



# The Conglomerate

Newsletter of the Baltimore Mineral Society

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

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## December 11: Holiday Party

The December meeting of the Baltimore Mineral Society will be our Holiday Party. Al and Linda are hosting the party to begin at 4 pm, December 11th, at their home. Please contact Al for directions (<apribula@towson.edu> or 410-254-9228) and to arrange to bring something for the potluck supper.



Bring your favorite dish!

BMS will supply both ham and turkey as well as wine and soft drinks. We're counting on you to bring the veggies, starches, chile, noodle kugle and desserts to round out our meal. It would be more festive if you could bring your special item in a nice serving dish.

As we've done over the past couple of years, we'll have a voluntary gift exchange. Gifts should be mineral related (specimens, books, etc.) and should be wrapped. If you bring a gift to exchange, you'll receive a gift. Limit the value of your item to \$20.

There is no program at the Holiday Party, but there will be a very short business meeting when we hold the annual election of officers. If you would like to serve BMS as an officer, please contact BMS President Jim Hooper.

You can also take the opportunity to renew your membership in BMS (and save the postage). Dues are \$10 per member or \$15 per family (2 adults living in the same home, plus any children residing there under 18 years of age).

See you at the party!

## Last Meeting: Display of NHSM Minerals

Over the years, the Natural History Society of Maryland



Al Pribula speaking to some of the attendees at the October BMS meeting. (Photos by M. Seeds)

has accumulated a large collection of minerals, but because of various moves and storage restrictions, they have not been displayed. In the last few years, BMS members Fred Parker and more recently Al Pribula have curated the collection, culling out mere rocks, checking labels, and making sure the specimens were being stored safely.

At the October BMS meeting, nearly 50 BMS members and guests got to see a wide selection of some of the best minerals from the NHSM collection. Al Pribula acted as guide and pointed out details and told stories about selected minerals.

One of the most interesting minerals that Al found was a laumontite on chlorite from the Milford Trap Quarry in Baltimore County. It was a very nice mineral, but later Al realized he had seen it before. He soon tracked it down as the frontispiece photo in the well-known book, Minerals of Maryland, by Charles W. Ostrander and Walter E. Price Jr., published by the NHSM in 1940.



The laumontite on chlorite pictured on the left page of Minerals of Maryland sits in its box on top of its original label at right.

A small team of BMS members continues to work on the NHSM collection sorting, cleaning, documenting, and labeling. Al Pribula says the next step is to catalog the entire collection.

## 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.com](http://www.baltimoremineralsociety.com)> 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.

### Officers:

President.....Jim Hooper  
<[ijhooper at jhu.edu](mailto:ijhooper@jhu.edu)>

Vice President ..... Alice Cherbonnier  
<[alicecherbonnier at gmail.com](mailto:alicecherbonnier@gmail.com)>

Secretary.....Jake Slagle  
<[jake at marylandminerals.com](mailto:jake@marylandminerals.com)>

Treasurer ..... Carolyn Weinberger  
<[cscrystals2 at gmail.com](mailto:cscrystals2@gmail.com)>

### Directors:

Bernie Emery                      Al Pribula  
Brad Grant                         Steve Weinberger

Conference Chair                 Mike Seeds

Editor .....Mike Seeds  
<[mseeds at fandm.edu](mailto:mseeds@fandm.edu)>

### Write for "The Conglomerate"!

Send news, announcements, comments, observations, or articles to <[mseeds at fandm.edu](mailto:mseeds@fandm.edu)>. No e-mail? Hand in your submission at a meeting.

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## President's Postings

by Jim Hooper, BMS President



Well here we are. Getting ready to gather for the society holiday party and surrounded by a spirit of change all about. Climate change, White House change, temperature change, BMS change, loose change, and I'm sure you can think of a few more. I think looking back at the year almost gone that the society did well overall. The meeting place seems to be working out for everyone, and we've welcomed a number of new members which always boosts spirits. We've remained financially solvent and should be in good stead for the coming year - a year that will see some changes in the officers of the society and we'll elect those officers in our regular last minute hustle at the holiday party. Want to engage in some real change for 2017? The president's position is still open at this time (and the job isn't really a hard one). Think about it.

