both kids and adults. In addition, we had an extensive silent auction on Sunday (bottom).

All photos: Jason Zeibel.

Holiday Party

The December meeting will be at the Dunn Loring Fire Station on Monday, December 4, from 6:30 to 8:30 p.m. We will be having our annual holiday party potluck dinner—a joint event together with the Micro-mineralogists of the National Capital Area.

All attendees are invited to bring a wrapped gift with a value of \$5 to \$20 that is in some way related to geology, rocks, fossils, or minerals. Those who choose to



The admissions table for the club show was staffed by volunteers (top). Other volunteers staffed an extensive Kids' Room (bottom), with over 30 different activities. Each activity led to free minerals and fossils—and to some learning! In addition, there was a STEM demonstration table and a micromount display where kids were able to explore the world of small specimens using a binocular microscope.

bring a gift will participate in a gift exchange during the party.

The NVMC will provide the main course (or courses) for dinner. Our MNCA friends will bring the drinks. All attendees are asked to bring a side dish or dessert. Watch for a sign-up genius in your email, and please plan to attend! This meeting will celebrate a fun year of rocks, minerals, fossils, and fellowship with other club members. As this will mark the completion of my first year leading the organization, I will certainly be ready to celebrate the fact that the club is still intact and solvent!

Club Officer Elections

At the December holiday party, we will also have our annual club officer elections (see the article on page 13). I have enjoyed being your president this past year and am willing to serve in 2024 if elected.

I want to thank Vice President Craig Moore for all his support this year and for his organizational abilities in arranging for our monthly programs. Similarly, I thank Roger Haskins for his many years as club treasurer! I am grateful that both Craig and Roger are willing to continue to serve next year if elected.

If you are moved to join the club leadership team, then feel free to volunteer for one of the officer positions! In addition to the elected officers, a number of other volunteer positions really could use some help. I think

we have a strong core group in our club and am hoping to see that expand in 2024. We are always open to new ideas, so please feel free to reach out to any of the officers if you have questions or concerns.

Outlook for the Coming Year

Looking ahead to 2024, we have some amazing programs lined up. In February, we will welcome Dr. Barbara Berrie, who will talk about the mineralogy of pigments. Dr. Berrie is the Department Head of Scientific Research at the National Gallery of Art in Washington, DC. She is one of the few people on the planet who is allowed to physically touch all of those priceless works of art housed in the Gallery's extensive collection. She is not only a senior conservation scientist but also a wonderful speaker. I highly encourage you to come to the February meeting for her talk.

In addition to Dr. Berrie, Craig has lined up a number of high-quality presentations for the spring. Having said that, there is always an opportunity for club members to talk about a particular topic or to suggest someone who might be able to present to our organization. Just reach out to Craig or me and we'll figure out a way to make it happen!

I do have one housekeeping note on our upcoming schedule. Since the first Monday of January falls on New Year's Day, we have decided to shift our January meeting to Tuesday, January 2. In general, I am not a fan of changing meeting days of the week. However,



Some club members displayed informative exhibits for show visitors to enjoy.

all the successive Mondays in January had significant conflicts, so we had no other choice.

Unfortunately, because we had to change our meeting date from our normal Monday, the Dunn Loring Fire Station will not be available for our meeting. Therefore, the January meeting will be entirely virtual.

But that's okay because we will still have a program and we all know how Zoom works after 3-plus years of practice. This way, we can start the new year off right with a (virtual) get-together to talk about rocks, minerals, and fossils! The good news is that we won't have to worry about this calendar conundrum again until 2029.

Semper Gumby! (Always stay flexible!)

Jason

2024 Club Officer Elections

Our December 4 holiday party will include a short business meeting to elect club officers for 2024. We have many club officers (see the list on the last page of this newsletter), but only four positions are elected each year:

- The **president** presides over club meetings and helps to coordinate club activities, ranging from auctions and the annual club show to field trips and the club newsletter.

- The **vice president** assists the president and coordinates programs and speakers for the monthly club meetings.
- The **secretary** takes minutes at club meetings for the newsletter and summarizes presentations at club meetings, again for the newsletter.
- The **treasurer** collects club dues, keeps records of club members, and handles all club financial transactions.

Jason Zeibel, Craig Moore, and Roger Haskins have agreed to stand again as president, vice president, and treasurer, respectively. The secretary position has been vacant, so we need a volunteer! If you would like to put your name into the hat for any of the four positions, please do!

