

Nittany Mineralogical Society Bulletin

Nittany Mineralogical Society, Inc.

P.O. Box 10664

State College PA 16805

Editor (see page 8):

David C. Glick

May, 2014

Visit our web site: www.nittanymineral.org

May 21st meeting:

Chert, the popular variety of silicon dioxide

by

David (Duff) Gold

Emeritus Professor of Geology

Department of Geosciences

Penn State University, University Park, PA 16802

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Our May meeting will be held Wednesday the 21st in room 116 (smaller auditorium) of Earth & Engineering Sciences Building on the west side of the Penn State campus in State College, PA. Maps are available on our web site.

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

7:30 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.*

Chert is a state of matter of silica-rich material that includes crystalline (macro-, micro- and crypto-crystalline) varieties of quartz as well as amorphous and hydrated gels of opaline silica. The states represent a progression of changes (dehydration and increasing crystallinity) referred to as diagenesis (increasing age and metamorphism); hence the plethora of names for a material linked by density, rigidity, hardness and Hertzian fracture properties. If the impact point is close to a free surface, the proximal Hertzian cone is bulbous (bulb of percussion) that spreads radially outwards into an essentially planar fracture surface with smooth concentric ribs as the impact energy dissipates distally. Overlapping Hertzian fracture cones generated from adjacent impact points close to a free surface can produce "flakes" with sharp edges or points that were important to Stone-age cultures. High surface energy associated with crystallites can be released as a glow upon impact.



Hertzian cone fracture in glass, photo by user Polyparadigm, 2005, used under CCA-SA 3 license

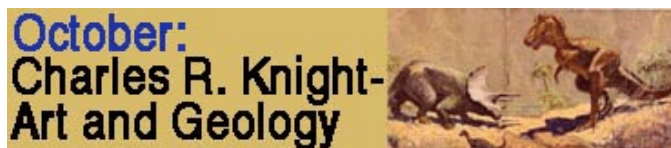
NMS Summer & Fall Activities

by

David Glick

NMS President

We won't have any monthly meetings or Bulletins in June or July. They will resume in August, with the August 20th meeting expected to be our annual Show & Tell by the members and guests. The **October 15th** meeting will be an event of wide-ranging interest; Dr. Charles E. Miller, Jr., will speak on **Charles R. Knight - Art and Geology**. Knight (1874 - 1953) was the artist responsible for widely seen paintings of dinosaurs which illustrated museum displays and books through the 20th century. His granddaughter, Rhoda Knight Kalt, will be giving the introduction.



December is expected to be a holiday dinner as usual. The September and November meeting topics have not yet been determined; please contact Program Chair Duff Gold (see p. 8) or the president if you might be able to present a program. If you might be able to present one or more monthly Junior Rockhounds meetings, please contact Dr. Andrew Sicree (page 8) or the president.

We are planning a July **field trip** to the National Limestone Quarry at Mount Pleasant Mills, PA; depending on the quarrying activity, principal minerals to be collected may include strontianite and calcite in the quarry, and wavellite on the ridge. Paid members who are on the field trip e-mail list will receive the details (to be added to the list, contact Field Trip Chair Ed Echler - see page 8). Some Mount Pleasant Mills specimens are shown on page 6.

Are club members interested in going farther for some different field trips? If you are interested in going to Virginia for pay-to-dig amethyst locality, please contact Field Trip Chair Ed Echler.

ATTENDING THE MAY MEETING?

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

Your donated snacks and drinks will be welcomed.

Bring a friend!

Feel free to bring a chert specimen to show and discuss.

