

# Nittany Mineralogical Society Bulletin

Nittany Mineralogical Society, Inc.

P.O. Box 10664

State College PA 16805

Editor (see page 8):

David C. Glick

September, 2010

Visit our web site: [www.nittanymineral.org](http://www.nittanymineral.org)

## September 15th meeting:

### The 2010 Eruption of Eyjafjallajokull Volcano, Iceland

by

Dr. Peter La Femina and  
Halldor Geirsson

*Our September meeting will be held Wednesday the 15th 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 – **Bring your friends and learn about another aspect of geology in the recent news.***

*-Editor*

Iceland is a land of fire and ice. Scenic glaciers cover the island's most active volcanoes, which have produced the largest historical eruptions of lava on Earth. The combination of these two natural phenomena during subglacial eruptions can have devastating results for local and global populations. The 2010 eruption of the Eyjafjallajokull volcano, Iceland has been a less than subtle reminder that the forces that have shaped our planet and atmosphere can be at once beautiful and awe inspiring, yet also disastrous. The eruption began on March 20, 2010 following years of volcanic unrest. The initial phase of the eruption took place on two short fissures on the northeastern flank of the volcano and produced fantastic fire fountains, lava flows and lava falls. On April 14, 2010 the eruption migrated to the glacial covered summit crater. The subglacial eruption that ensued was very explosive and sent an eruption column of steam and fine-grained ash to over 20,000 feet in elevation and a glacial outburst flood (or jokulhlaup in Icelandic) down several river valleys. The ash cloud had a severe impact on air-travel, causing the closure of airports across Europe and stranding travelers for over a week. Join Peter La Femina, Assistant Professor of Geosciences, and Halldor Geirsson, Graduate Research Assistant and former staff member of the Icelandic Meteorological Office, as they discuss the 2010 eruption of Eyjafjallajokull volcano and its impact on Iceland and the northern hemisphere.

## Junior Rockhounds Meet September 22nd

Junior Rockhounds meetings are scheduled for Wednesdays this Fall. In September, the meeting will be held at 6:30 p.m. on the 22<sup>nd</sup> (one week after the regular NMS meeting). In the following months, they will be held at 6:30 on the third Wednesday, during the social hour for regular NMS meetings (Oct. 20, Nov. 17, Dec. 15).

The location is Earth & Engineering Sciences Building as before, and the room is expected to be 118 as usual; if a different room is used, we'll post a notice (check the web site too). -Editor

## Elections in October: Nominating Committee's Candidates Announced

by David Glick, NMS President

All members: please consider volunteering to run for an elected position on the Board of Directors, or volunteering for an appointed position. We need new blood and fresh thinking!

There have been no volunteers so far, so the Nominating Committee officially puts forth the slate of candidates consisting of the incumbent officers:

President: David Glick;

Vice-President: Robert Altamura;

Secretary: Ellen Bingham;

Treasurer: John Passaneau.

Elected positions are described in the bylaws which are available via the left sidebar of the web site, and a summary of the most important current responsibilities were presented in last month's Bulletin.

We are also looking for members to coordinate refreshments and publicity (see the August Bulletin). Please volunteer!

## Door Prize Coordinator

The Board is grateful to Mike Zelazny for volunteering to coordinate our door prize drawings and help with other responsibilities (to be decided). -- Editor

### ATTENDING THE SEPTEMBER MEETING?

Donations of door prize specimens are invited.

NMS will provide ice, soft drinks, and water;

your donated snacks will be welcomed.

**DUES FORMS** for members are enclosed.  
**Please mail in or bring to September meeting.**  
**Thank you for your prompt response!**

## 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.ems.psu.edu/nms/](http://www.ems.psu.edu/nms/) or remind Dave Glick to bring a printed copy to a meeting for you to see.

The September issue reports on increasing club membership, regional vice president elections, various awards and donations, bulletin contest winners and the upcoming contest. The schedule for the Eastern and American Federation Convention is presented; hosted by the Gem and Mineral Society of Syracuse, New York, the meetings will be held July 7-8 and the Show on July 9-10. The recent AFMS convention in California is covered.