We also have a number of unelected club officers (see the list on the last page of this newsletter), along with several vacant positions. Field trips are a big draw for club members, yet we lack a field trip chair. Please consider volunteering for any club officer position (see the article on page 14).

Previous presidents and vice presidents, including Tom Kim, Tom Burke, and Sue Marcus, will always be there to support the president and vice president. If you might be interested in volunteering—or just finding out more—please contact Jason Zeibel at president@novamineralclub.org or Craig Moore at vicepresident@novamineralclub.org. ↗

NVMC Hall of Fame: Elected Club Officers, 2014–2023

Year	President	Vice President	Secretary	Treasurer
2023	Jason Zeibel	Craig Moore	<i>Vacant</i>	Roger Haskins
2022	Tom Kim	Sue Marcus	David MacLean	Roger Haskins
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

Our 31st Annual Gem, Mineral, and Fossil Show

by Tom Taaffe, NVMC Show Chair

The NVMC held its 31st Annual Gem, Mineral, and Fossil show at George Mason University (GMU) on November 18-19, 2023. For 23 years, our annual event has been cosponsored by Dr. Julia Nord, mineralogy professor in GMU's Department of Atmospheric, Oceanic and Earth Sciences.

This year, the event took place in GMU's Johnson Center. Dewberry Hall, the centerpiece of our show, held our longtime mineral and fossil dealers, who always manage to surpass the wonderful offerings of the previous year's show. Additionally, Dewberry Hall featured some of our exhibits and educational displays. Door prize announcements and our traditional Silent Auction also contributed to the steady buzz of activity all weekend long.

And when showgoers were ready to experience even more buzz, they crossed over to the Gold Room, where families explored and enjoyed all the kids' activities available to them there. In the Kids' Activity Room, every mineral or fossil activity attempted earned someone a free pick from our numerous Mini-Mines. Kids could choose as many activities as they wanted. This year's showgoers found the Kids' Room overflowing with specimens to enjoy and to add to their collections.

Since 1999, Julia has been our annual show sponsor, collaborator, and benefactor. Julia secures the facility for our use and arranges most of the GMU components of our show. Julia always lobbies hard for our priorities, a skill invaluable in an academic bureaucracy.

This year, Julia really outdid herself in recruiting an exceptional group of student volunteers to help. This year's volunteers were especially attentive, involved, and supportive of our show. They helped dealers with unloading, unpacking and booth setup, Internet connectivity, and much more. The students placed directional signs all over campus and even helped drive the courtesy shuttle.

Julia's volunteers seemed to be particularly avid mineral enthusiasts and collectors, showing up early for the show opening on Saturday morning! The student volunteers included Clay, Addy, Alyssa, Amanda, David, Amber, Maya, Shannon, Allison, Elle—a really great bunch! And those are only the names I can



remember! We are deeply grateful to all our student volunteers, and we could not have done it without every one of them!

Holding a show on a campus always poses certain challenges. The Johnson Center uses an elevated loading dock, which makes loading difficult for dealers and exhibitors. During show setup on Friday night, NVMC club volunteers brought signage, electrical supplies, exhibit cases, and boxes of rocks and other equipment for the Kids' Room into the building. At the same time, arriving dealers jockeyed for space to unload all their inventory and booth supplies, all of which made for a somewhat chaotic scene. This year, GMU Events staff were very supportive, making some needed arrangements to smooth the unloading process.

Fortunately, show attendance was excellent: about 650 attendees showed up on Saturday and 350 on Sunday. Numerous door prizes were awarded over the weekend, and the Silent Auction was smooth and successful under the watchful eyes of Jeff Guerber and Craig Moore. The auction required quite a bit of preparatory work and supervision, so their efforts were deeply appreciated!

The Kids' Room was anchored by Germaine Broussard and John Weidner, with help from Jason and Celia Zeibel and others. They made sure that all the kids had fun while also learning a lot.



