

Nittany Mineralogical Society Bulletin

Nittany Mineralogical Society, Inc., meeting in State College, Pennsylvania
Contact information on back page

October, 2016

Visit our web site: www.nittanymineral.org

Editor (see back page):
David C. Glick

October 19th meeting:

A Geological Tour of California – Los Angeles to San Francisco

by
Dr. Charles E. Miller, Jr.
Geologist

Our October meeting will be held Wednesday the 19th in room 114 (large auditorium) Earth & Engineering Sciences Building on the west side of the Penn State campus in State College, PA. Maps are available on our web site.

6:45 to 7:45 p.m.: Social hour, refreshments in the lobby

7:45 to 8:00 p.m.: announcements, questions, answers about 8:00 p.m.: featured program

*The event has free admission, free parking, and free refreshments, and is open to all; **parents/guardians must provide supervision of minors.** Bring your friends and share an interesting evening!* -Editor

As an undergraduate student in a geology course, I recall the instructor saying: “There is geology and then there is California geology.” The interesting and varied geology of California is due to a suite of physical factors including large size, long coastline, two tectonic plates, and active faults. This travelogue discusses highlights of that diverse geology.

See page 4 for the complete illustrated article. ✨



Coastal scenery along California Coastal Highway 1; Julia Pfeiffer Burns State Park, Big Sur, CA. Image by the author.

Upcoming NMS Programs

Nov. 16 The Rogue Kimberlites of Indiana County, PA
by Dr. Duff Gold

OFFICIAL NOTICE: Annual Meeting and Elections in October

by David Glick, NMS President

The October 19th meeting will be the **Annual Meeting of the Corporation**, and will include election of officers. In accordance with our bylaws (available on the web site), the Board of Directors, acting as the Nominating Committee, presents the following slate of candidates:

President	David Glick
Vice President	Bob Altamura
Secretary	John Dziak
Treasurer	Stuart Bingham

The Board truly needs **additional volunteers** to get involved with running the Society, providing **new energy and fresh thinking** and some new names on the ballot. In many cases it would be useful to have newcomers spend some time on committees and attending Board meetings before stepping into elected office. **All members: please consider volunteering!**

Membership Dues - Online or Snail Mail

We are trying out a new option: payment via Paypal and dues form submission via fillable PDF form (available for download from <http://www.nittanymineral.org/mem>). The old way is still fine too - fill in the printed form and mail it in with a check, or bring them to the October meeting. Members receiving the printed Bulletin will find a printed dues form enclosed, if we have not already received your payment. Dues are due by the end of October.

Celestine for Pennsylvania State Mineral

Pennsylvania House of Representatives Bill 564 has been introduced, to adopt celestine as the official state mineral; the last activity was two weeks ago. At <http://www.legis.state.pa.us/cfdocs/legis/home/bills/> progress can be tracked; in “By Bill Number” enter HB564.

ATTENDING THE OCTOBER MEETING?

Donations of **a few high quality, labeled door prize specimens** are invited.

Your donated snacks will be welcomed.

Bring a friend!

FEDERATION NEWS

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 October issue safety article encourages club members to write down and share safety ideas and information. Outgoing President Larry Heath says goodbye and reminds everyone to attend the EFMLS Convention, October 21-23 in Rochester, New York. An illustrated report on the two 2016 Wildacres sessions is reprinted on page 3 of this Bulletin.

The **AFMS Newsletter** is available by the same methods. In the October issue, John Martin writes about the prohibition on collecting in National Monuments, and the long list of proposed National Monuments across the country. Recreational rockhounding may be allowed if enough citizens push for it to be included in the Monument Management Plans. Outgoing president Matt Charsky thanks those who helped the Federation and the hobby. The 2016 AFMS **Scholarship Foundation recipients** are announced. For the Eastern Federation, the honorary recipient is Dr. Joel E. Johnson, Associate Professor and Graduate Program Coordinator at the University of New Hampshire in Durham, New Hampshire. Dr. Johnson has chosen as the two students for the Eastern Federation as: Ms. Sarah Widlansky is pursuing her Ph.D. degree in Geology at the University of New Hampshire in Durham. The second student, Ms. Sarah Turner, is pursuing her Master's degree in Geology at the University of New Hampshire in Durham.