The **AFMS Newsletter** is available by the same methods. In the August-September issue, the lead story covers the convention held in California in June. AFMS President Emerson Tucker also comments on the convention and the show, with its many competitive cases and a remarkable petrified wood display. Safety Chair Owen Martin tells a cautionary tale about how one little event can lead to another and another, and pretty soon you're in trouble when collecting alone (he still got out of the situation OK). Legislatively, the risk continues of vehicle access to more public lands (and collecting sites) being prohibited. Bill HR 5580 would require that congress and the public have input on creation of any new National Monuments (see page 7 of the issue). The juniors article provides a review of good resources for ready-made kids' activities. Fran Sick, Public Relations Chair, encourages keeping one's club in the public consciousness; participation in local public events and postings in calendars of events are among the ways to accomplish this. The upcoming web site contest is described. One upcoming Inter-Regional Rockhound Rendezvous is announced and discussion for others is invited. Bulletin contest winners are listed, and two inductees to the National Rockhound & Lapidary Hall of Fame are introduced. There's a great poem on "The Geology of Newsletter Editing." The American Lands Access Association will hold an informational meeting during the Quartzsite, Arizona, Pow Wow Gem & Mineral Show in January.

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

## Note from the President

by David Glick, NMS President

The meeting at the September program should be a fascinating one, and I'm sorry that I'll be out of town. This is a great opportunity to invite your friends who are interested in nature, science, technology, and the world in general to our meetings. Everyone is welcome, and eligible for door prizes!

Ellen thanks us for coming to the picnic (see below), but obviously it is we who owe her (and Stu and Nina and Karen) many thanks. The effort in preparing lots of food and hosting the picnic at their home, while many other events were on their schedule, is greatly appreciated. They have a great place for it and in my opinion it would be wonderful to have it there next year. H

## Pleased by NMS Picnic

from Ellen Bingham

I would like to thank everyone that came to our home for the Annual Picnic. The weather was fabulous, and the food terrific. Without making a complete list of the side dishes, I would like to share that the macaroni and cheese with the addition of hot peppers was new to me and absolutely delicious. And since our garden is slow this year, the tomatoes that came were fantastic in their red and juicy flavor. Thanks to all for the contributions of food and fun. We sat and talked into the dark under candlelight and a light breeze made it even more comfortable. That is the best part. Good company and fine friends. Maybe next year we can get some of the kids and grandkids to come, too! H



**Left:** Ellen dishes up some of the great food at the picnic.

**Below:** One of many after-picnic conversations on the porch.

*Photos by D. Glick.*



**NMS to Exhibit at the  
ClearWater Conservancy  
Spring Creek Day Family Festival  
Millbrook Marsh Nature Center  
October 3rd**

by Bob Altamura

Bob Altamura and Willard Truckenmiller will present an educational exhibit on “Mineral and Rock Hardness & Lapidary” at the ClearWater Conservancy’s 28<sup>th</sup> Annual Spring Creek Family Festival. The Festival will be held at the Millbrook Marsh Nature Center on Puddintown Road near State College during the afternoon of October 3rd (noon to 5 p.m.). Last year nearly 500 people are reported to have attended the festival. The educational aspects of the NMS exhibit will include discussion of the hardness of minerals, especially those used for gemstones, and a discussion and demonstration of hardness as it applies to lapidary (gemstone carving). The demonstration will include the grinding and polishing of gemstones including vibrating and rotary tumbling.

Souvenirs of commonly used hardness minerals and a limited supply of tumbled stones will be given away to visitors.

NMS will donate a gift basket of mineral-related items as a fundraiser for ClearWater Conservancy at the event. Gift baskets donated by exhibitors will be raffled off during the festival. A special prize will be awarded to the donor of the basket that draws the most raffle tickets – a people’s choice prize for one exhibitor. The fundraiser will support the Connections Program which pays for area school children to attend the Nature Center during the school year. Information about the Festival and about ClearWater

Conservancy can be found at <http://www.clearwaterconservancy.org/events.htm>. There is no admission fee to attend the Festival. Events will include: live music; talks; educational and fun activities including demonstrations and board walk tours of the nature area; gift baskets raffle; exhibits; and food. If you attend – please stop by the NMS table to say hi and see our presentation.



