

# Nittany Mineralogical Society Bulletin

Nittany Mineralogical Society, Inc.

P.O. Box 10664

State College PA 16805

Editor (see page 8):

David C. Glick

May, 2010

Visit our web site: [www.ems.psu.edu/nms/](http://www.ems.psu.edu/nms/)

May 19th meeting (change of topic):

## A Collector's View of Quartz Morphologies

presented by  
John Passaneau

*Our May meeting will be held Wednesday the 19th 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 share an enjoyable evening.** -Editor*

John writes: "Quartz is a common mineral that every collector is familiar with. But it's also a complex mineral with many different forms, and the details of its many forms make it an interesting mineral for the collector to study. This overview of the morphology of quartz will help increase a collector's appreciation of quartz specimens." Quartz is one of John's collecting specialties, and the talk will feature some of his excellent, detailed photographs. ❄

## Nittany Gem & Mineral Show CANCELED

By David Glick, Show Chair

**We regret to announce that our 2010 show, scheduled for June 26-27, has been canceled. Please pass the news along so that no one makes a trip to attend a non-existent show. See page 3.**

## Junior Rockhounds Meeting May 27

Junior Rockhounds meetings are scheduled for 7:00 p.m. on the fourth Thursday of the month, January through May, so the final meeting for the season will be on May 27. The location is room 118 of Earth & Engineering Sciences Building, on White Course Drive, Penn State's University Park "West Campus," with free parking.

We hope to continue Junior Rockhounds in the Fall, depending on the schedules of those involved; please watch our Bulletins and e-mails for news.

### ATTENDING THE MAY MEETING?

Donations of door prize specimens are invited.

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



Quartz, Coleman's mine, Hot Springs, Garland County, Arkansas



Quartz, Fah Val, Oberalp Pass, Graubunden Canton, Switzerland



Quartz, Taman Formation, Tamazuncal, San Luis Potosi, Mexico

## 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 May issue reports that there are still openings for the Fall (Sept. 6-12) session at Wildacres. A registration form is on page 11 of that issue, and the detailed descriptions of classes were in their April issue. President Loren Patterson reviews some of the highlights of the EFMLS Convention and Show. The Minutes and Reports of the annual Board of Directors Meeting at that convention are included. Cathy Patterson provides the next installment in her step-by-step series on compiling an All American Club yearbook for the 2010 competition. Roberta Goldsmith, Junior Activities Chair, discusses ways for kids to have a real connection to a club's adult activities. Nominations from clubs for their Club Rockhound of the Year are invited.

The **AFMS Newsletter** is available by the same methods. The May issue begins with illustrations of two new prizes in the 2010 Endowment Fund Drawing. President Emerson Tucker reports on the EFMLS Convention and Show in Delaware, the impressive display cases at the Show, the mineral display at the University of Delaware Mineralogical Museum, and the discussions about providing lesson plans and specimens to school teachers. Ideas on welcoming new members and providing complete information on one's club and the federations in an organized manner are presented. There are reminders about the AFMS Convention (La Habra, CA, June 18-20) and the Blue Forest, WY All-Federation Field Trip (Memorial Day weekend). The Juniors article is about "Attracting Kids to Your Society" and the Safety article reminds us to be prepared for unexpectedly severe allergies in the field. An article on lapis lazuli, which was an entry in the AFMS Advanced Articles Competition, is reprinted. News on AFMS committees and the American Land Access Association is presented.

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

### Virginia Museum of Natural History Field Trips

The Museum <[www.vmnh.net](http://www.vmnh.net)> has a variety of fossil collecting and other field trips scheduled for the upcoming months. They can be found through the links listed in the calendar <[www.vmnh.net/calendar.cfm](http://www.vmnh.net/calendar.cfm)> .

### Bus trip to Franklin Institute, Philadelphia, May 22

Central Pennsylvania Observers, the astronomy club in the State College area, is taking a bus trip to Franklin Institute in Philadelphia on Saturday, May 22. Some seats remain available at \$35 (this covers transportation only) and NMS members have been invited to participate. Contact Carol by Wednesday May 19, 814-237-9865 at home after 4 p.m., or 814-355-4629 at work, for further information.