I think our members are for the most part a dedicated, enthusiastic, humble, and appropriately cautious group. And I think for the most part, we avoid grandstanding and drawing attention to ourselves. While this makes for streamlined monthly meetings, it also means a number of activities can fall into last minute assignments represented by stalwart members who've done some of the same things for years. So let me put out an observation. New folks (like myself some years ago) may wait for more direction from the veterans of the group and to enjoy being 'in' with the longer standing members. You may wait a long time for personal contacts and requests for involvement. We love getting new members and we love to see new members getting directly involved in our functions and activities. It can be anything from signing up on the snacks clipboard to running for an office. It's a good way to get to know members and provide some additional spirit and energy to society activities. That said, the slate for elections will be clarified and voted upon at the party. Some positions are nominally filled, others are open. That is, nominees are nominees until the voting is over.

Let's have a great gathering at Al and Linda's and enjoy the spirit of the holidays with some fun, good food and a gift exchange. There being no display table there won't be a Mineral of the Month display. This allows for more food and desserts, yee haw.

Cheers -- Jim

PS: Thank you all so much for your support in this past year. Thank you to all the officers and committee chairs for your work in keeping the society's name and profile meaningful and positively recognized. Come to the party, we can kick around some ideas.

## Minutes From our Last Meeting

by Jake Slagle, Secretary

President Jim Hooper called the October 25 , 2016 meeting of the Baltimore Mineral Society to order at 7:35 PM. Minutes to the previous meeting of were accepted by consensus.



•Treasurer: Carolyn Weinberger reported that the De-sautels Symposium was a success, and while the final figures were not yet in, it appeared the event earned money.

Unfinished Business: None

### New Business

•Although President Jim had requested members to consider potential nominations for officer positions and Board seats at the May meeting, the issue of assembling a slate came up under announcements essentially as new business. Jim agreed to call members in this regard.

•The question of a time and place for the Society to hold its Holiday Party was raised. Al Pribula volunteered to confer with partner Linda with hope and expectation that their house would be available

### Announcements

•Carolyn Weinberger, having attended the EFMLS Editors Breakfast announced that Mike Seeds, Al Pribula, Brad Grant, Steve Weinberger, Steve Weinberger and Ed Goldberg had been honored for their work on behalf of the Society. The specific awards and their recipients will be listed herein.

### Mineral of the Month

•The mineral of the month was hematite. Several members brought in specimens to show and describe, many of them thumbnails.

The program that followed provided an opportunity for all present to view a display of notable NHSM owned Maryland collected mineral specimens in an adjoining room. Thanks to Al Pribula, who has curated the larger collection in the NHSM basement for selecting and arranging them.

Respectfully submitted,  
Jake Slagle: Secretary

## BMS Authors Win Awards

by Mike Seeds

Each year the Eastern Federation of Mineralogical and Lapidary Societies holds a Bulletin Editors Contest. At the October BMS meeting, Carolyn Weinberger announced that a number of BMS members had won awards for articles they wrote during 2015 for the BMS newsletter, The Conglomerate. Each winner was awarded a certificate, and Al Pribula was awarded a trophy.

### Original Educational Articles

Trophy: Al Pribula, Earth's (Really) Most Abundant Mineral

Honorable Mention: Brad Grant, Is It Burgessite or Erythrite? The Problem with Mineral Identification and the International Mineralogical Association (IMA)

Honorable Mention: Al Pribula, Native Elements, The Platinum Group Metals

### Original Non-Technical Articles

Honorable Mention: Steve Weinberger, Mineral of the Month, Hydrated Borates

### Written Features

8th Place: Lisa Jose, Book Review: Rockhounding Delaware, Maryland and the Washington, DC Area

Honorable Mention: Ed Goldberg, Crystals of Water Falling Gently

It's almost time to enter for the 2017 contest and I'll be selecting articles contributed by our members and published in the The Conglomerate during 2016.

