



The Mineral Newsletter

Meeting: April 23 Time: 7:45 p.m.

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



Olivine

Kohistan District, Pakistan

Source: [Wikipedia](#). Photo: Rob Lavinsky.

Volume 59, No. 4

April 2018

Explore our [website](#)!

April Meeting Program:

Visualization in Geology

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Deadline for Submissions

April 20

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



Mineral of the Month Olivine

by Sue Marcus

Olivine appeared to be an interesting mineral—attractive, available, even collectible—so it was chosen as our Mineral of the Month for April. For those who have followed articles on the Mineral of the Month, we have learned about mineral “series”—that is, minerals with chemical formulas that grade into one another, forming a sort of chemical spectrum as one or more elements substitutes for another. Olivine is one of those.

Olivine used to be a simple, singular mineral. “When I was in school ...” Now, most people consider olivine to be the umbrella term for the solid solution series of magnesium-rich forsterite (Mg_2SiO_4) to iron-rich fayalite (Fe_2SiO_4). Less common minerals in the olivine group—or less commonly identified with them—include kirschsteinite (CaFeSiO_4), monticellite (CaMgSiO_4), and tephroite (Mn_2SiO_4).

With its yellow-green color, it is easy to see that olivine acquired its name from the green olive fruit. Because the chemistry can vary throughout the olivine group, the origin of specific names has come and gone with the individuals who described their material in hand. I will leave you with the knowledge that you will soon be reading about the ancient mining of these materials and that we’ll ignore the names that became mineralogical ephemera.

Olivine occurs in all three major rock types. Olivinite and peridotite are names for igneous rocks predominantly containing olivine. Scientists believe that most of the upper mantle is composed of olivinite (that is, olivine plus a few silica-poor minerals). Olivine can be scientifically important in determining the geological origins of the rocks that contain it.

Volcanic rocks in Hawaii and other volcanic regions host phenocrysts of olivine: the olivine formed early in the process of magma solidification, then the olivine chunks were caught up in the

Happy Easter!



Northern Virginia Mineral Club members,

Please join our April speaker, Callan Bentley, for dinner at the Olive Garden on April 23 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.



Forsterite samples (microminerals). Photos: Bob Cooke.

still-fluid magma as it came to the surface. Olivine is found in metamorphic rocks derived from these igneous rocks. Olivine also forms sand and even beaches when weathered from relatively young volcanic rocks in places like Hawaii (see the article on page 13).

I always learn something when researching these articles. Olivine is used for sequestering carbon dioxide! At the other extreme, it is used in Finland in saunas. More mundanely, olivine has uses in steel manufacturing, including as a flux, and it is used in molds in aluminum foundries.

Peridot, sometimes called chrysolite, is yellow-green and is the gem form of olivine and the August birthstone. Peridot is a name of unknown origin, although many possibilities have been suggested. It seems to have started as a term used by merchants and jewelers in the 1300s rather than by those exploring natural sciences. A well-known

U.S. locality, near Peridot, AZ, is on the San Carlos Indian Reservation. Most peridot is fine grained, fractured, untransparent, and therefore unsuitable for cutting. Larger pieces are usually faceted unto semiprecious stones.

The Egyptian locality of Zabargad Island, in the Red Sea, is the source of the best faceting material. Mindat reports that there is no evidence of mining before 2500 BC on Zabargad! The mines were mentioned by Pliny the Elder in 79 AD. A 20-centimeter crystal was found there. It was also the source of the largest faceted peridot, a 311.8-carat gem residing in the Smithsonian Institution's National Museum of Natural History (shown below). Mogok, Burma (Myanmar), and the gem-rich pegmatites of Pakistan are other sources of beautiful peridot crystals for collections or for cutting. The Smithsonian even has a 3.07-carat faceted peridot from Antarctica.



Peridots and peridot necklace. The gem sources range from Egypt, to Myanmar, to Pakistan, to Norway, to Arizona, to Antarctica. Source: [Smithsonian Gem Gallery](#); photo: Chip Clark.

Extra! Extraterrestrial! This month, we have a mineral that has been found in sources from places other than Earth. Olivine has been reported from meteorites and asteroids as well as in rocks from the moon and Mars.

Technical details (mostly from Mindat):

Chemical formula..... $(\text{Mg}^{2+}, \text{Fe}^{2+})_2\text{SiO}_4$
(Wikipedia)

Crystal form..... Orthorhombic

Hardness 6.5–7

Density 3.2–3.37

Color..... Usually shades of green, from yellowish-green though olive to yellowish-brown

Forsterite: colorless (pure, rare); uncommonly white, gray, or orange, along with greens and browns

Fayalite: brown, yellow-brown

Streak..... Colorless, white

Cleavage Two good cleavages

Fracture..... Conchoidal

Luster..... Vitreous ➤

Sources

Gemdat. 2018. [Peridot \(olivine\)](#).

Mindat. 2018. [Olivine](#).

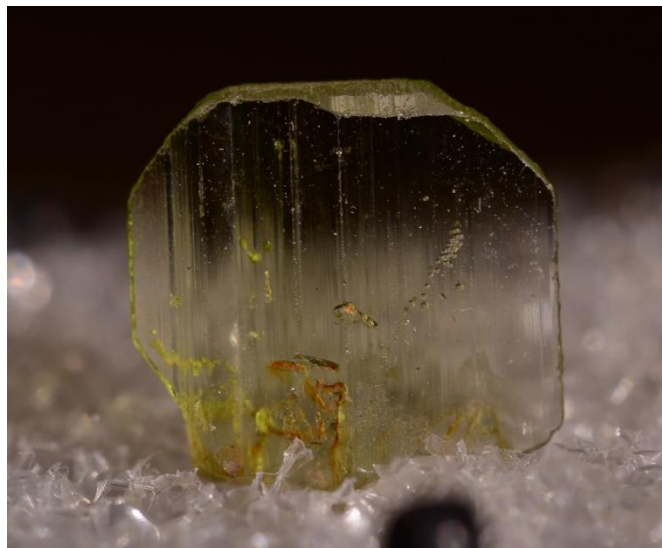
Minerals.net. 2018. [The olivine mineral series](#).