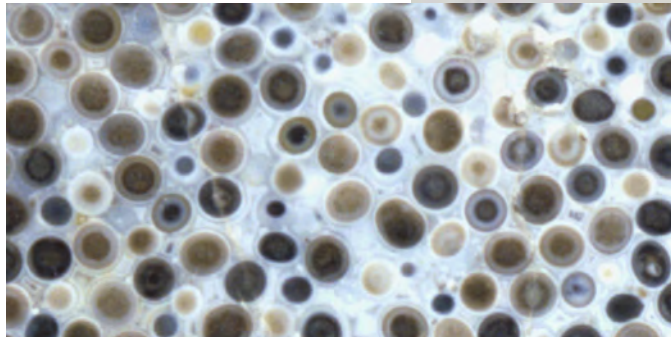
Continued with photographs on page 2

Chert *continued from page 1*

A use-based nomenclature is difficult to reconcile in the mineral world. If classified by origin and setting, then C-cherts represent precipitates from sea water, F-cherts the precipitates in fractures from silica-rich fluids, and S-cherts are the replacements of pre-existing rocks by pore fluids. Critical factors are the solubility of silica, alumina and iron in the weathering cycle, a porous medium for silica-rich fluids to migrate to an environment with a paucity of clay particles, low temperature, pressure and pH and/or a high partial pressure of CO₂ in a turbulent free setting. The volumetrically dominant deposits are the **Bedded Cherts** that form from diagenetic dissolution and reprecipitation in turbidites and graywacke assemblages, and deep water oozes.

Older rocks harbor the more stable phases, with a restriction of the Banded Iron Formations to the Archean and Proterozoic. The nodular and bedded cherts in shallow marine carbonate assemblages tend to be confined to Paleozoic and Mesozoic age strata: the nodular and bedded chert in North America is hosted in the Middle Ordovician and Devonian carbonate formations, while the widespread flint deposits of Europe occurs in the Upper Cretaceous chalks deposits. Agates occur mainly in geodes (gas bubble filling) in lavas. Metastable silica deposits occur only in post-Early Cretaceous strata, with opaline silica occurs mainly in vein and vugs in post Miocene strata. The bedded and nodular cherty deposits in Central Pennsylvania occur mainly in the dolomitic strata of the Gatesburg, Mines, Nittany, Axemann and Bellefonte formations of Cambrian and Ordovician age, and the Keyser and Old Port formations of Lower Devonian age. The brown jasper from a site south of Roaring Spring represents a local residual deposit of probable Eocene age.

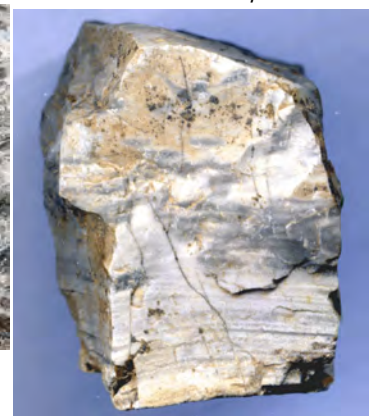
Right: State College oolitic chert pendant by Robert Altamura. Below: Close-up of polished oolitic chert from another Robert Altamura piece; individual ooids approx. 1 mm across. *D. Glick photos.*



Banded chert nodule with included limestone, 12 inches across, from the Axemann Formation. *D. Glick photo*



Close-up of Axemann Fm chert nodule shown above; field of view approx. 1 inch. *D. Glick photo*



Banded chert nodule, 1.5 inches across, from the Bellefonte Formation. *D. Glick photo*



Mottled chert nodule, 2.5 inches across, from the Bellefonte Formation. *D. Glick photo*

The many varieties and stages of chert and their close geochemical affinity to host rock can be exploited to match "chert" artifacts to source areas by relatively inexpensive petrographic techniques (thin sections and a polarizing microscope), especially if trace element concentrations are available. ❄

Wildacres Workshops: Your Enrollment Is Needed!

From Steve Weinberger
Chair, EFMLS Wildacres Committee

Wildacres has been a tremendous resource to members of EFMLS clubs. It has been a source of education, inspiration, and joy over these past 42 years.

Unfortunately, our fall enrollment numbers are currently low—too low, in fact, to justify going through with our planned fall session.

To this end, I am asking all EFMLS current and past officers (especially regional vice-presidents), committee chairmen, club officers, former attendees and anyone else who knows just what a fantastic resource Wildacres is to us to help us get the word out NOW!

If we do not get sufficient registration by early summer, we will have to do the unthinkable, namely cancel our fall session. If we do this, who knows what the future will be?

I urge you now to do everything that you can to insure that we can continue this fantastic opportunity for our members to enrich their lives by attending, learning, and enjoying our two sessions at Wildacres.

Full details on cost, class selections, etc. are on our website (efmls-wildacres.org/). *Class descriptions are on page 7 of this Bulletin - Editor.*

Let's be sure that we did all that we could to insure that our sessions at Wildacres did not become just a fond memory.

