



# The Conglomerate

Newsletter of the Baltimore Mineral Society

[www.baltimoremineralsociety.org](http://www.baltimoremineralsociety.org)

Volume 12, No. 4

April, 2017

## 2017 Tucson Recap

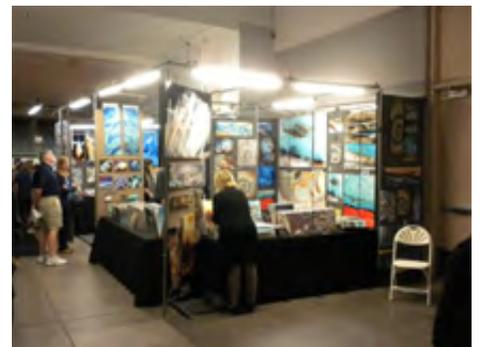
*photos by Mike Seeds*

The April meeting of the BMS will be our annual recap of the fabulous 2017 mineral extravaganza held



*Rhodochrosite  
Sweet Home Mine, Alma, CO*

in Tucson, AZ each February. This year, Al Pribula and Mike Seeds spent considerable time touring several of the numerous satellite shows that highlighted minerals and spending time at the major venue – the Tucson Gem & Mineral club show.



*A bright booth at the Tucson club show*

From all reports, this years shows were bigger and better then ever with the major dealers highlighting extra-ordinary specimens with astronomical prices as well as amazing specimens with more reasonable prices. Al and Mike

promise to share lots of pictures of these specimens with us.

Our meeting will take place at the Natural History Society of Maryland on April 26th. We'll start the evening at 7:30 pm with our brief business meeting. The host for the evening will be Herb Close.

## Summer Picnic Set

Mark your calendar now for the annual, and always fun, BMS Summer Picnic. This year we'll be at the home of Linda Watts and Al Pribula on **Sunday June 25th beginning at 5 pm.**

As usual, the club will supply the burgers, dogs, paper goods and soft drinks. Each of us attending is asked to bring a side dish to share with the crowd.

We'll send out an "e-vite" asking you to RSVP and to let us know what side dish you plan on bringing.

Directions will be on the e-vite, so watch your mailbox. For those without e-mail, please contact Al directly.



## Baltimore Mineral Society

The BMS was established in order to allow its members the opportunity to promote the study of mineralogy and to act as a source of information and inspiration for the mineral collector.

We are members of the Eastern Federation of Mineralogical Societies and affiliated with the American Federation of Mineralogical Societies.

Meetings are held the 4th Wednesday of each month (except November, December, June & August) at the Natural History Society of Maryland beginning at 7:30 p.m. Visit the club website <[www.baltimoremineralsociety.org](http://www.baltimoremineralsociety.org)> for directions.

Yearly dues are \$10 for individual members and \$15 for family memberships. Send payment along with your name, list of family members, if applicable, address, phone and e-mail to: BMS, PO Box 302; Glyndon, MD 21071-0302.

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Write for the Conglomerate!

Send news, announcements, comments, observations, photos or articles to the editor via e-mail or US postage.

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## President's Postings

by Jim Hooper, President



Hopefully Spring is here for good and not too quickly followed by Summer. And by the time the Conglomerate goes to press we may have had two field trip outings thanks to arrangements negotiated by Bob Eberle, thank you Bob! Also thanks to Carolyn who has volunteered to take over the Society's web page development and maintenance since Brad has immersed himself in academia which has cancelled out his volunteer abilities.

Last month's Mineral of the Month was Kyanite and the amount of specimens brought by members shows me that this is an excellent way to learn more about the minerals while having close-up, 3-D representations to really get a idea of what the minerals look like and how they are formed. Thank you, Steve Weinberger, for adding this great feature to the meetings. If you've not yet participated, why not start this month?

In a week or two the Chesapeake Gem and Mineral Society will be hosting their annual show at the Ruhl National Guard Armory in Towson. If you haven't been before, consider checking this one out. You'll get to see a great variety of minerals, lapidary rough, gemstones and finished jewelry as well as club and society members from local clubs. And by local I mean southern Pennsylvania, the greater Washington area, Virginia, Delaware and of course Maryland. Admission is very reasonable; free. And that also makes it popular among the vendors/dealers that also come from nearby and out of state. See the notice in this newsletter to get the date and time.