Revheim, O. 2015. [Peridot from St. John's/Zabargad Island](#). Mindat.

Smithsonian Institution National Museum of Natural History. N.d. Geogallery: [Peridot gemstones](#). Washington, DC.

Webmineral. N.d. [Olivine mineral data](#).

Wikipedia. 2018. [Olivine](#).



More forsterite samples. Photos: Bob Cooke.

GeoWord of the Day

(from the American Geoscience Institute)

olivine pyroxene melilitolite

In the IUGS classification, a plutonic rock consisting mostly of melilite, olivine, and clinopyroxene, with clinopyroxene > olivine.

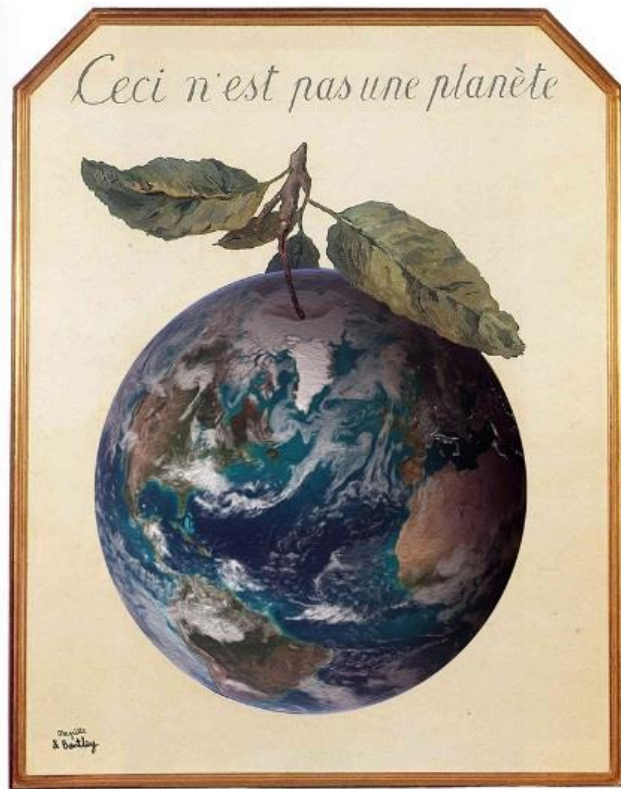
(from the [Glossary of Geology, 5th edition, revised](#))



Callan Bentley
Visualization in Geology:
A Brief History, Best
Practices, and Dispatches
From the Future
April 23 Program

Here's a mashup image of René Magritte's "Treachery of images" and NASA's "Blue Marble" that kind of

sums up my talk:



A visualization isn't the real thing: "Ceci n'est pas une planète" is French for "This is not a planet." The point is that it's a picture of a planet—well, sort of. Really, it's a parody of René Magritte's "[Ceci n'est pas une pomme](#)." But the point remains: pictures aren't the same thing as that which they depict.

Just the same, images can depict the real thing in startling detail and reveal insights and transmit information far better than mere words. Visualizations take many forms—those we make ourselves in order to force ourselves to see and those we construct for others to help them see what we think we see. They're worth way more than a thousand words.

There are elegant, effective ways to visualize geology. Other ways are less elegant, less effective. There are practices we can follow to make aesthetic masterpieces that also conform to the empirical reality of the world we are attempting to document. We can use tools to convey temporal information, 3D information, or extraordinary detail within the confines of a typical 2D "flatland" (paper, a computer monitor, a projection screen, and so on).

I hope to cover all of that in a way that will leave my audience a little excited and feeling a little empowered. And I'm going to show a lot of pretty pictures.

Callan Bentley is an assistant professor of geology at Northern Virginia Community College's Annandale campus. He teaches mainly Physical Geology and Historical Geology. In addition to teaching introductory geology courses, Callan has developed new courses, including Snowball Earth, Regional Field Geology of the Northern Rockies, Regional Field Geology of the Canadian Rockies, and Regional Field Geology of Eastern California.

Callan's academic background includes a B.S. in Geology from the College of William and Mary (1996), an M.S. in Geology from the University of Maryland—College Park (2004), and an M.S. in Science Education from Montana State University (2009). Callan has also taught at George Mason University (Structural Geology, for 4 years), George Washington University, Montana State University, the Audubon Naturalist Society/USDA Grad School, and the Smithsonian Associates program.

Since starting at NOVA in 2006, Callan has given or led almost a hundred public talks and field trips at venues across the metropolitan region, along with another hundred talks and posters presented at professional meetings around the country and the world. Callan is the President of the Geological Society of Washington. In addition to writing his popular geology blog Mountain Beltway, Callan has contributed to five geology and Earth science textbooks and is under contract to write another as lead author. He has become known as an innovator in digital geology, in particular for the use of GigaPan images of outcrops and samples.

Callan has won many awards for his outstanding teaching ability in geology. He is scheduled to give the same presentation our club will see in April at West Virginia University and the University of Kentucky later on this spring. We are lucky to have him! ↗



The Prez Sez

by Bob Cooke, President

I need a favor from everyone. Would you please be extra polite to Steve Parker at the next meeting? At last Monday's auction, his ego may have been bruised.

Steve had the misfortune of bidding on a thumbnail that I really wanted. I'm afraid it wasn't in my nature that Monday night to be polite, gracious, or magnanimous and let him get that pyromorphite. Then again, he was the high bidder for a rhodochrosite from Mont St. Hilaire that I had been lusting after.

