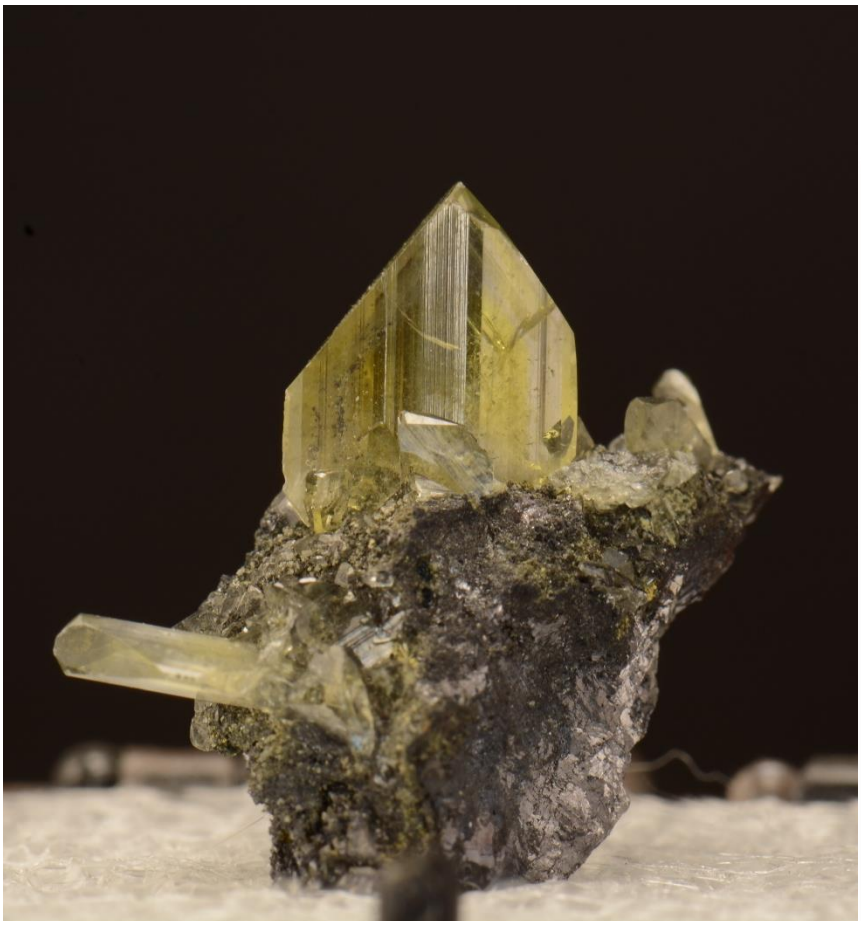
THE NORTHERN VIRGINIA MINERAL CLUB INC

The Mineral Newsletter

Meeting: February 25 Time: 7:45 p.m.

Long Branch Nature Center, 625 S. Carlin Springs Rd., Arlington, VA 22204



Anglesite

Touissit, Ouijda-Angad Prefecture

Morocco

Photo: Bob Cooke.

Volume 60, No. 2
February 2019
Explore our website!

February Meeting Program:

Trilobites

(details on page 4)

In this issue …

Mineral of the Month
Anglesite

by Sue Marcus

Most people don't think of lead as particularly attractive and definitely not as transparent. Our Mineral of the Month for February, anglesite, is a lead sulfate mineral that is often found in transparent crystals. Perhaps more importantly, it can usually be purchased at prices allowing for it to be included in most collections.

Anglesite was discovered by the English naturalist William Withering (for whom the mineral witherite was named). Withering first described anglesite in 1783 on the island of Anglesey in the Irish Sea off Wales, but the mineral was actually named by the French mineralogist F.S. Beudant in 1832.

The Parys Mountain Mines (Mona Mine) on Angelsey were the type locality for anglesite. The area was a major copper producer in the 18th century, although it has produced copper at least since the 16th century and possibly since the Bronze Age. According to Mindat—an amazing resource—the mine area has been a filming location for the science fiction television series *Dr. Who*!

Anglesite is usually a secondary mineral formed from the breakdown or degradation of galena or other lead ores. Sometimes, this chemical reaction is incomplete, leaving galena inclusions in anglesite and making the anglesite appear gray or translucent. In other cases, anglesite and galena may be banded.

Since it is a secondary mineral, anglesite can also form pseudomorphs after galena or, less frequently, cerussite. Anglesite crystals, notably the ones from Morocco and Namibia, seem—at least to me—to form wedges or spear shapes.

The heavy weight of anglesite, caused by its lead content, help distinguish anglesite from most other minerals. Though similar to cerussite, anglesite doesn't form the reticulated intersecting crystals of cerussite. (Compare photos of the two minerals on Mindat.) Other lead ores are more abundant, although anglesite has been mined for lead when found in sufficient quantities. The United States imports and exports lead, primarily for use in batteries.

Happy Valentine's Day!

Northern Virginia Mineral Club members,

Please join our February speaker, Casper Voogt, for dinner at the Olive Garden on February 25 at 6 p.m.

Olive Garden, Baileys Cross Roads (across from Skyline Towers), 3548 South Jefferson St. (intersecting Leesburg Pike), Falls Church, VA
Phone: 703-671-7507

Reservations are under Ti Meredith, Vice-President, NVMC. Please RSVP to me at ti.meredith@aol.com.

Anglesite from Touissit, Morocco. Photo: Bob Cooke.

The specimens I've seen (in photographs) from the Welsh type locality are relatively small and either white or colored brown by limonite. At the other end of the collectable spectrum are the sharp, lustrous crystals from Touissit, Morocco. Many of these stand out from the matrix and are so large and transparent that you could read through them.

My favorites are the medium yellow ones. Tsumeb, Namibia, is known for a long list of superb crystalized minerals, anglesite among them. The Tsumeb

Anglesite from Tsumeb, Namibia.
Photo: Bob Cooke.

specimens are usually more compact, lacking the clear "spear tip" of the Moroccan crystals. Broken Hill, Australia, is another major mine that has produced nice anglesite specimens. The Montaponi Mine in Italy produced some lovely specimens, though with smaller crystals than the previously named sources. Mexican deposits have produced some specimens, although Mexico has not been a major specimen producer.

Unfortunately for collectors in the United States, our country is not known for exceptional anglesite. Idaho's Bunker Hill Mine produced collectable specimens, though not of the same caliber as specimens from Touissit or Tsumeb. For a free show, Mindat offers 1,647 photos of anglesite!

Since anglesite is soft and made of lead, it isn't useful as a cut stone, although it is attractive. Some gem cutters like a challenge or a rare stone to cut, so anglesite is occasionally cut into faceted stones. If you try this, remember: it is a lead mineral, so take suitable precautions! A lovely lemon-yellow faceted stone from Tsumeb, weighing 51.33 carats, is the largest one shown on the Gemdat website.

Collector alert: Minerals.net informs us that deep amber-colored anglesite from Morocco has been artificially treated by bleaching light-yellow specimens.

Technical details:

Chemical formula ..... $PbSO_4$
Crystal form ..... Orthorhombic
Hardness 2.5–3
Specific Gravity 6.3–6.4

Anglesite from the San Felipe Mine, Sonora, Mexico.
Photo: Bob Cooke.

Color..... Colorless through white, gray, and yellow; more rarely green, blue, or violet
Streak..... White
Cleavage..... Good; 2+ cleavage planes
Fracture ..... Conchoidal
Luster..... Adamantine (earthy when forming crusts)
Fluorescent ..... Often yellow (shortwave)

Acknowledgments

I would like to acknowledge the helpful review and additions by my husband, Roger Haskins, and supreme editor Hutch Brown for his skillful editing.

