The Conglomerate

Newsletter of the Baltimore Mineral Society
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In Memoriam: Harold Levey (1925 – February 8, 2016)

With great sadness we mourn the passing on February 8 of Harold D. Levey at age 90, in Northwest Hospital, due to complications from a fall several days earlier. Liked and admired by all who knew him, Harold could be considered the patriarch of Maryland mineral collectors, not only by virtue of his age, but by the breadth of his experience.

Locally, that experience dated from the days when the Jones Falls pegmatites were accessible and both the Bare Hills Copper Mine and the Bare Hills Chrome Pits yielded rich specimens. He collected also at the McMahon Quarry and the Texas Quarry when they were known respectively as the Greenspring Quarry, and the Campbell Quarry. He spent a lot of time at the Fairfax Quarry in Centreville, Virginia, when its management actually permitted overnight camping. In exchange for an African mimetite specimen, he traded a classic apophyllite on prehnite piece collected at Centreville to the Smithsonian. His local and regional collecting experience contributed to and was later enhanced in 1955 by a six month trip to numerous localities throughout the United States.

Natural history fascinated Harold from the time he was a child. While looking for snakes at age 14, he found a showy curved crystal of Tourmaline Group (var.) schorl in quartz. It led to his subsequent focus on mineralogy. Curiosity about his find prompted a visit to the Natural History Society of Maryland to seek out someone to identify the specimen. As a result, Harold donated it to the Society's collection and became active as a member. When Charles Ostrander, NHSM's original mineral curator moved to Harford County, Harold became de facto curator. It was during this period that Paul Desautels came to view the NHSM collection, and that visit led to the formation of the Baltimore Mineral Society. Harold was a founding member and later became President.

Harold remained active with the NHSM into the late 1950's. NHSM then sponsored a Junior Natural History Society of Maryland. Throughout his life, Harold believed strongly that the best way to perpetuate the hobby of mineralogy was to have youngsters participate. He frequently led field trips for Junior NHSM members to a range of localities. They included Carroll County visits to the Mineral Hill Mine, as well as a cornfield loaded with quartz crystals near Gamber now built over. He also led more distant trips to the dumps of the Cornwall Iron Mines in Lebanon County, PA, and the Showalter Quarry in Lancaster Co. PA.

Harold visiting the NHSM collection and holding the curved Tourmaline that sparked his interest in minerals at age 14. (Photo by Jake Slagle)

Like so many collectors Harold's life during late middle age centered on family and work: wife Margie, their daughters Dana and Jodie, and a career as quality control manager for AAI Corporation in Hunt Valley. Deeply saddened by Margie's death in 1990, he became less active with mineralogy. However, his interest in minerals remained. He maintained his collection until 2013. That summer, failing health necessitated a move from his home near Pikesville to the North Oaks Retirement Community. On February 27, 2014, the Baltimore Mineral Society presented Harold with an Honorary Lifetime Membership.

Further perspective on Harold Levey's role and stature within the mineralogical community is available at The Mineralogical Record label Archive: <www.minrec.org/labels.asp?colid=598> .

Jake Slagle

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> 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, or articles to <mseeds at 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 having survived another winter weather 'event'. Hope you avoided a sore back from shoveling and got to keep your parking space after digging out. And now we're in February (birthstone Amethyst). It's Interesting to me that it's the shortest calendar month of the year, but seems like the longest to get through. But before long we're in March and the great changeover begins again. To our gallivanting society members who made the pilgrimage to Tucson, I wish the best of good weather for their trips and hope they didn't encounter frozen fountains as they did just a few years ago.

I'd also like to thank Brad Grant and Al Pribula for working with the Natural History leaders in putting together an educational program for young and older members that took place on the 14th. I think a brief report on how it went and how it came together would be in order. Let's hope the weather will allow all our meetings and functions to take place.

Speaking of 'brief reports', I'd like to share some thoughts brought to my attention by other members regarding the time spent at our monthly meetings. It's been great to see attendance growing and the meeting energy expanding as well. While I find it enjoyable it has been getting looser and more chatty and it seems the time more easily gets away from us. I live on the other side of the beltway in Catonsville and have gotten home closer to 11-11:30 PM on a few occasions. And I consider myself a local. We need to remember that a number of members travel a fair distance to the meetings including several out-of-staters. We'd all like to get home before midnight I think. To help with that let me recommend that:

1. We start the meetings promptly at 7:30PM
2. We cover our 'official' business in a timely fashion. I will suspend the 'roll call' of officers and committee members for their reports. Any that have information to share will always be encouraged to do so.
3. The Mineral of the Month feature should continue and we ask those who very importantly bring examples to share, offer their comments on specimens in a fairly brief manner.
4. Members bringing specimens for identification or for sale or give away display their wares prior to the official beginning of the meeting, during the break, and/or after the meeting.
5. We limit the 'break' or 'intermission to between 10 and 15 minutes.
6. The 'Presentation' for the evening should take up in the neighborhood of 45 minutes to an hour or so.

