

Nittany Mineralogical Society Bulletin

Nittany Mineralogical Society, Inc.

P.O. Box 10664

State College PA 16805

Editor (see page 8):

David C. Glick

January, 2013

Visit our web site: www.nittanymineral.org

January 16th meeting:

Penn State facilities policies require that those attending our meeting on campus MUST BE 18 OR OVER.

The Mystery of the Audible Earthquakes near Moodus, Connecticut, along the Eastford Fault and Lineament

by Dr. Robert Altamura

Our January meeting will be held Wednesday the 16th in the room 114 auditorium of Earth & Engineering Sciences Building on the west side of the Penn State campus in State College, PA. Maps are available through our web site.

6:30 to 7:30 p.m.: Social hour, refreshments in the lobby

7:30 to 8:00 p.m.: announcements, questions, answers; door prize drawings

about 8:00 p.m.: featured program

*The event has free admission, free parking, and free refreshments, and is open to all adults – **Bring your friends and share an interesting evening.***

This presentation will report the results of an investigation by the author and his research group of the source of reoccurring earthquakes near the small village of Moodus, Connecticut (Figure 1 on page 4), as part of a search for recent and potentially active faults beneath the extensive glacial deposits of southern New England. The rocky hills near Moodus historically are known for loud noises and tremors intermittently heard and felt. Archaeological evidence indicates a concentration of ancient Indian sites in this area, suggesting that the Moodus area held special significance for native peoples. Tribes such as the Wangunk and Mohegan frequented the area for social and religious gatherings, and referred to it as Machemoodus, “the place of many noises.” Colonists who settled the area occasionally heard noises emanating from Mount Tom near the confluence of the Connecticut and Salmon Rivers. A second site, frequently mentioned as the source for the sounds, is Cave Hill (Figure 2 on page 4), approximately a mile NNE from Mount Tom. The cave’s shape is similar to the bell of a trumpet. In the cave, seismic vibrations in the rock are imparted to the air and amplified. A precise set of physical conditions must be met for this to happen.

Continued with illustrations on page 4

ATTENDING THE JANUARY MEETING?

Donations of labeled **door prize specimens** are invited.

Your donated snacks and drinks will be welcomed.

Bring a friend!

No Junior Rockhounds Meeting in January

**** Please Tell Your Friends ****

We regret that there will be no Juniors meeting in January. We are in the middle of making changes because of new rules concerning kids at non-Penn State events on campus. Most of the discussion took place one day before this Bulletin needs to be mailed, and we haven’t had time to catch up. Please tell your friends that there is no meeting.

We will be working toward starting Juniors meetings again in February, probably continuing the third-Wednesday at 5:00 p.m. schedule. Please watch our web site <http://www.nittanymineral.org> and the February issue of this Bulletin for news.

- Editor

Academy of Natural Sciences of Drexel U. Philadelphia Museum Visit & Tour Set for Thursday, January 31 Please Sign Up by Jan. 23

NMS members have been invited to tour the collections of the Academy of Natural Sciences of Drexel University, formerly the Philadelphia Academy of Natural Sciences. The big attraction is a behind-the-scenes visit to the mineral collections, hosted by Dr. Ted Daeschler of the museum. We have set the date for Thursday, January 31, with a “snow date” of Thursday, February 7.

Please **sign up** by 7:00 p.m. Wed. January 23: phone Dave Glick at 814-237-1094 (leave a message with name & number of participants) or e-mail xidg@verizon.net

We’ll rent or borrow a vehicle for the group, and expect transportation costs to be \$30 per person or less, hopefully quite a bit less, depending on the size of vehicle we need for the number who participate. That does not include museum admission (\$15 each or less depending on discount for students, seniors 65+, AAA, or \$10 if we have a group of 10) or meals.

The schedule depends a bit on what vehicle we take, but we expect to leave State College between 7:30 and 8:15 a.m. The museum has a café where participants can have lunch, and we can see some of the public part of the museum before the behind-the-scenes tour starting at 1:00. Unless we have a quite small group, we’ll split into two groups for that tour, 1-2 and 2-3 p.m., and leave by 3:30 p.m.

There is a limit of 15 people because of both vehicle and tour size limits. See <http://www.ansp.org/visit/plan/> for museum café, admission, etc. We do realize that we might have had more participation on a weekend, but the behind-the-scenes tour has to be on a weekday.