Sources

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Casper Voogt

Trilobites

February 25 Program

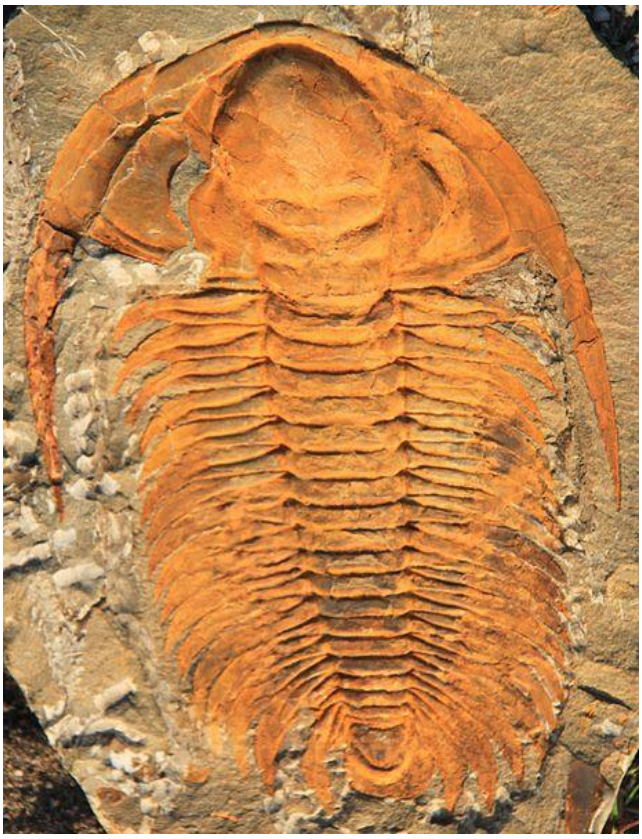
Many of us know that you can find fossils in our region. A popular activity on nearby shores is to find sharks' teeth, whale and ray parts, and other mostly Miocene fossils from 24 million to 5 million years ago.

But did you know that it is also possible to find much older fossils in our region? Trilobites from the Devonian Period (417–354 million years ago) can be found farther inland.

For the program at our February 25 club meeting, Casper will discuss trilobite fossils as well as fossil collecting and its role within geology. He will briefly cover worldwide collecting localities, and he will tell us where to find trilobites in the mid-Atlantic region, including West Virginia, Virginia, Pennsylvania, and New York. He will show many of his self-collected specimens and describe methods of preparing and preserving them.

Casper is a part-time mineral dealer, lifelong mineral collector, and avid traveler, especially for minerals. His academic background is in architecture (Princeton and Georgia Tech). He has lived in Aruba, the Netherlands, Switzerland, and the United States.

Casper runs a web development company and serves as webmaster for the NVMC, the Mineralogical Society of the District of Columbia, and the Gem and Mineral Society of Lynchburg, VA.



*Trilobite (*Eccaparadoxides spp.*, Order Redlichiida, Family Paradoxididae) from Morocco, Middle Cambrian Period. Source: Wikipedia; photo: Dwergenpaartje.*

President's Collected Thoughts

by Sue Marcus, President

I hope that all club members enjoyed the first falls of frozen water crystals (ice) this year in warmth and safety!

My family enjoys the quiet that a big snowfall brings. I particularly like the excuse to stay home. Staying home presents a time for cataloging specimens.

Whatever you collect, be sure to leave a trail of information for others to track what you have. Some people—a tip of the rock pick to Susan Fisher—keep detailed records of their collections, including photos of the specimens in the catalogue.

I'm middling about this. I have a digital catalogue of my minerals. I need to update it—thanks to Roger's Christmas presents and purchases in Madagascar. There are older purchases that also need to be entered.

Sadly, I suffer from a common complaint—losing labels, so some treasured specimens no longer have the provenance that adds to their value. Don't do as I do!

Perhaps, like me, you occasionally have the opportunity to purchase specimens without labels—whether from the recent Montgomery County club's auction or from the tourist market. Then Mindat and other digital sources are your friend (and mine), but the provenance information is still not as good.

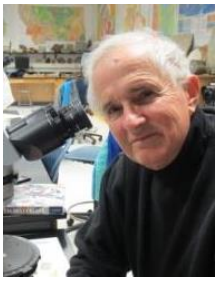
While you are sorting and cataloging, think about the upcoming club auction in March and what you might want to assign to the auction or even donate to the club for its own part of the auction.

Come to the February meeting and join the fun! We'll plan to have the business meeting after the program this year so the young folks (and those who can't stay awake) can leave when necessary.

The Northern Virginia Mineral Club is *your* club, so we hope that you will participate in as much of the life of the club as you can. We need a volunteer to help with refreshments (club can pay; just providing them).

Sue

Meeting Minutes
January 28, 2019



by David MacLean, Secretary

*P*resident Sue Marcus called the meeting to order at 7:45 p.m. at the Long Branch Nature Center, Arlington, VA.

The minutes of the meeting and holiday party on December 17, 2018, were approved as published in *The Mineral Newsletter*.

The president recognized past presidents Bob Cooke and Barry Remer. She also recognized guests Basil Borisov, Tom and Julia Burke, Stacey and Heidi Lyon, Claire Nykolyszyn, and Alex Venzke.

In addition, the president announced the results of the December 2018 club officer elections for 2019:

President.....Sue Marcus
Vice-President.....Ti Meredith
Secretary.....David MacLean
Treasurer .....Roger Haskins

New Business

The president presented the proposed 2019 NVMC budget. The 2018 budget had a small deficit, and expenses for 2019 are expected to rise. The club board proposed changes to the budget for 2019 to make the deficit smaller, for example through small increases to club membership and show vendor fees (details below).

Treasurer Roger Haskins reported the amount of money in the NVMC scholarship and operating accounts. The president explained that reserve funds are maintained as a fiduciary responsibility to cover unexpected expenses or large income shortfalls. For example, a power failure closed a recent mineral club show in Delaware, resulting in refunded dealer fees and a shortfall in cost recovery for the show.

In connection with the 2019 budget, club members discussed income and expenses associated with the annual club show, including the annual donation to the GMU geology department for hosting the show. (GMU uses the donation to buy minerals from show vendors for its own purposes.) Members also discussed the annual donation to the minerals department at the Smithsonian National Museum of Natural History.

Following the discussion, club members approved the proposed 2019 budget, as amended. The approved budget includes $1,500 for the show donation to the GMU geology department (a $100 increase from 2018) and $1,500 for student scholarships to GMU, NOVA, and JMU ($500 each). The members also approved a $100 donation to Mindat for sponsoring a mineral webpage. To help cover costs, annual club member dues will rise by $5 (to $20 for individuals and $25 for families), effective January 29, 2019. Dealer fees at the 2019 club show will increase by $5 per table.

The members directed the board to:

- investigate opportunities to invest reserve funds to generate income;
- explore the possibility of finding a cheaper storage unit (Amanda Parker volunteered);
- find an appropriate Mindat webpage to sponsor, and
- talk to the GMU geology department (Professor Julia Nord) about the possibility of substituting donations from club member collections for the annual club show donation (Dave MacLean volunteered).

Announcements

The future 2019 club meeting dates will all be on a Monday. The actual dates will be February 25, March 25, April 22, May 20, June 24, September 23, October 28, November 18 (in advance of the 2019 club show on November 22–24), and December 16 (holiday party). Mark your calendar!

The NVMC will host a field trip to the annual Super Diggg on April 27 in the mine dumps near Franklin and Sterling Hill, NC. This year, the NVMC will be a cosponsor of the event. (Details on page 8.)

Members reported a relatively new small mineral and fossil shop, The Fairfax Mining Company, operating in Fairfax, VA. Based on experience, call before visiting to make sure they are open as advertised.

Membership Fees Due for 2019!

Club membership fees for 2019 are due! The fees are $20 individual and $25 family.

Please see Treasurer Roger Haskins at our monthly meeting or send your dues to him at 4411 Marsala Glen Way, Fairfax, VA 22033-3136. If you send a check, please make it payable to Northern Virginia Mineral Club.

Annual GLMSMC Show Coming Up!

The 55th Annual Gem, Mineral, and Fossil Show, hosted by the Gem, Lapidary, and Mineral Society of Montgomery County, MD, is coming up on March 16–17. The hours are Saturday from 10 to 6 and Sunday from 11 to 5. The location is Montgomery County Fairgrounds, Building 6, 16 Chestnut Street, Gaithersburg, MD. There will be over 40 exhibits, activities for kids, and over 20 dealers from around the country. Admission is $6 for adults, kids 11 and under free.

Door Prize Drawing Winners

Door prize winners included Tom Burke, Heidi Lyon, Amanda Parker, Steve Parker, and Celia Zeibel.

Show and Tell

Club members spoke about items new and old that they brought to show others on the display tables around the meeting room.

