



The Mineral Newsletter

Meeting: December 17 Time: 6:30 p.m.

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



Diopside with wulfenite from Tsumeb, Namibia

Photo: Bob Cooke.

Volume 59, No. 10

December 2018

Explore our [website](#)!

December Meeting:

Holiday Party!

(details on page 3)



In this issue ...

Mineral of the month: Diopside	p. 2
Club officer elections coming up	p. 2
Holiday party details—Food needed!	p. 3
The Prez Sez	p. 4
November meeting minutes	p. 4
Teaching minerals to Cub Scouts	p. 5
Take a better photo	p. 8
Field trip opportunity	p. 9
Humor	p. 9
AFMS: Fossil sites for field trips	p. 10
EFMLS: Safety matters	p. 11
Bench tip: Mobile flexshaft stand	p. 11
Origin of the chemistry set	p. 12
The Ellensburg blue agate	p. 13
Upcoming events	p. 15

Deadline for Submissions

December 20

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



Mineral of the Month Diopside

by Sue Marcus

Dioptase is our mineral of the month for December—and it's a beauty, known for its distinctive green color. I hope every collector has a specimen in her or his collection—or will get one soon.

Diopside used to be rare, though known from copper deposits in several parts of the world. Namibia started sending specimens to market, initially at very high prices. The costs decreased as supply increased, and demand has always been steady for this pretty mineral. Kazakhstan has also produced gorgeous diopside specimens relatively recently, so there are options.

With more specimens available, you can obtain smaller ones—even nice ones—for relatively reasonable prices. Of course, the crystals that are large, lustrous, and undamaged still command top prices.

The famous French priest and early mineralogist René Just Haüy (known as Abbé Haüy) named the mineral “diopside” in 1797, from the Greek words *dia* (through) and *optasia* (to see), referring to the visibility of cleavage planes within translucent to transparent crystals.

The original material described by Abbé Haüy came from Kazakhstan, which has a very long history of producing collectible minerals! The best known diopside locality is probably Tsumeb, Namibia, but other sources in Namibia and elsewhere in Africa have produced beautiful crystals. Namibia's Kaokoveld District offers attractive specimens of diopside with contrasting powder-blue shattuckite (see the photo on the right). Other sources include the Katanga (Shaba) region of the Democratic Republic of Congo (Zaire) and Renéville and Mindoula in the Republic of Congo (Brazzaville). Another notable source is the Malpaso Quarry in Córdoba, Argentina.

In the United States, diopside is found in some of the copper deposits in Arizona. The crystals are small and don't compete with those from foreign localities. But they can appeal to someone who specializes in collecting U.S. specimens or who wants to self-collect—and is lucky!

Diopside is a hydrated copper silicate. It can be mined for its copper content, but other copper minerals (like



Merry Christmas!

Happy Hanukkah!



Club Elections Committee Report

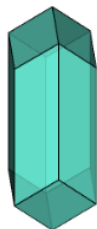
The NVMC will elect club officers for 2019 at the December meeting before the holiday party. Nominated are:

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



Diopside with shattuckite from Kaokoveld, Kunene region, Namibia. Photo: Bob Cooke.

carbonates or native copper) are much less expensive to process for their copper content, so diopside is not a primary copper ore. Diopside forms in arid environments where carbonates (such as limestone and calcite) are present or chemically available. Fluids rich in sulfuric acid leach the copper in the presence of a carbonate. The copper-rich fluids can deposit diopside, given enough time for the process to occur. And if we are really lucky, we get beautiful crystals.



Diopside is a cyclosilicate, so when it crystallizes, its molecules are arranged in a ring structure. Of course, the structure is at the microscopic level and not visible to the eye.

At the macroscopic level, diopside forms crystals in the trigonal system; a common example of a diopside crystal is shown at left. However, the Goldschmidt Atlas of Crystal Forms shows 17 different forms in which diopside can grow.

Ground to powder, diopside can be used as an artistic pigment, and it has been used as such since Neolithic times. Neolithic statues with diopside as eyeliner have been found in Kazakhstan, so the mineral was mined and used there long before anyone knew what it was.

Due to its relative softness, diopside is not durable as a gemstone. It is sometimes used in wire-wrapped jewelry, with the raw crystallized specimen displaying its lovely color.

Technical details:

Chemical formula $\text{Cu}_6\text{Si}_6\text{O}_{18} \cdot 6\text{H}_2\text{O}$

Crystal form Trigonal

Hardness: 5

Density: 3.3–3.4



Diopside with plancheite from the Mindoula District, Republic of Congo (Brazzaville). Photo: Bob Cooke.



Diopside from Kaokoveld, Namibia. Photo: Bob Cooke.

