



Conglomerate

April, 2011 - Volume 7, Number 4 <www.baltimoremineralsociety.org>

Baltimore Mineral Society

The Baltimore Mineral Society is a member of the Eastern Federation of Mineralogical Societies and affiliated with the American Federation of Mineralogical Societies.

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.

Meetings are held the 4th Wednesday of each month (except October, December and June) at the Cockeysville Volunteer Fire Hall beginning at 7:15 p.m.

Directions: From I-83 take the Shawan road exit 20A east toward Cockeysville, and after 0.8 miles turn right on York Road. Look for the Finch/John Deere dealer on your right and turn right into the driveway between John Deere and the Hunt Valley Animal Hospital. There is a sign for the fire company at the turn. Drive down the hill to the parking lot and park to your left at the side of the lot directly away from the entrance doors. Do not block the big doors housing emergency vehicles and do not park in the middle of the parking lot where firefighters park when they arrive to answer an alarm. Enter through the green doors and take the stairs up to the Social Room.

Upcoming Meeting: Wednesday, April 27th

from Jake Slagle

Dr. Peter Kranz, head of Dinosaur Park in Laurel, Maryland will be our guest speaker at our April meeting.

Dinosaur Park features a rare deposit of fossils from the Early Cretaceous period about 110 million years ago. The park is located in part of the Muirkirk Deposit that consists of sediments and clays that occur in a band beginning south of Washington, DC and extending to Baltimore. Paleontologists have unearthed fossilized bones of several kinds of dinosaurs, early mammals and fossils of trees and flowering plants within the deposit.

The meeting, which begins at 7:30 pm will be hosted by Al Pribula.

Rubble from the President

by Brad Grant

As I write this I truly hope we can start getting into the quarries. I have four trips lined up and I will be trying to add some more. If there is a place you would like the club to go to, please let me know and I will try to set it up.



I am working on a PowerPoint presentation for a girl scout troop on the 29th of April. The topic is going to be Rocks, Minerals and The Geology of Maryland. While that is a topic that can have an entire upper level college class devoted to it, I am going to try covering it in about 40 minutes. Hopefully, I will not set the study of mineralogy back 1500 years!!!!

If you know of any outreach opportunities to the community for our club, please let me know. Getting the word out about our hobby and our club is the only way our club will grow.

I just see that Yahoo is reporting that a new mineral was discovered on a 4.5 billion year old meteorite found in Antarctica. *Wassonite* is a sulfur titanium mineral with a crystal structure never seen before. As it currently stands I have no plans on setting up a trip to Antarctica to look for this mineral.

Brad

Baltimore Mineral Society



President: Bradley Grant
<info@baltimoremineralsociety.org>

Vice President: Jim Hooper

Secretary Carolyn Weinberger

Treasurer: Bob Hudgins

Directors:
Bernie Emery
Jake Slagle
Steve Weinberger

Editor: Mike Seeds
<mseeds@fandm.edu>
717-201-8750

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: Bob Hudgins, 6713 Balmoral Overlook, New Market, MD 21774.

Write for "The Conglomerate"! Send news, announcements, comments, observations, or articles to <mseeds@fandm.edu>. No e-mail? Hand in your submission at a meeting.

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March Meeting Minutes

by Carolyn Weinberger, Secretary

Vice President Jim Hooper called the March 23rd meeting of the Baltimore Mineral Society to order at 7:40 pm.

The minutes of the February meeting were accepted as printed in the Conglomerate. Treasurer Bob Hudgins indicated in his report that the club remains solvent. Membership cards were distributed to those present.

Unfinished Business: none

New Business:

Alice Cherbonnier volunteered to host the annual club picnic at her home on Saturday, June 18th beginning at 5 pm. As usual, the club will provide hot dogs and hamburgers. Members will be asked to bring vegetables, salads and desserts to share. More details will be forthcoming in May.

Announcements:

Members were apprised of the upcoming tentative schedule of field trips:
Churchville Quarry – April 16
Havre de Grace Quarry – April 23
Allegheny Aggregates, Flintstone MD – May 7
Valley Quarry in Gettysburg – June 4th

Jim encouraged members to submit articles to Editor Mike Seeds for the Conglomerate and to volunteer to present a future program for our meetings.