There were a lot of other bruised egos at the auction, especially among those who attempted to get that ultraviolet lamp but lost out to the \$300 closing bid.

All in all, the auction was quite a success. In addition to finding new, appreciative homes for all those rocks and minerals, we raised a significant sum for the Fred Schaefermeyer Scholarship Fund and for the estate of Gerry Cox. A final accounting is on hold until Treasurer Roger Haskins returns from travel, but we'll have a full report for you at the April meeting.

One of the items that I'd like to bring up for discussion at the April meeting is email. Where should I (or whoever gets the privilege of sending out club email) draw the line between sending email about essential mineral-related activities and overloading your in-boxes? I'm sure each of you has a different interest level/pain threshold.

Establishing customized email lists for every aspect of our hobby may be possible but is not practical. Publishing information in the newsletter is good for next month's events but cannot address last-minute news. What's the answer?

I'm leaning toward occasionally publishing event announcements in the newsletter and including information for you to sign up individually with the sponsoring organization to be on their email list if that type of activity interests you.

Ponder the options. Come prepared to give me an earful at the April meeting. ♫

Bob

GeoWord of the Day

boudinage

A rock unit (such as a dike or vein) that gets stretched and breaks into connected chunks embedded in a matrix. The unit is pulled apart like taffy, creating the effect of a series of sausage links (*boudin* is French for sausage).

(based on [Mountain Beltway](#),

Callan Bentley, Northern Virginia Community College)



Quartz boudinage in blueschist, Samos, Greece.
Source: Wikipedia.



Items at the spring auction included this magnificent quartz crystal, one of several showpieces generously donated by Gerry Cox. Gerry asked that half the proceeds from her sales go to the Fred Schaefermeyer Scholarship Fund. Photo: Hutch Brown.



Meeting Minutes March 26, 2017

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 February 26 meeting were approved as published in *The Mineral Newsletter*.

The president recognized the two past presidents in attendance, Sue Marcus and Barry Remer. The president also recognized guests Jerry Kobiako, Bob Ogge, and Devin Thom.

Announcements

The president announced that someone is needed to get the name tags made.

Club members were asked to write messages of condolence and support on a card for the family of Geraldine (Gerry) Cox, who died very recently. For more about Gerry, see the article on page 10.

The president said that the dealer contracts for the NVMC show in November will need modification to

include refunds of table rentals if a weather-caused power outage or other *force majeure* requires closing the show prematurely.

The Micromineralogists of the National Capitol Area will host their Atlantic Micromounters' Conference on April 6–7 at the Holiday Inn, 6055 Richmond Highway (Route 1), Alexandria. For more information, see the following article.

By motion duly made and seconded, the members adjourned the business meeting. The next NVMC meeting will be on Monday, April 23, at the Long Branch Nature Center.

The meeting program was the spring auction. The auction offered minerals from Gerry Cox's collection, including a large polished septaria concretion, a large purple fluorite, a large group of quartz crystals, six large chunks of obsidian, and a variety of cutting- and polishing-friendly rocks.

The auction featured aggressive bidding on a 7-year-old long- and shortwave fluorescent lamp.

As usual, Sue Marcus loudly called out, "Keep it down!" Barry Remer loudly slapped his hand on the table to command quiet after the raucous murmuring became too loud. ➤



Some of the showpieces from Gerry Cox's collection at the club auction.

Photo: Hutch Brown



Sue Marcus getting the auction underway. Photo: Hutch Brown.

Save the Dates!

Annual Atlantic Micromounters' Conference Coming Up

The Micromineralogists of the National Capital Area, Inc., are holding their 45th Annual Atlantic Micromounters' Conference on April 6–7. Come enjoy mineral dealers, a micromineral auction, mineral giveaways, and more!

The featured speaker is Herwig Pelckmans (pictured), president of the Mineralogical Society of Antwerp, Belgium.

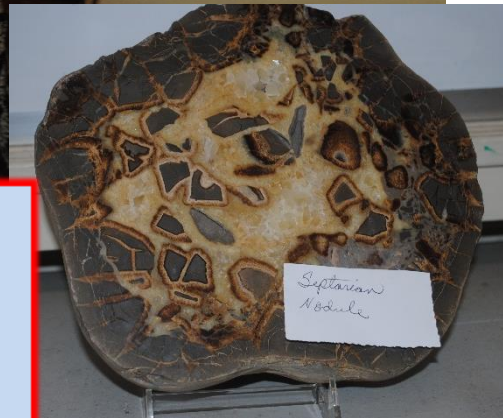
Herwig's travels and collecting trips have taken him and his family all over Europe and the United States and even to some countries in Africa and Asia. He loves to write mineralogical articles and

give talks for mineral clubs. He is also promoting the use of the polarizing microscope and the spindle stage as inexpensive and reliable tools for mineral collectors who want to identify their unknowns in a scientific way.

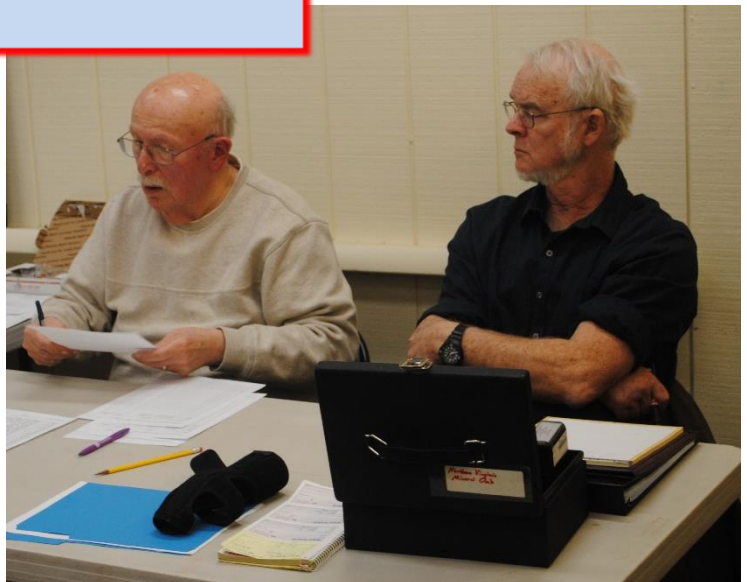
Herwig retired from his job as an officer and a database administrator for the Belgian Army in 2013, and he soon realized that life is even more hectic when you are retired. He lives with his loving wife and three kids in the small town of Hasselt in Belgium.