- Celia and Jason Zeibel brought self-collected as well as fluorescent minerals bought at the 2019 NVMC show. We've learned that mineral collecting is a 2nd-generation hobby in the Zeibel family.
- Amanda Parker showed self-collected prehnite from the Manassas quarry and amethyst from Scufflin Acres near Prospect, VA.
- Alex Venzke brought an amethyst from Thunder Bay in Ontario, Canada, and an impressive translucent crystal.

Celia Zeibel showing off a fluorescent mineral at the January 2019 club show and tell. Photo: Amanda Parker.

- Richard Palaschak displayed a box full of goodies, mostly self-collected. They included a fluorescent sapphire from Gem Mountain, Phillipsburg, MT; fluorescent ocean glass from the Chesapeake Bay; columbite and tantalite from Amelia, VA; a zircon from Australia; campbellite from Bisbee, AZ; a piece of a meteorite that fell in the autumn of 2010 near Banska Strivice, Slovakia; barite from the Banska Strivice mining area in Slovakia; and sunstone from Oregon.
- Dave Hennessey showed off a thin, transparent muscovite mica sheet with an included garnet. He said it was from Spruce Pine, NC.

Share Your Story in the Newsletter!

Club members appreciate reading stories by other club members, whether it's about a trip they took or a specimen they acquired.

Every show-and-tell story, for example, can easily be turned into an article, no matter how short or long.

Editor Hutch Brown can help you formulate your piece. You don't have to worry about style, grammar, and so on.

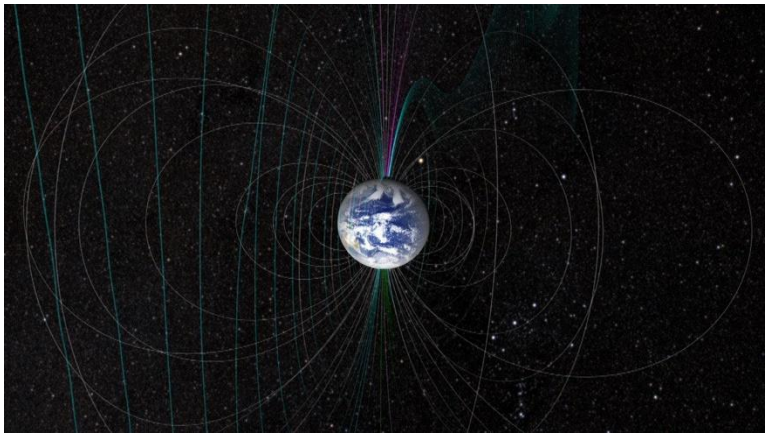
So why not share your story with everyone? Just write it up and send it along with a photo of your trip or specimen to Hutch Brown at hutchbrown41@gmail.com.

- Sue Marcus brought a specimen of fluorite on a matrix of siderite or barite. She bought it at an auction and asked whether anyone had a reasonable guess as to the locality.
- Germaine Broussard showed a photo of folded and faulted rock layers in a roadcut near Mifflin, PA. She also showed a large rock identified as brecciated quartzite, and she spoke about collecting geodes on the Hoosier National Forest near Bedford, IN.

Earth's Magnetic Pole Is Wandering, Lurching Toward Siberia

by Laura Geggel, LiveScience (Jaunary 19, 2019)

Editor's note: *Thanks to Sue Marcus for the reference!*



Earth's north magnetic pole is on the move, unpredictably lurching away from the Canadian Arctic and toward Siberia. It's wandered so much that the current representation of the entire globe's magnetic field, just updated in 2015, is now out of date. And so geologists have come up with a new model. *Read more*.

Save the dates!

Field Trip Opportunities

Super Diggg 2019

This year, the NVMC is cosponsoring the annual Super Diggg for fluorescent rocks in the old mine dumps near Franklin and Sterling Hill, NJ. The event is on April 27 from 9 a.m. to 11 p.m. (see the flyer). To attend, you must contact Field Trip Chair Steven Parker at stevenlparker@gmail.com.

NVMC is Co-Sponsoring

Super Diggg™

2019

9AM - 11PM April 27th

Event Schedule: http://events.superdiggg.com/

Tools, Safety Glasses and UV lights
will be available for purchase at the Franklin Museum.

Provided:
· Restroom facilities
· Electricity (in darkroom)
· Off-road parking area
NO AGE RESTRICTION THIS YEAR !

Bring all safety equipment:
Gloves, steel toe boots, eye protection

Local hotels/motels fill up quickly,
so if you are staying in the area overnight
be sure to reserve early.

Pre-Register For Super Diggg: Coming Soon, Check next newsletter
Pre-Register for Premium Spots: Coming Soon, Check next newsletter

YOU MUST RSVP WITH STEVEN PARKER: FIELDTRIPS@NOVAMINERALCLUB.ORG
IN ORDER TO USE THE CLUB INSURANCE FOR SUPER DIGGG

http://sterlinghillsuperdig.org/

Northern Virginia Community College

NOVA's Annandale campus offers 1-day weekend courses—essentially, field trips—related to our hobby. You can get more information at the Field Studies in Geology—GOL 135 website.

Building Stones of the National Mall

March 30, 9 a.m.–7 p.m. Led by Dr. Ken Rasmussen. Visit over 20 National Mall sites, examining the geologic history and architecture and the rocks used to construct the federal buildings and monuments there.

Thoroughfare Gap, Virginia

April 6, 9 a.m.–5 p.m. Led by Dr. Callan Bentley. The area where Broad Run transects the Bull Run Mountains west of Haymarket, VA, showcases rocks of the Blue Ridge geologic province, in particular the metamorphosed Cambrian-aged Chilhowee Group sedimentary package. The trip will involve rigorous hiking, with students providing their own transportation to the site.

Paleozoic Geology of Virginia/ West Virginia

April 13, 9 a.m.–7 p.m. Led by Dr. Ken Rasmussen. This field trip will let you explore the geology of western Virginia and West Virginia, considering ancient depositional settings (tropical marine reefs, lagoons, shelves, deep basins, and terrestrial flood plains) and fossils, as well as later deformation (faulting and folding) associated with the Valley and Ridge Province.

Audubon Naturalist Society

The ANS offers classes and nature programs, including short field trips. You can get more information and register at the ANS website.

Rockin' on the Mall

March 10, 1–4 p.m. The cost of this field trip, led by Joe Marx, is $36 for nonmembers. Many structures that border the National Mall wear the bedrock of other localities. We will meet at the 7th & Maryland SW entrance to the L'Enfant Plaza Metro station and do a 2-mile loop around the eastern end of the Mall. We will discuss the rock in various facades, fountains, and walls. Limestone, often with fossils visible, is the most common, but we will also see granite, gneiss, marble, and sandstone. The trip leader will supply amusing historical anecdotes.

National Building Museum Minerals Booth: Volunteers Needed!

by Mike Kaas

It's that time again!

The National Building Museum in Washington, DC, is holding its annual Discover "E" Family Day ("E" for Engineering) on February 16 from 10 a.m. to 4 p.m. We need volunteers to help us at the AIME Minerals Booth. (AIME stands for American Institute of Mining, Metallurgical, and Petroleum Engineers.)

Our booth will be the only one featuring the Earth sciences and careers in geology, mining engineering, and metallurgy. We will again be doing "Mining for Minerals" and other activities for kids.

In past years, hundreds of kids and their parents visited the AIME booth. For many, it was their first exposure to Earth science and engineering. Because it's Presidents' Day weekend, we expect a large crowd and will need extra volunteers.

Three time slots are available: 10 a.m. to noon, noon to 2 p.m., and 2 p.m. to 4 p.m. You can sign up for any or all. We will have free coffee and donuts for early-bird volunteers and pizza for lunch.

To volunteer, contact me (Mike Kaas) at 703-525-3592 or by email at minermike@att.net.

Scenes from the AIME booth at the National Engineering Building's Family Day event in 2018. As you can see, a good time was had by all—kids, parents, and volunteers!

Farewell Message From Ginny Taylor

Editor's note: Ginny Taylor, a longstanding member of the NVMC, served as club secretary from 1979 to 1983 and as club president in 1984.

My remembrances of the Northern Virginia Mineral Club are many and fond.