Oolitic Chert pendant necklace made by the author, from chert collected near State College.



Gemstone pendants made by the author using the equipment that will be demonstrated during the Spring Creek Family Day Festival.

# POPULAR MINERALOGY

Fascinating mineralogy and earth science for the amateur mineralogist and serious collector - #36

## *Harder Than The Hardest*

*by Andrew A. Sicree*

### **Finding a perfect ten**

Everyone knows that diamond is the hardest substance in the world, but sometimes something that everyone knows just isn't quite true. Diamond ranks as number ten on the Mohs scale of hardness, but the Mohs scale is only a relative scale. Friedrich Mohs chose diamond to be number ten on his scale because it was the hardest natural mineral substance he knew. Hardness on his scale is determined by scratching one mineral against another. Thus, calcite (H = 3) will scratch gypsum (H = 2) and talc (H = 1), but talc will not scratch either of the other two minerals. On the high end of the scale, diamond is harder than corundum (H = 9) and topaz (H = 8), but the gap between diamond and corundum is really much bigger than the gap between corundum and topaz. It takes correspondingly much more energy to scratch a diamond than to scratch corundum.

In the region between diamond and corundum, we find a number of harder synthetic materials and natural minerals. For instance, silicon carbide (SiC) is harder than corundum but softer than diamond. Hexagonal silicon carbide occurs naturally as the mineral rare mineral moissanite; it is found as tiny crystals in some meteorites.

### **Inventing carborundum**

In 1893, Edward Goodrich Acheson patented a process for making synthetic silicon carbide grit, which he called "carborundum." Today, huge quantities of silicon carbide are produced synthetically and it is of major importance in the production of precision-ground interchangeable metal parts. Because it is harder than corundum and considerably cheaper than diamond grit, lapidaries and stonecutters have long used it as an abrasive, too.

Synthetic silicon carbide is opaque and very dark black in color. In recent years, the discovery of methods of making transparent, colorless silicon carbide crystals has opened up a new market for silicon carbide as a synthetic gem. This silicon carbide is sold as moissanite and is popular as a durable and flashy, but cheaper, diamond substitute.

### **Lonsdaleite and boron nitride**

In the gap between corundum and diamond, scientists have long placed the rare mineral lonsdaleite and a substance called "wurtzite boron nitride." Like diamond, lonsdaleite is pure carbon, but lonsdaleite has a hexagonal rather than a cubic crystal structure (note that the mineral graphite is also a hexagonal polymorph of carbon, but lonsdaleite has a different hexagonal lattice). It is a very rare mineral. Small crystal blebs of lonsdaleite have been reported in some meteorites, and they are thought to have formed when a graphite-containing asteroid collided with another object (i.e., when it hit another asteroid or when it hit the Earth). Like graphite (hexagonal carbon), lonsdaleite is a polymorph of the mineral diamond. But unlike graphite, lonsdaleite is exceedingly hard - right up there with diamond.

Boron nitride has to be made synthetically. No one has found it in nature (yet!). It has simple chemistry, just boron and nitrogen. The interesting fact about boron nitride is that it is "isoelectronic" with carbon, meaning that the electrons forming the covalent bonds in boron nitride are in essentially the same configuration as those in carbon. It implies that boron nitride should have many of the properties of carbon. And we find this is true.

Hexagonal boron nitride (h-BN) is very soft. This is analogous to the softness of hexagonal carbon (a.k.a. graphite). The cubic form of boron nitride (c-BN) has the same "sphalerite-like" structure of cubic carbon (a.k.a. diamond), and is correspondingly extremely hard. And, just as lonsdaleite is a very hard hexagonal form of carbon, so too there is a very hard hexagonal form of boron nitride. This hexagonal form of boron nitride has a "wurtzite-like" structure. Thus the name wurtzite boron nitride (w-BN) is quite appropriate.

### **How hard are they?**

Mineralogists knew that both lonsdaleite and wurtzite boron nitride were very hard. But exactly how hard has been difficult to determine because nothing more than a few small flecks of either substance has been available. Hardness tests are very difficult to do accurately on very small specimens.