It's not too late to start working on your articles for the coming year! Send articles to editor <mseeds@fandm.edu> and perhaps we'll enter them in the contest next year.

Don't Forget to Renew  
Your Membership!



The vast majority of minerals are ionic compounds, consist of ions, and are held together by ionic bonds. What’s an ion? It’s a particle which has a net electrical charge. Simple ions are formed when an atom either loses one or more electrons (to form a positive ion, or cation) or gains one or more electrons (to form a negative ion, or anion). Such an ion is called a monatomic ion, since it is formed from a single atom. Some common minerals containing monatomic ions are halite (NaCl; containing  $\text{Na}^+$  and  $\text{Cl}^-$ ), hematite ( $\text{Fe}_2\text{O}_3$ ;  $\text{Fe}^{3+}$  and  $\text{O}^{2-}$ ), and sphalerite ( $\text{ZnS}$ ;  $\text{Zn}^{2+}$  and  $\text{S}^{2-}$ ).

It is also possible to have a polyatomic ion, one which consists of a number of atoms bonded together, but with a net electrical charge. Some common examples are carbonate ( $\text{CO}_3^{2-}$ ), sulfate ( $\text{SO}_4^{2-}$ ), silicate ( $\text{SiO}_4^{4-}$ ), and molybdate ( $\text{MoO}_4^{2-}$ ). So, rhodochrosite is  $\text{MnCO}_3$  ( $\text{Mn}^{2+}$  and  $\text{CO}_3^{2-}$ ), anhydrite is  $\text{CaSO}_4$  ( $\text{Ca}^{2+}$  and  $\text{SO}_4^{2-}$ ), forsterite is  $\text{Mg}_2\text{SiO}_4$  ( $\text{Mg}^{2+}$  and  $\text{SiO}_4^{4-}$ ) and wulfenite is  $\text{PbMoO}_4$  ( $\text{Pb}^{2+}$  and  $\text{MoO}_4^{2-}$ ). (These are all examples of the most common type of polyatomic ion—an anion in which a central atom is bonded to some number of oxygen atoms. This type of ion is called an oxyanion (or oxoanion).) When ions of opposite charge come near each other, they are attracted by electrostatic forces. (Remember that opposite charges attract and like charges repel.) When the ions form extended three-dimensional lattices, we say that the particles are held together by ionic bonds and the resulting compound is classified as an ionic compound.

However, not all materials consist of ions. Ionic bonds usually form when a metal atom and a nonmetal atom react and transfer electrons to form bonds. If it is not favorable energetically for this to happen, another type of bonding occurs, in which the atoms are held together by sharing a pair of electrons. This results in the formation of what is called a covalent bond. This often occurs between two nonmetal atoms to form an electrically neutral unit called a molecule, and materials whose fundamental particles are molecules are termed molecular compounds. Familiar examples include water ( $\text{H}_2\text{O}$ ), carbon dioxide ( $\text{CO}_2$ ), sucrose (table sugar,  $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ ), and urea ( $\text{CO}(\text{NH}_2)_2$ , found in mammalian urine and as the mineral uricite). Covalent bonding also occurs between the atoms in a polyatomic ion, such as the C and O, S and O, Si and O, and Mo and O in the examples given above. It is possible for two or three pairs of electrons to be shared between a pair of atoms, resulting in what are called double bonds and triple bonds, respectively. Carbon atoms are especially good at forming double and triple bonds, so organic (i.e., carbon-based) compounds often have this feature. Of the roughly fifty million known chemical

compounds, an overwhelming majority are molecular, but the opposite is true of minerals—about 96% of the known minerals are ionic compounds, less than 1% exist as small molecules, and the rest exist as individual atoms or as covalent arrays too large to be considered true molecules.

