

Nittany Mineralogical Society Bulletin

Nittany Mineralogical Society, Inc.

P.O. Box 10664

State College PA 16805

Editor (see page 8):

David C. Glick

April, 2011

Visit our web site: www.nittanymineral.org

April 20th meeting

On the Trek toward the Tricorder:

Portable X-ray Fluorescence Analysis

by

Nichole Wonderling,

Penn State Materials Research Institute, and

Andrew Sicree,

Professional Mineralogist, State College, PA

Our April meeting will be held Wednesday the 20th in the room 114 auditorium of Earth & Engineering Sciences Building on the west side of the Penn State campus in State College, PA. Maps may be found 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;
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 – **Bring your friends and keep up with fascinating developments in analysis of minerals.** -Editor*

Portable x-ray fluorescence (XRF) units are now available and have a wide range of applications. They can be very helpful in identifying unknown minerals because the apparatus yield data about the major elements in a specimen.

The Bruker portable XRF unit allows direct testing of samples without any sample preparation (in other words, you don't have to grind up the specimen). The manufacturer has loaned its Tracer III model to Penn State, and we will have it set up at the April meeting. For more information on the instrument, see www.bruker-axs.com/traceriiiiv.html.

We'll be demonstrating the unit and analyzing specimens brought in by those attending the meeting. The area of a specimen to be analyzed needs to be at least about 1/4" square. Bring some unknown minerals, or if you have a specimen which has already undergone analysis, bring that and we will see how well the results match. We'll also explain the theory and the basics of X-ray fluorescence analysis.

ATTENDING THE APRIL MEETING?

Donations of door prize specimens are invited.

NMS will provide ice, soft drinks, and water;
your donated snacks will be welcomed.

Bring a friend!

Junior Rockhounds Meet April 20th, 6:30 p.m.

The April 20th meeting of Junior Rockhounds is scheduled for 6:30 p.m. in room 116 Earth & Engineering Sciences Building. That's during the social hour for the regular NMS meeting, so juniors and their parents can choose to come to the main meeting afterwards as well.

We will meet again on May 18, break for the summer, and plan to resume in August or (more likely) September. Watch this Bulletin and our web site for news on the meeting time and place for the Fall.

Each month's meeting has a new topic or topics with fun, hands-on learning for the kids. We encourage those who attend to become NMS members, but it's not required. Just \$7.00 covers a whole year (through October 2011) of student membership. Parents may get a lot out of the meetings, too! Check the web site for news, or contact Dr. Andrew Sicree (see page 8).
- Editor

Minerals Junior Education Day Grows and Succeeds

by David Glick, Jr. Ed. Day Chair

Our annual Minerals Junior Education Day on April 2 went well, with about 254 children, plus their parents, in attendance. That's up from the last two years and met our target of 250, which allowed us to make good use of all the samples which we had prepared for handing out.

NMS is very grateful to our co-sponsors Penn State Earth and Mineral Sciences Museum, Bald Eagle Chapter of Gold Prospectors Association of America, and Junior Museum of Central Pennsylvania, for their various contributions. Likewise our donors Michael and Barbara Sincak; John 'Pen' Ambler; Jeff Smith; Ruth Park; the collecting group of 'Skip' Colflesh, Scott Snavely, Ryan O'Neal and Bob Buckmoyer; Peter Heaney; John Passaneau; Jean Carpenter; Margaret Hardy; and others made many giveaways and sales items possible. The volunteers who did the set-up, clean-up, and staffed all of the stations were outstanding. I believe I have thanked all of them or their group leaders directly, but if I've missed any, my sincere thanks go to them.

This year the stations were:

Rocks versus minerals	Polarized light
Light in gems: Iridescence	Piezoelectricity
Fossil shells	Fossil bones
Gold panning	Crystal growth

– plus a sales table at kid-friendly prices.

Please see the photographs...

Continued on page 3

Petrified Wood Exhibit by NMS Opens at EMS Museum

by
Bob Altamura

Nittany Mineralogical Society members Willard Truckenmiller and Bob Altamura collaborated to create a new museum exhibit titled Petrified Wood. The exhibit consists of a display case filled with examples of petrified wood, mostly from the collection of Truckenmiller, and two posters suspended from the ceiling using clear filament. There are more than forty examples of petrified wood including cabochons carved by Altamura and numerous lapidary slabs. Posters include an essay (planned to appear in next month's Bulletin) on the process of petrification, a map of the world showing selected significant petrified wood localities, and field photographs of petrified wood taken in the Petrified Forest National Park in the Painted Desert of Arizona (see below).