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

66th Annual EFMLS Convention and Rochester Gem, Mineral, Jewelry & Fossil Show and Sale

The Annual convention of the Eastern Federation of Mineralogical and Lapidary Societies will be hosted by the Rochester Lapidary Society at The Radisson Hotel, 175 Jefferson Rd, Rochester, NY 14623. The Federation's Annual Meeting and elections will be held Friday, October 21, and the banquet, other Federation activities, and the Gem Show will take place the 22nd & 23rd. See: <http://www.amfed.org/efmls/conventionp.htm>
<http://www.rochesterlapidary.org/show/>
<http://www.Facebook.com/ROCGemShow>

Symposium on Pennsylvania Mining and Mineralogy

by Friends of Mineralogy – Pennsylvania Chapter
Mineral Collecting Enthusiasts Meet and Learn

November 5-6, 2016

Franklin and Marshall College, Lancaster, PA
Please Register in Advance

The Friends of Mineralogy – Pennsylvania Chapter will hold their 2016 Symposium and field trip on the first weekend in November. Mineral collectors in attendance on Saturday will meet in the Hackman Physical Sciences Building at Franklin & Marshall College, Lancaster, PA., to hear several talks by experts on minerals, geology and mining in Pennsylvania and beyond. On Sunday, a field trip for those registered for the symposium will provide an opportunity for mineral collecting.

The program planned for the symposium includes these presentations:

Robert Kulp: Dunite in the Serpentinites of the Pennsylvania-Maryland Chrome Mining District;
Ryan Mathur, PhD: Cenozoic mineralization ages for sulfides and calcite in Pennsylvania;
Stan Mertzman, PhD: Hawaiian minerals and geology (Pennsylvania students' experience);
Bill Stephens, PG: Lapidary Grade Agate and Other Semi-Precious Gemstones from the Penn-MD Serpentine Quarry, Lancaster County, PA;
with plans for another to be announced.

All interested mineral collectors are invited to register and attend. As usual, select mineral dealers will be present, and there will be a silent auction, give-away table, refreshments, and plenty of opportunities for visiting with fellow enthusiasts. Lunch is available at restaurants within walking distance. Please see the web site <http://www.rasloto.com/FM/> for details, updates, and the registration form.

The mineral collecting field trip on Sunday is planned for a location where a variety of minerals may be available. Details will be given at the symposium. The trip is open only to symposium registrants. Safety equipment will be required.

Saturday Nov. 5: Hackman Physical Sciences Bld.,
F&M College, Lancaster, PA

Sunday, Nov. 6: location to be announced.

Registration: \$25 for non-members, \$15 for current FM-Pa members; free for students with student ID. Please register in advance; a form is available on the web site.

Professional Geologists: lecture attendance qualifies for Professional Development Hours toward license renewal.

Contact: Joe Marchesani Jmarch06@comcast.net

The web site will have any updates and a registration form: <http://www.rasloto.com/FM/>



2016 EFMLS WORKSHOPS AT WILDACRES SESSIONS - A HUGE SUCCESS!

by Steve Weinberger

from EFMLS Newsletter v. 63 no. 10, October 2016

Our two 2016 EFMLS Workshops at Wildacres have now been enshrined in the history books. Both were a huge success. In spring, Speaker-in-Residence Helen Serras-Herman and her husband Andy joined us from their home in Arizona. Helen not only presented six outstanding talks, but also gave a “sharing program” on our Activity Day. Her talks were well received by those in attendance and she was peppered with questions after each.

Students enrolled in classes produced an amazing variety of projects -- soapstone carvings; Kumihimo and Russian spiral pattern beaded necklaces, bracelets and earrings; standard and free form cabochons; faceted gemstones; pewter objects; and scrimshaw items, both in black and white and color. In addition, some of the participants learned about the geology of the Little Switzerland area through in-class talks and field trips.

The fall session saw a change in plans as our announced Speaker-in-Residence, Alfredo Petrov, had to cancel due to a family emergency. Jumping into the void was the fabulous Dr. Steve Chamberlain, Chairman of the Rochester Mineralogical Symposium. Steve gave six wonderful talks, exhibiting his humor, knowledge and photographic skills in each. Like Helen, he too was peppered with questions after each talk.

Students produced numerous outstanding projects during their classes - faceted gemstones; opal cabochons; wire-wrapped bracelets and pendants; terrific silver rings, pins and pendants; fused glass pendants and objects; and polymer clay objects.

As usual, each session included a tailgate session where participants could sell and/or swap items they had made or collected. This is always a fun event which also gives everyone a chance to talk, swap stories, and procure new items for their own collections.