The March Society meeting featured a presentation of the history and collection of the Rice Northwest Museum of Rocks and Mineral and was well received by the attending members. Thank you to Steve and Carolyn for that one. Who knew rice grew so well underground that you could mine it? The ability to grow your knowledge through club activities such as presentations is one of many advantages to belonging to a club or society. At the April meeting I'd like to line up more of the upcoming presentations for the remaining meetings of the year. Following that I look forward to the presentation of the 2017 Tucson exposition by BMS members fortunate enough to attend. Please bring your thoughts about presentations you would like to see and any links to presenters you might know.

We received some very positive reactions to two folks who sort of got trapped in our meeting in March. They had both brought Natural History buffs to a presentation in the adjoining space to ours and planned to just hang out while waiting for their riders. Before they knew it they were being treated to our meeting having chosen the library area adjoining our space. At the break they told me they loved it and were able to stay and enjoy the presentation. They could be potentially new members. I don't think we've ever considered entrapment as a way to get new members, but maybe it's worth looking into. See you at the meeting and don't forget about the mineral of the month! -- JH

## Minutes From our Last Meeting

by Jake Slagle, Secretary

President Jim Hooper called the March 22nd meeting to order at 7:40 p.m. Minutes to the previous month's meeting were unanimously approved.



### Officer Reports:

Secretary Jake Slagle noted he had spotted a typo in his minutes from the January meeting as published in the February Conglomerate within which a September date had been inserted as the date when the meeting was called to order. The error was due to Jake's having failed to change the date when copy/pasting a template from the September meeting in the first paragraph of the January Minutes.

Treasurer Carolyn Weinberger announced that the Society was financially solvent and noted that dues for new members had recently arrived in the mail.

Unfinished Business - None

### New Business

- Carolyn Weinberger announced that due to the demands of other commitments on the time of webmaster Brad Grant that was asked to take over the Society's website. She stated that she planned to rebuild it and that the fruits of her work would be in place relatively soon.
- Carolyn also suggested that members should begin to ponder when and where to hold the June Picnic.

### Mineral of the Month:

The Mineral of the Month for April was kyanite. Al Pribula, Steve Weinberger, Jim Hooper, and Jake Slagle showed specimens that encompassed a range of habits and colors for the genre.

### Announcements:

As Field Trip Chairman, Bob Eberle announced a field trip to the National Limestone Quarries in Middleburg, PA and Mt. Pleasant Mills, PA, commencing promptly at 9 a.m. on April 1, at the National Limestone Quarry in Middleburg, PA. Bob also announced that another club was arranging a field trip on April 21 where BMS members would be welcome at the Medford Quarry in Carroll County. Bob also expressed hope for an eventual trip for members to see the world class minerals on display at the Delaware Mineralogical Museum.

After a brief period of refreshments, the Society enjoyed a presentation from Carolyn and Steve Weinberger featuring the impressive exhibits at the Rice Northwest Museum of Rocks & Minerals in Hillsboro, Oregon.

The meeting adjourned at 8:35 p.m.

Respectfully submitted,  
Jake Slagle: Secretary

## Field Trip Ideas

Spring is when our thoughts turn to rock collecting. If you are interested in collecting trips, contact the Field Trip Coordinator Bob Eberle with ideas and suggestions for collecting sites. Do you know someone at a quarry or a property owner of a good location? Give your suggestions to Bob. 410-661-8436. Let him know that you are anxious to dig, and he will keep you on his list.

# Mineral of the Month—Copper (Cu)

by Steve Weinberger

This month's choice of mineral, copper, is one that has been around for quite some time. The name itself comes from the Greek, *Kyprios*, the name of the island of Cyprus which once produced a good quantity of the metal. The symbol, Cu, comes from the Latin, *cuprum*.