For more information about the EFMLS Workshops at Wildacres visit our website <www.amfed.org/efmls> and click on the Wildacres tab. There you'll find photos, information about the workshops, an application form, listing of classes and information about our "Speakers-in-Residence".

Merrill E. Dickinson, 1st Vice President of EFMLS, adds that it's a worthy adventure for all club members. "As a testimony, in the past, I have been to Wildacres seventeen times (17) and I can attest to the fine time and enjoyment that a trip there would result in a memorable event. Where else can you have the opportunity to view the majestic Smoky Mountains, search for gems and minerals in one of the world's gem capitals, learn skills in the lapidary arts, visit historic homes and scenic locations, meet others who have the same interest as you." ❄

More on Wildacres

from <http://www.amfed.org/efmls/wildacres.htm>

One of the benefits of belonging to an Eastern Federation club is the opportunity to attend the two federation-sponsored Workshops at Wildacres!

Imagine being able to spend a week totally immersed in the joys of our hobby - no interruptions from television, news, traffic, or worries. The setting is an idyllic mountain top retreat where you are well fed and cared for and you can take classes in many aspects of the hobby - lapidary, jewelry making, mineralogy, etc.

The keynote speaker gives general interest talks during the week to the full assembly, but is available on campus for informal discussions. Mealtimes make excellent opportunities for in depth conversations and personal queries, but the evening porch sessions bring out the lively best of all participants.

Classes range from beadwork to bezels, from judging to geology, from photography to pewter work, depending upon the needs of the Federation and the availability of instructors. Metalworking classes often employ the use of torches and metal forming tools, while cabbing and faceting delve into perfecting a single stone. Intricate designs are produced in a never-ending variety and students are given an opportunity to show off their work at the end of the week. Other classes offered include wirewrapping, geology, photographing minerals and gems, beading, chain making, mineral identification and scrimshaw. ❄

Passing of Members and Friends

We sadly must report two deaths among our family of mineral enthusiasts.

Joann Snell, NMS member and supporter, and widow of Penn State Mineral Museum curator David Snell, passed away March 22, 2014. Funeral and burial services were held April 8, and an obituary was published in the April 6 issue of the Centre Daily Times. Joann brightened many NMS events with her smile and her interest in people, and will be deeply missed. Our condolences are extended to her son John and other family and friends.

Michael Sincak passed away April 10, after undergoing treatment for cancer for some time. Michael was a geologist; he and his wife Barbara owned Treasures of the Earth in Hollsopple, PA, a wholesale business which also had retail outlets at several Pennsylvania locations in the past, including the Nittany Mall in State College. They have been major supporters of NMS through the years, donating a great deal of minerals and fossils for handouts and fundraising sales at our Minerals Junior Education Days, including this year's. They donated extensive materials to many colleges and other institutions to further education in the earth sciences. An obituary was published in the Johnstown Tribune-Democrat on April 23, which notes that donations may be made to Mercyhurst University Geology Department for a scholarship in Michael's name. Mercyhurst University is the home of the Sincak Museum of Natural History. Our condolences go to Barbara and family and their employees and friends. - Editor

Carnegie Museum of Natural History Acquires the Bryon Brookmyer Collection of Pennsylvania Minerals

**Museum's collection now most nearly complete and
comprehensive of Pennsylvania minerals in the
world**

Carnegie Museum of Natural History
press release May 2, 2014

Carnegie Museum of Natural History is pleased to announce the acquisition of more than 2,700 mineral specimens from private collector Bryon Brookmyer, making the museum's collection the premier repository of Pennsylvania minerals in the world. These specimens will aid researchers in the study of Pennsylvania mineralogy, and many will be featured in the museum's Hillman Hall of Minerals and Gems.

All told, the Brookmyer collection consists of 2,705 specimens, 234 of which have been on long-term loan to the museum since 1996. Visitors may be familiar with some of these specimens as the focus of the Pennsylvanian exhibit of Hillman Hall.

"The acquisition of Bryon's collection is and will be known in the future as a major event in the history of Minerals at the museum," says Marc Wilson, Collection Manager and Head of the Section of Minerals. "Bryon's passion for Minerals is evident in his collection and in his history as a careful, yet tenacious, collector. We're honored that he should agree to have the specimens that are so special to him become part of the Carnegie collection."