The last evening, after all the classrooms have been cleaned and tools put away is spent in a good old-fashioned “Show & Tell” where

someone from each class tells what they learned during the week and everyone gets to display their projects for all to view as well as an old fashioned “Fun Night” replete with songs, skits, stories and awful corny jokes. Some of the stories told about the instructors and the classes during Show & Tell always prove to be amusing and definitely educational!



See what you missed by not being there this year? Now’s the time to start considering a trip to one (or both) of the EFMLS Workshops at Wildacres in 2017. We don’t have the dates, cost for our sessions yet, or classes we’ll offer, but should have them for the January EFMLS Newsletter. So watch this space!

Special thanks to outgoing Director Fran Sick for her many years of service in that position. Fran really was a gem to work with!



And finally, mega thanks to all of our 2016 instructors, students, and Speakers-in-Residence for making our 2016 forays to Wildacres so successful. ❁

A Geological Tour of California – Los Angeles to San Francisco

by
Dr. Charles E. Miller, Jr.
Geologist

As an undergraduate student in a geology course, I recall the instructor saying: “There is geology and then there is California geology.” The interesting and varied geology of California is due to a suite of physical factors including large size, long coastline, two tectonic plates, and active faults. This travelogue discusses highlights of that diverse geology.

Hancock Park in Los Angeles is the site of the world-famous La Brea Tar Pits and Page Museum. Here is one of the world’s largest collections of Pleistocene (1-2 million - 11 thousand years ago) land fossils, numbering at least 3.5 million specimens. That number increases as excavations continue. The fame of these tar pits is such that, in this country, when one thinks of saber-toothed cats (Figure 1), the La Brea Tar Pits come to mind. However, these are one of two natural asphalt seeps in the state. The other - McKittrick



Figure 1: Display of *Smilodon* (saber-toothed cat) attacking a ground sloth. Page Museum, Los Angeles. Image by the author.

Tar Pits – is lesser known but also in southern California. In addition, three other such seeps are found elsewhere in the world. All are natural asphalt seeps that come to the surface, usually via faults. The name “tar pits” is a misnomer because tar is a man-made material. Also, the name “the La Brea Tar Pits” is a tautological place name. “The La Brea Tar Pits” literally means “the the tar tar pits.”

Much of southern and central California’s geology is associated with the San Andreas Fault (SAF; Figure 2). The SAF is a transform fault or boundary between the Pacific and North American Plates, where the plates grind against each other. Transform faults neither create nor destroy crust. For approximately 800 miles, the SAF cuts across California - from the Gulf of California to San Francisco. At this

boundary, the North American Plate moves generally westward while the Pacific Plate moves northward. However, relative to each side of the SAF, there is right-lateral motion.

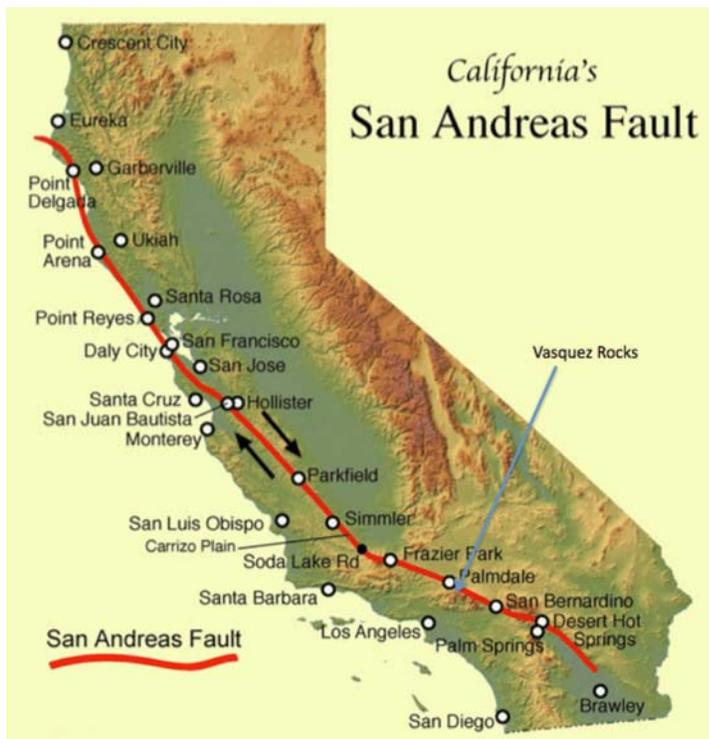


Figure 2: Map showing the SAF as it transects California. Modified from Geology.com.