These steps should allow time for 'after meeting' meetings and presentations of sale and other specimens. We should also keep in mind the Natural History Society personnel would also like to get home at a decent hour and they have kindly waited for the mineral society folks to exit. We can kick this around at the meeting and I'd be interested in any thoughts you might have on the subject. As long as it doesn't take too long. (kidding)

Thanks so much. Jim

Program Notes - February Meeting

by Jake Slagle, Program Chair

For the February program, Jake Slagle will continue his review of features from his blog, Mineral Bliss www.mineralbliss.blogspot.com. His topics will include Fred Parker's presentation on Maryland Mineralogy at the Rochester Mineralogical Symposium; Exquisite Maryland micromounts; Lessons Learned from John S. White; Maryland's Embarrassing State Gemstone; The Largest Native Maryland Gemstone in Existence, and more.

The meeting will take place February 24th at the Natural History Society of Maryland, 6908 Belair Road, Baltimore, Maryland 21206. (For directions, visit the BMS website at <baltimoremineralsociety.org/directions.html>). The meeting will hosted by Al Pribula and will begin promptly at 7:30 pm.

Dues are Due!

by Carolyn Weinberger

Our bylaws tell us that dues are due by the February meeting - that's this coming Wednesday. They remain at $10 per individual member and $15 for family memberships.

To ensure that we have all your correct information, please fill out the renewal form found at the end of this issue and return in, along with your dues check to me at the address shown (or give it to me at the meeting).

January Snowed Out!

The last BMS meeting was to occur on January 27th, but the Great Blizzard of 2016 struck on January 23 and left the parking lot at the Natural History Society buried under feet of snow. The BMS meeting had to be canceled. The program intended for January 27th has been rescheduled for the February 24th meeting.

George Rambo (1931-2016)

Long time mineral collector, dealer, and friend to micromounters George Rambo passed away on February 7th due to complications from a fall.

George Rambo
Photo: Micromounters of New England

BMS members who have attended the Desautels Micromount Symposium or the Atlantic Micromount Conference or other micromount events in the east will remember George setting up two dealer tables loaded with tools and supplies. He served the hobby well by supplying everything from heavy hammers to the smallest corks and by providing advice and friendship to micromounters from beginners to experts.

Mike Seeds

Slick Takes Notes

by Mike Seeds

If you recall, a few Mondays ago was a holiday and the boys got permission to collect in the quarry. They waited till lunch time to start hoping the weather would warm up, but it was really cold and within a few hours they had crossed the road to Bubba's Beer Bunker to have a few coffees – except for Pudge who stopped in the quarry office to say hello.

When Pudge finally settled on a stool, he put three cardboard coffee cups sealed with lids on the bar and said, "I found a nice little pyrite today, and it's it in one of these cups. You can't touch the cups, but if you can guess which cup contains the pyrite, it's yours. But be careful. Only one of these cups is telling the truth."

Pudge had written on the three cups as follows:

Cup 1: It's in this cup.
Cup 2: It's not in this cup.
Cup 3: It's not in Cup 1.

The boys laughed, but Gus groaned, "This is as bad as games with colored hats." Nevertheless, the boys began to study the cups, and Slick as usual began writing on a paper napkin. Suddenly Slick pointed. "It's in that cup."

And it was. How did he know?