Herwig's conference topics include (1) The Many Faces of Fluorite, (2) Belgium and Mineralogy, (3) Topaz and Friends, and (4) Schoep, from Fred Flintstone to Bob the Builder.

The conference will be at the Holiday Inn, 6055 Richmond Highway, Alexandria, VA. The \$30 registration fee includes Saturday lunch (deli sandwiches, side dishes, beverages, and dessert). For more information and registration materials, please click dcmicrominerals.org. ➤



at the
spring club
auction ...



Sad News: Gerry Cox

by Sue Marcus

Gerry, we hardly knew ye!

Our friend and colleague Geraldine “Gerry” Anne (Vang) Cox died on March 22 after a courageous battle with cancer. Courageous because Gerry was a fighter. Gerry tried every therapy she could find, enduring many setbacks. Yet she remained cheerful, lively, and always interested in others.

Most of us knew only one or two of Gerry’s many facets. Yes, she was a faceter, lapidary, and a member of the Gemological Institute of America. She also served our hobby as secretary of the Eastern Federation of Mineralogical Societies and was an avid champion of the educational programs—and fun—at Wildacres. You can find her outstanding descriptions of Wildacres in the [June 2014 issue of *Mineral Minutes*](#) and the [December 2014 issue of *The Mineral Newsletter*](#).

There are many other fascinating facets of Gerry’s life. She received her Ph.D. in Environmental Science and was an adjunct professor at Drexel University in Philadelphia. The Gerry we hardly knew was vice president of a major international corporation and a manufacturer’s association. A former White House Fellow, she appeared on television and radio programs, gave interviews for newspaper and magazine articles, and testified before congressional committees. She published more than 50 technical articles and received many professional and other distinguished awards.



Gerry Cox. Photo: Sheryl Sims.

After the chemical disaster in Bhopal, India, in 1984, Gerry wrote the model for the chemical industry’s community awareness and emergency response guidelines to prevent a recurrence of another catastrophe. She was a volunteer for the Red Cross. She served the Federal Emergency Management Agency as a disaster assistance employee, working under crisis conditions in disaster locations and managing responses from headquarters. She was an environmental consultant for many federal agencies, earning the highest civilian award, a Meritorious Service Medal, from the Coast Guard.

Survivors include Walter, Gerry’s husband of 50-plus years, and their Abyssinian cat. Another fascinating aspect of Gerry’s life is that she was an Abyssinian cat fancier and bred Abyssinians for many years.

Along with a warm legacy of memories, Gerry leaves us with a generous donation to the Fred Schaefermeyer Scholarship Fund. We are honored to have known Gerry! ♡



Gerry’s soapstone carvings at Wildacres in 2014.

Traveler's Delight: Amethyst Treasure

by Grant Colip

Editor's note: Grant Colip, a student at James Madison University, received a Fred Schaefermeyer scholarship award from NVMC in 2017. In gratitude, he submitted this article to our newsletter.

I'm currently a junior year Geology/Spanish double major at JMU, and I have garnered a large cabinet-size mineral display over the last several years after becoming interested in the hobby by way of Dr. Lance Kearns and Cindy Kearns.

Over the summer of 2017, I participated in the JMU-in-Argentina summer study abroad program to earn credits for my Spanish major, and the trip had an unexpected geologic twist!

I was in Argentina for 7 weeks, from June through August. During our free week in July, I traveled to Misiones Province in the northeastern part of the country. The province, nestled between Brazil and Paraguay, is known for its mineral resources—and I was fortunate enough to be able to visit an open-pit amethyst mine!

The Wanda Mine, operated by the Compañía Minera Wanda (Mining Company of Wanda), is a locally owned and operated mine that has been producing amethyst for decades after mineral resources in the area were first stumbled upon by German immigrants in the 19th century. The mine produces large quantities of amethyst, citrine, agate, and rock crystal quartz, along with other minerals in smaller amounts.



Grant Colip with instructor Cindy Kearns at James Madison University on January 28, 2017. Grant was one of three students to receive a Fred Schaefermeyer scholarship award from NVMC in 2017. Photo: Kathy Hrechka.



During my day-long tour of the mine, I was able to see the open pit surface area where material is regularly blasted out. Up to 80 percent of the amethyst is destroyed while blasting, but enough remains to keep the mine profitable. I took lots of photos (some on this page and the next) of the amethyst and rock quartz tubes and geodes poking out of the basalt walls and floors.

There is also a portion of the mine that is in a hill—underground, where tunnels are dug and blasted out. Plenty of amethyst tubes are located in the walls and ceilings there as well.

I ended up purchasing a large “cathedral” amethyst geode for 5,000 Argentine pesos, or a little over \$300. It has made a phenomenal addition to my personal collection, although it was quite an effort to get it through airport security.