- Editor

Wildacres Spring Classes April 8 - 14, 2013 Speaker-in-Residence: Bob Jones

Class & Instructor	Description
Beading/Peyote Pendant Mia Schulman	Welcome to the world of weaving. Students will use a needle, beading thread and tiny Delica beads to create a stylish beaded pendant. Depending on the beads, they can be informal enough to wear on T-shirts, sweaters, or dressy enough to wear for any occasion. 2-day class offered first semester. No prior experience necessary.
Beading/Kumihimo Mia Schulman	What's that? It is a Japanese braiding technique. Using a special braiding board, students will learn how to create a "rope" that can be used instead of chains for some necklaces as well as how to include beads in your braiding to make an attractive necklace. 2-day class offered second semester. No prior experience necessary.
Cabochons – Basic Bernie Emery	Learn to transform a piece of rock into a shiny, well-formed cabochon. You will learn the use of the trim saw as well as basics of grinding, sanding and polishing. Slabs are provided or students may use their own with approval of the instructor. Please bring an apron and safety glasses. 2-day class offered first semester. No prior experience necessary.
Cabochons - Intermediate Bernie Emery	Learn to cut different shapes and the techniques needed to do so. Please bring an apron and safety glasses. Slabs are provided or students may use their own with approval of the instructor. Please bring an apron and safety glasses. Prerequisite: Students must have prior experience with capping and use of the trim saw. 2-day class offered second semester.
Faceting B. Jay Bowman	Students will learn to cut and polish a 57-facet round brilliant gemstone. In addition, they will learn how to identify well-cut stones, select rough material and see whether or not they enjoy this fascinating aspect of the hobby. Students are asked to bring an Optivisor (#7 or #9) and an apron. 4-day class. No prior experience necessary.
Geology I Rob Robinson	A basic introduction to rocks and minerals and the study of the earth. The class will include a discussion and class activity about how geologists interpret rocks to tell geologic history related to their formation, deformation and sequence and timing of events. Weather permitting there will be a field trip to local rock exposures to illustrate local rock types, their deformation types, and how a geologist maps and interprets structures (only limited walking is required.) Please bring a loupe or other magnification, hiking boots or sturdy shoes and outdoor clothes for the half-day field trips. Geologic hammer and safety glasses are also desirable. (Do not bring a nail hammer – they are unsafe to hit rocks.) 2-day class offered first semester. No prior experience necessary.
Geology II Rob Robinson	An overview of plate tectonics, geologic history, and the geology of the Blue Ridge region and its minerals. We will discuss the geologic environments hosting mineral and gem collecting sites. Come prepared to identify some of your favorite collecting localities to be part of this exercise. Weather permitting there will be a field trip to the Blue Ridge Museum showing local rocks and geologic history and another to see local geology. (A one-mile walk over gentle trails is required for the geology trip.) Some knowledge of basic geology preferred. Please refer to Geology I for suggested tools, clothing and magnification. 2-day class offered second semester.
Photographing Small Mineral Specimens Bruce Gaber	Students will learn to set-up, light and photograph small mineral specimens to show off their Mineral Specimens beauty. 2-day class offered first semester. No prior experience necessary.
Photographing Gems and Jewelry Bruce Gaber	Students will learn to set-up, light and photograph gemstones and jewelry to show off their beauty. And Jewelry 2-day class offered second semester. No prior experience necessary.
Best of Polymer Projects I Barbara McGuire	Join artist and author Barbara in a dynamic introduction to polymer clay while creating fabulous jewelry projects. There is no experience necessary and you'll discover that polymer is easy and extremely fun, especially for the inquisitive mind. Session one starts from the very beginning with beads, cabochons and pendants – that you'll be wearing home. All supplies, hand outs and tools included. You don't need to bring a thing. Materials will be available for completing multiple projects. 2-day class offered first semester. No prior experience necessary.
Best of Polymer Projects II Barbara McGuire	Easy gone wild! - Polymer is like a surprise box that YOU get to open. Barbara has chosen these no-fail, best of the bunch 'It' projects to guide you in making earrings, brooches and surface design (polymer fabric) for use in nearly any jewelry application. A great class for building components to compliment your lapidary design skills. All supplies, hand outs and tools included. Just bring yourself. Additional materials will be available for completing multiple projects. 2-day class offered second semester.
Silversmithing - Basic Richard Meszler	Have fun learning the basics of working silver sheet and wire to fabricate jewelry. The projects will introduce you to annealing and bending/shaping/texturing metal, soldering, piercing and polishing. 2-day class offered 1st semester. No prior experience necessary.
Silversmithing –Intermediate Richard Meszler	Continue your education working with metals by doing a more complex project. You will learn to make a bezel and bail in which you will set a cabochon to make a pendant. Prerequisite: Basic silversmithing experience including soldering. 2-day class offered 2nd semester.