Color.....Green, usually deep green; usually, color is distinctive
Streak.....Green
Cleavage.....2 or 3 (sources vary!)
FractureIrregular
Luster.....Adamantine, vitreous ↗

Sources

Goldschmidt, V.M. 1986. Atlas of crystal forms. 9 volumes. Rochester, NY: Mineralogical Symposium.

Mindat.org. 2018. [Diopside](#).

Minerals.net. 2018. [The mineral diopside](#).

Wikipedia. 2018. [Diopside](#).

Wikipedia. 2018. [René Just Haüy](#).

Holiday Party

December 17, 6:30–9:30 p.m.



The NVMC and the Micromineralogists of the National Capital Area are jointly hosting this year's meeting and holiday party at the Long Branch Nature Center (our usual club meeting place). Great news—Dr. Mike Wise, geologist for the Smithsonian, will speak at our meeting!

The NVMC and the Micromineralogists of the National Capital Area will provide fried chicken, honey-baked ham, and drinks for our holiday party. Please help round out our menu by bringing a side dish. We would appreciate salads, sides, desserts, and more.

Please click on the URL below for the app to sign up if you are coming—and to sign up for a bringing a

dish. It really is very easy! Just click and follow the directions!

<https://www.signupgenius.com/go/20F094AADAFA2AA46-northern>

Thank you. Looking forward to seeing everyone at this wonderful holiday celebration!

Holly Perlick and Marie Johnston

P.S.: If you would like to participate in the gift exchange, please remember to bring a gift valued between \$5 and \$20. ➤



The Prez Sez

by Bob Cooke

Finally!

The Prez Sez edition that everyone has been waiting for—my last one.

It's been 3 years, and it's about time. I have tried my best. There have been some successes and some failures. There has definitely been a learning curve, and I'll do my best to pass on those lessons to your new club president. I fervently hope there won't be any hanging chad or other issues to delay the transition and force a recount.

As I write this edition of the Prez Sez, the annual GMU/NVMC Mineral Show is still a week into the future. I hope all goes well! Over the last couple years, I have tried to fill in for Jim Kostka (but have succeeded, at best, only partially) and to help Tom Taaffe in his efforts to put on this mineral show. But I've been only a helper; Tom is the main man. Recently, Carolyn asked me what would happen if Tom decided not to be show chair next year. I'm afraid the answer is obvious: there wouldn't be a mineral show.

Many people think that because Tom is a dealer, he makes money at the show and is show chair only for his own pocketbook. In fact, there are other shows he could attend on the same weekend as our club show and not have to invest his time in and deal with the frustration of organizing our show. He does our show because it is *our show*.

NVMC needs to decide if we want to continue as a club. We can't give scholarships without having a source of revenue. We won't have revenue without a

mineral show. And, as it stands now, we won't have a mineral show without Tom Taaffe.

The club needs more involvement. It's hard enough to find people willing to be nominated for the four elected offices, and therefore those people serve repeatedly over the years. I thought it remarkable that Rick Reiber served 8 years as club treasurer! Someone ask Tom how long he's been show chairman.

Answer: Tom began as cochair with George Loud in 1999, serving for the next 4 years. Since 2006, Tom has served constantly as show chair or cochair.

That's a total of 23 years!

It's your club, so please step up! ➤

Bob

Meeting Minutes November 12, 2018

by David MacLean, Secretary

President Bob Cooke called the meeting to order at 7:45 p.m. at the Long Branch Nature Center in Arlington, VA.

The minutes of the October 22 meeting were approved as published in *The Mineral Newsletter*. The president recognized past President Barry Remer.

Old Business

Show Chair Tom Taaffe asked people to sign up to help run the club show on November 17–18 at the Hub at George Mason University. There might already be adequate help for show setup, but help is especially needed at the kids' tables; three groups of Boy and Girl Scouts are expected.

Announcements

The joint NVMC/MNCA Christmas party will be on Monday, December 17, at 6:30 p.m. You can find details on page 3.

Door Prizes

Winners in the door prize drawings included Dave Hennessey, Kathy Hrechka, Ti Meredith, Craig Moore, Tom Taaffe, Celia Zeibel, and Jason Zeibel.



Display Tables

The display tables held a number of exhibits. The exhibitors had time to say something about what they were showing and the circumstances related to it.

Show and Tell

The program was “show and tell.”

Kathy Hrechka talked about her “geoteaching” for Cub Scouts, especially about her recent geostation with other club members at the Cub Scout Camporall in October 2018 at Camp Snyder, near Haymarket, VA. She talked about the rocks and minerals the kids can explore using homemade kits, such as Mohs hardness testing kits, which she had assembled.