Although much of the world's amethyst comes from Uruguay, which I also visited, Argentina produces a fair bit as well—a traveler's delight! ↗



Wanda Mine in
Argentina—amethyst on
rock quartz, in basalt—photos
courtesy of Grant Colip



Hawaiian Olivine

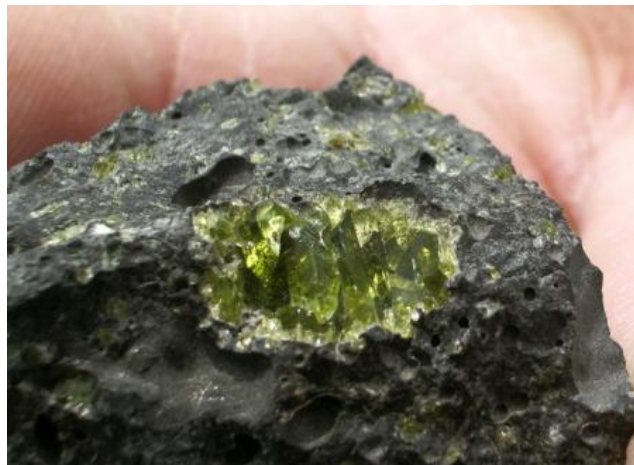
by Dean Sakabe

Editor's note: The article is adapted from Hui Pōhaku 'O Hawai'i (newsletter of the Rock and Mineral Society of Hawai'i), August 2017, p. 3.

Olivine is the name of a group of rock-forming minerals often found in Hawaiian basalt. It is usually greenish in color, with a composition ranging from Mg_2SiO_4 to Fe_2SiO_4 . It usually crystallizes in the presence of plagioclase and pyroxene to form gabbro or basalt.

Olivine has a very high crystallization temperature compared to other minerals. This makes it just about the first mineral to crystallize from a magma. So during the slow cooling of a magma, olivine crystals may form and then settle to the bottom of the magma chamber because of their relatively high density. This concentrated accumulation of olivine can result in the formation of olivine-rich rocks such as dunite in the lower part of a magma chamber.

Olivine is one of the first rocks to be altered by weathering. Because it is so easily altered by weathering, olivine is not a common mineral in sedimentary rocks and is only an abundant constituent of sand or sediment when the deposit is very close to the source. Such is the case at Papakolea Beach, where green olivine sand is mixed in with white coral and black basalt. ➤



Olivine phenocrysts in Hawaiian basalt, the source of the sand at Green Sand Beach, South Point, Hawaii.

Photo: Donnie MacGowan.

Save the Date! GLMSMC Auction



The Gem, Lapidary and Mineral Society of Montgomery County, MD, is hosting an auction for the estate of a long-time collection, including museum-quality mineral specimens. Specimens to be auctioned include calcites, barites, fluorites, zeolites, and more.

When: Saturday, April 14 (9 a.m. preview; live auction 10 a.m. to 3 p.m.)

Where: Rockville Senior Center, 1150 Carnation Drive, Rockville, MD

All transactions in cash!

Information: [GLMSMC website](#)

GeoWord of the Day

(from the American Geoscience Institute)

phosphide

A mineral compound that is a combination of phosphorus with a metal. An example is schreibersite, $(\text{Fe}, \text{Ni})_3\text{P}$.

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

Save the dates! Field Trip Opportunities

Northern Virginia Community College Geology Field Trips

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](#).

Paleozoic Geology of Virginia/West Virginia

April 7, 9 a.m.–7 p.m. This field trip will let you explore the late Silurian and Devonian 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.



Building Stones of the National Mall, Washington, DC

April 14, 9 a.m.–6:30 p.m. We will visit over 20 sites on the Washington Mall, examining the geologic history and architecture, including the rocks used to construct the federal buildings and monuments.



Cretaceous Geology of Maryland and Fossil Hunt

April 15, 10 a.m.–6 p.m. Well-known dinosaur expert and paleontologist Dr. Peter M. Kranz will lead this fun outdoor expedition to nearby fossil sites, where you can discover many exciting fossils to take home.

April Fool's Day

This is the day upon which we are reminded of what we are on the other three hundred and sixty-four.

Mark Twain, Pudd'nhead Wilson's Calendar

April Fool's Day Dangerous Substance in Your Pipes!

Editor's note: Versions of this hoax have circulated since the 1980s, all based on calling water dihydrogen monoxide (H₂O) and listing some of its "alarming" effects. This example is adapted from Wikipedia.



Scientists report a substance commonly found in the pipes in your home. Known as dihydrogen monoxide, this substance:

- is the major component of acid rain,
- contributes to the erosion of our natural landscapes,
- accelerates corrosion and rusting of many metals,
- may cause electrical failures and decreased effectiveness of automobile brakes, and
- has been found in excised tumors of terminal cancer patients.

Despite the danger, dihydrogen monoxide is often used:

- as an industrial solvent and coolant,
- in nuclear power plants,
- in the production of styrofoam,
- as a fire retardant,
- in the distribution of pesticides, and
- as an additive in many food products.

Scientists warn that produce remains contaminated by this chemical even after washing. On average, 10 people in the United States die every day from inhaling this dangerous substance! ↗



"My last comment 'appeared' to be inviting feedback.
Do not be fooled."

Safety Matters Talk Time

by Ellery Borow, AFMS Safety Chair

Editor's note: The article is adapted from AFMS Newsletter (April 2014), p. 6.



You've read about it, heard about it, and talked about it. There are laws governing it, and it has a lot of people thinking about it. In our busy traveling hobby we need to be aware of it because we travel to meetings, club outings, digs and field trips, shows and rock shops—and back. All that traveling should give us cause to think a great deal about it.

Perhaps you have surmised the nature of the “it.” mobile phone use while driving.

We are a traveling society and a traveling hobby. After all, the rocks don't often come to us—we go to them. It is a natural desire to use our travel time to good advantage, keeping in touch with our busy lives.

As soon as we divert some of our attention from driving, we officially enter multitasking land. There are a good many folks who feel they are able to multitask along with the best of them.