The bus leaves State College at 6:00 a.m. Saturday May 22, with a stop at a breakfast buffet (cost not included) on the way. Dinner is on your own in Philadelphia before the bus leaves at approximately 6:00 p.m.; there is no dinner stop on the return trip to State College. The astronomy club is going to see the IMAX® film *Hubble*; NMS members might want to see it (cost and ticket arrangements on your own), other IMAX® films, or other attractions at Franklin Institute. See [www.fi.edu](http://www.fi.edu) for museum, planetarium, and film ticket costs and availability. Learn more about the astronomy club at [www.cpoclub.org](http://www.cpoclub.org)  
- Editor

## MEMBERSHIP CARDS ENCLOSED

A membership card is enclosed with this mailing for each currently paid member in our records. If they are incorrect or missing, please contact Dave Glick (see page 8). \*

## DISCOUNTS OFFERED TO MEMBERS

Pennsylvania mineral collectors Skip Colflesh and Scott Snavely are also jewelers and are offering discounts to NMS members: 20% on jewelry and 10% on repair services. They are also avid field collectors and have specimens for sale at 20% discount. Please contact them for details:

The Jeweler's Bench, Inc.  
428 Hockersville Rd.  
Hershey, PA 17033  
[www.jewelrequest.com](http://www.jewelrequest.com)  
1-800-364-3147

The Jewel Box, Inc.  
17 N 2<sup>nd</sup> St.  
Newport, PA 17074  
[www.TJBjeweler.com](http://www.TJBjeweler.com)  
717-567-6516

## THE ROCKHOUND

by Ernie Hopfinger

via Diana Dare's compilation on the 2010 SCRIBE CD

My back is tired, my hands are sore.  
I'm digging slower than before.  
At first I'm kneeling, then I sit,  
I begin to think it's time to quit.

From up the hill there comes a cry.  
A new-found rock is held up high.  
Whose back is tired? Whose hands are sore?  
I'm digging faster than before!

## Exploration Day at Penn State

Just a week after our Minerals Junior Education Day, NMS members participated with Junior Museum of Central Pennsylvania in presenting a large booth at the annual Exploration Day. Dr. Andrew Sicree organized the effort which included several different stations on properties of minerals and meteorites. The event's web site at [www.explorationday.psu.edu](http://www.explorationday.psu.edu) reports that "Exploration Day is a celebration of the spirit and opportunity of exploration and science at Penn State" with "hands-on activities in science, technology, engineering and math." - *Editor*



The Junior Museum of Central Pennsylvania / Nittany Mineralogical Society booth at Exploration Day on April 17.  
*J. Passaneau photo.*

## NMS 15 Years Ago

In May, 1995, our meeting program was on uranium mineralogy and uranium-bearing minerals, by Dr. Deane Smith. ❄

## NMS Now! Facebook!

See our public Facebook page at  
<<http://www.facebook.com/group.php?gid=293993550756>> ❄

## Wood's Chrome Mine Field Trip

We thank the organizers for including NMS with PESA, Friends of Mineralogy-PA and others in the opportunity to collect at the old Wood's chrome mine in southwestern Lancaster County. This is one of the classic Pennsylvania localities, in an interesting metamorphic environment.

Participants reported that there was a lot of dirt but some interesting specimens, such as chromite, were indeed found. See the photograph at right.  
- *Editor*

## Nittany Gem and Mineral Show Canceled and other thoughts from the president by David Glick

Our contract (from October) with the State College Area School District allowed them to pre-empt us for school district-related uses of the same space. After several years of smooth operation of our Show at the District's facilities, we didn't imagine they would wait until less than two months before the event to do that, but they did. They informed us on May 7 that we would not be able to have the event at Mount Nittany Middle School as planned. They hoped that we could transfer it to the new and attractive Park Forest Elementary School, but the usable space there was just not big enough for us. The Board of Directors and others put a lot of effort into investigating other venues, but the few places in town suitable for the event were already booked.

Canceling the Show was a big disappointment, but was the only real option. Our immediate job now is to un-do the previous publicity so that no one is disappointed by making a trip to attend a show that isn't there. If you know anyone who was considering coming to the Show, please help by letting them know that it has been canceled.

We want to sincerely thank the vendors who had paid their fees and made the commitment to be part of our Show, and the members who were working on Show-related projects. We regret this very significant inconvenience and offer our apologies. Of course fees are being returned.

The Board is considering other events which we might sponsor before next summer. We are also working on field trips, and do expect to have some success, but access to quarries has become much more difficult. Those interested should be on Field Trip Chairman Ed Echler's e-mail notification list (see page 8).

Finally, I hope you'll excuse the fact that this Bulletin is even later than usual; it's been a crazy week. If your Bulletin ever comes through damaged, you'd like an extra copy, or a replacement for one that wasn't printed well by my super-low-budget printing operation, just let me know. ❄



Field trip at Wood's Chrome Mine dumps, May 1, 2010.  
*J. Passaneau photo.*

# POPULAR MINERALOGY

Fascinating mineralogy and earth science for the amateur mineralogist and serious collector - #34

## *Survival in the Mines*

by Andrew A. Sicree

### **Hazards of mining**

Mining is hazardous, but it is not nearly as dangerous today as it was a century ago. In the late 1800s and early 1900s, it was not unusual for America to lose thousands of men each year to accidents in the mines. Coal mines have always been particularly dangerous. In 1907, the worst year on record, coal mine fires, explosions, cave-ins, and other accidents claimed the lives of more than 3200 miners.

