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
### Class & Instructor

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<th>Class &amp; Instructor</th>
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<tr>
<td>Beading/Peyote Pendant Mia Schulman</td>
<td>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.</td>
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<td>Beading/Kumihimo Mia Schulman</td>
<td>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.</td>
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<tr>
<td>Cabochons – Basic Bernie Emery</td>
<td>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.</td>
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<tr>
<td>Cabochons - Intermediate Bernie Emery</td>
<td>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 cabbing and use of the trim saw. 2-day class offered second semester.</td>
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<tr>
<td>Faceting B. Jay Bowman</td>
<td>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.</td>
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<tr>
<td>Geology I Rob Robinson</td>
<td>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 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.</td>
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<tr>
<td>Geology II Rob Robinson</td>
<td>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.</td>
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<tr>
<td>Photographing Small Mineral Specimens Bruce Gaber</td>
<td>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.</td>
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<tr>
<td>Photographing Gems and Jewelry Bruce Gaber</td>
<td>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.</td>
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<tr>
<td>Best of Polymer Projects I Barbara McGuire</td>
<td>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.</td>
</tr>
<tr>
<td>Best of Polymer Projects II Barbara McGuire</td>
<td>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.</td>
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<tr>
<td>Silversmithing - Basic Richard Meszler</td>
<td>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.</td>
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<tr>
<td>Silversmithing –Intermediate Richard Meszler</td>
<td>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.</td>
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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

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

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

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

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

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:


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   K   D   A
I   B   Q   E   U
L   A   U   Q
U   B   Q   A
Q   U   D   L   E
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Rutgers Geology Museum
45th Annual Open House

SATURDAY, JANUARY 26, 2013
PRESENTATIONS IN SCOTT HALL ROOM 123

10:00 am to 11:00 am
Searching for Uranium Reducing Microorganisms at a Dept. of Energy Legacy Site
Presented by Dr. Lee Kerkhof
Rutgers University Institute of Marine and Coastal Sciences and School of Environmental and Biological Sciences

1:30 pm to 2:30 pm
Dissecting Giant Earthquakes: Things We Didn’t Know...
Presented by Dr. Miaki Ishi
Harvard University
Department of Earth and Planetary Sciences

11:30 am to 12:30 pm
Field to Studio: The Artwork of Mark A. Klinger
Presented by Mark A. Klinger
Scientific Illustrator at Carnegie Museum of Natural History, Pittsburgh, PA

3:00 pm to 4:00 pm
Sandy Comes to the Jersey Shore: Past, Present, and Future
Presented by Dr. Kenneth Miller
Rutgers University Department of Earth and Planetary Sciences

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

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All Events are FREE!
No pre-registration needed – first

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.


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


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

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

David Glick (President) 814-237-1094 (h) e-mail: xidg@verizon.net
Dr. Bob Altamura (Vice-President) 814-234-5011 (h) e-mail: raltamur@fscj.edu
John Passaneau (Treasurer) 814-231-0969 (h), e-mail: jxp16@psu.edu
Ellen Bingham (Secretary) e-mail: emb22@psu.edu

OTHER CONTACTS

Field Trips: Ed Echler 814-222-2642 e-mail preferred: eechler@comcast.net
Junior Rockhounds: Dr. Andrew Sicree 814-867-6263 (h) e-mail: sicree@verizon.net
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 names of photographer or artist.

Visit us at www.nittanymineral.org