Copper  
Central Mine,  
Keweenaw Co. MI.  
A.E. Seaman Museum Collection.  
Photo used under Creative  
Commons Attribution 2.0 License

Although copper forms in the isometric system it usually occurs in nodular, sheets, or branching masses. It is malleable, ductile, and sectile. The hardness is 2.5-3.0 and specific gravity is 8.3-8.9.

Copper is opaque and pale red when first exposed to air, then changes over time to brownish shades as it oxidizes. Streak is pale red and the luster is metallic.

There are various world-wide locations for copper but here in the U.S. two of the more famous areas are the Keweenaw section of Northern Michigan, the fault running some 300 km., and Arizona, where massive mines have been excavated. Bolivia, Slovakia, Germany, Russia, Congo, and Namibia, to name just a few.

Copper is one of the first metals to be made into tools and the first to be smelted from ores. Today, because of its high conductivity, it is used in electronics. Copper is used in kitchen utensils and in alloys such as brass and bronze.

## References:

Bernard & Hersl. [Minerals and Their Localities](#)

[Mindat.org](#)

Sinkankas, John. [Mineralogy for Amateurs](#)



Copper  
Tazarht Mining District  
Morocco  
Photo: Steve Weinberger



Copper - twinned  
Ray Mine, Pinal Co., AZ  
Photo: Steve Weinberger

## Scrambleite Answers

from page 8

Calcite, Carbonate, Mischite, Anstze, Nitroite

## BMS Members Attend Atlantic Conference

by M. Seeds

Six members of BMS attended the Atlantic Micromount Conference in Alexandria Virginia on the weekend of April 1, 2017. The conference was sponsored by the Micromounters of the National Capital Area and attracted about 25 collectors, dealers, and guest speaker Mike Wise, a geologist from the Smithsonian Institution.



Al Pribula looking at rocks  
Photo: Mike Seeds

Dealers filled tables with minerals, and BMS member Al Pribula had the biggest table covered with boxes of micromounts and larger specimens from all over the world. Barbara Sky brought a table full of older specimens priced at only \$0.50, so she had a lot of people studying her material. Another table was filled with minerals offered by the MNCA in return for a donation. Shopping was intense throughout the conference.

Mike Wise gave three talks. On Friday evening he spoke about the micromount collections in the Smithsonian mineral collection. Among others, those of BMS members, Paul Desautels, Randy Rothschild and Herb Corbett are housed at the Smithsonian.

A giveaway table was totally filled with boxes of rocks spreading onto the floor. Some rock came from local quarries, but some were from little visited and more distant sites.

Our six members, Carolyn and Steve Weinberger, John Ferrante, Mark Kucera, Mike Seeds and Al Pribula were busy throughout the meeting looking at specimens.

Carolyn and Steve Weinberger were recognized during the proceedings for their stewardship of the Atlantic Conference. Steve chaired the conference for 15 years, before Kathy Hrechka became chair.



Photo: Mike Seeds



Photo: Kathy Hrechka

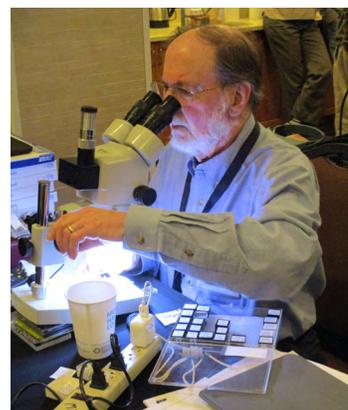


Photo: Kathy Hrechka

## Color in Minerals—Part XII: Three Gem Silicates

by Al Pribula

Now that all fifteen causes of color have been presented, I want to focus on some familiar minerals which can be found in a wide variety of colors. Because these are frequently used as gemstones, these cases have been well-studied, but they are complicated by the fact that so many colors have been found and (as with anything of value) there have been many cases where their colors have been “enhanced” by various types of treatments. Synthetic versions of many of these have been artificially created in laboratories.