When atoms form covalent bonds, the orbitals which the electrons occupied in the un-bonded atoms overlap and combine to form molecular orbitals (MO’s). Just like orbitals on individual atoms, these are regions of high probability of finding the electron, but they are spread out over two or more atoms. Just as with orbitals on individual atoms, electrons can be excited from one molecular orbital to another, absorbing a specific amount of energy in the process, sometimes causing the material to have a color.

One example of a mineral being colored by this mechanism is native sulfur. Sulfur exists primarily as molecules which have eight sulfur atoms forming a ring. The MO transitions in this molecule are at an energy above that which can be supplied by visible light, so these produce no color. However, a small fraction of the molecules in the sample are in the form of a chain of 4-10 atoms. The atoms at the ends of the chain will each have an unpaired electron (remember those from the discussion of transition metals?), a situation which allows an electron in the molecule to absorb light in the blue/violet region, and the sample ends up having a yellow color because of this. If there is some selenium impurity in the sample (sometimes referred to as selen-sulfur), the energies of the MO’s change, and this produces a more orange color. The mineral lazurite (which is the major component of lapis lazuli) contains  $\text{S}_2^-$  and  $\text{S}_3^-$  ions, which absorb light in the red/yellow end of the spectrum, producing its characteristic blue color. The blue color of haüyne (also sometimes a component of lapis lazuli) is also due to absorption by the  $\text{S}_3^-$  ion.

In larger molecules, especially ones in which the bonding along a chain or in a ring of atoms consists of alternating single and double bonds, the electrons can be spread out (“delocalized” is the fancy word) over a large number of atoms. When two atoms are bonded by a double or triple bond, the way in which they share the second and third pairs of electrons is somewhat different than when only one pair is shared. For reasons not important here, the second or third bond of a double or triple bond is referred to as a pi ( $\pi$ ) bond (no, this has nothing to do with that “other”  $\pi$ , the one that is equal to 3.14159...).

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When a molecule contains a chain or ring of atoms bonded by alternating single and double bonds, it is said to have an extended pi system. Since most minerals are ionic compounds, this sort of extended pi system isn't responsible for any mineral colors. However, many biological pigment colors and the colors of most dyes (including dye lasers) are due to this cause. In the natural world, the yellow color of saffron, the orange of carrots, and the brownish color of "tanned" skin are due to the substances crocin, carotene, and melanin, respectively—all with extended pi systems. The yellow and yellow-brown colors of amber, ivory, and tortoise shell are due to MO transitions in the organic compounds present, and the pink-red, gold, blue, and black colors of coral have a similar origin. Two of the most commonly-seen biological colors are the red of blood and the green of plant foliage, which are caused by the compounds heme and chlorophyll, respectively. Both of these have a 20-atom ring bonded with an extended pi system. The yellow color of so-called "chrome" cerussite from Tasmania is in fact not due to chromium, but rather to the presence of organic materials as inclusions or stains on the surface (or possibly due to irradiation-induced color centers (to be discussed in Part XI of this series)).

Somewhat related to this are the subjects of chemiluminescence and bioluminescence. Very often, when a chemical reaction takes place, energy is given off. This is most commonly in the form of heat, but sometimes can be in the form of light. When non-living materials are involved, the production of light by this means is called chemiluminescence; when it occurs in a living organism (such as a firefly, some species of algae, or many species of marine animals living deep in the ocean), it's called bioluminescence. The light-emitting chemicals involved in these processes usually have extended pi systems.