I especially enjoyed field trips sponsored by the club, particularly to the Luck quarry (west of Fairfax, now closed to collectors) with Paul and Jennie Smith, avid rockhounds (Paul died in 2005 and Jennie is now living in a retirement home in Texas).

I also enjoyed The World's Greatest Appalachian Field Trip (a bus trip of several days) when we toured western Virginia and West Virginia and maybe some of Maryland (I don't remember). We collected at a lot of sites and simply viewed some others.

Another time, we went to Mount St. Hilaire in Canada and collected Canadian minerals (although that may have been with the Mineralogical Society of the District of Columbia, I'm not sure).

I was a member since 1978, as was my husband until 1982, and I have subscribed to the newsletter since 1998, when I moved to Williamsburg, VA.

But it is now time to give up thinking I am a rockhound since the field trips, while sounding interesting, are too far to drive. Moreover, I have given my mineral collection to the club in Hampton, VA.

My best wishes go to the current members of NVMC!

Luck Stone Quarry (in traprock) near Fairfax, VA. Source: D. Robison, History of the Luck Stone Quarry site (Northern Virginia History Notes, 2008).

Humor

Wayward Boulder

Editor's note: *The piece is adapted from Mindat Adventures: Humorous Mineral Stories. Thanks to Sue Marcus for the reference!*

I was collecting low-end lepidolite on the dump for a lithium mine in California, having parked my car off to the side of the dump by a big manzanita bush. Near the top of the dump, I found a perfect boulder, about 150 pounds of solid lepidolite loaded with tiny pink rubellites.

Wanting to get this piece, I thought of pounding it apart and carrying the pieces in several trips down to the car. Smart as I was, I thought of just pushing the boulder and letting it roll down to the bottom of the dump, then rolling it over to my car. I thought it could never actually hit my car since it was so far away and there were so many boulders, trees, and other obstacles in between.

Was I ever wrong!

The boulder took off at top speed as soon as I pushed it. To my utter shock, it missed every object that could have stopped it or at least slowed it down. I don't think that rocks can think, but this one headed straight toward my vehicle. I sat frozen in shock as I visualized my car being trashed

There was one manzanita bush between my vehicle and the rolling boulder. The boulder hit the bush, which shook violently, and the boulder bounced straight up into the air and fell with a thud only 15 feet from my vehicle.

It sure showed me that, no matter how safe something like that can look, it can easily take a wrong turn.

I still have a few pieces from that big rock.

December Program Summary

Department of Mineral Sciences, Smithsonian Institution: Recent Developments

Dr. Michael Wise

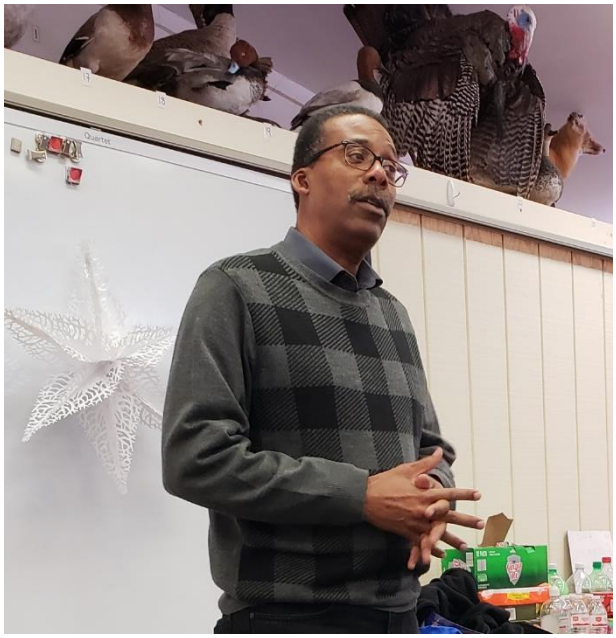
by David MacLean, Secretary

Before the holiday party at the December 17, 2018, meeting of the NVMC, Dr. Michael Wise of the Department of Mineral Sciences at the Smithsonian Institution's National Museum of Natural History summarized recent developments in his department, including the hiring of a petrologist and a mineralogist.

Recent Smithsonian acquisitions included a 50-carat red topaz from Ouro Preto, Minas Gerais, Brazil. The museum also received 25 showy specimens, the best a fluorite with pink dolomite crystals.

The department is seeking minerals from Russia and Afghanistan as well as from classic U.S. locations, including manganese oxides, pegmatite minerals, attention-getting minerals, and minerals for research. In the United States, there have been no "great mineral discoveries" since those made at the Sweet Home Mine in Colorado.

The Whitney Flame Topaz from Brazil, recently acquired by the Smithsonian Institution's National Museum of Natural History. The red coloring comes from traces of chromium in the mineral. Source: Smithsonian Institution.



Dr. Michael Wise speaking at the December 2018 club meeting about recent developments at the Smithsonian's Department of Mineral Sciences. Photo: Amanda Parker.

At the 2018 Tucson, AZ, mineral show, the department acquired a shortwave red fluorescent calcite with romanechite and a green fluorescent spodumene from Brazil.

Dr. Wise observed that many dealers selling minerals "at the door" or outside of dealer areas offered fakes, such as beryl specimens from Tajikistan. They also sold minerals that were unlabeled, inaccurately identified, or from undocumented locations.

However, buyers can get bargains when buying inaccurately identified minerals or from dealers located outside hotels.

Writing Tip of the Month

Substitute "damn" every time you're inclined to write "very." Your editor will delete it and the writing will be just as it should be.

Mark Twain

Rock and Gem Buying Techniques

Introduction and General Information

by Joe Iannucci

Editor's note: *This series of articles from 1989–90 is reprinted by the author in the* Livermore Lithogram *(newsletter of the Livermore Lithophiles, Livermore, CA). This article is adapted from the* ***September*** *2018 issue.*

Author's note: *I am pleased to offer this series of articles for guidance while buying, especially at places such as Quartsite, AZ. I am indebted to the Lithophiles for trusting me to shop for them over the years; to the members for requesting this series of articles and encouraging me; and to my wife Pat, our current editor. Thanks also to the professionals and loyal rockhounds who bring their wares to Quartsite, I am educated every year. Happy Hunting!!*

This month, I'm going to try an experimental article on how to purchase rock-related items.

I guess you've heard some of the tall tales of incredible purchases from Quartsite, AZ, each year. You might have wondered if it's all luck or whether some skill might be involved in purchasing the right item at the right price.

Over the next several months (if my experiment succeeds and people enjoy the articles), I intend to try to explain how to buy and even, to some extent, what to buy. It may seem obvious, but I've found that many people don't know what they are buying or why they bought it, even after they have gotten the item home!

I'm not against impulse buying: it adds spice to life. But recognize it as such and don't expect to get a great deal on something unless you do some homework.

The recipe for great bargains is to:

1. Know what you need and how you're likely to use it, display it, and so on.
2. Know quality when you see it, and know when you need a premium product and when second best will do.
3. Know what it should cost, how much it may have cost the vendor, how rare it is, and so forth.
4. Be able to guess what would make you and the vendor happy once the deal is completed.

The articles in this series will cover buying lapidary materials (slabs and rough) as well as finding jewelry, mineral specimens, and other things.

Next month: Buying lapidary materials (slabs).

Buying minerals at the GMU/NVMC mineral show in November 2018. Club member and mineral vendor Dave Hennessey (right) interacts with a shopper. Photo: Amanda Parker.

Bench Tip: Bezel Closer

Brad Smith

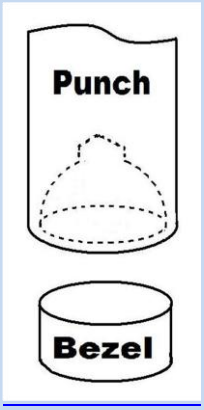
A bezel closer is a steel punch that makes quick work out of pushing the metal down over a round stone and burnishing it. The working end is a concave cavity that fits over your bezel or prong setting and is pushed and twisted to capture the stone. Sets can be purchased but are expensive and contain many sizes you will probably never use. If all you need is one or two sizes, here's how you can make them yourself.