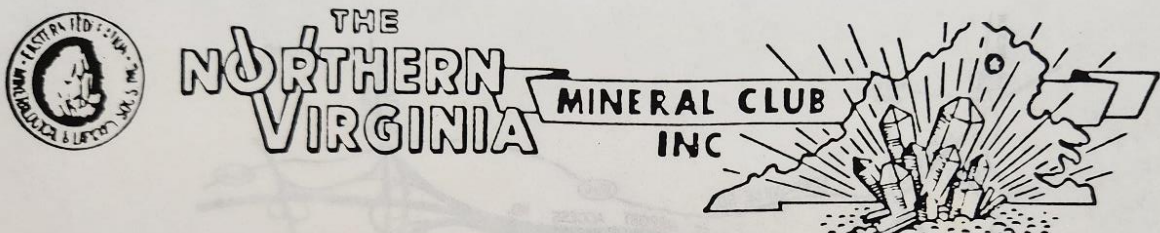
Many thanks to Roger Haskins and his team of club volunteers who staffed the admission desk over the busy weekend. And thanks to all other club members who helped out this year! ↗.



Club History Past Show Flyers



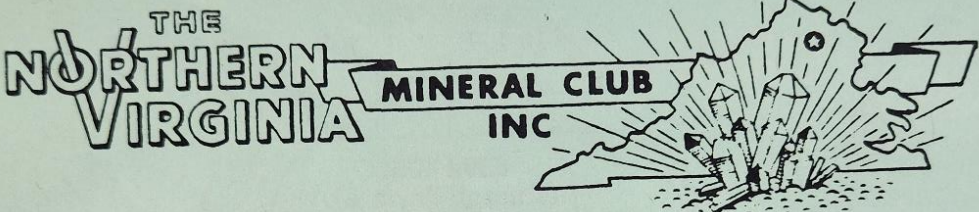
The annual NVMC show in collaboration with George Mason University (GMU) has a long record of success.

The success has been due to all the hard work of NVMC members, plus support from GMU partners, including both faculty and students. Getting out the word has been key, partly through show flyers. Here are a few from the past. Thanks to Show Chair Tom Taaffe for submitting them! ♪



**PRESENTS THEIR ANNUAL
GEM AND MINERAL SHOW**
Saturday & Sunday
November 2nd & 3rd, 1996
10:00 AM until 5:00 PM
at the NATIONAL WILDLIFE FEDERATION
8925 Leesburg Pike, Vienna, VA
(Located on Route 7 West of Tysons Corner See Map
on Reverse and Watch for Signs)

Rooms of Displays, Dealers, Exhibits, Demonstrations &
Lectures
AMPLE FREE PARKING
Admission:
Adults - \$2.00 (\$1.00 off adult admission with this
coupon)
Senior Citizens - \$1.00
Children (ages 13-18) - \$ 1.00
Children 12 and under accompanied by an adult - FREE



**PRESENTS THEIR ANNUAL
GEM, MINERAL & FOSSIL SHOW**
At GEORGE MASON UNIVERSITY
FAIRFAX, VA

NOVEMBER 4 & 5, 2000
Saturday 10:00 a.m. - 5:00 p.m.
Sunday 10:00 a.m. - 4:00 p.m.
Silent Auction 2:00 - 3:00 p.m. Sunday

QUALITY MINERAL & FOSSIL DEALERS
DEMONSTRATIONS, EXHIBITS, & DOOR PRIZES
MINI-MINES FOR KIDS

Adults: \$ 2.00 (\$ 1.00 with this coupon)
Senior Citizens: \$ 1.00
Teens: (ages 13-18) \$ 1.00
Children: (12 and under) FREE
Scouts in Uniform: FREE
George Mason Univ. Students: FREE w/ID



Club History Portal Into the Past: Club Volunteers

by Hutch Brown

Editor's note: The article is adapted and updated from articles in the April and May 2017 issues of The Mineral Newsletter.

The article by Dave Korzendorfer in the November issue of this newsletter describes signs of vitality for clubs like ours. One sign is the extent of volunteerism for club officer positions.

How does volunteerism stand in our club today? How does it compare to the past?

Our club maintains records (past newsletters and other materials) going back for decades. This article is based on a review of club records.

Club Officers

The NVMC began in the mid-1950s; although the exact date is unknown (at least to me), club records indicate that it was probably in 1956-57. The first newsletter on file is volume 7(1) from January 1966, suggesting that the newsletter began in 1960. The earliest club meeting notes on file are from January 1961.

The club bylaws, last amended in January 1995, are another historical record. In accordance with the bylaws and other club records, our club has always had four elected officers (a president, vice president, secretary, and treasurer). The only other officer mentioned in the 1995 version of the bylaws is the newsletter editor, who is unelected (appointed by the club president).