Well, I've read survey after survey, study after study, and it seems as though, even under the best of circumstances, perhaps as many as 2 percent of drivers exhibit a small bit of multitasking ability. In general, even though some may have some small modicum of ability to multitask, even the best of us are not good enough at it to do so while driving!

Let's mention some modern distractions as we attempt to multitask while driving:

1. Talking on a hands-free device, whether in the phone or built into the car, is a distraction.
2. Talking on a handheld device is a distraction.
3. Texting while driving is a distraction.
4. Listening to an audiobook while driving is a distraction.
5. Simply listening to a radio program is a distraction, although not quite on par with the other distractions.
6. Knitting, reading a newspaper, reading a book, shaving, doing your nails, and cleaning your eye-glasses are all distractions. (And, yes, I personally

have witnessed folks doing all of these things while passing me on the highway.)

Any effort at multitasking adds another task to the already complicated task of driving. Driving is not just a visual activity. Driving also involves how the seat feels as it presses into your body. Driving involves sensing movement cues—from pedestrians, deer, vehicles, bikes, birds, and so on. Driving means sensing how the vehicle is handling. Driving keeps us aware of vehicle noises and noises from emergency vehicles. Driving requires monitoring optical effects—glare and reflections.

Our brains are already full of driving needs when we are behind the wheel. Driving with additional distractions is just something we don't do well. Distractions mean taking your eyes off the road while texting or pressing a speed dial number. Focusing on an important conversation or fumbling with a seat adjuster or fussing with the A/C controls adds too much for our brains to handle well.

There are accidents we sometimes see ahead of time, giving us time to process. Sometimes we will monitor a fast car coming up behind us while zipping from lane to lane as it races ahead to save a few seconds time on the commute home. Sometimes we will see a stopped car not sufficiently pulled into the emergency lane, with cars swerving around it at high speed. Sometimes we will see a line of brake lights ahead of us as we approach a road bottleneck. All these things give us a few moments of precious time to react.

But what if we lose those precious moments because we are texting or fumbling with controls?

There are already too many distracted folks on the road. As good rockhounds and drivers, we need to be ever vigilant for such drivers. Nobody wants to pay the price for someone else's distraction!

We have a traveling hobby yet still need to stay in touch with the outside world, so what are we to do? Share the driving with a passenger who can be responsible for some of the communicating. Pull over where you can safely stop and talk. Let the phone do what it was designed to do and take messages. If you have a field trip caravan, have a designated communicator in each vehicle. You can do all this and be safe.

By all means, be aware of state laws on using mobile phones while driving. Even if allowed, please do so safely. It's a distracting world out there! ↗



Wildacres in Fall

by Hutch Brown, Editor

Wildacres is a retreat located on Pompey's Knob just off the Blue Ridge Parkway about an hour north of Asheville, NC. Signing up for the September 3–9 session will give you the opportunity to take one or two

classes; hear excellent talks from guest speaker Alfredo Petrov (explorer, raconteur, and mineral dealer); and participate in a variety of other activities.

Registration is open! You can find a registration form on the [Wildacres website](#). Some classes fill quickly, so register early! You can choose from the courses listed below. ↗

Coming to Wildacres in September 2018 ...

Electro-etching—Beginner (*Micah Kirby*): Learn a design-driven approach, gain knowledge using multiple masking techniques, oil based marker, and vinyl resists on copper or bronze. Use noncaustic and nongas-producing electrolyte solutions with low voltage power to initiate etching. Produce two pendants and a pair of earrings. Finish with tumbling. No experience needed. 2-day class, 1st semester.

Electro-etching—Intermediate (*Micah Kirby*): Learn a design-driven approach, gain knowledge using multiple masking techniques, P-n-P, and photo-sensitive paper as resists on copper, bronze, and a second noncaustic solution for silver. Produce a pendant and cuff form. Finish with tumbling. 2-day class, 2nd semester.

Loop and Loop Chains—Beginner (*Chuck Bruce*): Learn to fuse fine silver jump rings and link them together into a chain. Use different patterns—Roman Fold-over and Single Fold-over (Foxtail)—to finish a bracelet and pair of earrings. No experience needed. 2-day class, 1st semester.

Loop and Loop Chains—Advanced (*Chuck Bruce*): Learn to fuse fine silver jump rings and link them together into a chain. Use different patterns—Double Fold-over (Foxtail) and Sailor's Knot—to finish a bracelet and pair of earrings. No experience needed. 2-day class, 2nd semester.

Silversmithing—Basic (*Richard Meszler*): Work silver sheet and wire to fabricate jewelry. You get a kit with metals/supplies as well as a step-by-step description of each project. No experience needed. 2-day class, 1st semester.

Silversmithing—Intermediate (*Richard Meszler*): Make a bezel setting and bail for setting a cabochon to make a pendant. You get a kit with all you need. Basic silversmithing/soldering experience. 2-day class, 2nd semester.

Chasing and Repousse (*Morning Sherrod*): Learn to move metal into a three-dimensional shape using chasing liners and repousse punches, finishing with planishing tools for smoothing and texture punches for pattern background, all on a bowl of warm German red pitch. Learn on copper, then purchase silver sheet from the instructor or bring your own 22 gage, 24 gage fine for sheet metal. No experience needed. 4-day class.

Geology I (*Rob Robinson*): Learn to interpret rocks to tell geologic history. A field trip will illustrate local rock types, deformation types, and how geologists map and interpret structures (limited walking required). Bring a loupe, sturdy shoes, outdoor clothes, a rock hammer, and safety glasses. No experience needed. 2-day class, 1st semester.