Scientists have thus turned to computer models. And they got some surprising results. According to the models used, wurtzite boron nitride is capable of withstanding 18% more stress than diamond is. (Measuring the stress necessary to damage the crystal lattice or scratch a crystal gives a much more precise picture of the true hardness of that material.) And lonsdaleite is predicted to be capable of withstanding 58% more stress than diamond. This means that wurtzite boron nitride is harder than diamond and that lonsdaleite is harder than either wurtzite boron nitride or diamond. Thus, lonsdaleite is now the hardest known substance in the world.

Getting the computer to do for you what you cannot do in the lab is becoming more and more common. We can use computer models to determine everything from the location of an electron in a hydrogen atom up to rates of global warming. However, the question that must be asked of any model is "How well does this model reflect the reality in nature?" In the case of lonsdaleite and wurtzite boron nitride, proof will come when we get specimens large enough to test with precision hardness testers. Synthetically-made lonsdaleite will have to suffice if large natural crystals cannot be found.

Diamond is in many science books as the world's hardest substance. The day may soon come when we have to re-write those texts to include data on lonsdaleite and wurtzite boron nitride.

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*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.*

## Black Swords from Japan

Glistening black swords of stibnite from Japan have haunted dreams of mineral collectors for the past century. The Ichinokawa Mine in Japan's Ehime Prefecture closed more than 50 years ago and in spite of the newer production of large bladed stibnites from Chinese mines, the Japanese stibnites remain among the world's mineral classics.

Stibnite has been utilized for millennia. Ancient Greek and Roman authors such as Pedanius Dioscorides (circa 40-90 AD) and Gaius Plinius Secundus (23 AD - August 25, 79 AD), better known as Pliny the Elder, referred to stibnite as *sibi*, *stimmi*, or *platyophthalmon*. The term *platyophthalmon* alludes to the popular use of powdered stibnite, which looks black, as a cosmetic for darkening the eyebrows to make ones' eyes seem larger.

Stibnite, an antimony sulfide (Sb<sub>2</sub>S<sub>3</sub>, orthorhombic) sometimes known by the alternative name antimonite, can occur as long thin striated crystals with sharply pointed ends. Fresh crystals have a black steel luster, making the sword

analogy complete. After prolonged exposure to light, the surfaces of stibnite crystals tend to dull.

Somewhat fantastically, some authors have reported that Japanese gardeners, living in the vicinity of the mines, used meter-long stibnite crystals not as swords (in reality they would shatter if struck), but rather as plant stakes or as fence posts in miniature gardens.

An unusual property of stibnite is the development of "kinks." Natural crystals sometimes display a bend or kink in an otherwise straight crystal. It is possible to create these kinks yourself. Hold a small crystal pinched between the thumb and forefinger of each hand, then apply a firm but gentle shearing force to the crystal. You'll feel the crystal move slightly and you'll see that a kink has developed in the crystal. Don't try this with an expensive specimen as the kink cannot be reversed and any attempt to straighten the kink may result in the crumbling of the stibnite crystal.

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## The World's Oldest Amber

Scientists recently discovered some of the world's oldest amber in 320-million-year-old coals from Illinois. This amber has only been found in small blebs about one-quarter of an inch (5 mm) across, but analysis of the amber yielded some surprising results.

Amber from the Dominican Republic is about 30 million years old. The world's largest sources of amber are the shores of the Baltic Sea; ambers from there are probably about 42 to 54 million years in age. New Jersey amber ranges approximately 65 to 95 million years old. Amber from Lebanon goes back nearly 130 million years. The Illinois ambers were found in coals from the Tradewater formation, Pennsylvania-age rocks about 320 million years old.