Atoms of the element silicon are the second most-common type of atom in the crust of the earth. (Only oxygen atoms are more numerous.) Almost every rock you pick up will be or will contain quartz (chemically silicon dioxide,  $\text{SiO}_2$ , the most common mineral on the surface of the earth) or one of the silicate minerals. Silicates contain silicon bonded to oxygen to form a dizzying array of anions ( $\text{SiO}_3^{2-}$ ,  $\text{SiO}_4^{4-}$ ,  $\text{Si}_2\text{O}_7^{6-}$ ,  $\text{Si}_6\text{O}_{18}^{12-}$ , and many others), some having relatively simple structures and others possessing extremely complicated ones. They form many families of minerals, including garnets, feldspars, micas, amphiboles, pyroxenes, serpentines, clay minerals, zeolites (in which some of the Si atoms are replaced by aluminum (Al) atoms), and many others. Their physical properties vary widely and are very dependent on the exact structure adopted. In particular, some of these are very soft (talc is the softest mineral known, with a value of 1 on the Mohs scale), but they are more commonly of intermediate to high hardness (6-8 on the Mohs scale, where diamond is at the top of the scale at 10).

Because of their hardness and general durability, crystalline silicates are frequently used as gemstones. In Part VII of this series, I discussed the garnet group, and scattered mention of other silicate minerals has been made in other parts. Here, I'll be discussing the colors of three silicate minerals used as gemstones: topaz, spodumene, and zoisite.

Much information on topaz can be found in the January/February, 1995 issue of *Mineralogical Record* and in *Topaz* published by Lithographie. Chemically, topaz is an aluminum silicate fluoride with the formula  $\text{Al}_2\text{SiO}_4(\text{F},\text{OH})_2$ . As indicated in the formula, the “fluoride” positions in the crystal lattice can also be occupied by hydroxide ions ( $\text{OH}^-$ ). It has a Mohs hardness of 8, so is quite hard, and, since it frequently occurs in transparent crystals suitable for faceting, it is used as a gemstone. It is the traditional November birthstone. (Its main drawback is that it cleaves relatively easily. The subtitle of Lithographie's book is “Perfect Cleavage.”) Pure topaz is colorless, and gemmy transparent colorless crystals are often found. It can also be found in a wide variety of colors, including blue, red, yellow, yellow-brown, green, and violet. (The artificially-produced iridescent variety called “Mystic topaz” was previously mentioned in Part IV of this series.) These colors are due to a variety of causes. As was mentioned in Part VI, a yellow color is produced when  $\text{Fe}^{3+}$  substitutes for some of the  $\text{Al}^{3+}$  and, as mentioned in Part X,  $\text{Cr}^{3+}$  substituting for some of the  $\text{Al}^{3+}$  can produce either a green or a pink/red/violet color. The red-brown color of topaz crystals from Mexico is due to inclusions of rutile. However, most of the colors exhibited by this mineral are due to color centers.

The color of brown topaz is due to an  $\text{O}^-$  color center produced by natural irradiation. Typical of color centers, the brown color fades upon heating or exposure to sunlight and is restored by irradiation with gamma rays. The orange color of “imperial” topaz is due to an  $e^-$  color center, with an added pink component from  $\text{Cr}^{3+}$  and/or  $\text{Cr}^{4+}$  in some cases. The color of blue topaz was originally thought to be due to an  $\text{AlO}_4^-$  color center (formed by irradiation) substituting for the  $\text{SiO}_4^{4-}$  ion normally present. However, later work indicated that it was more likely two  $\text{Al}^{3+}$  ions interacting with an  $\text{O}^-$  formed by irradiation. This color can be caused by natural irradiation from nearby radioactive materials, but large numbers of blue topaz gemstones have been produced in recent years by gamma-irradiation of colorless stones followed by bombardment with an electron beam. These constitute the majority of the blue topaz used in the gem trade. An unstable green color (resulting from a combination of blue and light brown) has been observed in some topaz samples after irradiation. More detailed information about the causes of color in topaz can be found in an article by George Rossman (another of the “gurus” of color in

minerals and gemstones) in the book *Topaz* mentioned above.