Another cause of color which involves electrons on more than one atom is charge-transfer (CT) transitions. These are transitions of electrons from an orbital primarily or entirely on one atom to another orbital primarily or entirely on another atom. (Remember that an electron bears a negative electrical charge, so if one moves from one atom (or ion) to another, a charge is being transferred between them, hence the name.) The two atoms/ions must be relatively close to one another in the crystal lattice for this to occur. The two atoms or ions may be chemically different or chemically the same. Charge transfer between two atoms or ions which are chemically the same (but with different charges, such as a transfer from an  $\text{Fe}^{2+}$  ion to an  $\text{Fe}^{3+}$  ion) is referred to as an intervalence charge transfer (IVCT). Because the electrons in the initial and final orbitals both have

specific energies, the transition between them will also have a specific energy. As in the cases discussed in previous articles, when a specific energy of light is absorbed from the mix of light rays of different energies we call "white" light, the object will be perceived to be the complementary color. Charge-transfer transitions are typically about 100 to 1000 times as intense as d-d electronic transitions, so only a small fraction of the possible atoms or ions need be activated to cause a noticeable color. Materials colored due to this mechanism frequently show strong pleochromism.

The blue colors of benitoite, corundum (var. sapphire), and lazulite (not lazurite, discussed above) are due to  $\text{Fe}^{2+} \rightarrow \text{Ti}^{4+}$  charge transfer. The color of zoisite (var. tanzanite) is due to this, with an added contribution from d-d transitions in  $\text{V}^{3+}$  and  $\text{VO}_2^{2+}$ . The colors of chlorite, cordierite (var. iolite), dark blue sapphire, euclase, and various micas, amphiboles, and pyroxenes are due to  $\text{Fe}^{2+} \rightarrow \text{Fe}^{3+}$  charge transfer. In dumortierite and kyanite, the color is due to a combination of  $\text{Fe}^{2+} \rightarrow \text{Ti}^{4+}$  and  $\text{Fe}^{2+} \rightarrow \text{Fe}^{3+}$  charge transfers. Vivianite presents an interesting case. The chemical formula of vivianite is  $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ . Since the phosphate ion ( $\text{PO}_4^{3-}$ ) carries a 3- charge, the iron must be present as  $\text{Fe}^{2+}$  to maintain electrical neutrality. When freshly collected, vivianite samples are often a pale green color (sometimes almost colorless) due to d-d transitions in  $\text{Fe}^{2+}$ . However, when exposed to air, these samples darken to the darker blue-green normally associated with this mineral. This occurs because the oxygen in the air oxidizes some of the  $\text{Fe}^{2+}$  ions to form  $\text{Fe}^{3+}$ , and  $\text{Fe}^{2+} \rightarrow \text{Fe}^{3+}$  charge transfer transitions occur to produce the darker color.

Charge transfer from an oxygen atom to another atom (often a metal) is also fairly common.  $\text{O} \rightarrow \text{Fe}^{3+}$  charge transfer causes a yellow color in beryl (var. heliodor; also colored by d-d transitions in  $\text{Fe}^{3+}$ ) and in corundum (var. yellow sapphire). The violet color of amethyst is due to  $\text{O} \rightarrow \text{Fe}^{4+}$  charge transfer. It is also possible to have a charge transfer between two atoms which are covalently bonded to one another. This often occurs when an electron is transferred from an oxygen to the central atom of an oxyanion. This requires too high an energy (i.e., above the energy of light in the visible range) for the most common oxyanions ( $\text{SO}_4^{2-}$ ,  $\text{CO}_3^{2-}$ ,  $\text{SiO}_4^{2-}$ ,  $\text{BO}_3^{3-}$ ,  $\text{AsO}_4^{3-}$ ,  $\text{PO}_4^{3-}$ ), so minerals containing them do not exhibit any color due to this cause. However,  $\text{O} \rightarrow \text{V}$  charge transfer in the vanadate ion ( $\text{VO}_4^{3-}$ ) produces the red-orange color in vanadinite and the brown color in descloisite, and similar

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I was somewhere wandering in the back streets of Amsterdam trying not to get too lost, and trying to find the rock shop that the hotel concierge had found for me. Of course his map was helpful, but I really couldn't read Dutch. It also turns out that Amsterdam is called "The Venice of the North" because it has all of these canals. This was harder than finding the rock shop in Bergen, Norway!