The bylaws refer to chairs of "standing committees," also appointed by the president. The standing committees (which no longer exist) were groups of club members interested in a particular topic or activity, such as field trips, the newsletter, the library collection, and the annual club show. The only committee remaining today is an ad hoc "committee of three" appointed each year by the president to come up with a slate of candidates for the annual election of club officers.

The chairs of the standing committees were, in effect, unelected club officers. Today, club members volunteer for some of the same positions, which retain the word "chair" in the title, such as show chair and field trip chair (see the list of current club officers on the last page of this newsletter).



The NVMC mineral show at George Mason University in 2022 (face masks reflect the COVID-19 pandemic). Popular mineral shows are a sign of club vitality. Photo: Tom Taaffe.

In addition, interested club members have invented (or reinvented) their own club officer positions over the years. In the 1980s, for example, the club had an EFMLS liaison; in the 2010s, we had a photographer. Most of the older positions (such as hospitality or AFMS coordinator) disappeared for lack of interest, whereas some of the newer ones (such as webmaster or tech support) resulted from new digital technology.

Over the years, some positions have been vacant or filled by acting club officers. Today, four club officer positions are listed on the last page of this newsletter as vacant: the secretary position (required by the bylaws) and three others (communication, field trip chair, and greeter/door prizes), which are presumably regarded as necessary and fillable in the future.

Club Volunteerism

One sign of club vitality is the number of active club officer positions. In 2017, Webmaster Casper Voogt posted a list of elected and unelected club officers (online [here](#)) going back almost to the beginning of the NVMC. I compiled the list from club files.

Based on the list (updated for the 2010s-20s), I calculated the average annual number of unelected officer positions for our club by decade. Shown below are the numbers, along with sample club positions to show the variety of possibilities.

- 1960s**.....2 (newsletter editor, field trip chair)
- 1970s**.....4 (education, librarian, hospitality, show coordinator, *plus the two above*)
- 1980s**.....10 (historian, greeter, members, youth chair, ways & means, EFMLS liaison,

fossil group leader, All American Club,
plus most of the above)

1990s 12 (show chair, exhibit coordinator, *plus most of the above*)

2000s 8 (AFMS liaison, webmaster, *plus some of the above*)

2010s 6 (photographer, *plus some of the above*)

2020-23..... 5 (tech support, *plus some of the above*)

The numbers show an arc in club volunteer activity, with volunteerism gradually rising in the 1960s-70s, followed by vigorous growth in the 1980s-90s. Periods with high numbers of volunteers also had high numbers of club members; a club record from May 1983, for example, showed more than 100 club memberships, most for a family (with two names listed).

Then came a long period of decline down to the four vacant club officer positions today (including one required by the bylaws) and only five active unelected club officer positions. (Active positions are held by people who conduct regular activities associated with their positions, such as editing articles or posting newsletters online; vacant positions don't count.)

Volunteerism Challenge

The numbers suggest, at least to me, grounds for concern. The downward trend is worrisome, even if other indicators of club health are encouraging, such as a healthy club treasury and a successful annual club show. The latter in particular is what Dave Korzen-dorfer, in his November article, called a "rallying point" for clubs.

However, lagging volunteerism is neither new nor limited to our club alone. In the [May 2009](#) issue of this newsletter, President Wayne Sukow (himself in an "acting" role at the time) noted that, across the country, "club offices are left vacant, committee offices are left vacant, show volunteers are reluctant to sign up to help, [and] junior membership is down." At the time, the NVMC had numerous club officer vacancies, including vice president (required by the bylaws). The club has survived, yet the overall history and trends are still of concern.

So how about writing an article for this newsletter on a hobby-related topic? Better yet, how about volunteering for club office? Others helped make the club we all enjoy—you can help make it too! ↗.

Bench Tip: One-Part Die Forming

Brad Smith

An easy way to make large and strong components for your jewelry designs while keeping the weight of precious metal to a minimum is done with simple tools in a process called one-part die forming. Complex 3-D shapes can be made quickly from thin gauge sheet with just a piece of plastic and a dapping ball.

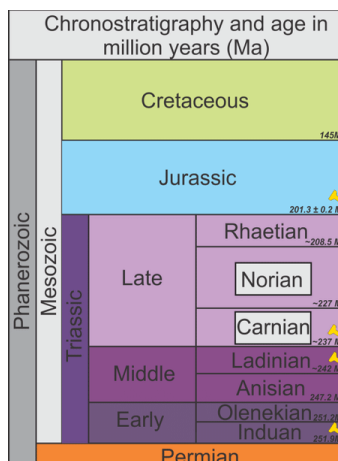
a hole and saw out the shape with a jeweler's saw and a coarse blade. When sawing, try to keep the edges straight up and down. Refine the cut as needed with a sanding drum or file. Select a thickness of plastic that is just a little more than the amount of doming you want. (I tend to use 1/4-inch or 3/8-inch plastic that I get as scraps from a local plastics shop.)