The business meeting was adjourned at 7:55 pm after which a program on new diamond mining in North America was presented by Bob Hudgins.

Quick and Colorful

by Mike Seeds

The Conglomerate is distributed by e-mail and on paper by the US post office. The club bulletin is published in full color, but printing costs prevent it being printed in color. Members who receive their newsletters by e-mail, see full color photos and graphics. Also, although the newsletters are mailed promptly, there is some unavoidable delay at the post office. Members who receive their newsletters by e-mail, see meeting and field trip announcements a few days early.

If you have e-mail and want to receive The Conglomerate promptly and in color, send your e-mail address to the editor, Mike Seeds, at <mseeds@fandm.edu>.

• Upcoming Shows:

For the latest information, check out the web site of the Eastern Federation of Mineral and Lapidary Societies: <http://www.amfed.org/efmls>.

May:

14-15: 43rd Annual World of Gems & Minerals sponsored by the Berks Mineralogical Society. Leesport Farmers Market Banquet Hall, Rt 61; Leesport, PA.

21: 22nd Annual Chesapeake Gem & Mineral Show. Ruhl Armory, Towson, MD. Hours 10 am – 4 pm.

June:

4 - Spring Mineralfest sponsored by the Pennsylvania Earth Science Association. Macungie Memorial Park, Macungie, PA.

July:

7 - 10: EFMLS / AFMS Convention and Show hosted by the Gem & Mineral Society of Syracuse. NY State Fairgrounds, Syracuse. Info at <www.amfed.org/show2011.htm>.

July 7 - AFMS Meeting

July 8 - EFMLS Meeting, 7 pm

July 9 - 10 - Show

July 9 - Awards Banquet

July 10 - Editors & Webmasters Breakfast

August:

12-14: East Coast Gem, Mineral & Fossil Show. West Springfield, MA. "Little" Tucson on the east coast!

September:

24-25: Atlantic Coast Gem & Mineral Show; Howard Co. Fairgrounds, W. Friendship, MD.

Field Trips

by Brad Grant



As this issue goes to press, four collecting trips have been organized. (E-mail recipients of The Conglomerate may find this list more timely than those who depend on USPS.) Note that you must be a paid up member of BMS to attend. Bring your membership card to all collecting trips. Some quarry managers may ask to see proof of membership.

All BMS collecting trips require full safety equipment, not only to satisfy quarry management, but also to satisfy club rules and common sense. Attendees should have hardhats, eye protection, steel toed boots, gloves, and an orange safety vest. All of these items are available at Lowes, Home Depot, etc.

April 23 - Havre de Grace Quarry

Havre de Grace, MD

8:30 am - Noon

Typical specimens include pyrite, epidote and feldspars.

April 30 - Churchville Quarry

Churchville, MD

8:30 am - Noon

Typical specimens include epidote and zeolites.

May 7 - Allegany Aggregates Quarry

Flintstone, MD

8:30 am – Noon

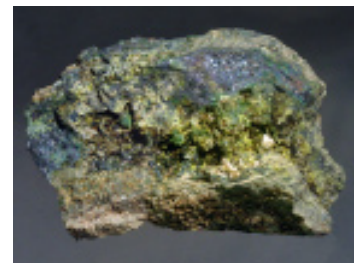
Typical Specimens include fluorite and sulphur.

June 4 – Valley Quarry

Gettysburg, PA

8:30 am – Noon.

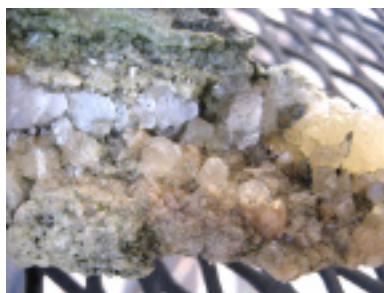
Typical specimens include epidote, bornite and zeolites.