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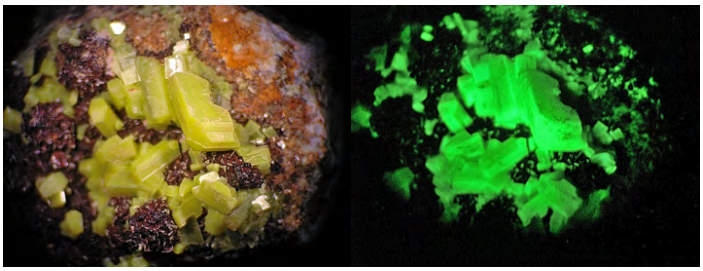
Color in Minerals – Part I: Interaction of Light With Matter

by Al Pribula

Why do you collect minerals? What makes them interesting to you? Ask that question of ten different mineral collectors and you're likely to get ten different answers. Is it the variety of appearances of their crystals? Is it the fascination inspired by the remarkable shapes they can take—the perfect cubes of pyrite, for example? Is it their practical or commercial importance? Do you collect for investment, or simply for enjoyment? Does it remind you of picking up random sparkly stones back when you were a kid? Are you only interested in specimens that you personally collected in the field, or from one particular locality or geological environment? Are you an adherent of "crystal power" and enjoy them for the healing or helpful properties you experience from them? Do the scientific aspects (geology, crystal structure, spectroscopy, composition, mineralogical associations, etc.) appeal to you? Does your background in Chemistry lead you to refer to them as "pretty chemicals?" (I'm guilty as charged on that last one.)

At least one part of the answer for a lot of us would be kind of like that last reason: "I like them because they're pretty." Clearly, for many of us, the aesthetics of the pieces are an important property of the specimens we keep in our collections. There are obviously many different aspects to a specimen's aesthetics, such as crystal shape and complexity (modifying faces, etc.), associations (especially contrasting ones), overall form, size, freedom from defects—the list goes on and on. But, for many of us, the color of a mineral is one of its most important characteristics. The deep green of an emerald, the indigo blue of an azurite, the cherry-red of a realgar crystal, the color-banding of an agate, the bright orange of crocoite, the play of colors of an opal, the color-zoning in a fluorite or tourmaline, or the deep purple of a Siberian amethyst all can catch our eye and make a specimen more desirable. Frequently, it's the first thing that we notice about a specimen. A number of minerals are named for their color (azurite, rhodochrosite, carminite, malachite, chlorite, melanite, olivine, and many others) or even for their lack of it (albite, achroite).



The color of Autunite is determined by the interaction of light with its atomic structure. Left: Under visual wavelength light, Autunite is yellow. Right: Under ultraviolet light, the mineral fluoresces green. (Photos by M. Seeds)

The subject of color is a very broad and complex one, involving biology (how color is sensed in the eye and transmitted to the brain), physics (light, energy, reflection, refraction, etc.), chemistry (the composition of the sample, energy levels in atoms, type and strength of bonding, etc.), and psychology (how we perceive and interpret the color). We are surrounded by color, both in the natural world (animal and vegetable, as well as mineral) and in the human-built world. Many books have been devoted to one or more aspects of the subject. My goal in this series of articles is not to cover the entire topic of color, but rather to present an explanation of the physical and chemical causes of color and how these explain the color of minerals (and some other familiar materials and phenomena as well). A number of books have been written about the scientific and technical aspects of color. Hundreds (thousands?) of articles have been published in the scientific literature just on the subject of mineral color. In addition, the subject has been mentioned in many articles in the "popular" mineralogical and gemological literature, but, unfortunately, some of these have presented information which is misleading, incomplete, oversimplified, or (in a few cases) even incorrect. The situation is even worse on the web, where there is no editing or checking process for websites, and misleading statements and errors abound.

The information I will present in this series will come from a variety of sources, with the primary one being The Physics and Chemistry of Color by Kurt Nassau. This book is a very complete treatment of the overall topic of color (not just in minerals), but at times can get a bit "heavy-duty" on the underlying physics and chemistry of the subject. In the January/February 2016 issue of Rocks & Minerals, an article written by Elise Skalwold and William Bassett titled "Blue Minerals: Exploring Cause & Effect" gives a very good and complete explanation of the causes of the blue color in a number of minerals and gems. It also gives a number of references to other articles discussing mineral colors in addition to blue, which can be consulted for information beyond what I'll present. I'll also give some references to specific subjects as they come up.