To use the die, cut a piece of sheet about 3/8 inch wider than the hole in the die on all sides. Anneal the sheet and tape it down on the plastic. Use a dapping ball and hammer to create the domed shape. When the taped-down edges begin to warp, planish them flat on the top of the die. Finally, if the sheet is to be domed deeply, you will need to anneal the metal occasionally.

One nice feature of this technique can be seen in the top and left of the picture. If the sawed walls are straight up and down, the hole on the bottom is a mirror image of the hole on the top. This allows you to produce a mirror image shape as needed to make left and right earrings or both sides of an irregular shaped bead as shown.

Smart Solutions for Your Jewelry Making Problems
amazon.com/author/bradfordsmith





How Do We Tell the Difference Between Geologic Ages?

by Grant Currin

Editor's note: The piece is adapted from LiveScience (8 March 2020).

From the emergence of life to mass extinctions, Earth has gone through incredible changes in its 4.6 billion years. With so much history, how can researchers

keep track of what happened when?

The system many scientists have settled on is the International Geologic Time Scale (laid out in the [International Chronostratigraphic Chart](#)), which breaks geologic time into five units. From the longest to the shortest and most precise, those units are eons, eras, epochs, periods and ages.

The various stages of geologic time are “defined by visible changes in the fossil record,” according to Jacquelyn Gill, associate professor of paleoecology and plant ecology at the University of Maine. Fossils are a handy tool in this dating work for a few reasons. For one, life has likely been around for about 90 percent of Earth’s existence, so the history of Earth is paralleled by the history of life. Fossils are also useful because changes in the fossil record reflect changes in ecology, that is, the relationships between living things and their environment. These changes in Earth’s ecology tend to reflect the major events in the planet’s history, Gill said. ... [Read more.](#)

Miners Discovered the Largest Pink Diamond in More Than 300 Years

by Brandon Spektor

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

Miners in Angola have uncovered a massive pink diamond that might be the biggest gem of its kind found in the past 300 years.

The pink diamond is estimated to weigh 170 carats, making it just a smidge smaller than the 182-carat



Daria-i-Noor diamond—the largest pink diamond in the world, which today is part of the Iranian National Jewels.

The new diamond has been nicknamed the “Lulo Rose” after the Lulo Mine in northeastern Angola where it was found, according to a statement from the Lucapa Diamond Company, which owns Lulo and one other diamond mine in Angola. Since 2015, the Lulo mining project has uncovered 27 diamonds weighing more than 100 carats, including the largest diamond ever found in Angola: the 404-carat 4th February Stone, which sold for \$16 million in 2016. ... [Read more.](#)

GeoWord of the Day

(from the American Geoscience Institute)

hard mineral

A mineral that is as hard as or harder than quartz, ranking 7 or higher on the Mohs scale.

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



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

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4 Joint club holiday party	5	6	7	8	9
10	11 GLMSMC holiday party	12	13	14	15	16
17	18	19	20	21	22 Winter begins	23
24	25 Christmas	26	27	28	29	30
31						

Event Details

7: Washington, DC—Mineralogical Society of the District of Columbia; info: <http://mineralogicalsoctyofdc.org/>.

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

19: Arlington, VA—Northern Virginia Mineral Club/Micromineralogists of the National Capitol Area; holiday party (details on page 9).



The Northern Virginia Mineral Club, Inc.

Visitors are always welcome at our club
meetings!

PLEASE VISIT OUR WEBSITE AT:

<http://www.novamineralclub>

Please send your newsletter articles to:

Hutch Brown, editor

4814 3rd Street North

Arlington, VA 22203

hutchbrown41@gmail.com

RENEW YOUR MEMBERSHIP!

SEND YOUR DUES TO:

Roger Haskins, Treasurer, NVMC

4411 Marsala Glen Way, Fairfax, VA 22033-3136

OR

Bring your dues to the next meeting.

Dues: Due by January 1 of each year;

\$20 individual, \$25 family, \$6 junior (under 16, sponsored by an adult member).

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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

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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