This NMS exhibit is part of an on-going collaboration, established in 2007, with the Penn State Earth and Mineral Sciences Museum and Art Gallery. NMS volunteers change the contents periodically, and since its initiation several exhibits with different themes have been prepared and displayed. Past NMS exhibits at the Museum have included "The State College Oolite," "Major Pegmatite Districts in the Eastern United States with a Special Emphasis on Rare-metal Pegmatite Minerals," and "Minerals of Mexico."

The Petrified Wood exhibit opened on March 18, 2011. The EMS Museum is located on the ground floor of Deike Building on the Penn State University Park campus. The museum is generally open Monday through Friday from 9:30 a.m. to 5:00 p.m. when the University is open; see www.ems.psu.edu/outreach/museum.



Cross-section of petrified wood illustrating color variation, on display at the Petrified Forest National Park in Arizona.

W. Truckenmiller photo

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 April issue starts with a review of the EFMLS Annual Auction, which will be held in July at the convention in Syracuse. Betsy Oberheim notes the upcoming events of the Spring session at Wildacres and the EFMLS/AFMS Convention in Syracuse. Wildacres Fall classes are listed. The safety article discusses safe use and disposal of oxalic acid. Ellery Borow describes the American Club Rockhound of the Year Award. This year, the EFMLS and AFMS **conventions** will be held together July 6-10 in Syracuse, NY; Cathy Paterson, Show Chair, invites us all to attend and outlines the many features of the event: special exhibits, guest lecturers, field trips, banquet and more, as well as over 60 dealers. Competitive exhibits are encouraged. Forms for reservations, delegates, and displays are available from www.amfed.org/show2011.htm.

The **AFMS Newsletter** is available by the same methods. The April issue has descriptions and color photographs of more prizes for the AFMS drawing; tickets are \$5 each or 4 for \$20. John Martin discusses additional review of Travel Management Plans for public lands; rockhounds should voice their interest in having roads to collecting areas kept open. The Juniors article addresses a "Rock Pals" swapping program between clubs. The Central Oregon Inter-Regional Rockhound Rendezvous and Field Trip, May 27-30, is described.

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

Joseph Varady Mineral Collection Auction May 7

The mineral collection of Joseph J. Varady, 1942-2010, will be auctioned in Hatfield, PA, on Saturday, May 7 (preview on May 6). The auction will be conducted both live and online; see AlderferAuction.com. Four hundred lots of Pennsylvania and worldwide specimens are included. NMS's own Joe Dague is acting as the independent consultant.
-Editor

Minerals Junior Education Day *cont. from page 1*

Photos by David Glick

No Show again this year

by David Glick, Show Chair



NMS volunteers Shirley Fonda and Paul Zell, at left, explain Mississippian horn corals and other invertebrate fossils.



GPAA members helped each student to pan for gold.



The vertebrate fossil station was presented by Penn State's Earth and Mineral Sciences Museum.

In March I had filled out the application for space at Park Forest Middle School, and just before heading out the door to submit it, I thought I would check on the current charges. It has been two years, two changes of school district superintendent, and one fiscal crisis in Pennsylvania since our last show, so some increases would not be a surprise. In spite of that, I *was* surprised. Our school district had changed not only the rates, but also the way it charges non-profits such as NMS for the use of its space. At our last show, we paid less than \$700; that was a good deal and we appreciated the help that gave us in presenting a good show. This year our charges for the same space would be over \$2400. Considering that one principal goal of the show is to raise funds, and that we only made \$480 profit at the last show, this looked like a problem. Such an increase could not be absorbed through increased table fees for our dealers, or increased admission charges for our attendees, even if there was a moderate increase in attendance.

Several volunteers searched for and checked on alternatives with enough space, including the Bellefonte school district, churches, and vacant commercial real estate (not a favorite choice of mine). All were either similarly priced or unavailable. Based on this, our Board of Directors decided at their April meeting to cancel plans for our show this year.

The Board is, of course, considering a variety of possible events for the future, but we have nothing specific to report yet.



Andrew Sicree used several methods to demonstrate how minerals affect polarized light.