To begin with, in order to understand what causes color in any situation, we'll need to know a bit about light and how it interacts with matter. Light is a form of energy which travels through space in the form of waves. It consists of oscillating electric and magnetic fields travelling through space together,

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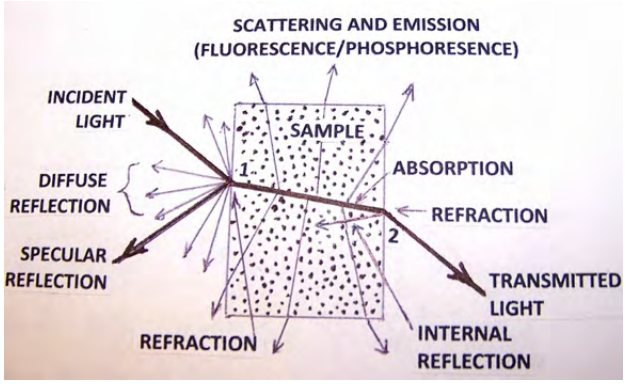
so a more general name for this phenomenon (science word alert!) is electromagnetic (EM) radiation. For our purpose here, the most important thing to know is that these waves can carry different amounts of energy. Depending on their energies, we call different EM waves by different names—not because they are fundamentally different, but because they are detected by different types of detectors, were discovered at different times, and have different physical effects. Most of these names are likely to be familiar to you. The known types, in order of decreasing energy, are gamma rays, X-rays, ultraviolet (UV) waves, visible light waves, infrared (IR) waves, microwaves, and radio waves. For our purposes here, visible and UV light waves are the most important, but the others have important uses (communication, cooking food, medical imaging, etc.) in other contexts.

When a beam of EM radiation hits a sample of matter, a lot of different things can happen, as shown in the figure below. When the incident light strikes the "front" surface of the sample (point 1 in the figure), the light can be reflected back in the same general direction it came from. If the surface is shiny, the light will undergo what is termed specular reflection—that is, it will simply bounce off the surface at an angle determined by the angle at which it hit the surface. If the surface is rough (meaning that the surface consists of a number of segments which are at a variety of angles to the incident light), the light will undergo diffuse reflection, in which the light bounces off not just in one direction, but in a number of different random directions, making the surface look dull and "soft."



Light interacting with matter. (Diagram by the author.)

If all or part of the light enters the sample, a number of different things can happen. As the light enters the sample, it will slow down, causing it to bend from its original path. This bending of the light path is called refraction. (This is what is observed when you insert a long object such as a pencil into water at an angle, and the object seems to bend at the surface.) Upon striking the "back" surface of the object from the inside (point 2 in the figure), the light can undergo internal reflection back into the sample, or it can pass through that surface and be transmitted through the sample, being refracted in the opposite direction so that it exits going in the same direction from which it originally came to strike the front surface. As it passes through the sample, it can be scattered in random directions by interacting with the atoms of the sample or by macroscopic inclusions within the sample. In addition to all of these possibilities, it can be partially absorbed by the sample. Most frequently, the light energy absorbed is re-emitted by the sample as heat (and hence will seem to be "lost" and unobservable by the eye). However, it can also be re-emitted as light, usually with a lower energy than the light absorbed. If this re-emission is immediate, we say that the sample exhibits fluorescence; if it is re-emitted more slowly (so that the emission continues after the incident light is removed), we say that the sample exhibits phosphorescence. Who knew that so many possible outcomes could come from so simple and common an occurrence?

In future articles in this series, I'll delve further into the properties of light, how it interacts with matter (including some information about the structure of the atom necessary for understanding how and why this occurs), the general causes of color, and the causes of color in a number of specific minerals, including why some minerals always have the same color while others can have a variety of colors, and why some minerals have different colors when viewed from different directions.

Finally, I'd like to acknowledge Paul Desautels (1920-1991), to whom this series of articles is dedicated. Paul was one of the founding members of the Baltimore Mineral Society, President of the Society for a number of years, the moving force behind the annual micromount symposia of the BMS (which are now named in his honor), Professor of Chemistry at the State Teacher's College at Towson (now Towson University, also this author's former position), and Curator of Minerals and Gems at the National Museum of Natural History at the Smithsonian Institution. Beyond that, however, he was also my mentor and friend, and was the person who first sparked my interest in the study of color in minerals with a presentation at a BMS Micromount Symposium in the early 1980's. He is no longer with us, but his influence always will be, whether through his published writings, the existence and activities of the BMS, or in our memories.

A Point to Ponder

by Noel Kennon (annoelk@gmail.com) from Australia and New Zealand Micromineral News

"How many mineral species do you have in your collection?" If you are a beginner you may have several dozen, and rather more – perhaps into the 100's - if you have been collecting for a few years. If you try to collect the full suite of minerals from various localities, your collection could be quite limited but if you collect everything that comes your way, the number could be quite large.