Brookmyer's collection is the latest in three noteworthy specimen acquisitions that comprise the vast Pennsylvania collection, spanning pieces that were collected from colonial times to the present. Early in the museum's history, Andrew Carnegie purchased for Pittsburgh the William Jefferis collection of about 12,000 specimens. In 2007, Carnegie Museum of Natural History acquired approximately 5,000 mineral specimens deaccessioned by the Academy of Natural Sciences of Philadelphia. Together, these two collections held specimens that covered to the 1920s. The Brookmyer collection brings the museum's holdings up to today.

"This gives Carnegie Museum of Natural History the most nearly complete and comprehensive collection of Pennsylvania mineral specimens in the world. Carnegie Museum is now the destination of choice for anyone wishing to research or learn about Pennsylvania's rich mineral heritage," says Wilson.

The Hillman Foundation generously underwrote the acquisition of both the Academy of Natural Sciences and the Brookmyer collections.

Pennsylvania Minerals

Pennsylvania's complex geologic history is reflected in the great variety of minerals found within the state. Nearly 300 mineral species are known from Pennsylvania. Pennsylvania's relatively rugged topography promotes exposure of rocks in naturally eroded cliffs as well as in cuts for roads and railroads, but the most significant mineral specimens have been found as a result of mining and quarrying activities.

The specimens displayed in Hillman Hall represent some of the finest found in Pennsylvania. In addition to the Pennsylvania Minerals & Gems exhibit, there are two cases of Pennsylvania minerals on display in Masterpiece Gallery.

Carnegie Museum of Natural History, one of the four Carnegie Museums of Pittsburgh, is among the top natural history museums in the country. It maintains, preserves, and interprets an extraordinary collection of 22 million objects and scientific specimens used to broaden understanding of evolution, conservation, and biodiversity. Carnegie Museum of Natural History generates new scientific knowledge, advances science literacy, and inspires visitors of all ages to become passionate about science, nature, and world cultures. More information is available by calling 412.622.3131 or by visiting the website, www.carnegiemnh.org. ❁

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 May issue begins with Betsy Oberheim’s brief report on her “working vacation” at the successful Spring Wildacres Workshop week. Steve Weinberger follows up with an urgent request (reprinted on page 3 of this Bulletin) for us to **enroll for the Wildacres Fall session**, September 1-7; so far, enrollment is so low that the entire session may need to be cancelled. President Hazel Remaley reports on the recent EFMLS convention at Plymouth Meeting, Pennsylvania; minutes of the annual meeting are included on pages 13-16 of the newsletter. The 2015 convention is set for March 27-29 in Hickory, North Carolina. EFMLS’s highest award, the Citation Award for outstanding service, goes to Pennsylvanian Fran Sick, a leader in the Che-Hanna Rock & Mineral Club and EFMLS, past president of EFMLS, and Director of Wildacres for the past seven years. Directory updates and additional awards are reported. Bulletin and bulletin article contest results (an extensive list) and web site contest results are reported. Historian Andy Celmer presents some “random ramblings” from 1960s Newsletters, on a brooch containing stones from all 50 states to be presented to the First Lady, Lady Bird Johnson, and an editorial about why people join clubs and how a few people in clubs do almost all of the work.

The **AFMS Newsletter** is available by the same methods. The May issue has not yet been received.

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

15 Years Ago in NMS

In May 1999, NMS was preparing for our fourth annual Pennsylvania State Mineral Symposium.(May 21-23), with keynote speaker Jeff Post of the Smithsonian Institution speaking on *The National Gem Collection: Science and Lore*. The May 19th monthly meeting time slot was used as a work session to prepare for the symposium. - Editor

Geo-Sudoku

by David Glick

Mammoths and mastodons are the source of some large and fascinating fossils. This puzzle contains the letters ACEHINRTZ, and one row or column includes the name of the fracture cone in chert which can be manipulated to create flakes for “stone” tools. 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.

Z		T			I		C	
				H		Z	N	I
		N				E		T
				E		I	Z	
N				C	H			A
C	I			R				
E	A		C			T	R	Z
	N		H					
R	C	Z						N

45 Years Ago in R & M

In the June 1969 issue of Rocks & Minerals Magazine, the Current Events column reported for Pennsylvania: “The *Keystone Newsletter* voice of the *Mineralogical Society of Pennsylvania*, Philadelphia, carried the announcement of the availability of Dr. Arthur Montgomery’s new book, “*Mineralogy of Pennsylvania - 1922 to 1965*, listed as supplementing and updating Samuel G. Gordon’s *Mineralogy of Pennsylvania...*”

A display advertisement appeared for the “brand new” Eastern Gem Trails book by Floyd & Helga Oles, \$2.00.