Neither of the other two minerals is exactly a household name. Spodumene is lithium aluminum silicate ( $\text{LiAlSi}_2\text{O}_6$ ) and zoisite is a complex silicate of calcium and aluminum ( $\text{Ca}_2\text{Al}_3(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$ ). (Since zoisite is isostructural with and forms a series with epidote (so often,  $\text{Fe}^{3+}$  partially substitutes for the  $\text{Al}^{3+}$ ) and is dimorphous with clinozoisite, the composition of a given sample labeled as any of the three is somewhat variable.) Neither is a particularly common mineral. They are moderately hard (spodumene at 6½-7 and zoisite at 6 on the Mohs scale), but usually are found in rather nondescript samples which are opaque and either colorless or of dull and boring colors (off-white, gray, pale green, pale yellow, yellowish-brown, etc.). However, they can have more pleasing colors (purple, darker green, pink) and occasionally occur as sufficiently gemmy samples to be cut into faceted stones. What in the world am I talking about?

Hint: gem-quality spodumene is commonly found in two colors, pale lilac-violet and medium green, and the gem-quality zoisite most commonly seen is a violet-blue color. Figure out what I'm talking about yet? In the gem trade, the name given to the pink-to-violet variety of spodumene is kunzite, the green spodumene is called hiddenite, and the violet-blue zoisite is called tanzanite. (Oh, that's what he's talking about! Why didn't he say so? He would have had my full attention sooner!) Both of these minerals were previously mentioned briefly in Part II of this series.

As with most allochromatically-colored minerals, totally pure samples of either of these are colorless. As is true for many minerals, however, totally pure samples are hard to come by. The colors of these two minerals are both due to the presence of impurity ions substituting for the  $\text{Al}^{3+}$  ions in the structure.

Kunzite owes its pink-to-violet color to d-d transitions in  $\text{Mn}^{3+}$  ions substituting for some of the  $\text{Al}^{3+}$  in the spodumene structure, but this only occurs in samples with a small amount of  $\text{Fe}^{3+}$  relative to  $\text{Mn}^{3+}$ . If the amount of iron is relatively high, it imparts its normal yellowish tinge to the stone, which is undesirable from the standpoint of the gem trade. If the amount of  $\text{Fe}^{3+}$  is much higher than that of  $\text{Mn}^{3+}$ , just the yellow color from  $\text{Fe}^{3+}$  is observed. When samples containing both Mn and Fe are exposed to X-rays or gamma rays, a bluish-green color forms, which is due to color centers involving  $\text{Fe}^{3+}$  and  $\text{Mn}^{4+}$ . This color fades rapidly when the stone is heated or exposed to light, which causes the  $\text{Mn}^{4+}$  to be reduced to the very pale pink (essentially colorless)  $\text{Mn}^{2+}$  ion. The green color of hiddenite can be produced in a number of different ways. The most desirable medium green color is due to the presence of  $\text{Cr}^{3+}$ , with some contribution from  $\text{Mn}^{4+}$ . In chromium-free stones, the paler green color is due to  $\text{Mn}^{4+}$  and also to  $\text{Fe}^{2+} \rightarrow \text{Fe}^{3+}$  IVCT transitions. Green spodumenes from Afghanistan are colored by  $\text{V}^{3+}$  in addition to  $\text{Cr}^{3+}$ . When the concentrations of Mn, Cr and V are low, the pale greenish/brownish-yellow variety called triphane results, with its color a result of d-d transitions in  $\text{Fe}^{3+}$ . A yellow color can also result from a color center of unknown structure. (It should be noted that the structures of spodumene and jadeite ( $\text{NaAlSi}_2\text{O}_6$ ) are very similar, and the causes of the violet, green, and yellow colors of jade(ite) are the same as for spodumene.)