Bornite - Cu_5FeS_4
Valley Quarry

Gettysburg, Adams Co. PA

Reserve your space by contacting Brad Grant <bseball1@yahoo.com> or by phone at 410-515-4293 no later than the Wednesday evening before each scheduled trip.



Churchville Quarry



Sulfur

Martin Mtn. Allegany Co. MD
Jake Slagle photo & specimen

• Other Local Clubs

♦ **American Fossil Federation.** Meetings are held the 2nd Sunday of alternate months (Jan., March etc.) at 10:30 am at the Bowie Community Center, Bowie, MD.
<americanfossilfederation.com>

♦ **Chesapeake Gem & Mineral Society.** Meetings are held the 2nd Friday of each month (except August) beginning at 7:30 pm at the Woman's Club of Catonsville, 10 St. Timothy's Lane. Catonsville, MD.

♦ **Gem Cutters Guild of Baltimore.** Meetings are held the 1st Tuesday of each month except January, July and August beginning at 7:30 pm at Meadow Mill at Woodberry, 3600 Clipper Mill Rd, Suite 116; Baltimore, MD 21211.
<gemcuttersguild.com>

♦ **Maryland Geological Society.** Meetings are held the 3rd Sunday of alternate months (January, March etc.) beginning at 11 am at the South Bowie Community Center.
<www.ecphora.net/mgs>

♦ **Patuxent Lapidary Guild.** Meetings are held the 3rd Monday of each month at 7 pm. at 169 Defense Highway, Annapolis, MD.
<www.patuxentlapidary.org>

38th Atlantic Micromounters Conference

by Mike Seeds

The Micomineralogists of the National Capital Area held their spring conference, April 1-3, and as in recent years they met at the Pierson Conference Center in Elkridge, Maryland just south of Baltimore. The conference was a great success with about 45 collectors working hard all weekend.

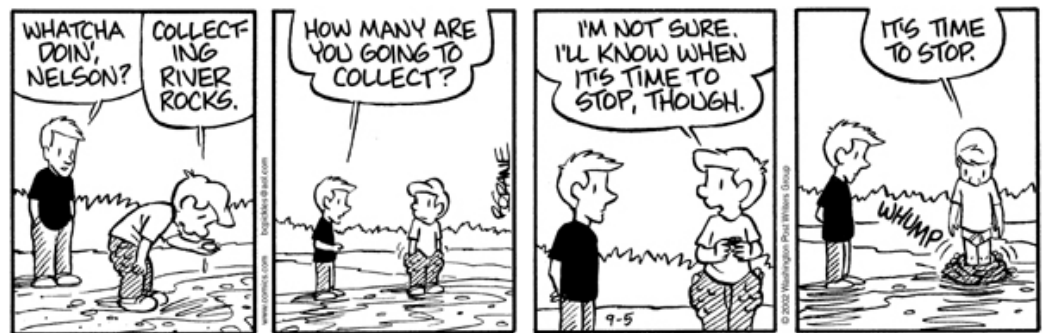


The set up team, Steve Weinberger, Eric Grundel, and Mike Seeds, worked quickly Friday afternoon moving tables, chairs and running drop cords, while Carolyn Weinberger prepared food and coffee supplies for the weekend. Attendees began arriving after supper and Jessica Simonoff gave a presentation, *Skeletal Galena Crystals from Madan Bulgaria--Natural or Fake?* Other slide shows followed plus a demonstration by Erich Grundel showing how he can take photomicrographs with a common cell phone.

Saturday began with collectors swarming around the giveaway tables and the dealer tables. Guest speaker Tom Loomis of Dakota Matrix Minerals gave a talk, *Black Hills Pegmatites and Their Minerals*, illustrated with dramatic digital slides. The afternoon auction was lively with 61 minerals on the block. The highest price paid was \$31 for a Eureka dumpite, although most went for \$3 to \$6. Four surprise items were auctioned off including a collection of 60 minerals and an historic paper donated by Jim Hurlbutt. Jim will be inducted in the Hall of Fame in October. Saturday evening, Tom Loomis gave an illustrated talk, *Phosphaestes from the Rasmussen Mine, Caribou County, Idaho*.