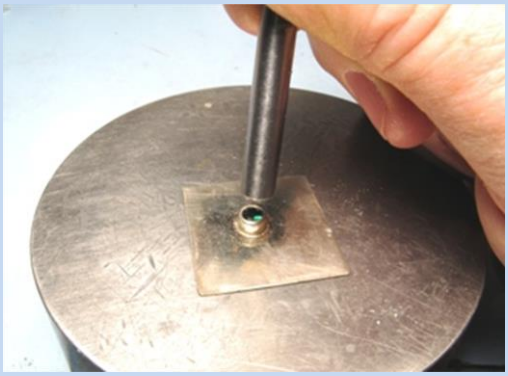
Find a good-quality round steel rod a little larger in diameter than your bezel cup or prong setting. Cut a 5-inch length. File both ends flat. Locate the center of one end, center punch a divot, and drill a small pilot hole about 5 millimeters deep. Remember to use a little oil as lubricant when cutting steel.

Select a ball bur a bit smaller than the steel rod but slightly larger than the bezel. Enlarge the pilot hole to a full hemispherical cavity. Test for proper fit with your bezel. The bezel should first contact the cavity about a third of the way in. When the size is correct, polish the cavity using Zam on a length of chopstick in your flexshaft. If the tool is not polished, it will leave scratches on your bezel or prongs.

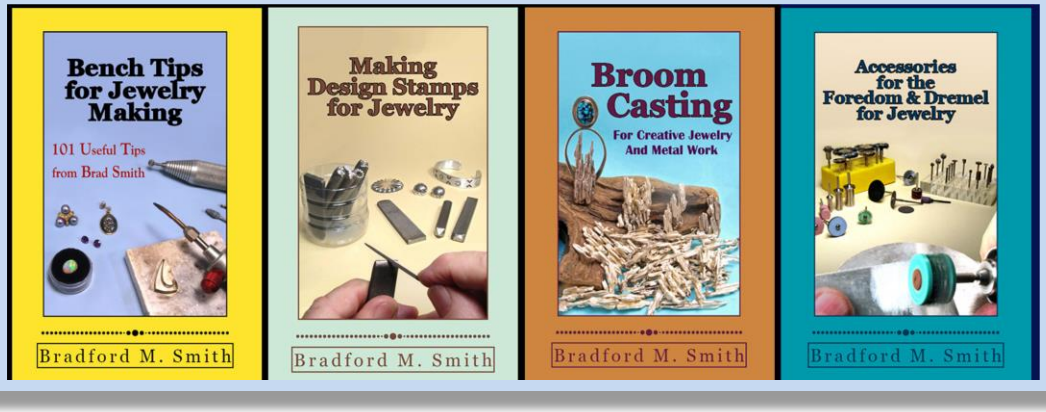
When using the tool, the first step is to capture the stone correctly. I usually work by hand and push the punch straight down over the bezel or prongs. This causes the metal to start bending over the stone. Next, I inspect with a lens to be sure the stone is staying level. I repeat this until the stone is seated on its bearing and can't move anymore.

Next, you want to force the metal down onto the stone uniformly all the way around. Although this can be done by hand, I often gently tap the punch with a hammer. Finally, burnish the bezel by twisting the punch around.





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



Safety Matters
Personal Limits

by Ellery Borow, AFMS Safety Chair

Editor's note: *The article is adapted from* A.F.M.S. Newsletter *(December 2018), p. 4.*

No doubt all safety-aware people are mindful of various rules, regulations, guidelines, and limits imposed upon us by all manner of property owners, equipment manufacturers, and state and federal agencies.

Those rules, regulations, guidelines, and limits have been thoroughly researched, reviewed, relevancy tested, and released for all of our collective safety.

Where, however, do your personal limits come into play? Our various medications and concerns about our less-than-satisfactory balance, our less-than-sharp eyesight, and our less-than-optimal motor skills all suggest limitations to which we should also pay attention as we engage in our rockhounding activities.

Is that a slope we could easily climb, or is it something we could no long ascend? Is a large lapidary project something we should no longer attempt, considering the weakness in our hands? Should we cut back on certain faceting designs because of eyesight issues?

While rules, regulations, guidelines, and limits imposed upon us are thoughtful and well intentioned, we would be well advised to be aware of our personal limits and mind them as well. Our personal limits are, well, personal. We are the ones most suited to judging and minding our own personal limits. How far we can walk to a quarry, how heavy a pack we can carry, and how far we can carry that pack should all be part of our thought process in staying safe.

Some limitations have workarounds. You can add wheels to your collecting bags, use jigs and fixtures to support heavy lapidary work, or use a longer trail instead of the steep slope. Those are all workarounds.

Your own personal limits are important to keep in mind. You might injure yourself if you disregard equipment manufacturer recommendations; but you might also injure yourself if you disregard a personal limitation, such as taking a trail that is too steep.

Please be safe—your safety matters, no matter what your limitations.

EFMLS Facebook News

by Suzie Lamb, Region V Vice-President

Editor's note: *The article is adapted from* EFMLS Newsletter *(December 2018), p. 8.*

Facebook. Really? Eyeroll and sigh.

That was 4 years ago. It was a time when our club spent more than we should have in advertising for newspapers, flyers, posters, and everything else. Those expenses lessened our profits from the show.

How can anyone ignore the fact that people are constantly looking at their phones? Maybe you aren't glued to your phone. Maybe your friends aren't interested in social media and only use their computers for Solitaire.

Geology tells us that the world is constantly changing. More and more people are relying on technology. People today are constantly searching for entertainment, experiences, and opportunities to explore new places and events so they can take a "selfie" and post it on Facebook.

Take advantage of that! Communication is what it is all about. Talk to them about rocks, minerals, and fossils, and they are likely to fall asleep. Show them and they will be interested. Show them where they can see it, touch it, and take a "selfie" with it to share with their friends, who will want to do it too.

So how are we doing now? In the days leading up to our show, we got over 14,500 hits. It was a really, really good turnout this year—the best ever.

I want to do the same for the new EFMLS Facebook page. Please visit, like, and share. The EFMLS has a goal of bringing clubs together to share information about shows and cool finds. We want to inform, educate, and build interest in our hobby. People are interested in our hobby, and they need to know where they can go in their locality. Help them find us.

Help us expand your membership by visiting our Facebook page.

Give us a "like" and you'll be able to share all that valuable information about your club.

Crystallography 101

Learning about crystals/making paper models

Hutch Brown, Editor

Editor's note: *Thanks to Mike Kaas for the references!*

An expert on crystal systems in mineralogy introduced them like this: "There is an order to the way the atoms of an element or compound congregate form a geometric shape. Since that arrangement starts at the atomic level, you'll need to close your eyes and visualize that arrangement."

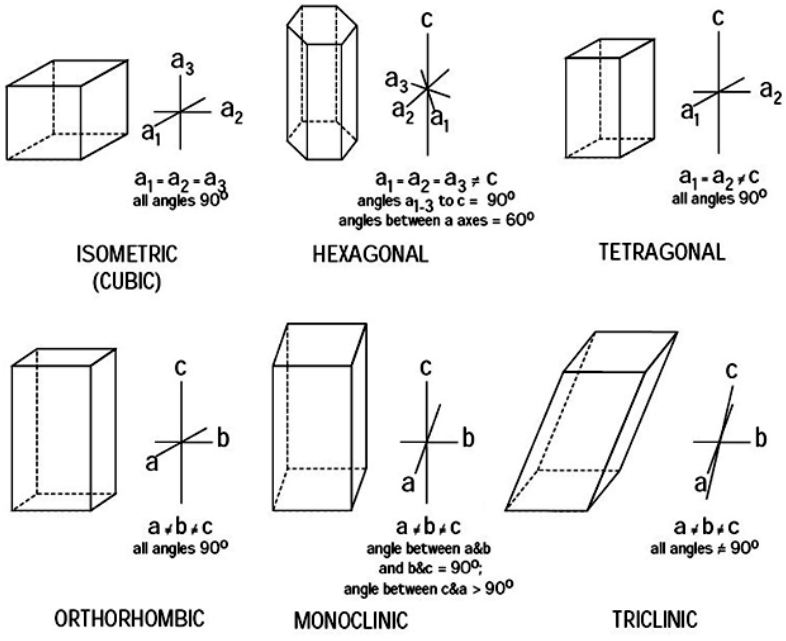
That's beyond me, but not beyond club member Mike Kaas. Mike recently sent me an email with references that explain the crystal systems. Club members can use them as a sort of Crystallography 101.