Celia and Jason Zeibel talked about following directions from the mineral club in Lexington, KY, to visit a stream with lots of quartz geodes in Green County, KY. The geodes had milky quartz crystals inside.

Jason Zeibel showed off a large twinned garnet he found as a boy at Mars Hill, NC. Celia displayed a piece of the Allende iron meteorite that landed about 5,000 years ago in Argentina. She also lit up an intensely fluorescent piece of willemite and calcite from the closed zinc mines in Franklin, NJ.

Germaine Broussard exhibited a heavy boulder of Catoctin greenstone (metamorphosed basalt) with white quartz veins from near Frederick, MD.

Tom Taaffe talked about baculite fossils found in clay on the plains at the foot of the Rocky Mountains south of Pueblo, CO. He also related his encounter with nearly golfball-size hail near Colorado Springs. The hail broke out the car windshield and windows, subjecting the occupants to ricocheting hailstones.

Dave Hennessey showed off an elegant crystalline arsenopyrite from Panasqueira, Portugal.

Craig Moore showed white kyanite and iridescent hematite collected at the Willis Mountain kyanite mine near Farmville, VA. The kyanite had 0.5-millimeter pyrite octahedrons on it. Craig collected the specimens at the annual Willis Mountain mine open house.

Hutch Brown showed a piece of Antietam quartzite with Skolithos (trace fossil burrows left by wormlike phoronids, which live in offshore marine sands). He found the specimen on a gravel bar along Four Mile Run in Arlington, VA. The Antietam quartzite is

sandstone subjected to low-grade (weak) metamorphism. The sands formed up to 570 million years ago, but the metamorphism probably happened when the Iapetan Ocean closed about 320 million years ago during the Alleghanian Orogeny, when proto-Africa collided with proto-North America. Phoronids still burrow into offshore sands to create future trace fossils. ↗

“Earth Rocks” at Cub Scout Camporall

by Kathy Hrechka

The Boy Scouts of America (BSA) hosted a “Camporall” camping weekend for Cub Scouts at Camp Snyder near Haymarket, VA, on September 28–30. About 1,600 Scouts were registered for the event, sponsored by the Chainbridge BSA council. Several NVMC members joined in teaching the Scouts about minerals at an “Earth Rocks” station.

Conrad Smith, Eagle Scout, who is a college student majoring in mining and geology, led Webelos on Saturday in fulfilling requirements for the “Earth Rocks!” badge. Conrad also designed a “Minerals in My Smart Phone” teaching unit used for the Scouts.



Kathy Hrechka with Cub Scouts using Mohs hardness mineral boxes. All photos: Mike Kaas and Kathy Hrechka.

We also used the following teaching units designed by Kathy Hrechka:

- a geologic map study of Virginia;
- 16 identical rock/mineral study boxes containing 17 specimens each and examples of the three rock types; and
- a Mohs hardness study box with minerals and flashcards.

In addition, “Miner” Mike Kaas designed a teaching unit with examples of geologic building material, such as the rocks and minerals used in your home.

The Scouts enjoyed discovering rocks and minerals in the “Big Dig” sandpit, which was salted with various rocks and minerals. Donations came from Dave Hennessey, Kathy Hrechka, Mike Kaas, Jim Kostka, Conrad Smith, and Tom Taaffe, with some from Cynthia Payne’s estate.

“Earth Rocks” volunteers included:

- **Conrad Smith**, Eagle Scout, college student;
- **Linda Smith**, Conrad’s mom;
- **Jim Kostka**, Eagle Scout;
- **Robert Knowles**, Eagle Scout, retired geologist, Smithsonian Q?rius volunteer;
- **Laura Dwyer**, retired geologist, Smithsonian Q?rius volunteer;
- **“Miner” Mike Kaas**, retired mining engineer, Smithsonian Geology, Gems and Minerals volunteer;
- **Tom Taaffe**, fossil vendor; and
- **Kathy Hrechka**, retired flight attendant, Smithsonian Geology, Gems and Minerals volunteer.

The event was nonstop, which made for an all-day success. It was our pleasure teaching geology. ♪



Conrad Smith and Jim Kostka, Eagle Scouts.



Robert Knowles, Eagle Scout and geologist.



Linda Smith teaching the Mohs hardness scale.



“Miner” Mike Kaas teaching Minerals in My Home.



Laura Dwyer, geologist, teaching the Virginia map and the three rock types.



Tom Taaffe and Jim Kostka with Scouts at "The Big Dig."



The "Minerals in My Smartphone" poster was designed by Conrad Smith in conjunction with his geology-related Eagle Scout project in 2014.