In the July 1969 issue, the same column announced, “Welcome, to the newest affiliate of EFMLS, the *Blair Rock and Mineral Club*, Altoona. The membership is twenty and the President is J. Penrose Ambler. A club show is planned for September.”

- Editor

Mount Pleasant Mills, PA

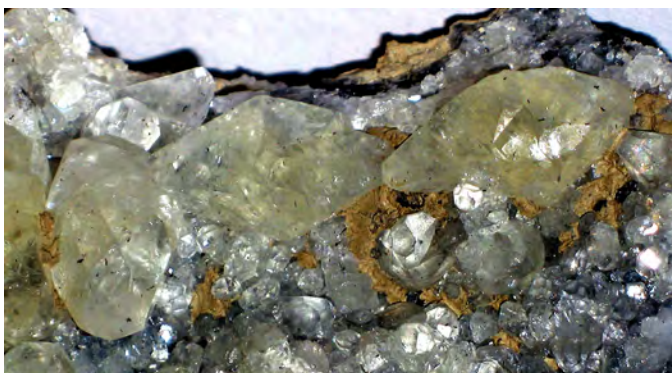
As noted on page 1, we'll have a field trip to the National Limestone quarry at Mount Pleasant Mills, PA, in July. Paid members who are on the field trip announcement e-mail list will get the details. Shown below are some specimens collected in recent years. Photos are by David Glick. - *Editor*



Strontianite crystal aggregates on calcite, Mt. Pleasant Mills, PA. Field of view 1.5 inch.



Wavellite spheres of crystal aggregates, Mt. Pleasant Mills, PA. Spheres 0.2 inch.



Calcite, pale yellow dogtooth crystals on drusy gray crystals, Mt. Pleasant Mills, PA. Each dogtooth crystal approx. 0.5 inch long.

Dr. Ryan Mathur named AFMS Scholarship Honoree

by Hazel Remaley, EFMLS President

from EFMLS Newsletter, April, 2014

I am honored to announce that the 2014 AFMS Honorary Scholarship Recipient from the Eastern Federation is Dr. Ryan Mathur, Professor and Chair of Geology at Juniata College, Huntingdon, PA.

Dr. Mathur is a native of York, PA and graduated from Juniata College in 1997 with a bachelor's degree in geology/history. He went on to earn a doctorate in geosciences at the University of Arizona in 2000.

He served as a teaching assistant while at Arizona, teaching such courses as Chemical Evolution of the Earth, Physical Geology and Introduction to Geochemistry. His teaching interests include Structural Geology, Hydrogeology and New-classes Geophysics, Death and Destruction by Nature and Mining in the Americas.

Dr. Mathur's research focuses on using geochemistry to investigate the evolution of ore deposits. He is also interested in creating a research program to analyze the water quality of the Susquehanna River Basin. His research has been published in *Earth and Planetary Science Letters*, *Journal of South American Earth Sciences*, *Mineralium Deposita* and *Economic Geology*.

Dr. Mathur received First Place in the University of Arizona Graduate Student Showcase in 2000. While at Arizona, he received the Tucson Gem & Mineral Society Scholarship and the Sulzer Earth Science Scholarship.

During the next few months he will select two earth science graduate students who will receive the monetary awards from the AFMS Scholarship Foundation.

On a personal note - I am very impressed with this young man. He has quite list of accomplishments for his age and I would enjoy tagging along on one of his field trips with his students !!