Hi Hutch,

I was online to find out the dates for the Tucson Gem and Mineral Show and stumbled on the Tucson Gem and Mineral Society website and newsletters.

For some reason, I never focused on the crystal systems. I don't think my basic mineralogy course for engineers even covered them.

But the Tucson Gem and Mineral Society's newsletters for both November/December 2017 and January/February 2018 had articles taking a basic look at the six crystal systems.



The articles also referred to a series of paper crystal models. I'm a nut on paper models of anything (probably from the old ones on cereal boxes), so they got my attention. It struck me that crystal systems and paper models might be a good newsletter topic.

You can access the Tucson Gem and Mineral website here. The two-part primer on crystallography is in the aforementioned consecutive newsletters—part 1 and part 2. Both articles are on page 6.

Then I googled "paper crystal models" and got a bunch of hits like this one, which seemed even better: Webmineral.com—Crystal forms.

Mike Kaas

Factoid: Mineral dealers sometimes use the abbreviations "xl" and "xls" for "crystal" and "crystals." And you might recall the paper crystal models made by Cynthia Payne to decorate a Christmas tree that was a beloved feature of many club holiday parties.

Federation News

2019 Regional Federation Conventions

by Emerson Tucker

Editor's note: *Adapted from* A.F.M.S. Newsletter *(December 2018), p. 6. (South Central was in January, Southeast was not yet set.)*

March 8–10	California Federation Pomona, CA
March 23–24	Midwest Fed/AFMS Cedar Rapids, IA
June 1–2	Eastern Federation Monroe, NY
August 2–4	Rocky Mountain Fed Prescott, AZ
October 18–20	Northwest Federation Lewiston, ID

Deadline for Submissions

February 20

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

The Rocks Beneath Our Feet

Santorini, Greece: Sunken Caldera

by Hutch Brown

Last summer, during a family vacation to Europe, I spent several days on the Greek island of Santorini. Santorini is one of thousands of Greek islands in the Aegean Sea, and it is a classic vacation destination popularized by Hollywood.

The name Santorini, as you might surmise, is not Greek but Italian. In 1204, during the Crusades, the island was captured by the Republic of Venice, the dominant naval power in the region for centuries. The Crusaders named the island for its chapel to Santa Irini (Saint Irene), abbreviated as Santorini. The ruins of a Venetian fortress overlook the island's main medieval port, which still bustles with activity. However, the Greek name for the island is Thera.

And Thera (or Santorini) is the largest of three islands ringing an ancient caldera on the Aegean seafloor (fig. 1). The distances are huge: the oblong caldera is about 7.5 by 4.3 miles wide, with crater walls about 1,000 feet high. Crossing the caldera by boat takes hours, and driving from one end of Santorini to the other also takes time, in part because the roads are narrow and winding, with lots of tourist traffic.

So why does the island exist? Santorini is obviously the eastern rim of one or more ancient volcanoes. What is their story?

Santorini, a classic Aegean spot for tourism, made famous by the 1982 movie Summer Lovers. *The author's wife and daughter pose in the town of Oia, which lines the northern rim of the island. Photo: Hutch Brown.*

Figure 1—*Santorini caldera in the Aegean Sea. A partial ring of volcano walls surrounds the flooded caldera. Lava rising from the vent in the center has created two small islands. Photos: Hutch Brown (top); Wikipedia, Sokoban, aerial view (bottom).*

Plate Tectonics

The surface of the Earth is rocky crust, but the crust is relatively thin—and broken into pieces that float on a vast mantle of viscous magma, much like bits of eggshell might float on the interior of a cracked raw egg (fig. 2). Geologists call the pieces of crust tectonic plates. In some places, the plates collide; in others, they pull apart or slide past each other.

The African plate is traveling northward at a rate of about 2 inches per year, and it is colliding with the Eurasian Plate (fig. 2). The colliding plates generate enormous friction, causing earthquakes and creating

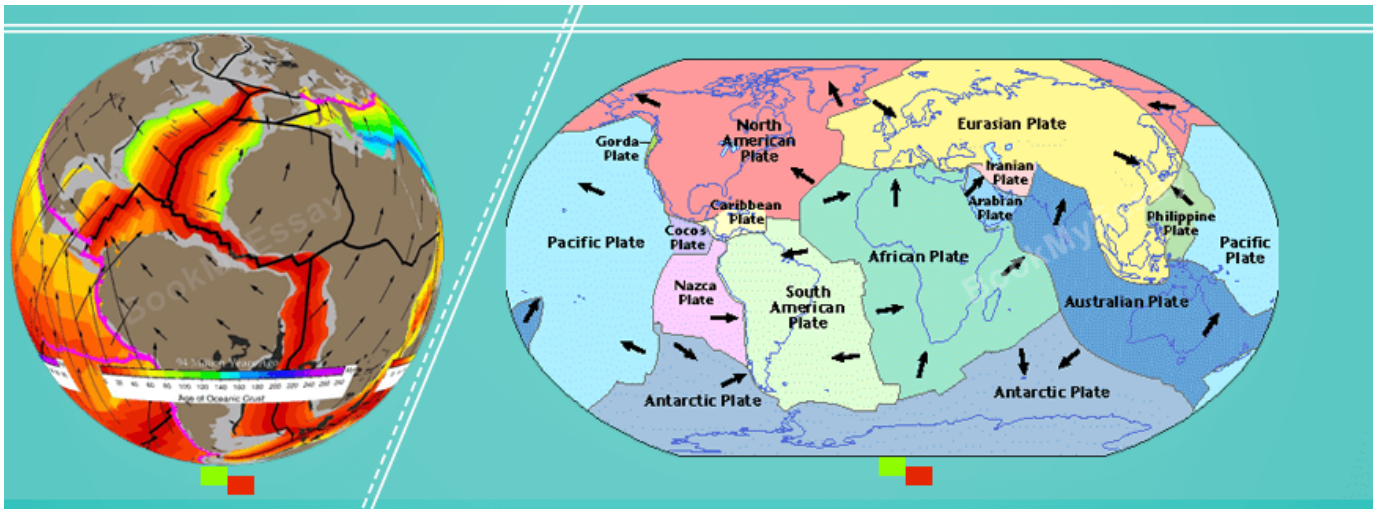


Figure 2—*The globe (left) indicates that the Earth's mantle is a molten mass of viscous magma covered by a thin crust of solid plates floating on the mantle. The map (right) shows how the plates variously collide, pull apart, and slide past each other. The African Plate in the center is colliding with the Eurasian Plate above it. Source: BME (2018).*

volcanic eruptions along boundary lines between the plates. A line of what geologists call "converging boundaries" between the African and Eurasian Plates runs under the entire Mediterranean Sea (fig. 3, purple/blue lines). The boundary lines extend from Spain, to southern Italy, to Crete in the Aegean Sea, to Cyprus in the eastern Mediterranean Sea.

The main tectonic plates sometimes have subplates at their margins. The Eurasian Plate has subplates known as the Anatolian Plate and the Aegean Sea Plate (fig. 3, the latter shaded purple). The Eurasian Plate is pulling apart from the Aegean Sea Plate, forming what geologists call "diverging boundaries" (fig. 3, red lines). The Anatolian Plate also has a diverging boundary with the Aegean Sea Plate (fig. 3).

As tectonic plates pull apart, they stretch and thin the crust. The thinning crust tends to subside and fill with seawater. Figure 3 shows how diverging boundaries (the red lines) are forming both the Aegean Sea and the Gulf of Corinth (the red line across Greece), which is gradually separating southern Greece (the Peloponnesian Peninsula) from northern Greece.

Conversely, the African Plate is colliding with the Aegean Sea Plate, forming a subduction zone (fig. 3, blue teeth). A subduction zone develops between two colliding tectonic plates as the heavier plate slides under the lighter one. In this case, the heavier African Plate is diving under the lighter Aegean Sea Plate, forming a subduction zone in the shape of an arc across the southern Aegean Sea.