Take a Better Photo

by Brad Smith

Editor's note: *Intended as a "Bench Tip," the piece is actually a bonafide article, lightly edited from the original.*

Most digital cameras can take a good picture of your small jewelry items, but setup is important. There are four major items to control: background, lighting, camera motion, and focus.

Lightly colored papers from an art store make good starter backgrounds. You can try experimenting later with products like glass or colored plastics. Avoid fabrics because the weave can often be distracting at high magnification.

Outside lighting is the easiest. For closeups, flash never works well; in fact, turn off your camera's flash. Choose a bright but overcast day or a lightly shaded area when the sun is full. For indoors, you can use two gooseneck desk lamps with 75-watt bulbs.

Whatever you use, be sure to set the camera to match the type of lighting you use or else the colors will be off.

You'll be shooting up close, so turn on the Macro mode. At this range, if the camera moves even a little bit during the shot, the picture will be blurry, so it's essential to use a tripod. Used ones are available inexpensively from eBay, yard sales, or some camera shops.

Even with a tripod, I put the camera on the self-timer mode so that any vibration from clicking the button settles down before the camera takes a picture.

In order to get the largest part of your jewelry in focus, you have to close the lens down to the minimum aperture (highest F-stop number). Take the camera off of Auto mode and select aperture priority, usually denoted by "Av." Then set the aperture to the largest number, which is F-8 on my camera.

You'll probably have to get out the book or go back to the store to ask how to do this, but it's really worth it.

That's it. In recap, here are the camera settings I use:

- Set the lens to Macro for a closeup shot.
- Turn the camera's flash off.
- Move the camera in close enough for the item to cover at least three-quarters of the frame.

- Look for adverse reflections from the jewelry surface. Try to minimize reflections by changing the light position or camera angle or by using white background paper.
- Carefully check for any fingerprints or dust that might be on the piece.
- Make any final tweaks with the lighting and arrangement.
- Select "Av" for aperture priority mode.
- Set the lens opening to the highest number (F-stop) to get the maximum depth of field.
- Set the lighting to match what you're using (daylight, overcast, light bulb, fluorescent, and so on).
- Set the timer for delayed shooting, either 2 seconds or 10 seconds, to avoid camera movement. The delay gives you time to hold up a piece of white paper to adjust lighting or reduce any final reflections.
- Set the image size to the maximum resolution. You can size it down later, but you can never increase it.
- Take the shot. ➤

See Brad's "How To Do It" books at [Amazon.com/author/bradfordsmith](https://www.amazon.com/author/bradfordsmith)



Field Trip Opportunity

Geology at Long Branch

Dec. 1, 1–4 p.m. (rain date: December 9), led by Joe Marx; members \$26, nonmembers \$36.

Audubon Naturalist Society event: [register here](#).

Arlington's Long Branch Nature Center overlooks a misnamed tributary of Four Mile Run. We will hike a mile or so along Long Branch and Four Mile Run, returning by the same route. A variety of rock units are exposed along the trail, including an undersea landslide frozen in time, long-vanished seaside flats, and the bottommost layer of the coastal plain. To add botanical icing to our geological cake, we will traverse an old-growth upland forest and a quicker changing floodplain forest. ↗



Geological features near the Long Branch Nature Center where our club meets include Huffman's Falls (top), part of the Fall Line zone on Four Mile Run, with good exposures of bedrock (Indian Run sedimentary melange); and the Potomac Formation (bottom), an unconsolidated layer of sediments laid down by rivers 100–130 million years ago. Photos: Hutch Brown.

Humor

Carat Confusion

Editor's note: The story is adapted from "[No Sale: Not Always Right](#)," a website about incidents that defy the maxim that the customer is always right.

I work in a jewelry store, and one day a customer walked in.

Customer: "What carat is your jewelry?"

Me: "All of our jewelry is sterling silver, sir. Silver isn't classified in carats."

Customer: "Yes, I know, but what carat is it?"

Me: "Silver isn't classified in carats, sir; that's gold. Our silver is 925 Sterling Silver, meaning it is 92.5 percent pure silver, 7.5 percent another metal, such as copper. Pure silver is too soft for jewelry, so 925 Sterling Silver is used."

Customer: "Yes, but what CARAT is it?"

(This went on for several minutes before he left.) ↗

Nature's King of the Mountain Game

by Bill Beiriger

Editor's note: The story is adapted from Livermore Lithogram (newsletter of the Livermore Valley Lithophile, Livermore, CA), November 2016, p. 10.

I recently enjoyed reading a book by Russell Owen, *The Conquest of the North and South Poles: Adventures of the Peary and Byrd Expeditions* (Random House, 1952). It explained where the game "King of the Mountain" originated.