POPULAR MINERALOGY

Fascinating mineralogy and earth science for the amateur mineralogist and serious collector - #41

Minerals in the Water

by Andrew A. Sicree, Ph.D.

Minerals in the spring

Travel the back roads and by-ways of America and before long you will encounter a town or hamlet bearing the name “Mineral Springs.” Sometimes the town name is more specific, such as “Alum Springs” in Virginia or “Radium Springs,” a town of about 1700 residents northwest of Las Cruces, New Mexico. Towns bearing the name “Sulfur Springs” appear in Texas, California, and Kentucky, as well as other states, and there is a village called “Hot Sulfur Springs” in Colorado. This is only a small sampling of the “Mineral Springs”-type place names that speckle America. As one might suspect, these towns are named for nearby mineral springs. But what is a mineral spring and how does it differ from an ordinary spring?

A little hydrology

Rain falls on the ground and that which doesn't evaporate or run into nearby streams, percolates underground. Once below ground, rainwater will descend to the “water table” which is the upper surface of what is called the “saturated zone” underground. In the saturated zone water fills all of the cracks and joints in the bedrock and all of the spaces between grains of sediments.

If the saturated zone (the water table) comes to the surface at any point, water can flow out of the ground. The water table hits the ground surface at the banks of many streams and ponds and they gain water from underground. This, by the way, is what keeps many streams flowing even when it has been weeks since the last rainfall.

When the water table intersects with the ground surface at points uphill from the local streams, springs will result. Water will seep out of the ground and trickle downhill to the nearby streams. Often, but not always, these springs produce good quality water and they were utilized for drinking purposes. Many people still prefer to drink “spring water” and a good portion of the bottled-water industry exploits natural springs for this purpose.

Mister, can I drink from that waterhole?

Early settlers soon noticed that not all springs were so refreshing. Some springs were warm or even boiling – these we call “hot springs” – and others tasted bad, smelled worse, or were hard on the digestion. In a few cases, spring water might even be poisonous. There is more than just water coming out in these “mineral springs.” For instance, Wilson (James Wilson, *A Collector's Guide to Rock, Mineral, and Fossil Localities of Utah*, 1995) notes occurrences of springs made poisonous by dissolved selenium in the uranium-rich Poison Strip area east of Crescent Junction, Utah.

It wasn't long, however, before resourceful speculators and quack doctors decided to turn a liability into an asset by promoting mineral springs as healthful. Throughout the late 1800s and into the 1900s, patients suffering from a wide variety of ailments were sent off to spring-side sanitariums, spas, and resorts to “take the waters.” They swam and soaked in the springs and drank mineral waters for their therapeutic values. Health benefits may have been uncertain, but popular vacation resorts grew up around the springs as first one then the next became the trendy spot for the wealthy and famous. The popularity of mineral spring resorts continues to this day.

Where are the minerals?

Mineral springs produce more than just water. Water can dissolve minerals, and waters which contain a substantial portion of dissolved minerals are termed mineral waters. Typically, these waters contain gases, sulfur compounds, and a variety of salts. You may hear the term “total dissolved solids” or TDS used to describe the concentration of dissolved minerals. The US Environmental Protection Agency recommend that drinking water contain less than 500 parts per million (500 milligrams per liter of water) or total dissolved solids. Waters with more than 1500 ppm (1500 mg/L) TDS are labeled as having “high mineral content.”

So where do the dissolved solids originate? As ground water passes through rock, it will dissolve any minerals it encounters. Of course, many minerals (e.g. quartz, corundum, etc.) aren't very soluble, especially in cold water. Carbonate minerals such as calcite (CaCO_3) and dolomite ($(\text{Ca,Mg})\text{CO}_3$) and sulfate minerals such as gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) will dissolve, and halide minerals such as halite (NaCl) and sylvite (KCl) dissolve very readily. When a mineral like halite goes into solution in the groundwater, it dissociates into sodium (Na^+) and chloride (Cl^-) ions. Much of what makes up the total dissolved solids of many natural waters is in the form of ions such as calcium (Ca^{2+}), magnesium (Mg^{2+}), carbonate (CO_3^{2-}), bicarbonate (HCO_3^-), sodium (Na^+), and chloride (Cl^-) ions. If you evaporate these waters, compounds such as calcium carbonate (calcite) and sodium chloride (halite) will precipitate as solids. Warmer waters found in thermal springs will dissolve more minerals than cooler water and at higher temperatures even sparingly soluble minerals like quartz begin to dissolve.