Wildacres Fall Classes Sept. 1-7, 2014

Speaker in Residence: Justin Zzyzx

from April 2014 EFMLS News, page 5

Class & Instructor	Description
Cabochons - Basic Al DeMilo	Hands-on instruction will be given to show how to transform a rough piece into a shiny, well-formed cabochon. The use of a trim saw as well as techniques to grind, sand and polish the stone into a standard size and shape will be covered. Slabs will be provided, but you may use your own with instructor's approval. Students should bring safety glasses and an apron. No prior experience necessary. 2-day class offered first semester.
Cabochons - Intermediate Al DeMilo	This course is an extension of already learned skills. It will focus on the crafting of cabochons of difficult shapes and sizes. Much one-to-one attention will be given. Slabs will be provided, but you may use your own with instructor's approval. 2-day class offered second semester. Pre-requisite: Students must know how to use the trim saw, dop a stone and use a grinding, sanding and polishing machine.
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, the 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 glass are also desirable. (Do not bring a nail hammer – they are unsafe to hit rocks.) 2-day class offered first semester. No prior experience needed.
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.
Glass Engraving & Etching B. Jay Bowman	Students will learn the difference between engraving and etching. They will learn how to engrave using both hand and power tools. They will learn to etch using acid and sand techniques with both commercial and self-made patterns. 2-day class offered both semesters. No prior experience necessary.
Faceting Steve Weinberger	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 and/or jeweler's loupe if they have one. No prior experience necessary. 4-day class.
Lost Wax Casting Fred Sias	This is not a wax design course although you may have an opportunity to create an original wax ring model. Students will learn the basic techniques for lost-wax jewelry casting. Using commercial wax models, students will learn proper methods for repairing wax models, attaching sprues, investing, burnout, casting and final finishing of jewelry. 4-day class. No prior experience required.
Silversmithing - Session I Pat Baker	Students will learn to make a textured sterling silver ring (band) and a textured sterling silver pendant with a pearl in the center. No prior experience necessary. 2-day class offered first semester.
Silversmithing - Session II Pat Baker	Students will learn to make a forged, twisted bar and loop sterling silver chain and have the option of a ring, pendant or brooch with a set stone as their second project. No experience required, although those with soldering experience can make more advanced projects. 2-day class offered second semester.
Soapstone Carving Sandy Cline	This class will provide a general introduction to the carving of soapstone. You will develop a working knowledge of the material, 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. No prior experience needed. 2-day class offered both semesters.
Wire-wrapped 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. No prior experience necessary. 2-day class offered first semester.

Classifieds

Ads may be submitted to the Editor (see bottom right)

FOR SALE: 2 Homemade Lapidary saws for sale - 14" and 18". Both come with working motors, arbor, belt, pulley, rock clamp/carriage, and a blade. Both are mucked-out and ready to move. Both could use a little TLC. For more info contact Mike Zelazny at fabricatefilm@yahoo.com

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.

June 5-6, 2014: Rock, Mineral & Fossil Yard Sale by Tom Smith, 10 Roger Avenue, Shippensburg PA 17257. 2 miles outside Shippensburg on Route 696 near Middle Spring. 100 flats of specimens. Thurs. & Fri. 8 a.m. - 7 p.m. OR by Appointment Call 717-552-6554, tsmith1012@comcast.net

June 7, 2014: Spring Mineralfest - Mineral Fossil and Gem Show sponsored by the Pennsylvania Earth Sciences Ass'n. Macungie Memorial Park, Macungie, PA

Sept. 13-14, 2014: Gem, Mineral & Jewelry Show by Central Pa. Rock & Mineral Club, at Zembo Shrine Center, 3rd & Division Streets, Harrisburg, PA. Sat. 10-6, Sun. 10-5. <http://www.rockandmineral.org/annual%20show.htm>

October 4, 2014: Fall Mineralfest - Mineral Fossil and Gem Show sponsored by the Pennsylvania Earth Sciences Ass'n. Macungie Memorial Park, Macungie, PA

November 1-2, 2014: Friends of Mineralogy - PA Chapter Symposium (Nov. 1, Lancaster, PA) and Field Trip (Nov. 2).

November 1-2, 2014: Gemarama, Rhapsody in Blue, by Tuscarora Lapidary Society. The School at Church Farm, Exton, PA. Sat 10-6, Sun. 10-5. <http://www.lapidary.org/GEMARAMA/Gemarama.html>

March 27-29, 2015: EFMLS Convention and Show, Hickory, North Carolina.

Go-Sudoku Solution

Z	H	T	E	N	I	A	C	R
A	E	C	R	H	T	Z	N	I
I	R	N	Z	A	C	E	H	T
H	T	R	N	E	A	I	Z	C
N	Z	E	I	C	H	R	T	A
C	I	A	T	R	Z	N	E	H
E	A	H	C	I	N	T	R	Z
T	N	I	H	Z	R	C	A	E
R	C	Z	A	T	E	H	I	N

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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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!*
Refreshments: *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