Geology II (*Rob Robinson*): Learn about plate tectonics and Blue Ridge geologic history. Discover the geologic environments hosting mineral and gem collecting sites. Two field trips include a 1-mile walk over gentle trails. Same clothing and equipment as for Geology I. Basic knowledge of geology. 2-day class, 2nd semester

Wire Wrapping I (*Jacqueline Campbell*): Use pliers, gold-filled or sterling silver wire, assorted beads or gemstones, and basic wirecraft techniques to create your own fashion rings, bracelets, pendants, and earrings. All tools/materials provided. No experience needed. 2-day class, 1st semester.

Wire Wrapping II (*Jacqueline Campbell*): Make a fitted ring, two pairs of earrings, a cabochon pendant, and a bracelet. Designed for those with some experience (or a brave beginner). 2-day class, 2nd semester.



Story of Geology Clash of Ideas: Werner vs. Hutton

by Hutch Brown

Editor's note: This series is on the historical evolution of the science of geology, featuring prominent contributions over time. The series originated in the [June 2015](#) newsletter with a piece on the impact on geology of the biblical story of Noah and the Flood. The author is solely responsible for the views expressed here, which do not necessarily reflect those of other NVMC members. If you would like to comment or contribute yourself, please contact me at hutchbrown41@gmail.com.

The arts and sciences related to our hobby have roots in antiquity and early Christianity. As Christianity took hold in Europe, the creation of the world as told in the Bible captured the imagination of scholars. Genesis contains multiple creation stories, but the story of the Great Flood in particular came to dominate European thinking about the physical world.

Neptunism

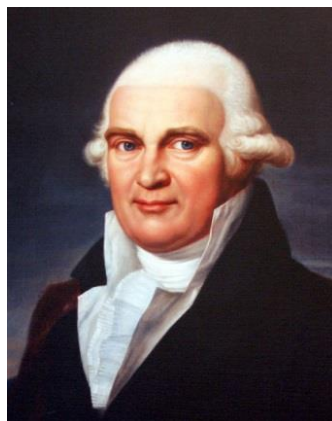
For more than a thousand years, the Christian faith inspired European scholars to seek evidence of the Word of God inscribed in the rocks under their feet. Until the 19th century, the belief prevailed that a worldwide flood—as described in the biblical story of Noah—had shaped the Earth's landforms, down to individual arches and caves.

Known as Neptunism (for the Roman god of the sea), the belief that the Earth originated in a great global deluge held sway into the 1800s. One of its last great proponents was the German mineralogist Abraham Gottlob Werner (1749–1817), whose flood theories resonated with most naturalists of his day. (For more on Werner's theories, see the [November 2015](#) issue.)

Werner and Neptunism still retain a following today known as Creationism (see the sidebar on the next page). The Creationists hold a Bible-based belief that the Earth is about 6,000 years old. Like Werner and his predecessors going back to the early Middle Ages, these latter-day Neptunists seek proof of Noah's Flood in the geological record.

Plutonism

Some early modern scholars, including those familiar with Italy and its volcanic record, did not fully accept—or rejected outright—the theory of the formation of the Earth in a great global deluge. Pointing



In the late 18th century, Abraham Gottlob Werner (left) and James Hutton (right) led competing schools of thought about the origins of the Earth. Hutton's empirical approach ultimately prevailed, giving birth to modern geology. Source: Wikipedia.

to volcanic processes, they maintained that the Earth had fiery rather than watery origins. They explained mountains as well as faulting and folding in terms of molten rock welling up from within the Earth's interior. Their theories came to be known as Plutonism (for Pluto, the Roman god of the underworld).

In the late 18th century, the leading advocate of Plutonism was a Scottish naturalist named James Hutton (1726–1797). (For more on Hutton, see the [December 2015](#) issue.) Hutton was the first to recognize that the Earth's landforms are subject to a continuous cycle of erosion, sedimentation, compaction, and uplift—what we now know as the rock cycle (fig. 1).

Unlike the Neptunists, who believed in a sudden and catastrophic worldwide event (the Great Flood), Hutton maintained that the cycle of creation and destruction has been going on for eons at about the same rate

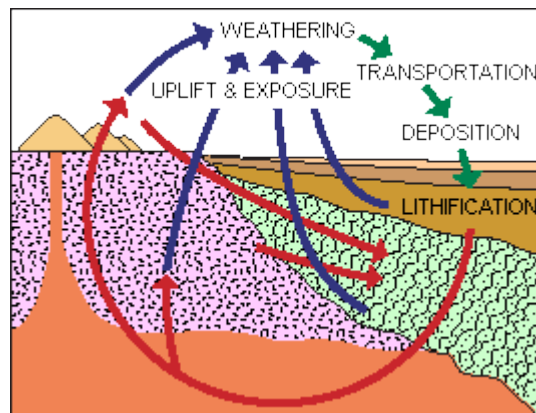


Figure 1—The rock cycle combines elements of both Plutonism and Neptunism. Source: UCMP (2008).

we see around us today, with miniscule changes within a single century or even millennium. It followed that the Earth was not thousands of years old—as a literal reading of the story of Genesis might suggest—but millions or even billions.

Hutton's eclectic theory (combining elements of both Plutonism and Neptunism, including uplift and deposition) came to be known as Uniformitarianism for proposing uniform rates of change. By contrast, the Neptunism of Werner and his predecessors (and of his Creationist disciples today) was known as Catastrophism for its belief in a static divine creation altered by a single cataclysmic Act of God.

Uniformitarianism emerged triumphant from the clash of ideas, giving geology a firm foundation in evidence-based science. The Neptunists had always presumed that the Word of God as revealed in the Bible was inscribed in His earthly creation. By contrast, Hutton's empirical approach tested hypothetical truths through experiments designed to falsify rather than to confirm preexisting beliefs. Whereas Catastrophism drew its validity from faith in the supernatural, Uniformitarianism was entirely grounded in material reality, the natural realm of science. In the 19th century, after Uniformitarian science finally prevailed, James Hutton became known as the Father of Geology.