The SAF is actually a fault zone with many branches, including the Calaveras and Hayward Faults. Despite notoriety of the SAF, the latter may be the most dangerous fault in America. Reasons for this will be discussed in the talk. Movement along these faults creates earthquakes and structural deformation. Each year southern California experiences about 10,000 earthquakes. Most are so small they are not felt. The structural deformation produces interesting geology. Nearly all roadcuts within the SAF zone exhibit evidence of this faulting, such as myriads of small fractures, fault gouge, and folding (Figure 4).

In 2005, the SAF was drilled into as part of the San Andreas Fault Observatory at Depth (SAFOD) project. This is the first drilling across a transform fault. Dr. Chris Marone and students at Penn State are involved in SAFOD. Objectives and findings will be discussed.

One SAF-generated geological site is Vasquez Rocks Natural Area Park, approximately 44 miles north of Los Angeles (Figure 2). Vasquez Rocks consists of hogbacks or hogback ridges – exposed, highly dipping strata (Figure 3). Other examples include Garden of the Gods and the Dakota Hogbacks, both in Colorado. Interesting to geologists, Vasquez Rocks are probably better known as a filming



Figure 3: Vasquez Rocks, hogback ridges. Agua Dulce, CA. Image by the author.

location. The site has been used in 53 films, approximately 90 television productions, and many commercials. Some memorable films using Vasquez Rocks include “Blazing Saddles” and three “Star Trek” movies. Well-known TV shows using this setting include “Bonanza,” “The Lone Ranger,” “The Outer Limits,” and several of the Star Trek ventures.

Palmdale is located 20 miles north of Vasquez Rocks (Figure 2) and is one of several communities in which the SAF runs through it. Here, the fault crosses Highway 14, producing a roadcut of complex folding and faulting (Figure 4). At least seven strike-slip faults are present at the roadcut. Images of this roadcut appear in many geology textbooks. In the 1970s, Palmdale attained additional notoriety. The U.S. Geological Survey detected a 10-18-inch bulge at Palmdale, allegedly a harbinger of an earthquake on the SAF. In 1978, 300 scientists conducted a three-month, \$1.4 million-field survey over 32,400 square miles. A bulge could not be definitively proved. The



Figure 4: Complex folding and faulting along Highway 14 at Palmdale, California. (academic.emporia.edu)

survey had approximately 25,000 levelings. An error of only 10 microns per leveling could explain the entire apparent uplift.

Several other communities through which the SAF transects are discussed. Evidence of continued movement along the fault is shown. Some of the examples compare the same locations through time, demonstrating continuing movement on the SAF.

One of the most scenic roads in the country is California Coastal Highway 1. It runs along most of the California Pacific coastline. Big Sur and Monterey Bay are two sections familiar to many people. Although it serves coastal communities by connecting them, many tourists drive Route 1 just for the scenery. Expansive coastline vistas are the reward (Figure 5). One can see a variety of coastal features and wildlife. The former include sea stacks, sea caves and



Figure 5: Coastal scenery along California Coastal Highway 1; Julia Pfeiffer Burns State Park, Big Sur, CA. Image by the author.

arches, breaking waves, wave-cut platforms, waterfalls, dunes, beaches, and tidal pools. Wildlife includes seals (Figure 6), shore birds, sea otters, and whales.

Designing Highway 1 was an engineering challenge, and that challenge continues today in maintaining it. Much of the highway cuts into steep slopes conducive to landslides. It is not



Figure 6: Elephant seals along the beach at the Piedras Blancas Elephant Seal Rookery at San Simeon, California. Image by the author.

uncommon to have part of the highway closed due to landslides, sometimes for months. When this happens, locals must detour a hundred or more miles to get to their destinations. If landslides from above do not affect the highway, some sections are prone to slumping from below. Factors contributing to mass wasting along Highway 1 are discussed.