You might be interested to ponder how many it would be if you had a specimen of every species listed in Fleischer's Glossary of Mineral Species – the globally accepted authority for known mineral species as well as the spelling of the names. The latest edition (the eleventh), prepared by Malcolm, E. Black and published in 2014 lists 4,776 species. Curiously, the book does not state that number anywhere, so I counted them – you can check my accuracy if you wish. Only a few hundred of those 4,776 species occur as cabinet sized specimens. More occur as miniatures and thumbnails – but all occur as micros.

The number of accepted species is increasing each year as possible new species are found, analyzed, examined and the relevant data submitted to the International Mineralogical Association for adjudication. Upon approval of a single submission, the number of accepted species is increased by one. Clearly, there are undiscovered mineral species out there awaiting a collector with curiosity and a geological pick. Are we nearing the end of the new discoveries or have we barely scratched the surface? The latter seems more probable and so the question arises – "what is the total number of mineral species that could conceivably exist on the accessible part of the crust of this planet?"

Surprisingly, it is possible to derive an answer to this question. To get that answer it is necessary to accept that the crust of the earth is nature's massive chemical laboratory and the naturally occurring chemical compounds made in this laboratory are, of course, our minerals. That laboratory contains every naturally occurring chemical element and the existing physical conditions embrace very large ranges of composition, temperature, pressure and all of the other system variables. All possible combinations of these factors result in nature experimenting with every possible combination of chemical elements. Favorable thermodynamic and kinetic conditions, which will inevitably occur, will ultimately lead to the formation of every chemical compound that could be synthesized in the best man-made laboratory – if it could be made by man it certainly can be made by nature. And how many compounds could mankind conceivably synthesize. The best estimates given to me by chemists such as Pete Williams at The University of Western Sydney and the late Leon Kane-Maguire of the University of Wollongong is about two million!! And so that is one assessment of the number of potential mineral species.

The majority of newly discovered minerals are microscopic although every now and then a bigger type specimen turns up. We can expect this trend to continue so look hard at your micros – you could just be the person to find one of that massive number of so far undiscovered species.

Slick Takes Notes

from page 3

Slick said, "It wuz so confusin' I hadda write it all out, but once I got it down on paper, it wuz obvious." This is what he had written on his napkin.

If it's in 1, then 1 is true, 2 is true, and 3 is false.
If it's in 2, then 1 is false, 2 is false, and 3 is true.
If it's in 3, then 1 is false, 2 is true, and 3 is true.

Slick shrugged, "Pudge said only one cup wuz tellin' the truth, so it hadda to be in Cup 2." Everyone gave Slick a big smile and Eddie bought the next round of coffees.

Mineral of the Month – Cyanotrichite

by Steve Weinberger

Since our January meeting was cancelled and you probably still have your examples of Cyanotrichite all packed and ready to bring along, let's use those specimens this month! To refresh your memory, you can read all about Cyanotrichite in the January Conglomerate.

Grand View Mine
Cape Royal, Horseshoe Mesa
Grand Canyon National Park

Grandview District, Coconino County, AZ. Photo: Rob Lavinsky, I-Rocks.com
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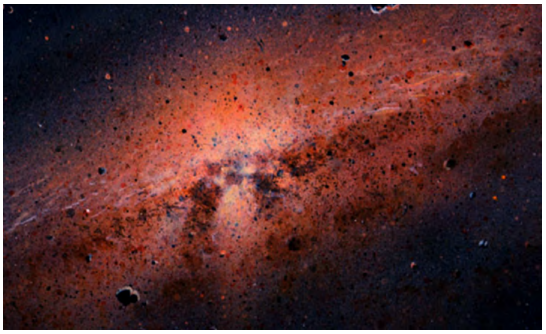
Review: Mineral Evolution

by Mike Seeds

If you have access to Internet, do read the article "Mineral Evolution" by R. M. Hazen and other authors in the American Mineralogist 93, 1693-1720. You can find the article online at http://hazen.carnegiescience.edu/research/mineral-evolution. The authors attempt to answer the simple question, "Were there clay minerals in the Archean?" It is an important question because the Archean is the eon that began with the formation of Earth's crust about 4 billion years ago and extended to the start of the Proterozoic Eon 2.5 billion years ago. The clay question is important because life on Earth began during the Archean, and some processes seem to have depended on particles of clay to act as substrates to hold the important molecules as they linked to form the first reproducing complexes of atoms – the first living things.