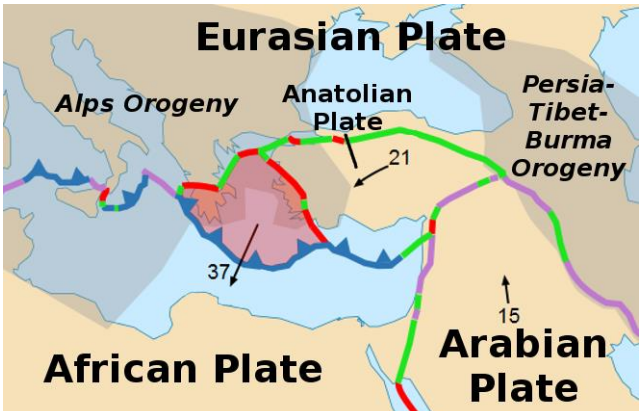


Figure 3—*Plate boundaries for tectonic plates in the eastern Mediterranean region (red lines = diverging boundaries, where plates pull apart; purple/blue lines = converging boundaries, where plates collide; green lines = transform boundaries, where plates slide past each other; blue teeth = subduction zones, where one plate dives under another (ignore the numbers)). As the Eurasian Plate pulls away from the small Aegean Sea Plate (shaded purple), it creates the Aegean Sea and the Gulf of Corinth. As the African Plate collides with the Aegean Sea Plate, it forms a subduction zone with volcanoes. Source: Wikipedia.*

Such arc-shaped subduction zones are subject to intense tectonic activity. As one plate dives under another, the descending rock train grinds against the converging plate over it (fig. 4); tremors and earthquakes periodically shake the area. The resulting pressure and friction also melt the rock, sending plumes of magma toward the surface. If the plumes reach the surface undersea, they erupt onto the seafloor, building up volcanic islands over time (fig. 4).

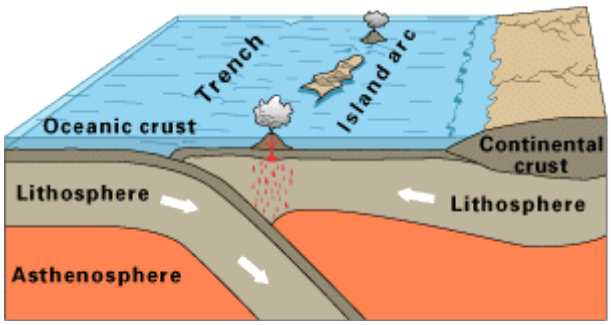


Figure 4—*Where plates converge undersea, heat from friction drives magma toward the surface, forming an island arc of volcanoes over the subducting plate. The plunging plate forms an ocean trench in the subduction zone. Source: Kious and Tilling (1996).*

When the volcanoes finally emerge from the sea, they continue to erupt with lava flows and pyroclastic explosions that send great plumes of gases and ash into the atmosphere. The converging plates typically form a line of volcanic islands in the shape of an arc. They also form a deep-sea trench at the leading edge of the diving plate (fig. 4). A familiar example in the western Pacific Ocean is the Marianas Trench, which has the Earth's greatest ocean depths.

The converging African and Aegean Sea Plates have formed what is known as the South Aegean Island Arc (fig. 5, blue dotted line). The arc extends from mainland Greece through a line of islands that include Aegina, Milos, Santorini, Yali, and Nisyros to the Bodrum peninsula of Turkey. The leading edge of the diving African Plate forms deep-sea trenches, including the Ionian, Pliny, and Strabo Trenches, known collectively as the Hellenic Trench (fig. 6). The direction of subduction is from the southwest to the northeast (fig. 5, arrows).

The South Aegean Island Arc demarcates the southern edge of the Cyclades Islands (fig. 5). Crete and the Cyclades comprise a metamorphic plateau folded and uplifted during the same mountain-building event that raised the Alps about 60 million years ago (fig. 3)—again, due to the convergence of Africa and Europe. Figure 6 shows the undersea plateau and the arc-shaped deep-sea trench south of Crete, mirroring the island arc.

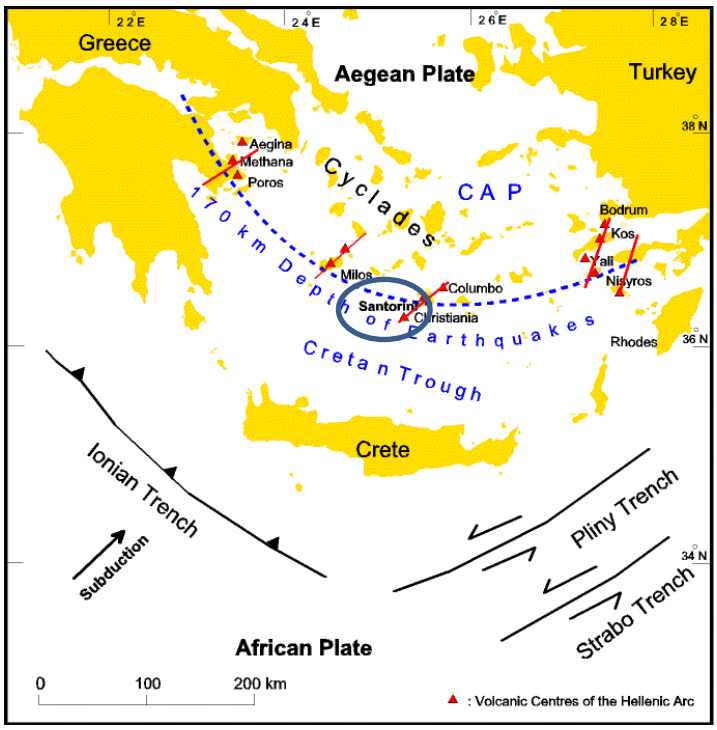


Figure 5—*The South Aegean Island Arc (dotted blue line), with the island of Santorini in the middle (circled). The arc demarcates the Cyclades Islands to the north. Other islands in the arc include Poros, Milos, and Nisyros; the arc is bordered below Crete by deep-sea trenches. Source: Kious and Tilling (1996).*

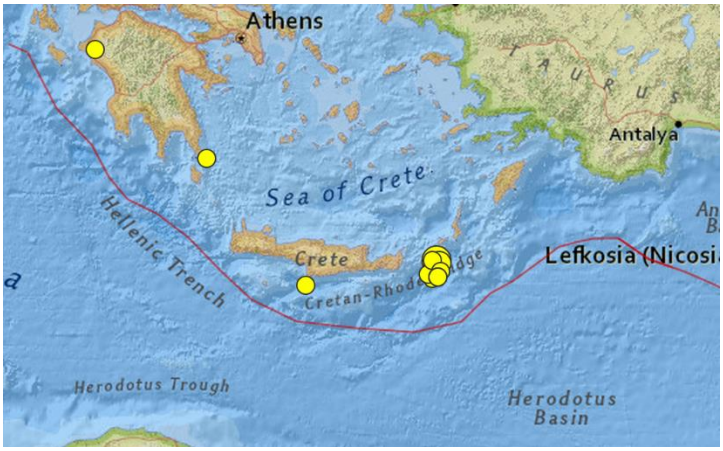


Figure 6—*The Aegean Sea, including the Sea of Crete, is a submerged plateau folded and uplifted by the same mountain-building event that formed the Alps, which accounts for the many mountaintop islands. (The yellow circles are earthquakes recorded in 2015.) Source: Young (2015).*

As the Eurasian Plate pulled apart from the Aegean Sea Plate, it stretched and thinned the crust, making it much thinner than the adjacent Greek and Turkish continental crust. Subsidence sank the Cyclades to form mountaintop islands in the Aegean Sea (fig. 6). The southern edge of the Cyclades, the South Aegean Island Arc, borders on a depression known as the Sea of Crete (figs. 5, 6). Next to the depression, a rupture zone deep in the Earth's crust allows magma to ascend, forming the island arc.

Prevolcanic Santorini

Up until about 2 million years ago, Santorini was just another one of the Cyclades Islands. It was much smaller then, about 4 by 6 miles in size, and made up of nonvolcanic rock. Like the rest of the Cyclades, it owed its existence to the same mountain-building event that uplifted and metamorphosed the Cyclades plateau about 60 million years ago.

We saw cliffs on Santorini that might have been nonvolcanic in origin—on the southern coast, near Akrotiri (fig. 7). Pale green and chalky, the rocks were limestone, according to our kayaking guide, although they might have been tuff. Figure 7 shows the area in the southwestern corner of the island in brown as "updomed areas," possibly including uplifted carbonates from the adjacent seafloor.