The U.S. has made tremendous progress in mine safety. Although we still lose miners on the job, the annual rate has dropped to a nation-wide average of about 30 deaths each year over the past decade. By comparison, modern-day China loses approximately 6000 coal miners each year to accidents. The U.S. fatality rate has dropped so low that a single accident can significantly boost the annual death rate. For instance, in 2009 there were only 18 on-the-job deaths in U.S. coal mines, but the recent (April 5th, 2010) explosion in a coal mine near Montcoal, West Virginia, left 29 dead. Thus, the 2010 death rate will be more double that of the year before – a stark reminder that mining is still a dangerous occupation.

### **Death in the air**

Underground fires and explosions are major causes of mining fatalities. Both underground fires and explosions can fill a mine with dangerously high levels of carbon monoxide (CO), a colorless, odorless and very poisonous gas. Typically, a mine fire or explosion occurs because coal dust or methane in the mine atmosphere ignites. But combustion is typically incomplete so that carbon monoxide (CO) is produced along with carbon dioxide (CO<sub>2</sub>), the more typical combustion product. Carbon monoxide can reach out strike down underground miners even though they may be a mile or two distant from the site of an underground fire or explosion.

Each year, about 1500 Americans are accidentally killed by exposure to dangerous levels of carbon monoxide. Only

a small percentage of carbon monoxide victims are miners. Many fatalities happen in homes with blocked, leaky, missing, or improperly installed vents for furnace or fireplace flue gases.

The problem for the miner lies in the fact that there are no underground windows to open and jump out; a miner has to breathe whatever is in the air in the mine.

### **How does a miner breathe in a fire?**

You have to breathe, and it is a long walk (or climb) out of the mine. If you survived the initial explosion or fire, can you make it out alive? A variety of “rescue” devices have been invented to save miners in this situation. The primary danger comes from carbon monoxide, but miners may also face an oxygen-depleted atmosphere as they escape from a burning mine.

Why not simply carry an air tank the way SCUBA divers or fire-fighters do? The primary problem is weight: an hour-long supply of air in a heavy metal tank simply weighs too much for the miner to carry it around all day. (A SCUBA diver can do this because the buoyancy of water makes the tank feel lighter.) A 30-minute air supply tank weighs more than 33 pounds (15 kg) and it can take two or three hours to walk out of many coal mines.

Early light-weight “self-rescuers” were essentially catalytic converters that worked similarly to the catalytic converter in your automobile. They contained a catalyst that promoted oxidation of carbon monoxide in the air into carbon dioxide. This strategy worked because the danger level for carbon dioxide – 4% or 40,000 ppm (parts per million) in air – is much higher than that of carbon monoxide – about 400 ppm in air for 15 minutes of exposure. Escaping miners breathed in mine air after it passed through the catalyst that changed carbon monoxide to carbon dioxide. For instance, air with 1000 ppm carbon monoxide, a dangerously high level, would get converted to about 1600 ppm carbon dioxide – a breathable concentration.

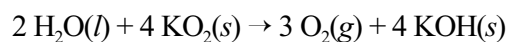
One significant drawback of these self-rescuers was that they got extremely hot when working. The heat could scorch a miner's lips as he breathed through the mouthpiece. Not at all pleasant, but the miner dared not take the mouthpiece out of his mouth even if it was burning hot because he knew it was saving his life. Another drawback of the catalyst-based self-rescuers was that they could not produce oxygen. These earlier self-rescuers only worked if the mine air still had enough oxygen to support life even after a fire.

## Sources of oxygen

Modern miners rely on the "self-contained self rescuer" (SCSR) to both protect them from carbon monoxide and provide them with an emergency oxygen supply. A typical SCSR weighs provides one hour of breathable air but only weighs about 5.7 lb (2.6 kg). The SCSR employs a fascinating chemical reaction that employs the miner's own breath to produce breathable air.

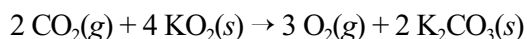
The oxygen source for the SCSR is potassium superoxide, a rare and interesting chemical compound with the formula  $\text{KO}_2$ . You are very unlikely to find it in a jar on a shelf in your local chemistry laboratory because it reacts very rapidly with carbon dioxide, water, and even water vapor. This reactivity makes it uniquely useful.

As a powder, potassium superoxide is yellowish. It will react with either water or carbon dioxide to generate oxygen. Potassium superoxide reacts with water as follows:



Thus water plus potassium superoxide yields breathable oxygen gas and solid potassium hydroxide waste. (Incidentally, this vigorous reaction with water is one reason why SCUBA divers cannot use potassium superoxide as an oxygen source – it is practically impossible to keep the stuff dry underwater.)