I was totally turned around when I finally found the shop...with a sign on the door in English that said, "closed – off to Gem Show in Idar-Oberstein." Idar-Oberstein was the gem carver's mecca and I planned to get there someday. But right now I had only a few free hours to myself in Amsterdam, with no rock shop to visit.

Heading back to the hotel, I passed a dusty goldsmith's store. There were unset stones in the window, and I decided to give it a try. Inside the goldsmith had several cases of gems and even some uncut ones. One small (5mm x 3mm) marquise caught my eye at once. It was marked "alexandrite" – my birthstone. I asked to see it. It was perfectly cut. With his permission I held it in the sunlight as well as in the fluorescent; perfect cranberry to green/blue color change. Not known for my poker face, I looked at him and exclaimed, "This is RUSSIAN alexandrite!" He said yes. I exclaimed again – "this is Russian ALEXANDRITE!" He said yes again. I asked how much he wanted for it. Turns out a hundred dollar unsigned American Express traveler's check would do the trick. He needed to send it to his tailor in Hong Kong.

Before I closed the deal, I looked at his uncut stones. There were two small crystals marked "alexandrite". These were somewhat included but also did the perfect color change. We haggled some more. Another \$100 American Express® check was pulled out. He also had two beautiful ruby crystals. But at this point, I realized I had several more days of business travel ahead and might need the money.

Once I got home, I proudly displayed my alexandrite to my neighbor who was a travel agent and had been all over the world. She had erroneously gotten some synthetic alexandrium in Turkey and thought it was the real thing. Alexandrium rough is cheap and only goes from blues to violet / purple. However the Turks are making a fortune selling it to American tourists as Russian alexandrite. When she saw how my gems did the full color change, she asked to buy the cut stone. At first I hesitated, then I realized that when I got around to cutting the rough, I would never wear the already cut stone. So I ordered a gold

Tripp's® setting for her and sold it to her at a profit to me – but at less than 10% of what she would have spent for it in a jewelry store. She was thrilled.

There is alexandrite that comes from Sri Lanka and some from Brazil. But it is poor material compared to the Russian. So, I am very happy that I finally located some of reasonably good quality.

Since I had made some money back, I called the goldsmith and had him send me the ruby crystals for another \$100 American Express® check. I cut a one carat stone that has beautiful color. I need to get it heat treated to improve the clarity (all facet grade sapphires and rubies need heat treatment except for the ones from Montana's Yogo Gulch). However, it is more fun to just cut another stone than hunt down someone to do the treatment.

Someday I'll have to tell you about the adventures in Bergen, or...in Sydney. How about Oslo—a town of over a million people without a single faceter found in the early 1990s? Stockholm? Milan? Lots of good places in the world to look for rock shops.

## Color in Minerals

*continued from page 5*

charge transfer in the divanadate ion ( $V_2O_7^{4-}$ ) is the cause of the yellow-brown color of martyite. The orange color of crocoite ( $PbCrO_4$ ) is due to  $O \rightarrow Cr$  charge transfer. (More about  $CrO_4^{2-}$  will come in Part X of the series.)

$O \rightarrow$  metal charge transfer can also occur in oxycations (although these are much rarer than oxyanions). The best example of this is the uranyl ion ( $UO_2^{2+}$ ), in which  $O \rightarrow U$  charge transfer is the cause of the bright yellow, yellow-green, and red-orange colors of uranium minerals such as andersonite, autunite, fourmarierite, kasolite, parsonsite, soddyite, studtite, and weeksite. In carnotite ( $K_2(UO_2)_2(VO_4)_2 \cdot 3H_2O$ ), the yellow color from the  $UO_2^{2+}$  and the orange-brown from the  $VO_4^{3-}$  are both present to give the observed yellow-to-orange color range.

I'll present more examples of colors due to charge-transfer transitions in later articles where I'll discuss some specific minerals (tourmaline, topaz, etc.). In the next article, I'll continue with the idea of electrons moving from atom to atom when discussing why some minerals are opaque.