Amber forms from fossilized tree resins. Trees produce resins to seal damage and to protect themselves against insect invasions and to discourage animals from chewing on them. We are familiar with the dark reddish-brown resins that ooze from the barks of conifers and other gymnosperms - it sticks to your hand and is almost impossible to wash off. Gymnosperms are trees that have "naked seeds," and the group includes trees such as pines, firs, spruces, and ginkos. Other trees are angiosperms (flowering plants with encased seeds, including trees like apple, maple, and oak). They also can produce ambers. It is possible to identify various types of ambers using a process called pyrolysis-gas chromatography-mass spectrometry (Py-GC-MS). Put simply, this process takes a sample of amber, burns it to break

it down, separates the chemicals produced during the break-down, and then identifies the break-down chemicals. Ambers from gymnosperms and angiosperms will produce different patterns of break-down chemicals and so we can distinguish them.

Analysis of the Illinois ambers revealed that they belong to the class "1c." Ambers in the "1b" class are the most common, and they are thought to form from trees like conifers (gymnosperms). Class 1c ambers are usually thought to come from angiosperms. The problem with the 320-million-year-old Illinois ambers is that they are in class 1c (angiosperms), but angiosperm plants don't arise in the fossil record until almost 200 million years later. (Plants that formed Pennsylvanian age coals were not like those in modern-day forests; there were no grasses and no flowering trees; ferns and fern-like plants predominated.) This class 1c amber puzzle leads scientists to suspect that at least some early plants growing in the coal swamps of the Illinois Basin had resin-making abilities similar to those of modern-day flowering trees.

Ref.: Bray, P. S., and Anderson, K. B., 2009, "Identification of Carboniferous (320 Million Years Old) Class 1c Amber," Science, v. 326, 2 Oct. 2009, p. 132-134.

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## CPRMC SHOW IN HARRISBURG SEPTEMBER 18 - 19

Central Pennsylvania Rock & Mineral Club's annual show returns to the Zembo Temple (2801 N 3<sup>rd</sup> St.) in Harrisburg this year. It is expected to feature 29 vendors, plus other displays, activities and educational booths. Geologist Jeri Jones will present half-hour programs throughout both days. See details on all of this on the show web site, [www.rockandmineral.org/annualshow.htm](http://www.rockandmineral.org/annualshow.htm)

A one-dollar-off coupon may be printed from that web site. - - Editor

## *Ultraviolation* All-Fluorescent Mineral Show CORRECTION: OCTOBER 30, 2010

Please note the correction to the date published in the August Bulletin calendar, and this editor's apologies. The correct date for this show is OCTOBER 30, not November. This interesting show is run with alternating periods of room lights off so that the fluorescent specimens can be seen, then on for transacting business. It works well! See page 8. - - Editor

## Geo-Sudoku

by David Glick

This puzzle contains the letters EFGILNORW, and one row or column spells out the plants which are thought to produce class 1c ambers.. 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.

L	W		E	F	O			N
		F		R			W	L
E			L	G		F		O
R			F	O	N		L	
		W			G			
								G
O		G						I
		E					O	
W		L		I		N	G	F

## Autumn Mineralfest Show October 2 at Macungie

The Pennsylvania Earth Sciences Association will hold its Mineralfest Mineral, Fossil and Gem Show at Macungie on Saturday, October 2. The show is indoors at the Macungie Memorial Park, 8 miles southwest of Allentown, PA; from I-78 at Fogelsville, take Route 100 south 6 miles to Macungie, turn left onto Poplar Street across from the Bear Swamp Diner. Hours are 8:30 a.m. - 3:00 p.m.

As usual, there will be over 100 tables of minerals, fossils, gems, geodes, and crystals, plus fluorescent displays, gold panning, food, and free specimens and special activities for children. See their illustrated web site at [www.mineralfest.com](http://www.mineralfest.com) -Editor

## 10 Years Ago in NMS: Geodes

Our September 2000 program was by Jeff Smith on Geology and Geode Collecting in Southern Indiana. This was the precursor to Jeff's first appearance with us in April 2001 as "The Geode Guy," selling and opening geodes and presenting a program, which he has repeated every year since then! -Editor

