



# FRIENDS OF MINERALOGY

## Pennsylvania Chapter

# NEWSLETTER

VOL. 40 No. 2

SUMMER 2012

## President's Message

I hope everybody is enjoying the Summer! Cathy and I have just returned from a visit with our Grandson in Missouri. We took him geode-hunting, and did a little caving as well.

The Symposium is fast approaching. We have several great talks lined up. I'll be able to report to the membership- in the near future - on the topics. While on our recent vacation, I was able to obtain a rare and interesting treat. This treat was a "Cornwall Reference Collection" and it was assembled while the Cornwall Mine was still active. This will be on display at the November Symposium this year.

I also obtained several, nice Grace Mine specimens as well. Both of these collections were put together by Mining Engineer Milt Leet and Professor Art Montgomery. I think you'll enjoy seeing the collection and getting a bit of history about it. For those of you who are especially interested in Cornwall Minerals, this is a "Don't-miss."

I'm sorry to report that we have not been able to sponsor more field trips this year. Quarry after quarry has turned a deaf ear to our requests – I hope to have better news in the future. I like to collect specimens as all of you do. If anyone has a quarry contact or special quarry you think the group might like, give us the contact information, and we'll take it from there.

This past Spring, I stopped by the Rochester Symposium, and ran into several members while there. We had a good time. The talks were interesting and informative. I would recommend this symposium to anyone.

I also went to the Berks Mineral Show in Leesport, PA, this past Spring. For some reason, things were a bit slow. Several dealers and private collectors had many nice specimens for sale. You really need to put this show



on your "list of things to do" next spring. We need to support each other, and try to build that sense of camaraderie again!

The Symposium for the FM Chapter will be held again this year at F&M College in Lancaster, PA. On Saturday, November 3, doors open at 8:30 AM. We will have a Give-Away table, a Silent Auction, and a number of dealers (limited). Bring a donation for the auction, and material for the give-away table.

Pre-registration forms will be on the Chapter website in late September (<http://www.rasloto.com/FM/>). The Board will be meeting in late September to finalize Symposium plans.

'Till then - enjoy the summer!

Arnold Mogel  
President FMPA Chapter

## From the Editor

David Glick

Please distribute the enclosed Symposium flyer to those who might be interested. Contact me if you want more.

Materials related to Pennsylvania mineralogy are invited for this newsletter: articles, long or short; announcements from FM-PA committees; photographs of specimens, field localities, collections, etc.; reports about books or articles published about PA minerals or by PA authors, or actual book reviews; or other items within the mineralogy and mineral collecting areas of interest. Photographs should be of good resolution (1000 pixels across) without much JPEG compression, so that they will look good in print. We are producing four issues each year; your material is needed to make sure they have some substance. If you know people who have interesting material, please encourage them to submit it.

**Please provide materials for the next issue by September 20, 2012.** That will be the last issue before the Symposium. The following deadline will be November 10, for the issue reporting on the Symposium and requesting dues payments by December 15. Feel free to contact me at [xidg@verizon.net](mailto:xidg@verizon.net), or 814-237-1094 days and evenings. Thank you!

## The Man Who Found Time

book review by Doug Klieger

*The Man Who Found Time* by Jack Repcheck, (W. W. Norton, 2003): This is a book that every rock enthusiast would enjoy. It is a biography of James Hutton, the eighteenth century Scottish scientist who established that the earth was “unknowably old,” and not 6000 years old as avowed by Biblical scholars of the day. Hutton first presented his discoveries in 1785, in a paper presented to the Royal Society of Edinburgh. Various papers and a book followed to no avail. In essence, Hutton argued that the earth came to be as it is through a very slow process of erosion, sedimentation, subsidence, rock formation, and uplifting. He correctly surmised that internal heat fueled the process. Only close friends and fellow members of the Scottish Enlightenment agreed with Hutton.

The opposition was of course the geological establishment of the day, men who believed that the earth as they knew it was formed by a half-dozen catastrophes

(the great flood being one). However, the book was read by Charles Lyell, the founder of modern geology. In 1830 Lyell published *The Principles of Geology*, in which, among many other ideas, he agreed with and presented new evidence for Hutton’s view. Interestingly, Charles Darwin read Lyell’s book during his voyage on the Beagle, and it is generally agreed that Lyell’s ideas influenced Darwin in his eventual presentation of the theory of natural selection.