## Shoebox Adventures 66: The Process

photos and text by Mike Seeds

The trouble with the world is that sometimes it doesn't do what you want it to. The garbage truck skips your house, traffic forgets to remind you and you miss your exit, your sister calls to complain once again about ... whatever. It just goes on and on. That's why micromounting was invented. Just the process of micromounting can make the world a better place. You just need a little rock, a little time, and some nice music on the radio.

Micromounters get their rock in lots of ways. Some people travel all over the world and others stay home. I've met micromounters who have gone to northern Russia collecting little bits of rock. Some dig in quarries, road cuts, and backyards. I've met more than one micromounter who goes into abandoned gold mines searching for minerals to study under their microscopes. Lots of micromounters go to micromount symposia and trade with other collectors, and others spend all of their time at the giveaway tables. I know a micromounter who specializes in free stuff. Dealers at conferences sell little rocks for a few dollars, or you can buy wonderful little minerals online. The process of micromounting includes searching for interesting rock with interesting friends.



*Micromount symposia bring dealers with tables full of mounts and loose rocks. In the background are tables filled with boxes of unexamined giveaway rocks from interesting mines and quarries.*

Keep your rock on hand in a shoebox on the end of your bench. Then when the world gets really stupid and mean, you can slip away, turn on your light, start some soothing music on your radio, pull a lovely piece of rock out of your shoebox, and do some micromounting.

The first step in the process is often to admire and study the rock, find the crystals under your scope, and

probably look the minerals up on Mindat.org or some other reference. Once you know what you are seeing and you have decided how to proceed, you can break the rock up.



*A small rock trimmer breaks rocks into little pieces each a possible treasure.*

Breaking a rock can be exciting. You often discover that the inside of the rock, fresh and clean, holds better crystals than what you first saw on the outside. Study each piece and sort the best ones from the merely good. Once in a great while, a rock shatters and you get a pile of grit. No worries. You got it off of a giveaway table so it was free, or you only paid a dealer a couple dollars for it, or maybe you found it in a quarry and brought home a whole bucket of the stuff. Relax. It's just for fun. Pull another rock out of your shoebox.

Getting a rock into a microbox requires it be glued to a support. Most micromounters use white glue and small corks, toothpicks, or brush bristles. Trim the cork to hold the mineral near the top of the box turned to display the crystals you like best. This might sound tedious and stressful, but it is the best part of the process because you get to decide how to turn the rock to make it just right. In most cases, gluing the rock to a cork is easy and you can do a bunch while your music plays in the background. Gluing a bit on a brush bristle isn't hard if you turn the rock face down on the table and use mintack to stick the bristle to a little wood block. Put a dot of glue on the bristle and position the wood block to hold the bristle in place while the glue dries.



*Larger bits get glued to corks, while smaller pieces can be glued to toothpicks. The specimen at right is being glued to a brush bristle*

Somewhere along the line, you need to make a label. You can write the name of the mineral and the location where it was found on a small sticky label to put on the bottom of the microbox. If you are blessed with calligraphy, that can be elegant, but it's just a label, so it doesn't have to be Michelangelic. Lots of people use computers to print their labels, so they can be cut out and glued to the bottom of the box with white glue. Typing up a bunch of labels can be creative and fun. You want to get the name and location on the label, of course, but you can add interesting bits of information such as "from Bloody Gulch near I-17" or "collected in driving rain" or "gift from Lou D'Alanzo on the day of his induction into the Hall of Fame." What ever fits on the label is OK. It's your rock.



*Finished mounts display the mineral for study under a loupe or microscope.*

Then you use a bit of white glue to glue the rock into the box, and you sit back and look at the lovely little work of art you have created. Those crystals were once buried in the ground and now you have them safe in a labeled box displayed just right for the world to see. Schäferite ( $\text{Ca}_2\text{NaMg}_2(\text{VO}_4)_3$ ) from the Liebenbergite slag dump in Greece is dark little crystals that aren't very pretty, but that's not the point. The process is the point. You can buy a rock and put it on a shelf, but making a micromount involves you. Listen to the music and don't look at the clock. The world will wait.