San Francisco Bay is an estuary or transition zone between rivers and maritime environments. This mixing of differing salinities produces brackish water and one of the most productive natural habitats in the world. Unfortunately, San Francisco Bay may be the major estuary in the U.S. that man has most modified. Waterfront acreage increased significantly by filling tidelands, coves, and lagoons. At least 95 percent of the natural wetlands in the bay are lost to man's activities. Some of these modifications enhance earthquake damage around the Bay. This observation is not lost to the fact that the SAF and six other significant fault zones cross the Bay Area. Man-made fill and soft sediments are more prone to earthquake damage because they amplify seismic waves in the vertical sense. This means greater damage. In addition, coastal sediments are commonly saturated with water, making them metastable. Some are called sensitive or quick clays. They are thixotropic because seismic waves cause them to revert from a solid to a liquid. This phase change results in loss of support for

structures built on top of them. Through time, San Francisco has expanded in size so that, now, some of it is built on top of artificial fill or metastable coastal sediments. Earthquake damage in these areas is greater than areas built on bedrock.

South of San Francisco is Monterey Bay. It is a major tourist attraction, partly because of the scenery and abundant marine life. Its geology is also of interest. The Bay contains Monterey Canyon. At over a mile deep, this is the largest submarine canyon along the west coast of North America. Turbidity currents (underwater debris flows) and concomitant submarine erosion are largely responsible for the canyon. Turbidity flow debris can be seen at the southernmost end of the Bay at Point Lobos State Reserve (Figure 7).

Because of its popularity, some coastal sections of Monterey Bay have been developed. In some instances, hotels are on and near beaches and other structures are located near cliff edges. Such development is subject to coastal processes, especially erosion. Coastlines are dynamic systems. In that way, they are like rivers. Attempts to prevent flooding in cities by building levees transfers the potential problem farther downstream. Similarly, attempts to correct a problem along one section of coastline, such as erosion, may transfer the problem to another part of the same coast. Examples of coastline development and their environmental impacts are discussed. ❄



Figure 7: Conglomeratic debris of a turbidity-flow deposit. Point Lobos State Reserve, California. (Image by the author.)

South Penn Rock Swap & Sale

--FALL SWAP--

Saturday, October 29, 2016 8 am. to 3 p.m.

South Mountain Fairgrounds
West of Arendtsville, PA on Route 234

For GPS, use address:

615 Narrows Road, Biglerville, PA 17307

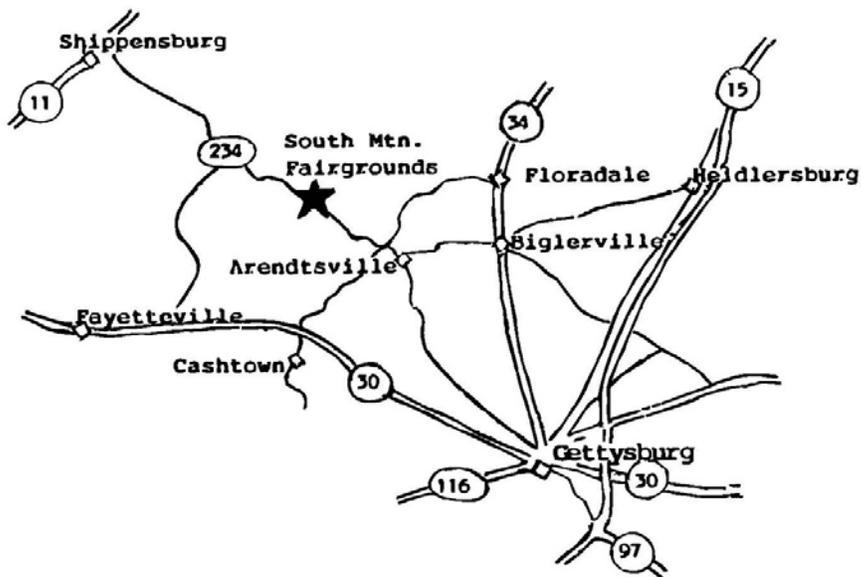
General admissions: \$1.00/person

Table for Swappers: \$5.00/table

Sponsored by the Central Pennsylvania and

Franklin County Rock & Mineral Clubs

Contact: tsmith1012@comcast.net



LANCASTER COUNTY FOSSIL AND MINERAL CLUB

SHOW

IN MOUNTVILLE, PENNSYLVANIA 17554
TRINITY REFORMED UNITED CHURCH OF CHRIST
450 WEST MAIN STREET
(Next to swimming pool)

SATURDAY, NOVEMBER 12, 2016
9 AM UNTIL 4:30 PM

ADULTS: \$2.00 - CHILDREN 12 AND UNDER FREE

EDUCATIONAL DISPLAYS AND ACTIVITIES MINERALS CRYSTALS
FOSSILS PLANTS ARTISAN JEWELRY LIVE TURTLES AND LIZARDS
HANDCRAFTED TIN WARE FREE PARKING SPEAK TO AN EXPERT
FLUORESCENTS TERRARIUMS OPALS



Thanks to Central Pennsylvania Rock & Mineral Club's Rock Buster News for the show information on this page.