In samples in the zoisite/epidote/clinozoisite series, when  $\text{Mn}^{3+}$  ions substitute for some of the  $\text{Al}^{3+}$  ions, a rose-pink variety named thulite is the result. This material is sometimes polished as cabochons, but is not that common. As is typical, when  $\text{Cr}^{3+}$  replaces part of the  $\text{Al}^{3+}$  in zoisite, a green color is the result. Massive opaque green zoisite (or an aggregate of this with hornblende) is called anyolite, and is used as rough material for carvings. Transparent green zoisite is occasionally found and faceted into gemstones (misleadingly called "green tanzanite"), but these aren't very common. It's the pretty purple stuff—tanzanite—that that everyone likes. Tanzanite per se doesn't occur naturally. It is produced when naturally-occurring gemmy brownish-violet zoisite crystals are heated. The original color is due to the presence of

## Color in Minerals

*continued from page 7*

V<sup>3+</sup> (probably along with some Fe<sup>3+</sup>) ions substituting for the Al<sup>3+</sup>. Upon heating in air, this ion is oxidized to VO<sup>2+</sup>, giving the bluish-violet color normally associated with tanzanite. The original brownish-violet material is trichroic, showing violet-red, deep blue, and yellow-green along the three different crystallographic axes. After heating, the tanzanite is also trichroic, with violet-red, deep blue, and burgundy being observed along the three axes.

In the next part in the series, I'll discuss the many colors exhibited by two more gem silicates—beryl and tourmaline.

## New BMS Webpage

*by Carolyn Weinberger*

As many of you know, Brad Grant is engaged in procuring his graduate degree in geology and, in addition to his studies, is working full time. As a result, he's had to give up many of his hobbies, including those in our club and web site. Our thanks to Brad for his work on the site for so many years.

President Jim asked me to take over as the club webmaster. Because of difficulty I've had in accessing and posting items on the existing site, I've rebuilt it using a different provider. Hopefully the domain transfer will be complete by the time you read this issue of the Conglomerate! Please take a few minutes and critique the site ([www.baltimoremineralsociety.org](http://www.baltimoremineralsociety.org)) and if you find any errors, let me know. It's a work in progress.

I plan on having information there on upcoming meetings and activities, photos (I'm counting on member submissions), as well as copies of the Conglomerate for general public viewing.



## Scrambleite

Rearrange the letters in the following to spell the names of some common minerals. Answers are given later in this newsletter.

Talc ice  
Beta acorn  
Tamale chi  
As neat a  
Alien trot

Solution on page 4

## Photos and Stories Wanted

Want to see your minerals in The Conglomerate? Whether you dig them yourself or buy them from a dealer, whether they are micromounts or boulders, whether they are rare or common, readers would enjoy seeing your mineral photographs and hearing about your adventures. Have you visited a mineral museum lately, gone collecting, driven through promising geology? Got some selfies in a rock shop or a mineral show? Submit your photos and stories so everyone can enjoy them. Send photos to <mseeds@fandm.edu>.

## Chocolate Geodes

by Mike Seeds

If someone tells you they have a tasty calcite, it probably isn't edible, but you can't be too sure about geodes. Two chefs have made edible geodes that are both beautiful and tasty.



Alex Yeatts and his partner Abby are student chefs at the Culinary Institute of America in Hyde Park, NY. For a student project they made twelve giant chocolate geodes filled with sugar crystals. The geodes are a foot or more in diameter and have to be opened with a giant cleaver and a hammer. You

can see the geodes and watch Alex break them open at [youtube.com](https://www.youtube.com/watch?v=qwM1Nh7rerU). Go to <https://www.youtube.com/watch?v=qwM1Nh7rerU>

The insides of the geodes are purple, mimicking amethyst, or orange, mimicking citrine. They were made by tempering chocolate and then pouring it into giant egg-shaped molds. The crystals were formed by making a concentrated sugar syrup, cooling it, and then pouring it into the hollow eggs. The syrup must be cool or it will melt the chocolate.

The eggs had to be turned every day to control the crystal growth, a process that took five to six months. In the end, the largest geode weighted over 50 pounds.