Sunday morning started early with more material appearing on the giveaway tables and crowds around the dealer tables. The main room was quiet with collectors studying boxes full of minerals to trade and friends catching up over coffee and doughnuts. At 10 am, Tom Loomis gave his third illustrated talk, *Deadwood Formation: Its Minerals and Mines*, illustrated with beautiful digital slides. After lunch people said good-bye and headed home as a large clean up crew ran the sweeper and took out the trash.

The next conference at the Elkridge site will be the BMS Desautels Micromount Symposium September 30 - October 2, 2011.



What is a Rare Earth Mineral?

Excerpts from Wikipedia, Edited by R. Kaptia from CentrILL Gems, February 2011

Rare earth elements or rare earth metals are a collection of seventeen chemical elements in the periodic table, specifically the fifteen lanthanoids plus scandium and yttrium.² Scandium and yttrium are considered rare earth elements since they tend to occur in the same ore deposits as the lanthanoids and exhibit similar chemical properties.

Despite their name, rare earth elements (with the exception of the radioactive promethium) are relatively plentiful in the Earth's crust, with cerium being the 25th most abundant element at 68 parts per million (similar to copper). However, because of their geochemical properties rare earth elements are typically dispersed and not often found in concentrated and economically exploitable forms known as rare earth minerals.³ It was the very scarcity of these minerals (previously called "earths") that led to the term "rare earth". The first such mineral discovered was gadolinite, a compound of cerium, yttrium, iron, silicon and other elements. This mineral was extracted from a mine in the village of Ytterby, Sweden; many of the rare earth elements bear names derived from this location.

Some Collectable Rare Earth Minerals

Allanite	Bastnasite	Thorite
Monazite	Parisite	
Sahamalite	Synchysite	

The principal sources of rare earth elements are the minerals bastnäsite, monazite, and loparite and the lateritic ion-adsorption clays. Despite their high relative abundance, rare earth minerals are more difficult to mine and extract than equivalent sources of transition metals (due in part to their similar chemical properties), making the rare earth elements relatively expensive. Their industrial use was very limited until efficient separation techniques were developed, such as ion exchange, fractional crystallization and liquid-liquid extraction during the late 1950's and early 1960's.⁶

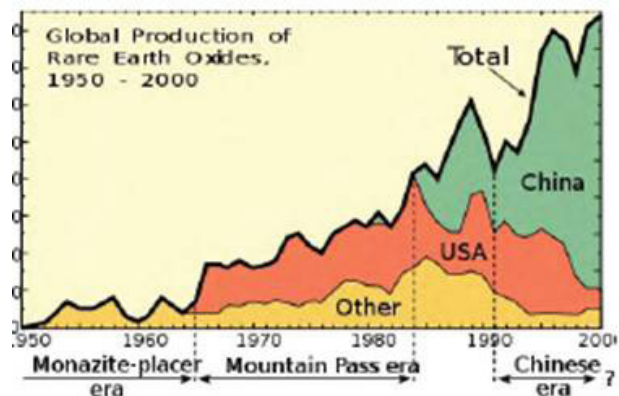
Until 1948, most of the world's rare earths were sourced from placer sand deposits in India and Brazil. Through the 1950's, South Africa took the status as the world's rare earth source, after large veins of rare earth bearing monazite were discovered there.⁸ Through the 1960s until the 1980s, the Mountain Pass rare earth mine in California was the leading producer. Today, the Indian and South African deposits still produce some rare earth concentrates,

but they are dwarfed by the scale of Chinese production. China now produces over 97% of the world's rare earth supply, mostly in Inner Mongolia,^{9,10} even though it has only 37% of proven reserves.¹¹ All of the world's heavy rare earths (such as dysprosium) come from Chinese rare earth sources. In 2010, the USGS released a study which found that the United States had 13 million metric tons of rare earth elements.¹³

New demand has recently strained supply, and there is growing concern that the world may soon face a shortage of the rare earths.¹⁴ In several years, worldwide demand is expected to exceed supply by 40,000 tons annually unless major new sources are developed.