Soapstone Carving Sandy Cline	This class will provide a general to the carving of soapstone. You will develop a working knowledge of the materials, tools, safe handling issues and the methods used to complete a carving. You will produce a simple piece and progress to making a more advanced sculpture of your choice. The development of your own personal style will be encouraged. 2-day class offered both semesters. No prior experience needed.
Wirewrapped Jewelry – Basic Jan Stephens	Students will learn the fundamentals of wire art jewelry. Students will create bracelets, rings and pendants of wire and incorporate natural stones, beads and/or faceted gems into various simple, yet elegant designs.
Wirewrapped Jewelry – Basic Plus Jan Stephens	Students will progress to somewhat more advanced, but still fairly easy to master wire jewelry techniques with additional rings, pendants and bracelets. Prerequisite: Basic wirewrapping skills. 2-day class offered 2nd semester.

EFMLS Workshops at Wildacres for 2013

by Steve Weinberger

from EFMLS News, v. 50 No. 3, January 2013



Have we got a lineup for you for the 2013 EFMLS Workshops at Wildacres!

For spring, Director Fran Sick has "hired" nine phenomenal instructors who will be teaching a wide variety of classes during our week-long workshop. Offerings include our core classes – cabbing, faceting and silversmithing, as well as many of our rotating ones -- beading, wire- wrapping, photography, soapstone carving, geology, and polymer clay.

In addition, the icing on the cake for spring is the return of the ever-popular Bob Jones (accompanied by his lovely wife Carol), who will enthrall us with six of his fabulous talks.

In fall, Fran has lined up eight instructors who also will present us with the opportunity of taking a variety of classes -- cabbing, faceting, intarsia, beading, metalsmithing, scrimshaw, silversmithing and stained glass.

As we go to press, Speaker Coordinator Bruce Gaber is still waiting to get a final confirmation from our fall Speaker-in-Residence, but we can assure you that you'll not be disappointed.

Registration begins on January 1 and we've included a form in this [EFMLS News] issue on page 12. We've also included a complete listing of the classes being offered for both sessions starting on page 6.

Not yet been to an EFMLS Wildacres Workshop? What are you waiting for???? The workshops are held in a retreat nestled on a private mountain just off the Blue Ridge Parkway an hour north of Asheville, NC. Lodging is in modern rooms with private bath and all meals are provided with your tuition of \$380 per person. The only extra expense you have during the week is a materials fee for the class or classes you take and our instructors are asked to keep these as low as possible.

In addition to the talks given by our Speaker-in-Residence, the workshop also includes activities such as an auction, tail gate, an activity day where you can go off campus to participate on a field trip or explore the area, a show and tell session and a rousing fun night.

Don't get the idea that the week is a constant non-stop hive of activity. We also schedule in time for resting and socializing and most evening activities end by 9 or 9:30 pm.

Want more information? Visit the EFMLS Wildacres Workshop web site <www.amfed.org/efmls>; then click on "Wildacres". If it's not already updated, the 2013 information will be there soon.

We look forward to seeing / meeting you at one or both of our EFMLS Workshops at Wildacres this year.

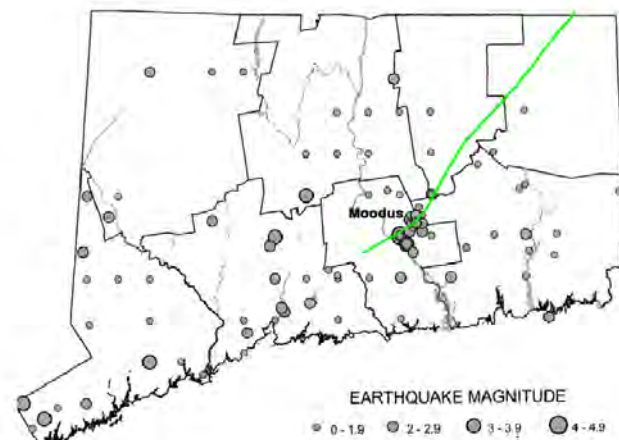
Audible Earthquakes/ Connecticut *Continued from p. 1*

Figure 1. Map showing 137 earthquake epicenters in Connecticut since 1678 with the Eastford lineament superimposed (modified from de Boer, 2009).