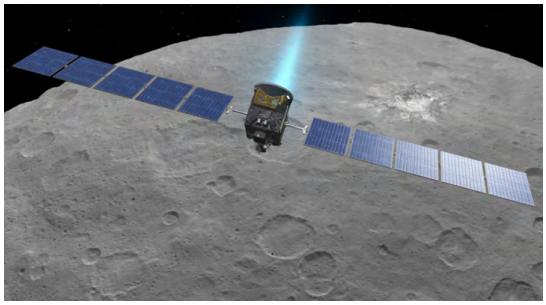
The authors are led back to the origin of the universe which produced hydrogen and helium and little else. Stars generate energy by nuclear fusion and produce atomic "ash" including carbon, oxygen, silicon, and magnesium, which are spread through space when those stars explode. Hazen and his coauthors conclude that the first mineral was diamond condensing from the hot gas in space at a temperature of about 1500 C. A few other minerals must have condensed from the gas to form dust.

The article divides the history of Earth into 10 stages, the first of which is the disk shaped swirl of gas, the solar nebula, which gave birth to the sun at the center and the planets in the disk. The gas in the disk must have condensed to form low density "dust bunnies" that were occasionally melted by solar flares from the young sun to form droplets that quickly cooled to become the round "chondrules" found in the oldest meteorites, the chondrites. At this point, there were about 60 different mineral species.



The solar nebula was filled with gas condensing to form solid mineral specks which then accreted to form larger planetesimals. (NASA artwork)

Stage 2 saw the aggregation of meteoric particles to form larger bodies called planetesimals. Modern studies show that some asteroids, the last remains of the planetesimals, show signs of alteration by water. That could have formed the first clays. At that stage, there were about 250 different mineral species.



The asteroid Ceres is the last remaining unbroken planetesimal in our solar system. Spectroscopic observations of Ceres made from Earth and from the Dawn spacecraft reveal the presence of clays and water. (NASA artwork)

The planetesimals accreted to form larger bodies and the largest became the planets. Hazen's article describes the steps that formed Earth through differentiation as the iron sank to the center and as the granites rose through the denser basaltic crust. Weathering of granites, plate tectonics, and the resulting volcanism built Earth's list of minerals to about 1500.

Volcanism has built a 10,000 ft high volcano in the western pacific, but only its top emerges above the water to produce the island of Gaua (20 km in diameter). Volcanism brings minerals and reactive gases such as sulfer to Earth's surface and furthers the evolution of minerals. (NASA photo)

This suggests that there were clays during the Archean, and the development of life began altering the mineralogical environment. By Stage 7, life had generated enough

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Shoebox Adventures: Spheres

text and photos by Mike Seeds

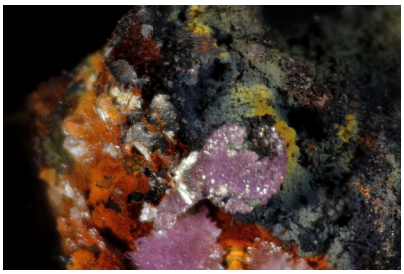
Mineral specimens in the shape of spheres are fascinating and two such specimens came out of the shoebox on the end of my bench just recently. They seem almost organic in structure. Yet they have gown not organically but by natural mineral processes.

The first specimen is Thomsonite-Ca from the Beech Creek Quarry in Oregon. It is a fuzzy white ball hidden deep in a dark vug. Luckily, the matrix is moderately soft and I was able to trim the matchbox-size chunk down small enough to go into a micromount box without damaging the delicate ball of fuzz. At the same time, I was able to chip off a few protrusions of matrix to better expose the mineral. But I didn't try to excavate too far; the fact that the specimen is hiding down in its burrow looking out at the world is part of the charm. Perhaps it is a lovely sea urchin cowering in its hole in the reef.

Thomsonite-Ca,
Beech Creek Quarry Mount Vernon, OR
Field of view 13 mm.

These mineral spheres seem organic in that they have the appearance of living things. They seem to have grown like a plant or an animal gradually assuming their shape. Artists like to talk about organic shapes, but the term is a bit hard to define artistically. Gradual growth and development is the key, and many of these spherical specimens certainly seem to have grown according to a careful design. Of course, we know that crystals grow following a design set by their atomic structure and not by DNA.