Want to make your own chocolate and sugar geodes? You can find directions on [youtube.com](https://www.youtube.com/watch?v=T7S3axBiCKQ). To start, go to <https://www.youtube.com/watch?v=T7S3axBiCKQ> This video makes two different kinds of geodes using fondant and chocolate. Fondant is a form of stiff icing containing sugar, water, gelatin, and glycerol. It is edible and about the consistency of stiff clay, so you can work it and it will hold its shape. Instructions for making your own fondant can be found on [youtube.com](https://www.youtube.com/watch?v=jtYg9l1UBuM) Try going to <https://www.youtube.com/watch?v=jtYg9l1UBuM>

How about making a geode cake. You can find that, of course, on [youtube.com](https://www.youtube.com/watch?v=2ajzEKKg71Q). Just go to <https://www.youtube.com/watch?v=2ajzEKKg71Q>

Maybe you can't find anything thing you want at Alice's Restaurant, but you can be sure you can find it at [youtube.com](https://www.youtube.com/watch?v=GSWNLIWYqM8). Do you want to crack a giant geode? Look at <https://www.youtube.com/watch?v=GSWNLIWYqM8> or loot at <https://www.youtube.com/watch?v=153iBCEY80Q> Would you like to dig at a geode mine? Go to <https://www.youtube.com/watch?v=pJd95jVQOPY> and dig for them with a backhoe. Maybe you would like to dig at the St Francisville Geode mine; <https://www.youtube.com/watch?v=BtOSGbRI9CM> And there are plenty of videos showing how to break open a geode. Some methods are safe and some are less so think before you swing that ball peen hammer.

When you are done digging and cracking real geodes, you can come back home and make your own. Just remember an important point in making geode candy and cakes. Always make enough for your collecting friends.

Thank you to Al Pribula for submitting the video on chocolate geodes.

## Safety Matters: Got a Good Sole?

by Ellery Borow, Safety Chair from EFMLS Newsletter, April 2017

Yes, that is "Sole" and not a typo of "soul". Over the years I have seen a great many not so pretty soles out there on the footwear of rock, mineral, and fossil enthusiasts as they enjoy their collecting trips. I have also seen plenty of worn out, torn, missing and broken laces, as well as floppy bottomed footwear in use.

If you will permit me, I'd like to back up a bit here and mention that proper footwear is an important segment of having a good collecting experience. Having sufficient footwear for the effort is highly recommended -- as recommended as utilizing safety glasses, gloves, protective clothing and sun screen.

One of my primary footwear concerns is when I see shoe soles that are worn down to the point of treadlessness. Smooth soles do not work as well as treaded soles in keeping people upright. Although a case could be made for smooth soles on the footwear of some folks who shuffle rather than walk simply because lugged soles do grip significantly better than flat ones, and may thus be a tripping hazard for some. However, that said, I rarely see folks shuffle along in quarries and pits because shuffling can be dangerous.

Another consideration with having tread on the sole of a boot or shoe is the direction or pattern of that tread. If the primary tread pattern is from right to left, or left to right, such a pattern would be excellent for walking or down a slope because the tread would be perpendicular to the direction of travel. But, what if one moves across the slope in either clockwise or counter-clockwise motion? In such a case that same tread pattern would be parallel to the direction of slope and thus not have anywhere near as much gripping power. When traipsing in either a clockwise or counter-clockwise motion on a slope it would be better to have a pattern of ridges that ran from toe to heel, and thus, again be in a perpendicular orientation to the direction of the slope. If one were similar to most of us and find the need to not just move up and down, but also right and left on a slope it would be rather impractical to change shoes for the different directions.

Thankfully, most manufacturers offer patterns that are practical for all applications. While most manufacturers offer a pattern suitable for any occasion, I still see patterns that are biased to be better in one direction rather than all directions.

Another important consideration is the flexibility and resilience of the sole material. A softer material will have significantly greater gripping power than a hard material. However, a softer sole material will not last as long as a hard sole material -- especially as these boots and shoes are used on very abrasive surfaces. Again, most manufacturers realize their products will be worn in varying environments and so have selected a compromise material, a material that will wear well on wood floors as well as quarry bottoms.

Another sole consideration is water. Many of the wanderings through the woods I do when seeking lost or forgotten quarries brings me into contact with brooks, creeks and streams - all of which are wet. I frequently have occasion to walk on, over and through wet slippery rocks. If one has ever experienced such situation, one will no doubt recall the slipperiness of slick, bio-film, and moss covered rocks. Even a superior lugged sole can lose its grip on rounded slippery rocks. So, in such instances, having a soft sole with great gripping power is most helpful. The salient point when working in wet environments is to try and keep one's feet dry.