# Crystal Matrix

# Crossword

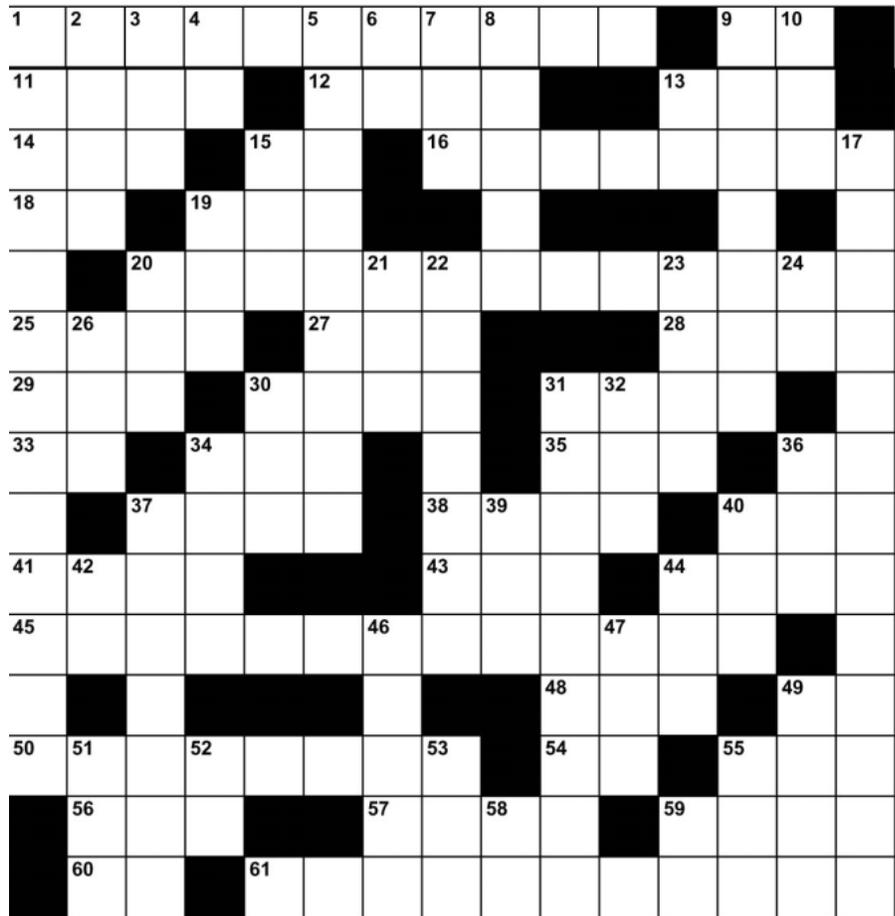
## Arsenic

### ACROSS

- 1 orpiment \_\_\_\_\_ realgar
- 9 metal that melts in your hand
- 11 composed of mineral grains
- 12 Brits call it a bonnet
- 13 source of fine adularia
- 14 when I dropped my crystal I was \_\_\_\_\_
- 15 dawn, early
- 16 more than one arsenic sulfides
- 18 Lord or God
- 19 after your money
- 20 killed off by arsenic
- 25 low, woody, and windy
- 27 Chinese name
- 28 geological (ab)
- 29 edible fish
- 30 worse than a dam
- 31 not a paddle but they're ours
- 33 lanthanum
- 34 part of rock drill
- 35 good \_\_\_\_ now, ya'll
- 36 \_\_, that stinks
- 37 used to drop into mine
- 38 inside a tire
- 40 water, salt, and gypsum
- 41 today, maybe in a minute
- 43 Zambezi Resources Ltd.
- 44 covered with native gold
- 45 iridium ruthenium arsenide minerals (pl)
- 48 tree resin
- 49 state for quartz
- 50 copper arsenic sulfide
- 54 washboard muscle
- 55 Star Wars
- 56 the \_\_\_\_ Khan
- 57 better than a little
- 59 the play's the thing
- 60 found with sphalerite
- 61 iron arsenide

### DOWN

- 1 manganese arsenate
- 2 black organic rock
- 3 charge coupled device
- 4 Okie state
- 5 zinc arsenate hydroxide
- 6 giant mythological Chinese turtle
- 7 neither this \_\_\_\_ that
- 8 an unchipped crystal
- 9 arsenolamprite and galena are arsenic and lead \_\_\_\_
- 10 the fourth month (ab)
- 13 element that tarnishes
- 15 division of geologic time