Figure 2. Rock cave on Cave Hill near Moodus where seismic vibrations are felt and heard.

Mapping of faults in southern New England is hampered by extensive and relatively thick (~10 feet) glacial deposits that cover approximately 95% of the bedrock. In an effort to see through the haze of the glacial cover we used an integration of the study of topographic maps and Light Detection And Ranging (LiDAR) imagery, geological field mapping, geochemical and geophysical data to identify a 125-km long regional brittle structure in eastern Connecticut and south-central Massachusetts. We have named it the Eastford lineament based on its coincidence with the 50-km-long Eastford fault in northeastern Connecticut. Close examination of LiDAR imagery and topographic maps suggests that the Eastford fault continues southwestward to the Moodus area and beyond, to where it coincides with a previously mapped 7-km long fault.

Comparison of bore-hole geophysical and geochemical data from a 1.5-km-deep research drill hole close to the lineament with seismic data of a nearby 1987 earthquake swarm suggest that the Moodus segment of the Eastford lineament is the surface expression of a

fault that intersects the bore hole. At a depth of 400 meters, the well intersects the fault and a considerable increase in the density of fractures occurs. In addition, elevated uranium and heat flow measurements at this same depth are consistent with a zone of permeability.

The Moodus area is within the Middletown Pegmatite District, one of three major commercial districts in the east coast states. The Middletown Pegmatite District was active from 1825 to 1991. Many quarries were opened and numerous rare-metal pegmatites were exposed. Feldspar, muscovite (isinglass) and beryl were sought commercially but many rare-metal minerals of interest to geologists and collectors also occur (Figure 3a-3g). The elevated uranium measurements at 400 meters in the borehole might be due to uranium minerals in the rare-metal pegmatites. The Eastford lineament cuts through the heart of the pegmatite district.



Figure 3a. Tourmaline (rubellite) from the Gillette Quarry, Haddam Neck, CT.



Figure 3b. Beryl (aquamarine) from the Hale-Walker Quarry, Portland, CT.



Figure 3c. Tourmaline (verdelite) from the Gillette Quarry, Haddam Neck, CT.



Figure 3f. Torbernite, a copper uranium phosphate, is the green mineral appearing here as a layer on a fracture surface in pegmatite (also note mica at top and smoky quartz at bottom center) from the Hale Quarry, Portland, CT.



Figure 3d. Feldspar and quartz aplite from the Hale Quarry, Portland, CT



Figure 3g. Uraninite, Trebilcock Pit, Topsham, Maine, 2.4 cm across. Uraninite crystals also occur at Hale Quarry, Portland, CT. Photo by Rob Lavinsky, iRocks.com – CC-BY-SA-3.0

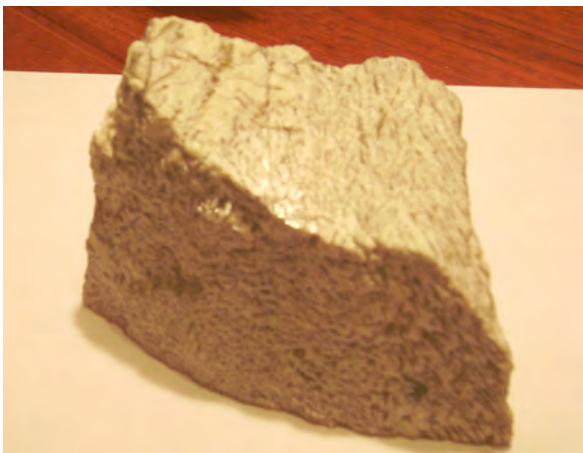


Figure 3e. Feldspar and quartz (Graphic Granite) from the Hale Quarry, Portland, CT

Seismic-refraction profile data that we acquired across the Moodus segment of the lineament revealed steep, NW-dipping faults along the lineament's trace, confirming our hypothesis that the Moodus segment of the Eastford lineament is the surface expression of a fault, and that it is a likely source of the 1987 Moodus earthquakes.