On the Antarctic expedition, explorers were watching penguins around a hill of snow about 3 feet high. One would climb to the top, and the others would solemnly look up at him. He would ignore them, staring off into the distance and flapping his flippers a couple of times, practically yawning with boredom of it all.

Then another penguin would go up and push the first one off. The new arrival would in turn look bored until he was pushed off by a third penguin. And so they would play their little game until each one had had a turn at the top.

So even the animals have to find a way of passing the time in the wilderness. ↗



AFMS
Classic American
Fossil Sites for Earth
Science Education



by Jim Brace-Thompson, Juniors
Program Chair

Editor's note: The article is adapted
from the A.F.M.S. Newsletter (Octo-
ber 2018, p. 4).

In this column several years ago (in November 2013, to be exact), I reported on a book by Albert B. Dickas titled *101 American Geo-Sites You've Gotta See* (Mountain Press, 2012). I noted how Dickas helps you take kids to sites that tell unique geological stories, such as:

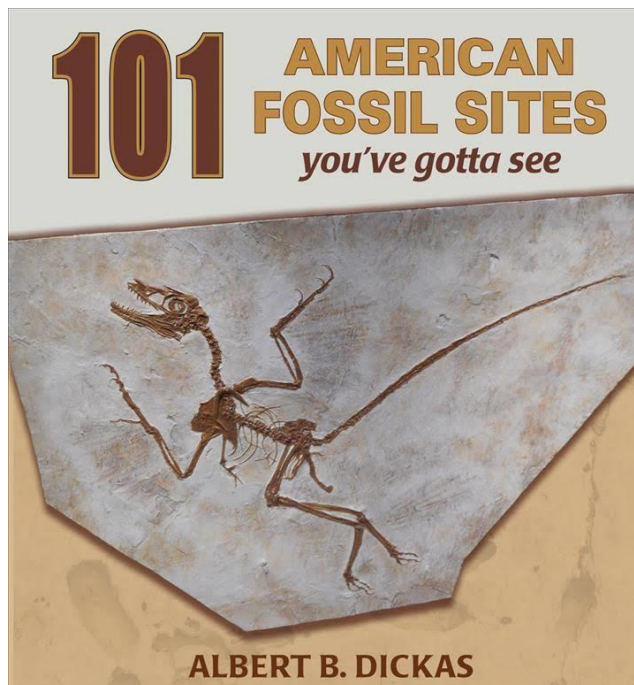
- dramatic evidence of an ancient meteorite strike in Alabama,
- a view of the Pacific plate sliding by the North American plate along California's San Andreas Fault,
- fossil-bearing ash beds in Nebraska that tell of an unimaginably immense volcanic eruption 12 million years ago in what is now Idaho, and
- evidence of a tropical sea as well as massive glaciation in Ohio.

With 101 sites included across all 50 states, you should be able to find a locality within reasonable distance for a day trip or weekend trip.

Well, Dickas has done it again! He has just published *101 American Fossil Sites You've Gotta See* (Mountain Press, 2018).

The book opens with a quick romp through the history of paleontology as a science, provides the basics of fossils and fossilization, and explores the history of life on Earth, eon by eon and period by period.

Then comes the real meat of the book: the 101 sites from Alabama to Wyoming (including Alaska and Hawaii). Each site entry consists of a two-page spread. The opening page provides GPS coordinates, a one-sentence overview of the significance of the site, and an overall description and paleontological history. The second page provides colorful supporting illustrations, maps, and photos. Printed on high-quality glossy paper, the photos make it a wonderful coffee-table book in addition to an informative read.



Additional helpful info is provided in an end-of-book glossary and a reference section supplying four additional suggested readings for each site.

The sites include some where only viewing is allowed (for instance, Arizona's Petrified Forest and Oregon's John Day Fossil Beds National Monument) but also a wonderful assortment where hands-on collecting is not only allowed but encouraged. I've been to 22 of the 101 sites, from California to New Jersey, and I can assure you that Dickas has chosen wisely. All are worth considering as field trip destinations—and are sure to provide a whole lot of fun! ↗

GeoWord of the Day

ice spar

A white or colorless, glassy, transparent variety of orthoclase; specifically, *sanidine*.

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





Safety Matters Where Is Safety?

by Ellery Borow, EFMLS Safety
Chair

*Editor's note: The article is adapted from
EFMLS News (November 2018), p. 4.*



Where is safety? A short story, if I may.

Of the six or so folks who read these “Safety Matters” articles, one of them related a story about a recent safety-related experience. While digging a hole in her backyard to plant something, she encountered a large rock.

Being a rock person, she fetched her rock hammer and chisel and proceeded to reduce the size of the rock using her tools. She said that a “thought bubble” appeared over her head: “Shouldn’t I be wearing my safety glasses?”