Types of mineral springs

Not all “mineral springs” are the same. Some are called “sweet springs” but because the water is quite low in dissolved solids, they scarcely deserve to be called mineral springs.

Alum is $\text{KAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$ and alum springs contain higher levels of potassium (K^+), aluminum (Al^{3+}), and sulfate (SO_4^{2-}) ions. You may be familiar

with synthetic crystals of alum which are often sold at mineral shows. Alum can also be found in your grocery store with the canning supplies. Drinking water from alum springs can give one diarrhea and other gastrointestinal problems.

Chalybeate springs produce ferruginous, or iron-rich, waters. Containing dissolved iron(II) carbonate (siderite) and manganese(II) carbonate (rhodochrosite), the water has a distinct taste of iron. Among the notable chalybeate springs are Tunbridge Wells in England and the Sweet Chalybeate Springs of Alleghany County, Virginia.

Sulfur (sulphur) springs are notable for their strong rotten egg smell. Dissolved hydrogen sulfide (H_2S) escapes from the water and gives it a brimstone odor. Our noses are extremely sensitive to hydrogen sulfide and we can detect extraordinarily low levels of hydrogen sulfide in air (most people can discern it at levels of 0.5 ppb – that's parts per billion!). The source of the hydrogen sulfide can be sulfide minerals such as marcasite and pyrite (FeS_2).

Saline spring waters typically contain dissolved chloride salts of sodium, calcium and/or magnesium. They have a strong salty taste, much like seawater.

Alkaline springs contain higher levels of alkalis or alkaline earth elements, such as sodium, potassium, lithium, calcium or magnesium ions, along with carbonate or hydroxide ions. Alkaline waters are more bitter and more basic ($\text{pH} = 8$ or higher) than other spring waters. Lithia springs contain lithium ions and calcic springs are high in calcium.

Soda springs contain excess dissolved carbon dioxide in the form of sodium carbonate or as the dissolved gas itself. At depth and under pressure, natural waters can dissolve carbon dioxide gas. Upon rising to the surface, some of these soda waters may effervesce (bubble up) like so much natural champagne, releasing bubbles of carbon dioxide. Carbonated water is also called “seltzer water.” Seltzer water originally referred to the effervescent mineral water obtained from the natural springs near the village of Niederselters in Germany but today seltzer water is produced artificially. Interestingly for mineralogists, the Yale chemistry professor Benjamin Silliman (for whom sillimanite was named) bottled

and sold artificial seltzer water beginning in 1807. Flavored seltzer waters followed eventually leading to the flavored artificial mineral waters sold as Coca-Cola and Pepsi.

Spring water can be radioactive. Radon gas dissolves readily into groundwater but will rapidly escape from water on the Earth's surface. "Radium springs" contain traces of radium derived from underground uranium or thorium deposits. One hundred years ago, radium was valued as a wonder drug reputed to cure many diseases including cancer. A mineral spring that contained traces of radium was thought to be particularly healthful. Radium Springs near Albany, Georgia, produced radium-laced water and became the site of a spa and a casino. Radium Springs, New Mexico, is a village of about 1700 people just northwest of Las Cruces.

*Dr. Andrew A. Sicree is a professional mineralogist and geochemist residing in Boalsburg, PA. This **Popular Mineralogy** newsletter supplement may not be copied in part or full without express permission of Andrew Sicree. **Popular Mineralogy** newsletter supplements are available on a subscription basis to help mineral clubs produce better newsletters. Write to Andrew A. Sicree, Ph.D., P. O. Box 10664, State College PA 16805, or call (814) 867-6263 or email sicree@verizon.net for more info.*

More Words to Dig By

Fossil: Farmers in medieval Europe dug trenches and ditches to drain rainwater off their fields. These trenches were called "fosses" after the Latin expression meaning "to dig." Often enough, the ditch diggers uncovered what appeared to be ancient bones, teeth, or shells and called them "fossils" because they came from a fosse.

Erosion: Mice and other gnawing animals plagued the ancient Romans, and it is from their term *rodere*, "to gnaw," that we derive the word "rodent." Later, the alchemists experimented with acids and discovered that they would attack metals, slowly dissolving them. This slow corrosive action was labeled "erosion." Geologists then adopted the term erosion to describe how glaciers, streams, and rivers gnawed away sediments and rocks.