From the southwestern "tip of the horn," we could look northeast to see what is clearly the highest point on Santorini at about 1,720 feet (fig. 8). Called Profitis Ilias, it is a mountain that preexisted the volcano, and it is connected by a ridge to another high point on the southeastern coast. Figure 7 shows much of the area in gray as "basement carbonate, marble, phyllite, and graywacke." The high points, now partly covered by volcanic tuff (fig. 7, orange), suggest the location of the original island, with its metamorphic bedrock.

Figure 8—*Profitis Ilias (center-right), the highest point on Santorini, marks the location of the original nonvolcanic island. The bedrock in the area is metamorphic. Source: Wikipedia; photo—Sidvics (2018).*

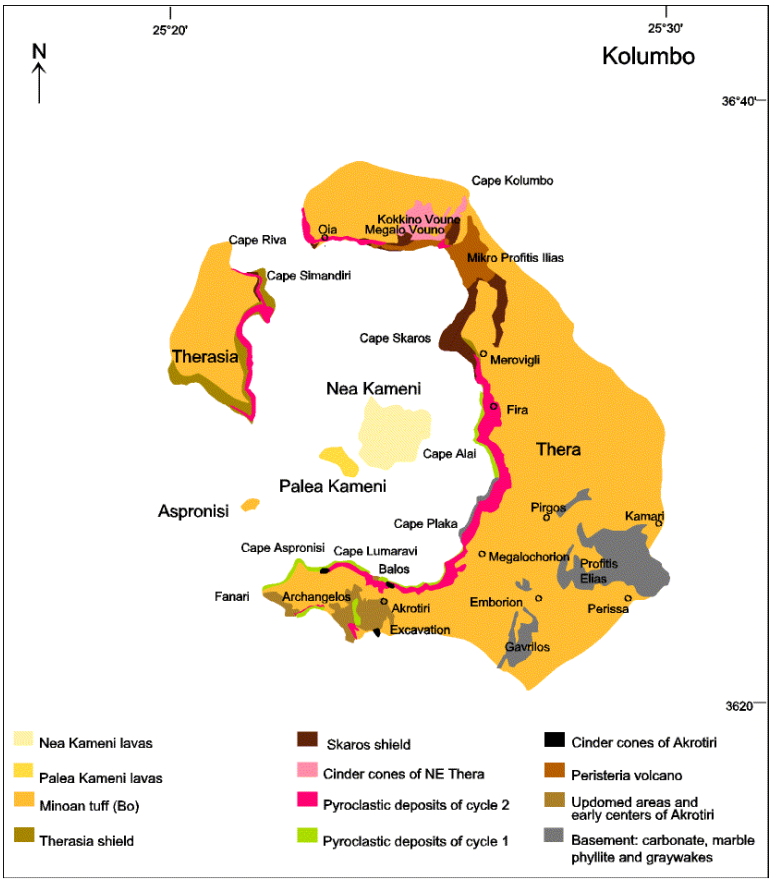


Figure 7—*Simplified geologic map of the Santorini caldera, with its five islands. Thera, Therasia, and Aspronisi are remnants of the ancient volcano, whereas Palea Kameni and Nea Kameni resulted from relatively recent lava flows (Nea Kameni is still growing). The gray areas are the metamorphic bedrock, roughly 60 million years in age, that made up the original nonvolcanic island. Volcanic rocks of various kinds and ages indicate multiple eruptions over the last 2 million years. Source: Pfeiffer (2004).*

Recent Tectonic Activity

The Santorini caldera, though technically dormant, has the South Aegean Island Arc's greatest tectonic activity. Earthquakes originating about 110 miles below the Earth's surface are relatively frequent on Santorini, as are rockslides. An earthquake measuring 7.5 on the Richter scale hit Santorini and nearby islands in 1956, causing 53 deaths.

Inside the caldera, the islands of Nea Kameni and Palea Kameni formed from relatively recent volcanic

activity. The first record of an island growing in the empty caldera is from 197 BC. In 46 AD, Roman historians described a second island that grew together with the first. The combined islands became known as Palea Kameni ("old burnt island").

In 1570, observers recorded a new island, called Mikri ("small") Kameni. In 1707, yet another new island appeared, known as Nea ("new") Kameni. It rapidly grew, combining with Mikri Kameni by 1870. Geologists recorded subsequent eruptions on Nea Kameni in 1925–28, 1939–41, and 1950. The eruptions alternated between lava flows and pyroclastic explosions of gases and hot ash, typical of what geologists call a composite volcano.

Nea Kameni has a well-defined crater (fig. 9), and it has rapidly grown in the past 3 centuries, forming a relatively round island (fig. 7), a "shield volcano" or "lava shield." The growing Nea Kameni lava shield is expected to swallow Palea Kameni and unite with the walls of Santorini near the ancient port of Fira, the island's largest town and administrative center.

According to the ancient Greek historian Herodotus, the island of Santorini was originally known as Strogili ("round") for its shape. That was before a massive eruption and crater collapse left the remnants we see today.

Santorini island, facing south inside the caldera from the town of Oia at the northern tip of the island. Communities of whitewashed vacation homes line the rim of the ancient volcano on walls about 1,000 feet above the Aegean Sea. The caldera walls show signs of multiple eruptions and sequential deposits, ranging from light-colored tuff high in felsic minerals (feldspar and quartz) to reddish or gray tuff higher in mafic minerals (calcium, iron, and magnesium oxides). Photo: Hutch Brown.

Figure 9—*Nea Kameni, with its crater (left). The town of Oia on Santorini is visible in the distance. Nea Kameni is growing, with lava flows alternating with pyroclastic explosions. Source: Wikipedia; photo—Bgabel (2012).*

Will the Nea Kameni lava shield eventually fill the caldera, rounding out the island complex? What happens then—another supervolcanic eruption and caldera collapse?

Next issue: The history of eruptions on Santorini over the last 2 million years.

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February 2019—Upcoming Events in Our Area/Region (see details below)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2 Groundhog Day
3	4	5	6 MSDC mtg, Washington, DC	7	8	9
10	11 GLMSMC mtg, Rockville, MD	12	13	14 Valentines Day	15	16
17	18 Presidents Day	19	20	21	22	23
24	25 NVMC mtg, Arlington, VA	26	27 MNCA mtg, Arlington, VA	28		

Event Details

6: Washington, DC—Monthly meeting; Mineralogical Society of the District of Columbia; 7:45–10; Smithsonian Natural History Museum, Constitution Avenue lobby (check website for possible location change due to the federal government shutdown).

11: Rockville, MD—Monthly meeting; Gem, Lapidary, and Mineral Society of Montgomery County; 7:30–10; Rockville Senior Center, 1150 Carnation Drive.

25: Arlington, VA—Monthly meeting; Northern Virginia Mineral Club; 7:45–10; Long Branch Nature Center, 625 S Carlin Springs Rd.

27: Arlington, VA—Monthly meeting; Micromineralogists of the National Capital Area; 7:45–10; Long Branch Nature Center, 625 S Carlin Springs Rd.

Anglesite from Touissit, Morocco. Photo: Bob Cooke.

Hutch Brown, Editor
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THE NORTHERN VIRGINIA MINERAL CLUB INC
Crystals are the flowers of the Mineral Kingdom

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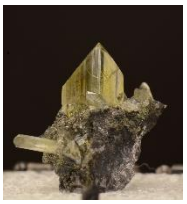

Mineral of the Month: Anglesite

PLEASE VISIT OUR WEBSITE AT:
http://www.novamineralclub.org

The Northern Virginia Mineral Club

Visitors are always welcome at our club meetings!

Please send your newsletter articles to:
hutchbrown41@gmail.com

RENEW YOUR MEMBERSHIP!

SEND YOUR DUES TO:
Roger Haskins, Treasurer, NVMC
4411 Marsala Glen Way, Fairfax, VA 22033-3136

OR

Bring your dues to the next meeting.

Dues: Due by January 1 of each year; $20 individual, $25 family. Make check payable to Northern Virginia Mineral Club or pay with cash.

Purpose: To encourage interest in and learning about geology, mineralogy, lapidary arts, and related sciences. The club is a member of the Eastern Federation of Mineralogical and Lapidary Societies (EFMLS—at http://www.amfed.org/efmls) and the American Federation of Mineralogical Societies (AFMS—at http://www.amfed.org).

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

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