Abstruse Writing

But it took a long time, in part because Hutton's revolutionary work was so hard to read. As poorly written as it was, few could understand it, let alone discuss it. Most contemporaries continued to regard Werner's Catastrophism as the leading school of thought.

Fortunately, Hutton had friends and followers whose clear prose popularized his work in the decades following his death. One of them was the Scottish lawyer and geologist Charles Lyell (1797–1875). ↗

Next: How did Lyell's writings ultimately prevail over the Neptunist school of thought?

Source

- Editors. 2013. [James Hutton](#). Encyclopaedia Britannica.
- Mathez, E.A. 2000. James Hutton: The founder of modern geology. In: Mathez, E.A., ed. *Earth: Inside out*. New York, NY: American Museum of Natural History: 133–134.
- Newton, S. 2011. [Creationism creeps into mainstream geology](#). *Earth Magazine*. 10 June.

No author. 2008. [Abraham Gottlob Werner](#). Complete Dictionary of Scientific Biography. Encyclopedia.com. 26 January 2015.

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UCMP. 2008. [Uniformitarianism: Charles Lyell](#). In: *Understanding evolution*. University of California Museum of Paleontology. 22 August.

Creationism Creeps Into Mainstream Geology

In 2011, *Earth Magazine* featured an online article about Creationists posing at conferences as conventional geologists in order to spread their belief in Noah's Flood (Newton 2011):

"It was easy to miss the part where the field trip leader said the outcrop formed during Noah's Flood. After all, 'During these catastrophic flood flows, turbulent, hyperconcentrated suspensions were observed to transform laminar mudflows' sounds like a reasonable description of alluvial fan processes. And 'massive marine transgression' sounds scientific enough. But when creationist geologists use those phrases, they take on a very different meaning. ..." [Read more.](#)



Steve Austin, chair of the geology department at the Institute for Creation Research, leading a field trip to Garden of the Gods in Colorado as part of the annual meeting of the Geological Society of America in 2010.

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

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1 Easter	2	3	4 MSDC mtg, Washington, DC	5 EFMLS/ AFMS Con- vention, Ro- anoke, NC	6 MNCA Conf, Alexandria, VA	7 MNCA Conf, Alexandria, VA; field trip
8 EFMLS/ AFMS Con- vention, Ro- anoke, NC	9 GLMSMC mtg, Rock- ville, MD	10	11	12	13	14 GLMSMC auction; shows; field trip
15 Show: Mid- land Park, NJ; field trip	16 Smithsonian lecture ("Objects of Wonder")	17	18	19	20	21 Show: Pitts- burgh, PA
22 Earth Day Show: Pitts- burgh, PA	23 NVMC mtg, Arlington, VA	24	25 MNCA mtg, Arlington, VA	26	27	28
29	30					

Event Details

4: Washington, DC—Monthly meeting; Mineralogical Society of the District of Columbia; 7:45–10; Smithsonian Natural History Museum, Constitution Avenue lobby.

5–8: Raleigh, NC—Tar Heel Mineral Club annual show and EFMLS/AFMS Convention; AFMS Annual Mtg: Thu Apr 5, EFMLS Annual Mtg: Fri Apr 6, AFMS/EFMLS Awards Banquet: Sat Apr 7, Breakfast with Editors & Webmasters: Sun Apr 8; info: www.amfed.org.

6–7: Alexandria, VA—45th Annual Atlantic Micromounters' Conference; Micromineralogists of the National Capital Area; Holiday Inn, 6055 Richmond Hwy; registration fee \$30; info: www.dcmicrominerals.org.

7: Paleozoic Geology of VA/WV—NOVA field trip; 9–7; info, reg: [GOL 135 Website](http://GOL135Website.com).

9: Rockville, MD—Monthly meeting; GLMSMC; 7:30–10; Rockville Senior Ctr, 1150 Carnation Dr.

14: Rockville, MD—Auction; GLMSMC; Sat 9 (preview), 10–3 (live auction); Rockville Senior Ctr, 1150 Carnation Dr; info: [GLMSMC website](http://GLMSMCwebsite.com).

14: Dover, NH—14th Annual Earl & Malvina Packard Rock, Gem & Mineral Show; Southeastern New Hampshire Mineral Club; Dover Veterans Community Ctr, 156 Back River Rd; info: Brian (207-710-6254 or cshore108@yahoo.com).

14: Building stones of the National Mall—NOVA field trip; 9–6:30; info, reg: [GOL 135 Website](http://GOL135Website.com).

14–15: Midland Park, NJ—29th Annual North Jersey Gem, Mineral & Fossil Show; North Jersey Mineralogical Society; Sat 10–6, Sun 10–4; Midland Park High School, 250 Prospect Street; info: <http://www.nojms.webs.com/>.

15: Cretaceous Geology of MD—NOVA field trip; 10–6; info, reg: [GOL 135 Website](http://GOL135Website.com).

16: Washington, DC—Objects of Wonder: The Clues to the Blues in Gems, Rocks, and Minerals; Dr. Jeffery Post, Smithsonian National Gem and Mineral Collection; 6:45–8:30 pm; Q?rius Theater, Ground Floor; free but registration required: <http://s.si.edu/2HlrudH>.

21–22: Pittsburgh, PA—Monongahela Rockhound's Gem, Mineral and Fossil Show; Sat 10–6, Sun 10–4; W. Mifflin Volunteer Fire Co, 4 Skyview Hall, 660 Noble Dr; info: www.monongahelarockhounds.org.

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

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

Hutch Brown, Editor
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Arlington, VA 22203



**Mineral of
the Month:
Olivine**

PLEASE VISIT OUR WEBSITE AT:

<http://www.novamineralclub>

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).

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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>).

You may reprint NVMC materials in this newsletter.

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 22204. (No meeting in July or August.)

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

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