Goldbrick: Goldbricking is the shirking of one's duties, but the term had its origins during the Gold Rush days. An unscrupulous promoter would cover a block of lead with a layer of gold and offer it at a "discount" to unwary investors. The man who bought the "goldbrick" was cheated and the word came to be a verb meaning "to swindle." During World War I, however, the term acquired a somewhat different meaning. A soldier who avoided doing his duty was called a "goldbrick." The term retains its original meaning as a secondary definition.

Bonanza: Bonanza is another word that entered general use during the Gold Rush days. Derived from the Latin *bonus* for "good," the word bonanza was coined by Spanish sailors to describe days of clear weather coming on the heels of a storm. The term came to mean any good fortune and was applied to very rich gold discoveries. Today, the term is applied to any source of great wealth.

Ref.: Garrison, W., *445 Fascinating Word Origins* (Galahad Books, New York, 2000) 248 pp.

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SOLUTION to last month's crossword, A World of Minerals

C	D		H	E	M	I	M	O	R	P	H	I	T	E
O	N		E	V	E	L		R		U		R		A
B	A	U	X	I	T	E		E	X	P	E	R	T	S
W		G	A	L		S	B		E	I		I		I
E	O		G			I	L			L	A	T	H	E
B	L	O	O	D	S	T	O	N	E	S		A		S
S	E		N	I		E	W	E	S		K	N	O	T
			S	A	G	O	P		L	I	L	I	T	
S	E	E	L		A	R	I	A		I	A		A	L
U		L		T	R	I	P	L	O	I	D	I	T	E
N	I	E	C	E			E	U			N		E	S
D		N		F	E		S	N		B	O	B		O
I	C	I	C	L	E	S		I	L	L	I	C	I	T
A		U		O		O		T	O	O	T		O	H
L	U	M	I	N	E	S	C	E	N	C	E		N	O



Geo-Sudoku by David Glick

This puzzle contains the letters BEIMNORST, and one row or column relates to an odor found in some mineral waters. 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.

N	E		M	R	I	B		T
I	M	T	E					
	T					M		N
R		E					B	
		M	S	B	N			
			R					
	R	I		O		N	T	
				M		E	I	

It's time to sign up for Wildacres September session! See www.amfed.org/efmls/wildacres.htm

WILDACRES FALL CLASSES – September 5 – 11, 2011 – Speaker in Residence - Dr. Steve Chamberlain