The second mineral out of my shoebox was a Strengite from Indian Mountain. The site is famous for lovely Strengites of pale pink crystals radiating from a center. In this case, the crystals form a tiny sphere that stands atop a spine of matrix as if it were a blossom on a stem. The photo here does not show that three-dimensional structure that is clearly evident under a stereo microscope. Many Strengites from Indian Mountain have a disk shape because the crystals have grown in a thin crack and were forced to radiate outward in a single plane. In some cases, the crystals have grown with more room and have crowded together to form a botryoidal form like a cluster of grapes. The specimen shown here, however, is a sphere standing up on its stem high above a shallow valley containing a few botryoidal mounds of Strengite.



Strengite, Indian Mountain, Alabama.
Field of view 3 mm.

Although the Thomsonite-Ca is partially hidden inside its lair and the Strengite is slightly damaged on one side, they are clearly spheres. How does nature make such spheres? You could find an interesting discussion in the book Crystal Growth & Development: Interpreted from a Mineral's Present Form. The book is a collection of talks on minerals given by Boris Z. Kantor and published in English translation by The Mineralogical Almanac Vol. 6/2003. Although the translation from Russian to English is awkward at best, it is a fascinating and well illustrated book.

In Talk 11 "Ordered Disorder," Kantor discusses spherical mineral specimens, and shows how they can be produced by twinning. If a mineral twins easily and at shallow angles, then a single crystal can twin over and over and each new crystal can twin too. The result can be a wheat sheaf of crystals or, if the growth goes both ways, a bow tie. As the twinning continues the bow tie becomes fatter and fatter curving back on itself until it produces a sphere of crystals. The surfaces of such spheres are marked by the terminations of the radial crystals. That appears to be how these two specimens developed.

Part of the fun of mineral collecting is finding that single perfect crystal that illustrates the laws of atomic bonding for that mineral. But sometimes a huge wad of crystals stuck together can illustrate other natural laws such as those that rule twinning. And in many cases, that wad of crystals may contain a very big number of crystals but the specimen doesn't have to be huge. A sphere just a millimeter in diameter can be a beautiful expression of the regularity of natural processes.

Rockhound Soapbox

by John Martin, Conservation & Legislation Chair from AFMS Newsletter, February, 2016

Grass Roots! Those two words are now the most important words in the Rockhound vocabulary at this point in time. Without the grass roots effort of Rockhounds, Fossil and Mineral Collectors collecting areas will soon be swallowed up in Wilderness, National Monuments, and Environmental Study Areas and maybe even by Wind and Solar generating facilities. The Rockhounding Organizations do not have the financial resources, personnel or legal representation needed to wage the struggle contrary to the groups opposing open access to public lands. These opposing groups advocate the closing of access to collecting areas whether in the US Forest System or the BLM. The only way to keep collecting areas open is with grass roots effort by all Rockhounds that may collect or have collected in these areas of concern. The voice of the Rockhound needs to be heard and as loud as possible. If our voices are not heard in the location where the Rules, Regulations and Legislation are taking place the voices will not be heard and if we are not heard we, the Amateur Collectors of rocks, minerals and fossils, will lose access now and for Future Rockhounds.

DEFINITION OF WILDERNESS

(From the Wilderness Act of 1964)

"(c) A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."

USFS and BLM Public Lands which have roads (Logging, Recreational, access to collecting sites, grazing access, etc.), Mines (Active or inactive), Transmission lines, Microwave, Communication and cell phone Towers, do not meet the definition of a wilderness area as defined in the statement above. Man has left his imprint on the land and therefore it can no longer be considered as a wilderness or wilderness study area by their own definition. (The full text and additional reference may be found on the ALAA Website <www.amlands.org/6652/index.html> near the bottom of the Active Access Issues page)

Here are some Grass Roots thoughts that may help.

Tell all of the city and county officials how much tax money they will lose if the wilderness is created and withdrawn from the tax rolls. Remind the Forest Service and BLM that it is against the law to include roads and active mines in a wilderness area. You collect there, that makes it an active mine. Tell the Forest Service or BLM how many members are in your club and how many members from your area that uses the mine. Numbers speak so do not be afraid to mention them. Use dollars to estimate the cost lost to restaurants, gas stations, grocery stores will lose. Remind the sheriff that he is the legal law officer and that only he can arrest people. If you have the resources or funds send a fact sheet by mail to everyone in the counties where the wilderness is proposed, especially the property owners who will share their property lines with the wilderness. Send speakers to other service clubs and present your view. Have a booth or table set up at other public events or gatherings like your Rock Show and hand out your information. Get other organizations involved. Remind your club members that if they do not do it then who will. And when a Closure Activist says that 'studies show that . . .' call their bluff and demand that they show proof of that study, and do not ever let them off the hook. They made the statement now make them prove it.