We consider that the alignment of individual collinear LiDAR-linears and mapped fault segments comprising the 125-km length of the Eastford lineament is not coincidental and represents a composite late-stage regional brittle structure that traverses the eastern highlands of southern New England, and near Moodus the structure is active.

References:

Alexander, S.S., Marple, R., and Altamura, R.J., 2012, Seismic investigations of the Eastford lineament and its relationship to recent Moodus CT earthquake activity and older faulting. Geological Society of America Abstracts with Programs (Hartford, CT meeting), vol. 44, no. 2, p. 62.

Altamura, R.J., Marple, R., Alexander, S.S., and Hurd, J., 2012, The Eastford lineament – evidence for a late-stage regional fracture zone in eastern Connecticut and south-central Massachusetts: implications for the Moodus Area Seismicity. Geological Society of America Abstracts with Programs (Hartford, CT meeting), vol. 44, no. 2, p. 61.

de Boer, J.Z., 2009, Stories in stone: how geology influenced Connecticut history. Wesleyan University Press, Middletown, CT, 206 p.

Marple, R.T., Altamura, R.J., Alexander, S.S., and Hurd, J.D., 2013 (in press), Evidence for post-Triassic brittle faults in eastern Connecticut and south-central Massachusetts using LiDAR, geomorphic, and geophysical data combined with field observations: Implications for the origin of the Moodus area seismicity, in Cox, R.T., Tuttle, M.P., Boyd, O.S., and Locat, J., eds., Recent Advances in North American Paleoseismology and Neotectonics East of the Rockies. Geological Soc. of America Special Paper 493, p.51-88, doi:10.1130/2012.2493(04).

NEWS FROM THE FEDERATIONS

Nittany Mineralogical Society, Inc., is a member of EFMLS, the Eastern Federation of Mineralogical and Lapidary Societies, and therefore an affiliate of AFMS, the American Federation of Mineralogical Societies. We present brief summaries here in order to encourage readers to see the entire newsletters.

The **EFMLS Newsletter** is available through the link on our web site www.nittanymineral.org or remind Dave Glick to bring a printed copy to a meeting for you to see. The January issue starts with a description of the EFMLS Wildacres Workshops for 2013: nine instructors in spring, eight in fall, Bob Jones to present six talks in the spring session and another great speaker-in-residence being arranged for fall; auction, tailgate, activity day, show and tell, and lots of sharing and socializing. Registration began on January 1 (a form and class listings are in that newsletter). President Cheryl Neary continues the discussion of how clubs might increase membership. The Safety column addresses how our activities during collecting, etc., affect those near us - how My-Space affects Your-Space. Contributors to the Eastern Foundation Fund are listed; two of the three are Pennsylvania clubs. The AFMS Club Rockhound of the Year award is discussed; Central Pennsylvania Rock and Mineral Club (Harrisburg) recognized Maxine and Jim Nicholas as the Club Rockhounds.

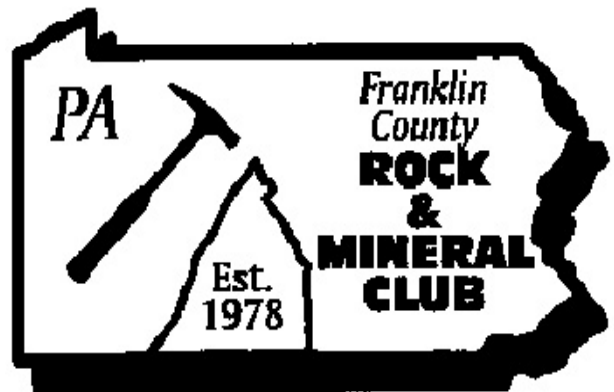
The **AFMS Newsletter** is available by the same methods. The December/January issue opens with a juniors activities article, with mention of new badges in the Future Rockhounds program including one for studying "Special Effects" (magnetism, double refraction, fluorescence, triboluminescence, and more); there is also a poster contest. President Don Monroe urges us to help those who lost collections and equipment in Superstorm Sandy. Many results are announced or procedures described for annual federation programs: Club Rockhound of the Year, Endowment Fund Drawing donations requested and tickets being sold; all American Club Yearbooks; and ALAA clean-up on public lands near Quartzsite, Arizona.