These concerns have intensified due to the actions of China, the predominant supplier. Specifically, China has announced regulations on exports and a crackdown on smuggling. On September 1, 2009, China announced plans to reduce its export quota to 35,000 tons per year in 2010-2015, ostensibly to conserve scarce resources and protect the environment. On October 19, 2010 China Daily reported that China will "further reduce quotas for rare earth exports by 30 percent at most next year to protect the precious metals from overexploitation".¹⁸ At the end of 2010 China announced that the first round of export quotas in 2011 for rare earths would be 14,446 tons which was a 35% decrease from the previous first round of quotas in 2010.

As a result of the increased demand and tightening restrictions on exports of the metals from China, searches for alternative sources in Australia, Brazil, Canada, South Africa, Greenland, and the United States are ongoing. Mines in these countries were closed when China undercut world prices in the 1990s, and it will take a few years to restart production. One example is the Mountain Pass mine in



California, which is projected to reopen in 2011.^{10, 12} Other significant sites under development outside of China include the Nolans Project in Central Australia, the remote Hoidas Lake project in northern Canada,²² and the Mount Weld project in Australia.²³

Also under consideration for mining are sites such as Thor Lake in the Northwest Territories, various locations in Vietnam, and a site in southeast Nebraska in the US, where Quantum Rare Earth Development, a Canadian company, is currently conducting test drilling and economic feasibility studies toward opening a niobium mine. Additionally, a large deposit of rare earth minerals was recently discovered in Kvanefjeld in southern Greenland.²⁸ Pre-feasibility drilling at this site has confirmed significant quantities of black lujavrite, which contains about 1% rare earth oxides (REO).

Another recently developed source of rare earths is electronic waste and other wastes that have significant rare earth components. New advances in recycling technology have made extraction of rare earths from these materials more feasible, and recycling plants are currently operating in Japan, where there is an estimated 300,000 tons of rare earths stored in unused electronics.

Significant quantities of rare earth oxides are found in tailings accumulated from 50 years of uranium ore, shale and loparite mining at Sillamäe, Estonia.³¹

Due to the rising prices of rare earths, extraction of these oxides has become economically viable. The country currently exports around 3000 tons per year, representing around 2 percent of world production.³²

Nuclear reprocessing is another potential source of rare earth elements. Nuclear fission of uranium or plutonium produces a full range of elements, including all their isotopes. However, due to the radioactivity of many of these isotopes, it is unlikely that extracting them from the mixture can be done safely and economically.

Mining, refining and recycling of rare earths have serious environmental consequences if not properly managed. A particular hazard is mildly radioactive slurry tailings resulting from the common occurrence of thorium and uranium in rare earth element ores. Additionally, toxic acids are required during the refining process.¹¹ Improper handling of these substances can result in extensive

environmental damage. In May 2010, China announced a major, five-month crackdown on illegal mining in order to protect the environment and its resources. This campaign is expected to be concentrated in the South, where mines are commonly small, rural, and illegal operations particularly prone to release toxic wastes into the general water supply. However, even the major operation in Baotou, in Inner Mongolia, where much of the world's rare earth supply is refined, has suffered major environmental damage.¹¹

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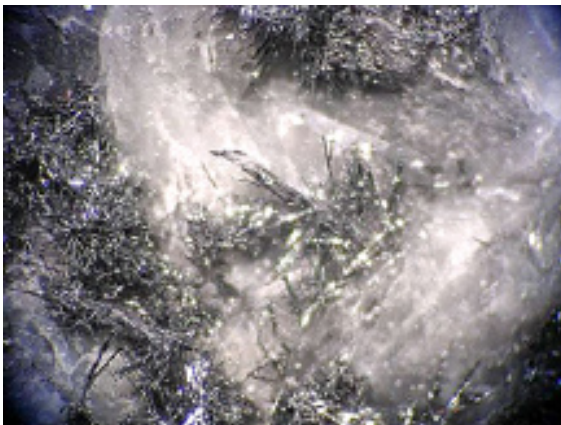
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Last night I pulled a specimen out of my shoebox and almost threw it back. It's a stibnite from the McLaughlin Mine in California, and although it almost fills a micro box, it doesn't have very big crystals on it. There are a few sprays of shiny metallic stibnite on quartz, but it isn't really dramatic. Also, there is some confusion about the location. Is it worth keeping?