*The Man Who Found Time* is also an excellent exposition of the Scottish Enlightenment and worth a read for this alone. The book reads easily and quickly without jargon. Hutton’s discovery of deep time prompts the author to place Hutton’s importance alongside that of Copernicus, Galileo, and Darwin. Read it and enjoy it.



Dickite on Quartz, from St. Clair, Schuylkill County, Pennsylvania. The quartz is a "fin" of crystals attached to the rock it came from at one small point; 11.75 x 7 x 9cm (w-d-h). From the collection of and photographed by John Passaneau.



## SLAG MINERALS FROM HOPEWELL FURNACE NEW TO PENNSYLVANIA

by Ron Sloto

Hopewell Furnace, located in Berks County, was a cold-blast, charcoal iron furnace that operated for 113 years (1771 to 1883). Iron ore smelted at Hopewell Furnace was obtained from the Hopewell and Jones mines and contained elevated concentrations of trace metals. The iron ore contained abundant magnetite and accessory sulfide minerals enriched in arsenic, cobalt, copper, and other metals. Ore, slag, cast iron furnace products, soil, groundwater, stream base flow, streambed sediment, and benthic macroinvertebrates were sampled by the Exton, Pa. office of the U.S. Geological Survey to determine the distribution of trace metals released to the environment from the historical iron smelter at Hopewell Furnace National Historic Site (Sloto and Reif, 2011).

A complimentary study conducted by the U.S. Geological Survey Reston, Va. office focused on the chemistry and mineralogy of the furnace slags (Piatak and Seal, 2012). The mineralogy of the slag was studied by optical microscopy, powder X-ray diffraction (XRD), scanning electron microscopy (SEM), and electron microprobe analysis (EMPA). The study identified several minerals in the slag not described before from Pennsylvania. They include:

Albandite  $\text{MnS}$   
Cristobalite  $\text{SiO}_2$   
Ferropseudobrookite  $(\text{FeTi}_2\text{O}_5)$   
Magnesioferrite (?)  $(\text{Mg}_{0.8}\text{Mn}_{0.1}\text{Fe}_{0.1})(\text{Fe}_{1.9}\text{Al}_{0.1})\text{O}$   
Melilite group  $(\text{Ca},\text{Na})_2(\text{Mg}, \text{Fe}^{2+}, \text{Al}, \text{Si})_3\text{O}_7$   
Monticellite  
Mullite  $\text{Al}_6\text{Si}_2\text{O}_{13}$   
Oldhamite  $\text{CaS}$

These minerals were formed in the high temperatures of the furnace, which commonly exceeded 1500 °C. Cristobalite, for example, is the high temperature polymorph of quartz that forms at temperatures above 1470 °C.

### References

Piatak, N. M., and Seal, R. R., 2012, Mineralogy and environmental geochemistry of historical iron slag, Hopewell Furnace National Historic Site, Pennsylvania, USA: Applied



Hopewell Furnace building (restored) and grounds, photographed 17 October 2010 by Scott D. Welch Sdwelch1031, used under license: <http://creativecommons.org/licenses/by/3.0/deed.en>. For more on Hopewell Furnace, see <http://www.nps.gov/hofu/index.htm> and [http://en.wikipedia.org/wiki/Hopewell\\_Furnace\\_National\\_Historic\\_Site](http://en.wikipedia.org/wiki/Hopewell_Furnace_National_Historic_Site)

Geochemistry, v. 20, p. 623-643, available online at [http://rasloto.com/FM/digibooks/Piatak&Seal\\_2012.pdf](http://rasloto.com/FM/digibooks/Piatak&Seal_2012.pdf)

Sloto, R.A., and Reif, A.G., 2011, Distribution of trace metals at Hopewell Furnace National Historic Site, Berks and Chester Counties, Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2011-5014, 79 p., available online at <http://pubs.usgs.gov/sir/2011/5014/pdf/sir2011-5014.pdf>

## Recently in PA Geology Magazine

The Pennsylvania Geologic Survey's magazine, Pennsylvania Geology, went online-only in 2009 and is available as a PDF file from their web site at <http://www.dcnr.state.pa.us/topogeo/pub/pageolmag/magindex.aspx>

The first issue of 2012 (volume 42, number 1) is now available. Articles are presented in memory of two recently deceased Survey geologists, Thomas A. McElroy (1949-2012) and John H. Way (1943 - 2012). Another article covers the life of Dean B. McLaughlin (1901- 1965), an astronomy professor who conducted geologic mapping for the Survey, particularly of Triassic rocks, during summers.