Please see the web sites for the complete Newsletters. There's a lot there!
- Editor

Geo-Sudoku by David Glick

This puzzle contains the letters ABDEIKLQU, and one row or column includes the unusual characteristic of earthquakes near Moodus, Connecticut. Each block of 9 squares, each row, and each column must contain each of the nine letters exactly once. The solution is on page 8.

	Q	E			D	B		
			Q	U				
		D		B		E		
	B							D
		K	D				A	
I					B	Q	E	U
				L	A	U	Q	
U			B	Q				A
		Q	U	D		L		E



35th Annual Gem- Mineral & Jewelry Show

**Jewelry - Gemstones - Minerals
Fossils - Displays - Door Prizes**

**Hamilton Heights Elementary School
1589 Johnson Road
Chambersburg, PA**

Directions: Exit 16 off Interstate 81 at Route 30 West. Travel through Chambersburg 2.2 miles to traffic signal at Sollenberger Rd. Turn right on Sollenberger Rd and go 1.0 mile to Johnson Rd on right. The school is .3 mile on the left.

March 23 & 24, 2013

Saturday 10 am- 5 pm Sunday 10 am- 4 pm

Admission \$4.00

Children under 12 free with adult



Rutgers Geology Museum

45th Annual Open House



SATURDAY, JANUARY 26, 2013

PRESENTATIONS IN SCOTT HALL ROOM 123

<p>10:00 am to 11:00 am Searching for Uranium Reducing Microorganisms at a Dept. of Energy Legacy Site <i>Presented by Dr. Lee Kerkhof</i> Rutgers University Institute of Marine and Coastal Sciences and School of Environmental and Biological Sciences</p>	<p>1:30 pm to 2:30 pm Dissecting Giant Earthquakes: Things We Didn't Know... <i>Presented by Dr. Miaki Ishi</i> Harvard University Department of Earth and Planetary Sciences</p>
<p>11:30 am to 12:30 pm Field to Studio: The Artwork of Mark A. Klinger <i>Presented by Mark A. Klinger</i> Scientific Illustrator at Carnegie Museum of Natural History, Pittsburgh, PA</p>	<p>3:00 pm to 4:00 pm Sandy Comes to the Jersey Shore: Past, Present, and Future <i>Presented by Dr. Kenneth Miller</i> Rutgers University Department of Earth and Planetary Sciences</p>

Mineral Sale - Scott Hall Room 135 from 9:00 am to 4:00 pm

- Rock and mineral identification – Scott Hall Room 203 from 11:00am to 2:00 pm
- Make and take stations for kids (all ages) - Geology Museum from 11:00 am to 3:00 pm

Hands-on activity sessions for kids (ages 8+) Scott Hall

11:00 am - 12:00 pm	Room 204	Outbreak
	Room 206	Drilling into Science: Oil Exploration
	Room 207	One Fish, Two Fish: Marine Ecology Expedition
2:00 pm - 3:00 pm	Room 204	Outbreak
	Room 205	Volcanoes!
	Room 207	One Fish, Two Fish: Marine Ecology Expedition
3:00 pm - 4:00 pm	Room 204	Outbreak
	Room 205	Volcanoes!
	Room 206	Drilling into Science: Oil Exploration



Educators who attend Museum presentations can receive credit toward their professional development requirements. The Geology Museum is registered as a provider with the NJ Department of Education

Check out our website at <http://geologymuseum.rutgers.edu>

C.A.R.T Captioning Services will be available for all RUGM lectures. Contact the museum at 848-932-7243 or at museum@rci.rutgers.edu for more information about the event.

Some Upcoming Shows and Meetings

Our web site <http://www.nittanymineral.org> has links to more complete lists and details on mineral shows and meetings around the country.

Jan. 26, 2013: Rutgers Geology Open House, see page 7.

March 2-3, 2013: 50th Annual Gem, Mineral & Fossil Show, "All That Glitters Is As Gold," by Delaware Mineralogical Soc., Del. Tech. & Comm. Coll., Stanton, Del. <http://www.delminsociety.net/marchshow.htm>

March 23-24, 2013: Gem, Mineral & Jewelry Show by Franklin Cty Rock & Mineral Club, Chambersburg, PA. See p. 6.