The fact that one reader thought of wearing safety glasses while breaking a rock to plant something is what I would call a success.

Safety is a full-time responsibility. Where is safety? Safety matters relate to planting a plant, breaking a rock, driving to a field trip, and grinding a stone. Safety matters do not end when you leave the quarry or the office or your car in the garage.

Where is safety? Safety matters are everywhere.

In the many and varied areas of our rock hobby, safety matters are everywhere—at our club meetings; our shows; our workshops; our collecting trips; our talking about the hobby in school, church, or civic groups; and our rock trimming and identification activities. Some safety matters are well documented and clear. Some hide in the dark and are unique to a situation. Being safe means being mindful of rules, guidelines, and obvious and less obvious hazards. Perhaps most of all, safety means being prepared and well aware of the potential danger in every situation.

Being safe is not complicated. We pretty much know what we need to do to be safe, so it is mostly a matter of doing what we know is the right thing to remain safe.

Please, be safe in and with all you do. Your safety matters. 🗡️

Bench Tip Mobile Flexshaft Stand

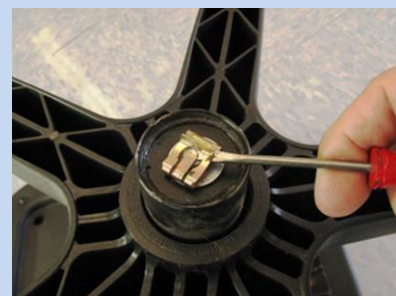
Brad Smith

A handy mobile stand for your flexshaft can be made easily and quickly from the base of an old swivel office chair. You can find these chairs being thrown out at office buildings and schools. I just asked the custodian in my building to set one aside for me.

To separate the chair from the wheeled base, simply remove the spring clip from the center bottom. I use a small screwdriver or a pair of pliers.

To make the stand, you’ll need two pieces of threaded galvanized steel pipe and a pipe fitting from a hardware store. The first length of pipe is 3/4 inch in diameter to fit the hole in most chair bases. The second piece is a length of less expensive 1/2-inch pipe.

The total length of the two pipes should be five feet. I used a 2-foot length of 3/4-inch pipe and a 3-foot length of 1/2-inch pipe. They are joined together by a pipe fitting called a 3/4-to-1/2 reducing coupler.



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

Origin of the Chemistry Set: Practical to Career-Oriented to Just Plain Fun

by Jennifer A. Kingston

Editor's note: The article is adapted from Livermore Lithogram (newsletter of the Livermore Valley Lithophile, Livermore, CA), February 2013, p. 7.

Harry Potter fans will appreciate the origin of the chemistry set.

In 18th-century England, university students were given supply lists and sent to shops in London that assembled kits for each course of study, from geology to mineralogy and chemistry. Eventually, those shops started selling the kits more widely as science captured the public imagination in the Victorian era, said Rosie Cook, a cultural historian at the Chemical Heritage Foundation, a nonprofit group in Philadelphia.

Ms. Cook was in the midst of curating an exhibit of chemistry sets planned for 2014. The early sets were very similar to pharmacy or doctor's kits from the era, Ms. Cook said. They were "fully stocked with glassware and porcelain labware, beautiful wooden boxes." (Picture Professor Snape's potions lab.)

By World War I, she said, the Porter brothers, who ran the Porter Chemical Company in Hagerstown, MD, started importing kits from England.

"You'd find them in the five-and-dime, at Woolworth's," Ms. Cook said.

Soon thereafter, an inventor and entrepreneur named A.C. Gilbert—who popularized the Erector Set—introduced chemistry sets, going up against the Porters and their Chemcraft brand.

"By the 1940s, you probably have 15 manufacturers," Ms. Cook said.

At the time, science and scientists were held in the highest esteem, and chemistry sets were perhaps the first toys marketed to American parents as a way to help their children succeed.

"They're claiming that these kits are going to be career-building sets," Ms. Cook said. "It's very ingenious. They really are playing on the subconscious of



parents, who grew up in the Depression and want a steady career" for their children.

In the late 1940s and 1950s, chemistry sets entered the atomic age. Gilbert offered an "Atomic Energy Lab that came with "radioactive ores" and a Geiger counter. A Porter Chemcraft kit had uranium samples and a spinthariscopescope, a device for viewing radioactive decay. (The humor site Cracked.com placed toys like this on a list of "The 8 Most Wildly Irresponsible Vintage Toys.")

"Was it dangerous? Probably," Ms. Cook said. "This was all before the launch of the consumer protection agency. This is also the period when science doesn't really know what is dangerous and what isn't."