Geo-Sudoku

by David Glick

This puzzle contains the letters ACEILNOST. One row or column spells a notable feature of California. As usual, if you've read this issue, you've seen the word. 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.

	O			I		T		
	T				C		O	
S			L				A	
I		T		L			S	C
		L		S				
O		S	T		A	I		
	E			N	L		I	T
			E			C		L
	L		I	T			E	A

COLLECTION FOR SALE

Wide-ranging, good-sized collection; concentration on a nice variety of mineral crystals but also metallic specimens, several types of hematite, some gemstones and rough for cabbing or faceting, volcanic material, fossils. Most fairly small, most purchased from dealers through the years. Prefer to sell the collection as a whole, although sale of certain subsets (hematite, quartz, gemstones, or fossils) is possible. Located in Burnham, PA. Contact Mike, <mikerockcutter@aol.com> or 814-571-9672.

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. See www.mineralevents.com for more.

October 21-23, 2016: Eastern Federation of Mineralogical & Lapidary Societies Convention & Show, Rochester, NY. See page 2. <http://www.rochesterlapidary.org/show/>

October 22, 2016: Ultraviolet all-fluorescent mineral show, by Rock & Mineral Club of Lower Bucks County. First United Methodist Church, 840 Trenton Road, Fairless Hills, PA., 9:00 a.m. – 4:00 p.m.

October 29, 2016: Fall Rock Swap & Sale, by Central Penn. & Franklin Cty. R&M Clubs. South Mountain Fairgrounds, west of Arendtsville PA on Rt 234 (for GPS: 615 Narrows Road, Biglerville, PA 17307). \$1.00/person, table for Swappers: \$5.00/table. Sat. only, 8-3. See p. 7. Contact: tsmith1012@comcast.net

November 5-6, 2016: FM-PA Chapter Symposium (Sat.) & Field Trip (Sun.) Franklin & Marshall College, Lancaster, PA. See p. 2. <http://www.rasloto.com/FM/>

November 5-6, 2016: Gemarama, by Tuscarora Lapidary Soc. Hall D, Greater Phila. EXPO Center, Oaks, PA <http://www.lapidary.org/GEMARAMA/Gemarama.html>

November 12, 2016: Lancaster County Fossil and Mineral Club Show. Mountville PA. See page 7.

November 19-20, 2016: Northern Virginia Mineral Club 25th Annual Show, Fairfax, VA. Student Union II Bldg., George Mason Univ.; Adults \$6, Seniors \$4, Teens (13-17) \$3, Children 12 & under FREE; Dealers, Exhibits, Door Prizes, Silent Auction. Sat. 10-6, Sun. 10-4; <http://www.novamineralclub.org/events/2016-show>

March 4-5, 2017: Earth Science, Gem and Mineral Show by Delaware Mineralogical Society. NEW LOCATION: U. Del. Wilmington campus, Arsht Conference Center, 2800 Pennsylvania Ave (Rt. 52), Wilmington DE 19806. Sat 10-5, Sun. 11-5. Info and coupons at www.delminisociety.org

Geo-Sudoku Solution

L	O	E	A	I	N	T	C	S
N	T	A	S	E	C	L	O	I
S	I	C	L	O	T	E	A	N
I	A	T	O	L	E	N	S	C
E	C	L	N	S	I	A	T	O
O	N	S	T	C	A	I	L	E
A	E	O	C	N	L	S	I	T
T	S	I	E	A	O	C	N	L
C	L	N	I	T	S	O	E	A

Visit us at www.nittanymineral.org

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 in as directed, or bring your dues to the next meeting.

We want to welcome you!

CONTACT INFORMATION

mailing address:

Nittany Mineralogical Society, Inc.
c/o S. Bingham, Treasurer
145 Goddard Cir.
Penna. Furnace PA 16865

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: raltamura@comcast.net
 Ellen Bingham (Secretary)
 e-mail: emb22@psu.edu
 Stuart Bingham (Treasurer)
 E-mail: sebing145@comcast.net

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: Dr. Bob Altamura (see above)
 Facebook & Publicity: John Dziak: jjd264@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. Photographs or graphics are encouraged, but 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.