- 17 palladium arsenide
- 19 end of the mineral
- 20 found covering rocks
- 21 done while cleaning your crystals
- 22 ancient Chinese river
- 23 mean guy
- 24 found in carrollite
- 26 a main squeezer
- 30 best way to find rocks
- 31 indispensable music
- 32 roger
- 34 what agate has
- 36 skinny but not a snake
- 37 made from Cu, Ag, Au
- 39 place for ashes
- 40 your sister
- 42 either ore or \_\_\_\_
- 44 fine hard stone
- 46 gecko foot hairs
- 47 place to wash minerals
- 49 mine entrance
- 51 an old horse
- 52 radium
- 53 nickname for Ellen

- 55 on water or snow
- 58 \_\_ Miss
- 59 Singapore (ab)

### LAST ISSUE'S SOLUTION: Not Quite Rock



## 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.

**Sept. 18 - 19, 2010:** Gem, Mineral and Jewelry Show by Central Pennsylvania Rock and Mineral Club. Zembo Shrine, Third and Division Streets, Harrisburg PA. Sat. 10-6, Sun. 10-5. See page 6 and [www.rockandmineral.org/annualshow.htm](http://www.rockandmineral.org/annualshow.htm)

**Sept. 25 - 26, 2010:** Franklin-Sterling Hill Mineral, Gem & Jewelry Show. Franklin School, 50 Washington Ave., Franklin, New Jersey. [www.franklinmineralmuseum.com/activities.htm](http://www.franklinmineralmuseum.com/activities.htm)

**Oct. 2, 2010:** Autumn Mineralfest sponsored by the Pennsylvania Earth Sciences Association. Macungie Memorial Park Building, Macungie, PA. Saturday 8:30-3. Page 6 & [www.mineralfest.com](http://www.mineralfest.com)

**Oct. 30, 2010:** "ULTRAVIOLATION" All-Fluorescent Show. First United Methodist Church, 840 Trenton Road, Fairless Hills, PA. Saturday only, 9-4. **NOTE CORRECTION: OCTOBER, not Nov.**

**Oct. 30, 2010:** South Penn Rock Swap, by CPRMC & Franklin County RMC. South Mountain Fairgrounds, 1.5 miles W of Arendtsville PA on Rt 234, NW of Gettysburg. Sat. 8-3.

**Nov. 6 - 7, 2010:** Fall Symposium and Field Trip by Friends of Mineralogy- PA Chapter. Sat.: Symposium at Franklin and Marshall College, Lancaster, PA; Sun.: field trip, to be announced. [www.rasloto.com/FM/](http://www.rasloto.com/FM/)

**Nov. 6 - 7, 2010:** Gemarama. Exton, PA. Sat 10-6, Sun. 10-5. Dealers, lapidary displays, activities. [www.lapidary.org](http://www.lapidary.org)

**Nov. 20 - 21, 2010:** 3rd Annual Show and sale, "Gem Miner's Holiday Festival" by MAGMA - Mid-Atlantic Gem & Mineral Association. Jewelry, minerals, fossils; 40-plus vendors. Lebanon Expo Center, Rte. 72 and Rocherty Rd., Lebanon, PA. Sat. 10-5, Sun. 11-4. [www.gem-show.com](http://www.gem-show.com)

**2011:** EFMLS & AFMS July 7-10, Syracuse, NY. Conventions July 7-10, show July 9-10.

**2012:** EFMLS Sept. 16-17, Harrisburg, PA H

## 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](mailto:dreinhold1@comcast.net) H

GeoSudoku Solution from page 6

L	W	R	E	F	O	G	I	N
G	O	F	N	R	I	E	W	L
E	I	N	L	G	W	F	R	O
R	G	I	F	O	N	W	L	E
N	E	W	I	L	G	O	F	R
F	L	O	W	E	R	I	N	G
O	N	G	R	W	F	L	E	I
I	F	E	G	N	L	R	O	W
W	R	L	O	I	E	N	G	F

### 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 on the web site), 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)

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

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

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**Ellen Bingham (Secretary)**

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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:

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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.

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