Within the Rockhound Community the American Federation has the Conservation and Legislation Committee; <afmsclc@antelecom.net>. Regional Federations may have a Public Lands Advisory Committee (PLAC) and the American Lands Access Association (ALAA) <info@amlands.org www.amlands.org> all may be able to assist you in making your voices be heard. No matter how one looks at it, saving your collecting areas for future Rockhounds will require a well organized Grass Roots effort.

Show Theme: *Where in the World?*

Presents their 53rd

Gem, Mineral & Fossil Show

Delaware Technical& Community College
400 Stanton-Christiana Rd.
Newark, (Stanton), DE @ Exit 4B, I-95

March 5-6, 2016
Saturday 10:00 am - 6:00 pm
Sunday 11:00 am - 5:00 pm

† TAX FREE SHOPPING †

Ticket can be Duplicated

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Additional Information @ www.delminsociety.net

Adult Admission $6 each
Group with this Ad. All $5 each
11 and under Free!

March 19-20, 2016
Sat. 10 am-6 pm
Sun. 11 am-5 pm

2nd Annual Gem-Mineral-Fossil Show

Montgomery County Fairgrounds
GPS: 39°8'44"N
77°12'22"W
Building 6
16 Chestnut Street
Gaithersburg
Maryland

The Gem, Lapidary, and Mineral Society of Montgomery County, MD.

Featuring:

Door prizes	Free specimens for the kids!	Over 40 exhibits
Demonstrations	DIY cabachon making	Raffle
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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.

Renewal deadline is the February meeting.

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

Checks should be made payable to "Baltimore Mineral Society".

Mineral Evolution

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oxygen to produce the banded iron formations that seem to record episodes in which the atmosphere had more oxygen alternating with oxygen poor episodes. Finally in Stage 7 beginning about 2.5 billon years ago atmospheric oxygen became steady and oxidation became an important process in the formation of minerals.

The article discusses Stage 9, Snowball Earth (1 to 0.57 billion years ago) only in passing. A number of lines of evidence suggest that during that period, Earth was entirely frozen 2 or 3 or 4 times. During these episodes, ice was the most abundant mineral on Earth's surface.

During stage 10, Earth's atmosphere reached its present composition and the climate stopped oscillating so dramatically. By then, the authors conclude, there were over 5000 mineral species.

The article is heavily illustrated with dramatic color photos of minerals, smashing planetesimals, and erupting volcanoes.

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

Upcoming Events

February:

24: BMS meeting at Natural History Society of Maryland - 7:30 pm. Refreshments by Al Pribula.

March:

1: Gem Cutters Guild of Balto. meeting at Meadow Mill at Woodberry - 7:30 pm.

5-6: 53rd Gem, Mineral & Fossil Show sponsored by the Delaware Mineralogical Society. Discount flier & directions on page 10.

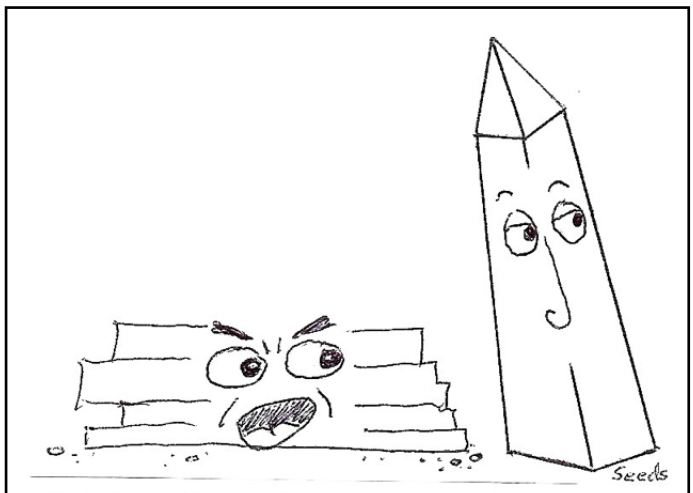
11: Chesapeake Gem & Mineral Society meeting at Westchester Community Center. Auction meeting begins at 7:30 pm. Directions <chesapeakegemandmineral.org>.

19-20: Gem, Lapidary & Mineral Soc. of Mont. Co. MD annual show. Discount flier & directions on page 10.

April:

27: BMS meeting at NHSM. Topic to be announced.

Parting Shot



OK. Yeah! I'm sedimentary. So What?