By the 1960s, the environmental movement started to turn "chemicals" into a dirty word, and sales of chemistry sets plummeted accordingly. In the 1970s, the Consumer Product Safety Commission was set up and started clamping down on the contents of kits, leading the products to all but disappear for a decade or two.

By the 1990s, chemistry sets started to trickle back, usually under the guise of "kitchen chemistry," Ms. Cook said. Today's kits are mostly in that vein.

The Chemical Heritage Foundation owns about 110 vintage chemistry sets, up from a dozen or so in 2003, when Ms. Cook joined.

"We have the largest collection held in the public sphere," she said. "This is what happens when you give me a budget and eBay." ↗



The Rocks Beneath Our Feet **The Ellensburg Blue Agate**

by Hutch Brown

As newsletter editor, I look for articles from other clubs' newsletters to borrow for our own. In the process, I discovered the beautiful Ellensburg blue agate (fig. 1, top). Limited to one place on Earth, this particular agate has an interesting story to tell. My main sources are Killian (2017) and Zentner (2013).

The "Ellensburg Blue," as it is known to collectors, is found only in the northwest corner of lower Kittitas Valley, near Ellensburg, WA. Ellensburg is a town of about 46,000 people in rural central Washington (fig. 1, bottom).

The agate is mainly in an alluvial fan left by an ancient river in the Kittitas Valley north of Ellensburg. The alluvium fans out from a notch left by the river in a ridge. The remnant gorge is called Green Canyon, now drained by a stream flowing north.

The original south-flowing river drained a bedrock laid down by lava flows about 47 million years ago. The Teanaway basalt is gray in color (fig. 2), and like many basalts it is riddled with holes in places, marking bubbles in the ancient lava.

Agate is essentially quartz—silicon dioxide. After the basalt formed, silica-rich superheated fluids rose from deep underground to fill the ancient lava bubbles. The silica precipitated out from the hydrothermal fluids, filling the voids with agate, sometimes forming concentric blue rings.



Figure 2—The Teanaway basalt originated from lava flows about 47 million years ago. It is a gray basalt that has cavities in places (bubbles in the lava). The Teanaway is the host rock for Ellensburg blue agate, which precipitated out in some of the cavities. Photos: Washington Department of Natural Resources.

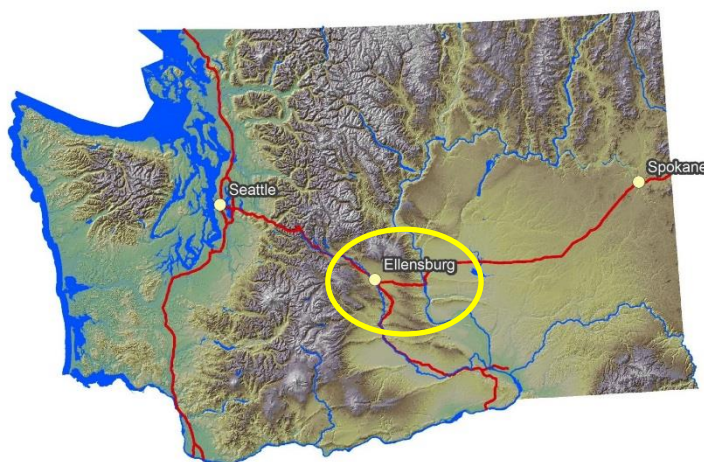


Figure 1—**Top:** A piece of Ellensburg blue agate. **Bottom:** Location of Ellensburg (circled) in central Washington, at the eastern edge of the volcanic Cascade Mountains. Sources: Killian (2017); CWU (n.d.a).

Over time, erosion whittled away the basalt, which is relatively soft. At 7.0 on the Mohs scale of hardness, quartz is relatively hard, and it is one of the last minerals to erode. That's why you find so much of it in our creeks.

The same goes for agate. This particular agate, with its rich blue hues, is especially hard, testing at 7.5 to 8.3 on the Mohs scale. Exposed by erosion, the agate simply dropped out of the crumbling Teanaway bedrock. Swept downstream by swift mountain currents, it ended up in the alluvial fan at the northern edge of the Kittitas Valley. There, it is mixed in with the soils and other rounded river rocks.

You can find Ellensburg blue agates outside the ancient alluvial fan as well. The Teanaway River system now drains the Teanaway bedrock, carrying eroded materials—including blue agates—downstream toward the Yakima River, a tributary of the

Columbia River to the southeast. During the Pleistocene Epoch ending about 11,700 years ago, glaciers in the Yakima watershed ground out sediments from the Teanaway basalt, leaving blue agates in their moraines.

Moreover, Kittitas County is not the only locality for blue agates, which come from various places worldwide. But the blue color elsewhere is usually in bands mixed with other colors, such as red, gray, or yellow.