Since we don't have a "formal" meeting in December, we won't have a show and tell for Mineral of the Month. Instead, since this is the month where we celebrate both Hanukah and Christmas, let's use this time to admire and perhaps study our blue, white, red, and green minerals.

We'll take up our usual display and discussion again at the January meeting. If you have a suggestion, please let me know and I'll consider it for a future MOM.

## Mineralogical Record Magazines

Are you aware that BMS has a complete set of Mineralogical Record Magazines and that you can borrow them? When Min. Rec. was first conceived back in 1970 by John White, then curator of the mineral sciences department at the Smithsonian. Funding was scarce and to White appealed to fellow BMS member Randy Rothschild for assistance. Randy gladly made donations over the next few years to help get the magazine on its feet.

BMS was one of the first subscribers and has maintained that subscription ever since, amassing a complete set of issues. The earliest years were bound into hardback books, later ones have been left in their original form - as soft-back magazines.

The current curator of our collection is Jim Hooper (thank you Jim) and he's the fellow you call if you wish to borrow an issue for your own reading or research pleasure. The earliest volumes were mostly black and white, but the more recent ones in full color. Each issue contains several well written and researched articles about a mineral or collecting locality and all have marvelous professional taken photographs.

If you are interested in borrowing issues, just give Jim a call and ask him to bring a specific volume to the next meeting (or holiday party). You just need to return it to Jim at the next BMS meeting. To see a complete list of articles in each volume, go to [www.minrec.org/contents.asp](http://www.minrec.org/contents.asp), click on "back issues" and then click on the pictured cover of the issue you're interested in.

We hope that you'll take advantage of this membership benefit.

# Baltimore Mineral Society – Membership Renewal

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_

E-mail: \_\_\_\_\_

Names of family members included in membership:

\_\_\_\_\_  
\_\_\_\_\_

Annual dues for individual memberships are \$10.00

Annual dues for family memberships shall be \$15.00 for husband and wife and all children residing in the home under the age of 18. **Checks should be made payable to “Baltimore Mineral Society”.**

***Renewal deadline is the March meeting.***

Mail or give to: **Carolyn Weinberger**  
**PO Box 302**  
**Glyndon MD 21071-0302**

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## New Years Resolutions:

Looking for some easy to keep resolutions for the new year? Here are a few that will benefit both you and BMS:

1. Renew your membership!

2. Spring is when our thoughts turn to rock collecting, but winter is when we dream and plan. 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 Eberly at 410-661-8436. Let him know that you are anxious to dig, and he will keep you on his list.

3. Write an article or two for the Conglomerate! Whether you tell us about a recent collecting trip you took, museum you visited, or mineral show or conference you attended, members will be delighted to read about your experiences. If you have photos to enhance your article(s), send them along as well. Send your articles and photos to editor Mike at <mseeds@fandm.edu> and he'll print them in a future issue of the club bulletin.

4. Plan on presenting a program for a BMS meeting (or share the contact information for a good speaker). Contact Al Pribula with your ideas.

# The Conglomerate

Mike Seeds, Editor  
516 Bald Eagle Ct;  
Lancaster, PA 17601



## Upcoming Events

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December:

11: Gala Holiday Party at Al & Linda's. 4 pm until?  
Please RSVP to the e-vite (or if no e-mail, by phone by  
Wednesday, December 7)

15: Chesapeake Holiday Party at Westchester Commu-  
nity Center - 6:30 pm

24: Hanukah begins at sundown

25: Merry Christmas

January:

1: Happy New Year!

13: Chesapeake Club meeting at Westchester - 7:30 pm

25: BMS January meeting at NHSM - 7:30 pm

## Last Laugh

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by Mike Seeds