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 with no flat spots. 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. 2-day class offered 1st semester. No prior experience necessary.
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 2nd semester. Pre-requisite: Students must know how to use the trim saw, dop a stone and use a grinding, sanding and polishing machine.
Chainmaille - Basic Roger Campbell	Learn the ancient art of chainmaille using non-soldered copper jumpings. Students will learn different weaves while completing class projects. All tools will be provided. An optivisor or other magnification would be helpful. 2-day class offered 1st semester. No prior experience necessary.
Chainmaille - Continued Roger Campbell	The 2nd semester class will be a short review of chainmaille and students will learn additional weaves. All tools will be provided. An optivisor or other magnification would be helpful. 2-day class offered 2nd semester. No prior experience necessary.
Cold Connections - A Riveting Experience Pat Baker	Students will learn to make jewelry with cold connections, no soldering required. Materials with which we will work include silver, copper, bronze, brass and found objects/alternative materials. Students will learn how to create texture with hammers, stamps and the rolling mill; riveting and tube riveting and forming with a dapping punch and block. All students should bring optivisors. 2-day class offered 1st semester. No prior experience needed.
Working with Reactive Metals; Anodizing Titanium & Niobium Pat Baker	Add amazing color to your jewelry! Titanium and Niobium, while gray in their natural state, can be treated by heat and/or electricity to create beautiful colors on the surface of the metal. We will make many samples with both metals using wire and sheet, discuss the limitations (these metals cannot be soldered) and the benefits. 2-day class offered 2nd semester. No prior experience needed.
Faceting Reivan Zeleznik	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 if they have one. 4-day class. No prior experience necessary.
Gem Identification B. Jay Bowman	Students will learn to use the various instruments used to identify cut gems. This will include the microscope, refractometer, spectroscopy and others. They will practice on a variety of stones provided. 4-day class. No prior experience necessary.
Polymer Clay: Making Canes and More Carolyn Stearns	Each student will learn how to make millefiori clay canes. You will begin by making blends of clay and turning them into many different canes including flowers and leaves. Once you have several canes created, you will learn to slice them tissue-paper thin and layer the slices to create clay fabric which will be used to make several different shape beads and cover different items. (If you bring your own clay, please bring Kato Polyclay. You may bring your own tools if you have them.) Kit and materials will be provided. 4-day class. No prior experience needed.
Basics of Scrimshaw Sandra Brady	Scrimshaw, a folk art dating back centuries, is a special form of engraving applied to ivory and similar materials. This course offers an excellent way to begin traditional scrimshaw. Working with a hand scribe you will learn attractive shading techniques and how to work on both natural and man-made materials. You will also learn basic composition and tool sharpening, as well as transfer methods for those who are "drawing challenged". An optivisor or other magnification is recommended. 2-day course offered 1st semester. No prior experience needed.
Scrimshaw - Color Basics Sandra Brady	Building on the methods taught in the 1st semester, students will be introduced to color. Again, working on both natural and man-made materials, modern scrimshaw methods utilizing the beauty of color will be explored. Preservation of your artwork will be included. Please bring an optivisor. 2-day course offered 2nd semester. Pre-requisite: Basics of Scrimshaw.
Silversmithing	Students will learn the basic of soldering, fitting a stone, assembling and finishing either a ring or pendant. Starting with a piece of flat silver, students will learn to make a bezel setting, solder it to a piece of silver, and then add either a ring shank or pendant bail before finishing the piece on the buffer. 2-day class offered both semesters. No prior experience necessary.
Wirewrapped Jewelry - Basic Jacolyn Campbell	Using pliers, gold-filled or sterling wire, assorted beads or gemstones, and a few basic wirecraft techniques, learn how to create your own fashion rings, bracelets, pendants and earrings to add that perfect accent to your jewelry wardrobe or to give as gifts. Designed for beginners, students will make a variety of projects. All tools and materials are provided. 2-day class offered 1st semester. No prior experience necessary.
Wirewrapped Jewelry - Intermediate Jacolyn Campbell	Using the same techniques and materials as in the basic class, students will make more advanced projects. All tools and materials will be provided. 2-day class offered 2nd semester. Pre-requisite: Basic wirewrapping skills however, a <u>brave</u> new beginner could take the class.

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.

April 30- May 1, 2011: 39th Annual NJESA Show sponsored by the Franklin-Ogdensburg Mineralogical Society in conjunction with the NJ Earth Sciences Assoc. and Sterling Hill Mining Museum. Franklin School, Franklin, NJ.

May 14-15, 2010: "World of Gems and Minerals" by Berks Mineralogical Society. Sat 10-5, Sun 10-4. Rt 61, 7 miles South of I-78, Leesport Farmers Market, Leesport PA.

June 4, 2010: Spring Mineralfest by PESA, Sat. only 8:30 - 3:00, Macungie, PA. www.mineralfest.com

July 6-10, 2011: EFMLS & AFMS Conventions, Syracuse, NY. Conventions July 6-10 (EFMLS Annual Meeting Friday July 8), show July 9-10.

2012: EFMLS Sept.15-16, Harrisburg, PA *

For sale / trade: Equipment & Materials

For sale: Large mineral collection; will sell all or part. Tumble polisher with three 12-lb. and one 6-lb. drum plus grits, polishes and pellets. My phone number is (570) 672-2325. Leave a message if I'm not in.

For sale: Jade in various types & colors; mostly rough, plus some slabs; some fine Coober Pedy opal. Also equipment and jewelry making supplies from jewelry studio and production shop. Contact Daniel G. Reinhold in Mill Hall, PA; phone 570 726-8091 after lunch every day, or e-mail: dreinhold1@comcast.net



GeoSudoku solution from page 6

N	E	O	M	R	I	B	S	T
I	M	T	E	S	B	R	N	O
S	B	R	T	N	O	I	E	M
B	T	S	I	E	R	M	O	N
R	N	E	O	T	M	S	B	I
O	I	M	S	B	N	T	R	E
E	S	N	R	I	T	O	M	B
M	R	I	B	O	E	N	T	S
T	O	B	N	M	S	E	I	R

Visit our web site:

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). 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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Membership Chair: David Glick (see above)
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Door Prizes: Mike Zelazny
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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.