The new (2011) edition of the Directory of Nonfuel-Mineral Producers in Pennsylvania is introduced; it is available either as a PDF file or on a mapping application through the web browser on a computer. The history of the series of Directories is recounted, and several examples of using the on-line application are illustrated.

- Editor

## UPCOMING EVENTS

**Sept 14-16, 2012:** Eastern Federation of Mineralogical and Lapidary Societies **Convention** (starts Friday Sept. 14), and Central Pennsylvania Rock and Mineral Club **Annual Show** (Sat-Sun, Sept. 15-16 at the Zembo Shrine), Harrisburg.

**Including** - on **Friday** Sept 14 - a reception honoring Frank M. Masters, Jr., 2:00 p.m. at the Masters Mineral Gallery at Elizabethtown College, Elizabethtown, PA. You will be treated to a display of world-class specimens, including a dazzling fluorescent display, donated by civil engineer, mineral collector, and philanthropist, Frank Masters. Bus leaves the Radisson Penn-Harris (Camp Hill) at 1:30, returning at 4:00.

**Saturday** 2:00 p.m.: EFMLS Endowment Fund **Auction** at the Zembo.

**Saturday** evening: the Special Guest Speaker after the banquet dinner will be **Robert Beard**, Professional Geologist and Senior Contributing Editor of Rock & Gem Magazine. He is the author of soon to be released "Rockhounding Pennsylvania and New Jersey," published by Globe-Pequot Press.

### Convention Information

<http://www.amfed.org/efmls/conventioninformationhbg2012.pdf>

**Forms** <http://www.amfed.org/efmls/conventionp.htm>

### Show Information & vendor list:

<http://www.rockandmineral.org/annualshow.htm>

**October 6, 2012:** Autumn Minerafest by Pennsylvania Earth Sciences Association. Macungie Memorial Park, Macungie, PA. Saturday only 8:30 - 3:00.  
[www.minerafest.com](http://www.minerafest.com)

**October 27, 2012:** South Penn Rock Swap - AUTUMN SWAP by Franklin County & Central PA Rock and Mineral Clubs. South Mountain Fairgrounds, 1.5 miles west of Arendtsville, PA on Route 234. Sat only, 8 a.m. to 3 p.m.

**Nov 3-4, 2012:** FM-PA Symposium & Field Trip, Franklin & Marshall College, Lancaster, PA. ✱

## FM on the WWW

Please explore the FM-PA web site at  
[www.rasloto.com/FM/](http://www.rasloto.com/FM/)

## National News

National FM newsletters, links to other chapters, and much more can be found on their web site:

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

## DONATIONS WELCOMED

The PA Chapter is a 501(c)(3) nonprofit organization; donations are gratefully accepted and may be deducted from your federal income tax. Donations of any size help to offset the general operating costs of the Society, helping to keep dues low.

## Friends of Mineralogy Pennsylvania Chapter Directory of Officers

### OFFICERS and BOARD OF DIRECTORS members

President	Arnold Mogel	Pioche@Verizon.net	(570) 739-4034
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Field Trip Chair			
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Friends of Mineralogy Pennsylvania Chapter Web Site:

<http://www.rasloto.com/FM>



## **FRIENDS OF MINERALOGY - Pennsylvania Chapter SYMPOSIUM & FIELD TRIP November 3-4, 2012 Lancaster, PA**

**Symposium** for mineral enthusiasts on **Saturday Nov. 3**

Doors open at 8:30 a.m.

Talks by Expert Speakers on **Pennsylvania Mineralogy and Geology**

Sales by Select Dealers - Silent Auction – Give-away Table

Hackman Physical Sciences Bld. (parking lot off Harrisburg Pike), Franklin & Marshall College, Lancaster, PA

Registration (form on web site): Current members \$ 5.00 non members \$ 20.00

Professional Geologists: continuing ed. credits available

**Field Trip** Location to be announced. **Sunday Nov. 4** Open only to symposium registrants.

Watch our web site for details, registration form, changes and updates: **[www.rasloto.com/FM](http://www.rasloto.com/FM)**



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