The container was labeled McLaughlin Mine in Lake County, California, but that can't be right. MinDat puts the McLaughlin Mine in Napa County. At least the mine is known for stibnite, so it is probably the county identification that is wrong and not the mine.

The specimen could go in my giveaway box and someone else could deal with it, but I mounted it on a cork and put it in a box. There was nice music on the radio, and mounting a ho-hum specimen is just as much fun as mounting a glittering piece of eye candy. I made a label and added it to the collection. Why not?

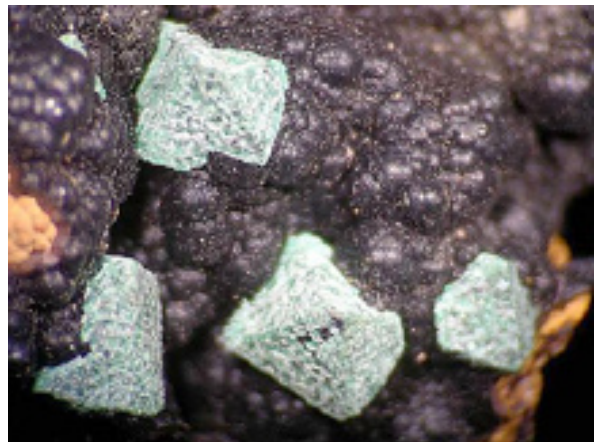


Stibnite
McLaughlin Mine, Napa Co., CA
Field of View 5mm.

There's always room for one more micromount. If you use standard micromount boxes, you can put 3009 micro boxes into one cubic foot of space. In 10 years of collecting, I've accumulated 3270 specimens, just over a cubic foot, and even with my policy of leaving a third of the space open for additional specimens, my entire collection takes up only one shelf. Plenty of room to add a specimen that isn't quite as nice as it could be. Perhaps another stibnite from the McLaughlin Mine will turn up and I'll have a specimen to compare it with.

In fact, even with all my tools, supplies, boxes of micromounts for trading, shoeboxes of material to study and mount some day, everything fits into one cabinet the size of a refrigerator. Close the doors and it even looks tidy. My 'scope and a few tools and books sit on a single table right beside the cabinet, so the entire outfit takes up about as much space as a sofa.

That's why I'm a sucker for Malachite. People who make jewelry grind off all the beautiful crystals when they work with malachite, but the material I get off of giveaway tables and through trading with other collectors is often beautiful with sprays of brilliant green needles or masses of delicate crystals like soft green moss. Add in a little azurite, or better yet some cuprite, and it's a rock that cannot be discarded. There's always room for one more.



Malachite on Cuprite Octahedra
Mex-Tex Mine, NM
Field of view 4 mm. Material from Al Pribula.

And I'm a sucker for specimens from other micromounters. I have 56 malachites, but there's always room for one more given to me by a friend. I add the friend's name to the label, and then the specimen becomes a reminder of good times. If I find a specimen mounted by a famous micromounter, there's always room, and it becomes a piece of history. It's only one 3009th of a cubic foot, so add it to the collection.

The disadvantage of putting 3009 mineral specimens into one cubic foot is display. You can't see them in a display case, and when Uncle Fred visits he can't admire your specimens in a lighted case. Perhaps most micromounters don't collect to impress Uncle Fred or other visitors.

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Rare Earth Minerals

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Shoobox Adventures

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Micromounters don't have to worry that every specimen be a knockout that will make visitors gasp. Micromounters collect for themselves. Sitting at the 'scope looking at fabulously beautiful crystals is a wonderful way to spend an evening, and if you start browsing in the Ms, you will have lots of malachite to look at.

It is possible to find a specimen that even a micromounter couldn't love. It's difficult, but it happens. After all, sometimes a rock is just a rock even under the microscope.

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