By contrast, the Ellensburg agates are consistently blue, ranging from bluish white, to sky blue, to cornflower blue, to royal blue. Clouds, streaks, or bands occur in many stones, which grade from nearly opaque to transparent.

And the main source for blue agates continues to be the ancient alluvial fan north of Ellensburg. Most of the land is privately owned farmland and ranchland, so collecting opportunities are few. But some landowners let rockhounds search the soils for a fee. The best time is after the spring thaw or when farmers plow their fields, because both plowing and frost heave bring new rocks to the surface.

The stone's hardness and its rich blue hues make it ideal for lapidary work (fig. 3). But the stones are so scarce that 2 ounces of cutting material in an 8-hour search is considered a good day's find. Occasionally, people find a stone of up to 4 ounces, but not often.

Because of its singular qualities and limited quantity, the Ellensburg blue agate has been classified by many gemologists as a precious gem. Should you decide to purchase one, you will have not only a truly unique piece of jewelry but also an investment that will no doubt increase in value over time. ↗

Sources

CWU (Central Washington University). N.d.a. [Geology of Washington](#). Ellensburg, WA.

CWU (Central Washington University). N.d.b. [Singin' the blues: CWU's Zentner explains how Ellensburg's signature stone came into being](#). CWU News.

Drummond, L. 2016. [Telling the Teanaway's geologic story](#). Blog, 30 March. Washington Trails Association.

Killian, R. 2017. [The Ellensburg blue agate](#). The Rockhounder. February: 10–11. Originally in: The Nisqually Rockhounder (April 2001).

Washingtonminerals.com. 2002. [Ellensburg blue](#).

Zentner, N. 2013. [Ellensburg blue agates](#). Downtown Geology Lecture Series, Central Washington University, Ellensburg, WA. 15 May.



Figure 3—Samples of Ellensburg blue agate, both in the rough and after lapidary work for jewelry. Sources: Washingtonminerals.com (2002), photo—Jeffrey M. Schwartz; CWU (n.d.b).

December 2018—Upcoming Events in Our Area/Region (see details below)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 Field trip Show: Arden, NC
2 Hanukkah begins Show: Arden, NC	3	4	5	6	7	8
9	10 GLMSMC mtg, Rock- vle, MD	11	13	14	15 MSDC holi- day party	16
16	17 NVMC/ MNCA Holiday Party	18	19	20	21 Winter begins	22
23	24	25 Christmas	26	27	28	29
30	31 New Year's Eve					

Event Details

- 1: Arlington, VA**—Field trip: Geology of Long Branch; Audubon Naturalist Society; 1–4; Long Branch Nature Center; info here.
- 1–2: Arden, NC**: Christmas Show; Mountain Area Gem & Mineral Association; Sat 9–5, Sun 10–4; Camp Stephens, 263 Clayton Road; free admission; info: Richard Jacquot, rick@wncrocks.com.
- 10: Rockville, MD**—Monthly meeting; Gem, Lapidary, and Mineral Society of Montgomery County; 7:30–10; Rockville Senior Center, 1150 Carnation Dr.
- 15: Washington, DC**—Holiday party; Mineralogical Society of the District of Columbia; private location.
- 17: Arlington, VA**—Holiday party; Northern Virginia Mineral Club/Micromineralogists of the National Capital Area; 6:30–9:30; Long Branch Nature Center, 625 S Carlin Springs Rd.



Diopside with barite (the brown material), from Kaokoveld, Kunene region, Namibia. Source: Wikipedia; photo: Rob Lavinsky.

Hutch Brown, Editor
4814 N. 3rd Street
Arlington, VA 22203



**Mineral of
the Month:
Diopside**

PLEASE VISIT OUR WEBSITE AT:

<http://www.novamineralclub>

2018 Club Officers and Others

President: Bob Cooke
rdotcooke@gmail.com
Vice-President: Ti Meredith
ti.meredith@aol.com
Secretary: David MacLean
dbmaclean@maclean-fogg.com
Treasurer: Roger Haskins
rlhaskins@verizon.net
Communications: Vacant
Editor: Hutch Brown
hutchbrown41@gmail.com
Field Trip Chair: Steve Parker
stevenlparker@gmail.com
Greeter/Door Prizes: Ti Meredith
ti.meredith@aol.com
Historian: Kathy Hrechka
kshrechka@msn.com
Photographer: Amanda Parker
parkeramandalynn@gmail.com
Show Chair: Tom Taaffe
rockclctr@gmail.com
Webmaster: Casper Voogt
casper.voogt@plethoradesign.com

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;
\$15 individual, \$20 family, \$6 junior (under 16,
sponsored by an adult member).

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

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.*

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

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