Additional footwear considerations also come to mind. If one is prone to dropping rocks, perhaps such folks should consider using strong or safety toe footwear. If one were to crawl among the rocks or walk on or over tough and abrasive surfaces, folks should consider using strong or safety toe footwear. Folks should also consider safety toe footwear if walking through biting insect or critter inhabited areas or areas of unknown danger.

*continued on page 11*

## AFMS Code of Ethics

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- I will respect both private and public property and will do no collecting on privately owned land without the owner's permission.
  - I will keep informed on all laws, regulations of rules governing collecting on public lands and will observe them.
  - I will to the best of my ability, ascertain the boundary lines of property on which I plan to collect.
  - I will use no firearms or blasting material in collecting areas.
- I will cause no willful damage to property of any kind - fences, signs, buildings.
- I will leave all gates as found.
- I will build fires in designated or safe places only and will be certain they are completely extinguished before leaving the area.
- I will discard no burning material - matches, cigarettes, etc.
- I will fill all excavation holes which may be dangerous to livestock.
- I will not contaminate wells, creeks or other water supply.
- I will cause no willful damage to collecting material and will take home only what I can reasonably use.
- I will practice conservation and undertake to utilize fully and well the materials I have collected and will recycle my surplus for the pleasure and benefit of others.
  - I will support the rockhound project H.E.L.P. (Help Eliminate Litter Please) and Will leave all collecting areas devoid of litter, regardless of how found.
- I will cooperate with field trip leaders and those in designated authority in all collecting areas.
- I will report to my club or Federation officers, Bureau of Land management or other authorities, any deposit of petrified wood or other materials on public lands which should be protected for the enjoyment of future generations for public educational and scientific purposes.
  - I will appreciate and protect our heritage of natural resources.
- I will observe the "Golden Rule", will use "Good Outdoor Manners" and will at all times conduct myself in a manner which will add to the stature and Public "image" of rockhounds everywhere.

## Got a Good Sole?

*continued from page 10*

Do you see a pattern forming here? Yes, I do suggest wearing good and appropriate footwear -- footwear suited for the occasion.

As I like to say, it is not that the sole makes the man, it is that the sole makes the man, or woman or entire family safe.

The takeaway here is that your foot safety matters... even if it sometimes becomes a wet foot.

## Devarmintification

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A mathematician, a physicist, and a statistician when hunting for BVVs (Big Vicious Varmints). They sighted one 100 meters away, and the mathematician, taking into account distance, elevation, and the strength of gravity aimed and fired. The bullet fell 10 meters short and to the right. The physicist did the same calculation but added the coriolis effect and air resistance. That bullet fell 5 meters short. The statistician shouted, "We got him!"

*The Conglomerate*  
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## Upcoming Events

### April:

22: Patuxent Lapidary Guild show. Earleigh Heights Fire Hall, Rte. 2, Severna Park, MD

26: BMS meeting at Natural History Society. "2017 Tucson Review" given by Al Pribula and Mike Seeds.- 7:30 pm.

### May:

2: Gem Cutters Guild of Baltimore meeting. Info: [gemcuttersguild.com](http://gemcuttersguild.com).- 7:30 pm.

12: Chesapeake Gem & Mineral Society meeting at Westchester Community Center. Denise Nelson on Amber and Salt: The Treasures of Poland" - Info: <[chesapeakegemandmineral.org](http://chesapeakegemandmineral.org)>

24: BMS meeting at NHSM - 7:30 pm.

### June:

25: BMS summer picnic at the home of Linda Watts and Al Pribula - 5 pm. Details next month.

28th Annual

## Chesapeake Gem, Mineral, Jewelry & Fossil Show

Saturday, May 13, 2017  
10 AM – 4 PM

**Ruhl Armory - Towson, MD**

**FREE ADMISSION**

**Top Mineral Dealers, Original Jewelry,  
Fossils, Cutting Materials, and more  
Silent Auctions, Door Prizes**

Directions: Take I-695 (Baltimore Beltway)  
to exit 26 - York Road South  
Ruhl Armory is on the east side of York Road  
(across from a car dealer and funeral home)  
just inside I-695.