March 23-24, 2013: Rock & Mineral Show by Che-Hanna Rock & Mineral Club, Athens Township Volunteer Fire Hall, 211 Herrick Ave., Sayre, PA. <http://www.chehannarocks.com/show.html>

March 23-24, 2013: Western Massachusetts Mineral, Jewelry & Fossil Show by Connecticut Valley Mineral Club. **New Location:** Clarion Hotel & Conference Center, 1 Atwood Dr., Northampton, Mass. Sat. 9:30-5, Sun. 10-4. <http://www.westernmassmineralshow.com/>

April 6-7, 2013: Philadelphia Mineral Treasures and Fossil Fair, by Philadelphia Mineralogical Society and Delaware Valley Paleontological Society, Lulu Temple, 5140 Butler Pike, Plymouth Meeting, PA. <http://www.philamineralsociety.org/> <http://dvps.essentrix.net/>

April 18-21, 2013: Rochester Mineralogical Symposium <http://www.rasnny.org/MinSymposium/MineralSymp.htmciety.org/>

May 11, 2013: South Penn Spring Rock Swap, by Central PA and Franklin County R&M Clubs; South Mountain Fairgrounds, 1.5 miles West of Arendtsville, PA on Rte. 234.

May 18-19, 2013: World of Gems and Minerals - Jewelry, Bead, Mineral and Fossil Show, by Berks Mineralogical Society. Leesport Farmer's Market, Route 61, Leesport, PA. <http://www.berksmineralsociety.org/>

June 1, 2013: Spring Mineralfest by Pennsylvania Earth Sciences Association. Macungie Mem. Park, Macungie, PA. Saturday only 8:30 - 3:00. www.mineralfest.com

June 1-2, 2013, Eastern Federation of Mineralogical & Lapidary Societies Convention, and Suffolk Gem and Mineral Club Ann. Show, Plainview, New York. EFMLS Meeting May 31.

Sept 14-15, 2013: CPRMC Show, Harrisburg

Sept. 20-22, 2013: American Federation and Southeast Federation Conventions, Jacksonville, Florida.

Oct 26, 2013: South Penn Fall Rock Swap, by Central PA & Franklin County R&M Clubs; South Mountain Fairgrounds, 1.5 miles West of Arendtsville, PA on Rte. 234.

Geo-Sudoku Solution from page 6

L	Q	E	K	A	D	B	U	I
B	K	I	Q	U	E	A	D	L
A	U	D	I	B	L	E	K	Q
E	B	U	A	I	Q	K	L	D
Q	L	K	D	E	U	I	A	B
I	D	A	L	K	B	Q	E	U
D	I	B	E	L	A	U	Q	K
U	E	L	B	Q	K	D	I	A
K	A	Q	U	D	I	L	B	E

INVITE A FRIEND TO JOIN THE SOCIETY

The Nittany Mineralogical Society prides itself on having among the finest line-up of speakers of any earth sciences club in the nation. Everyone is welcome at our meetings. If you'd like to be part of our Society, dues are \$20 (regular member), \$7 (student rate), \$15 (seniors), \$30 (family of two or more members, names listed). Those joining in March or later may request pro-rated dues. Your dues are used for programs and speakers, refreshments, educational activities, Bulletins, and mailing expenses. Please fill out a membership form (available at www.nittanymineral.org), make checks payable to "Nittany Mineralogical Society, Inc." and send them to

Nittany Mineralogical Society, Inc.

P.O. Box 10664

State College, PA 16805

or bring your dues to the next meeting.

We want to welcome you!

SOCIETY OFFICERS

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Dr. Bob Altamura (Vice-President) 814-234-5011 (h)

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John Passaneau (Treasurer) 814-231-0969 (h),

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Ellen Bingham (Secretary) e-mail:

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Membership Chair: David Glick (see above)

Programs: Dr. Duff Gold 865-7261(o), 238-3377(h)

e-mail: gold@ems.psu.edu

Door Prizes: *volunteer needed!*

Facebook: Mike Zelazny e-mail: maz166@psu.edu

The **Bulletin Editor** will welcome your submissions of articles, photos, drawings, cartoons, etc., on minerals, fossils, collecting, lapidary, and club activity topics of interest to the members. Please contact:

David Glick

E-mail: xidg@verizon.net

209 Spring Lea Dr.

phone: (814) 237-1094 (h)

State College, PA 16801-7226

Newsletter submissions are appreciated by the first Wednesday of the month. If you include photographs or graphics, please do not embed them in word processor files; send them as separate graphics files (TIF, or good to highest quality JPEG files, about 1050 pixels wide, are preferred). Please provide captions and name of photographer or artist.

Visit us at www.nittanymineral.org