When potassium superoxide reacts with carbon dioxide, the reaction is written:



In this reaction, carbon dioxide reacts with potassium superoxide to generate solid potassium carbonate and breathable oxygen. These reactions also release some heat, so the SCSR gets warmer if it is working properly, but not nearly the scorching heat of the earlier catalytic self-rescuers.

## Use of the SCSR

After a mine fire or explosion, a miner should expect that poisonous carbon monoxide will be present in the mine air. He must put on the SCSR immediately. He clenches the breathing tube between his teeth and pinches his nose closed with a nose clip. After the miner blows his first breath into the SCSR, carbon dioxide and water vapor in his breath begin to generate breathable oxygen according to the above reactions. (Each SCSR also has a small supply of oxygen, but that only serves the miner during the first few breathes until the potassium superoxide kicks in.) Each exhalation causes the SCSR to produce more oxygen. To extend the range of the SCSR, oxygen is caught in a large air-tight bag which hangs in front of the miner and allows him to "rebreath" the air.

Each SCSR will support a miner for about one hour. The actual amount of time the miner has varies based on body size, breathing rate, and physical exertion. If miners are working more than one hour's walk from the mine entrance, the mine will have to place caches of additional SCSRs distributed throughout the mine. Miners walk to the caches, switch to fresh SCSRs, and continue walking toward the mine exit.

It is vitally important the every miner know how to use the SCSR properly. After carbon monoxide killed 13 miners in 2006 at the Sago Mine in West Virginia, some reports claimed that some of the SCSRs were not working properly. Subsequent investigations suggested that better training in their use was needed. Federal Mine Safety and Health Administration (MSHA) regulations were strengthened to require that each underground miner complete four practice sessions with the SCSR annually. Most miners will go through entire careers without ever having to deploy their SCSR, so these practice sessions are critical for keeping miners prepared to use their SCSRs if necessary.

## Mineral collectors underground

Explosions and fires occur in mines because of the presence of methane gas, coal dust, diesel fuel, wood supports, and other flammable materials. Miners are required to carry SCSRs when underground, and visitors going underground must also carry SCSRs provided by the mine (SCSRs are rather expensive, and it is unlikely that visitors will have their own). Mine visitors undergo a training session that alerts them to hazards present down in the mine and also teaches them how to use the SCSR in an emergency.

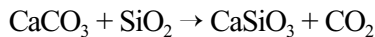
Obviously, if a mineral collector goes underground into a closed or abandoned mine, he faces a number of dangers. Rock fall is a major danger. Bad air (oxygen depleted) is another danger. Mine fires may be less likely in an unoperating mine, but if an explosion or fire should occur while collectors are underground, it will probably prove fatal because they lack protective gear such as self-contained self-rescuers.

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### Underappreciated Wollastonite

Because it is common enough, and is usually found in massive form, wollastonite is one of the less appreciated minerals. Wollastonite is a calcium silicate mineral (CaSiO<sub>3</sub>, triclinic), although small amounts of iron, manganese, or magnesium may substitute for calcium in its structure. Although wollastonite crystals are found, its most common habit is in the form of bright white fibrous or cleavable masses.

The formation of wollastonite provides an excellent example of how metamorphism alters one mineral to produce another. It chiefly forms during contact metamorphism when hot silica-rich fluids encounter limestone country rocks. Calcite (CaCO<sub>3</sub>, hexagonal) in the limestone reacts with the silica according to the equation:



Note that the reaction also produces carbon dioxide. This is one reason why carbon dioxide “springs” and “seeps” are often found in regions where metamorphism is currently occurring (such as tectonic collision zones and near volcanoes).

The primary market for wollastonite is for the manufacture of ceramics. Because of its high brightness wollastonite finds use in paint fillers and plastics. Wollastonite is named after the English chemist and mineralogist Sir William Hyde Wollaston (1766-1828), the discoverer of the elements palladium and rhodium.

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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](mailto:sicree@verizon.net) for more info.*

### Geo-Sudoku

by David Glick

This puzzle contains the letters BCDEMOSTU, and one row or column spells out the what happened to coal as it formed carbon dioxide. 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.

		E		T				
			M	E	D	S		
C			B	U			E	
	D			O	M		T	S
O	U	T				E		
	M		T				D	
	B							T
S		D	U	B		C		M
		U		M	O		S	

This puzzle contains the letters AEOQRSTUZ, and one row or column spells out a description of a sandstone with 95% or more of this month’s program topic mineral. Each block of 9 squares, each row, and each column must contain each of the nine letters exactly once. The solution is on page 8.

O						A	U	Z
	T	A		S				
		Q		R		T		E
						U	A	T
	U			E	A	Z	7	
	O	T	Z					
						E		
R	A	E			T			
			E			S	T	U

# Crystal Matrix Crossword

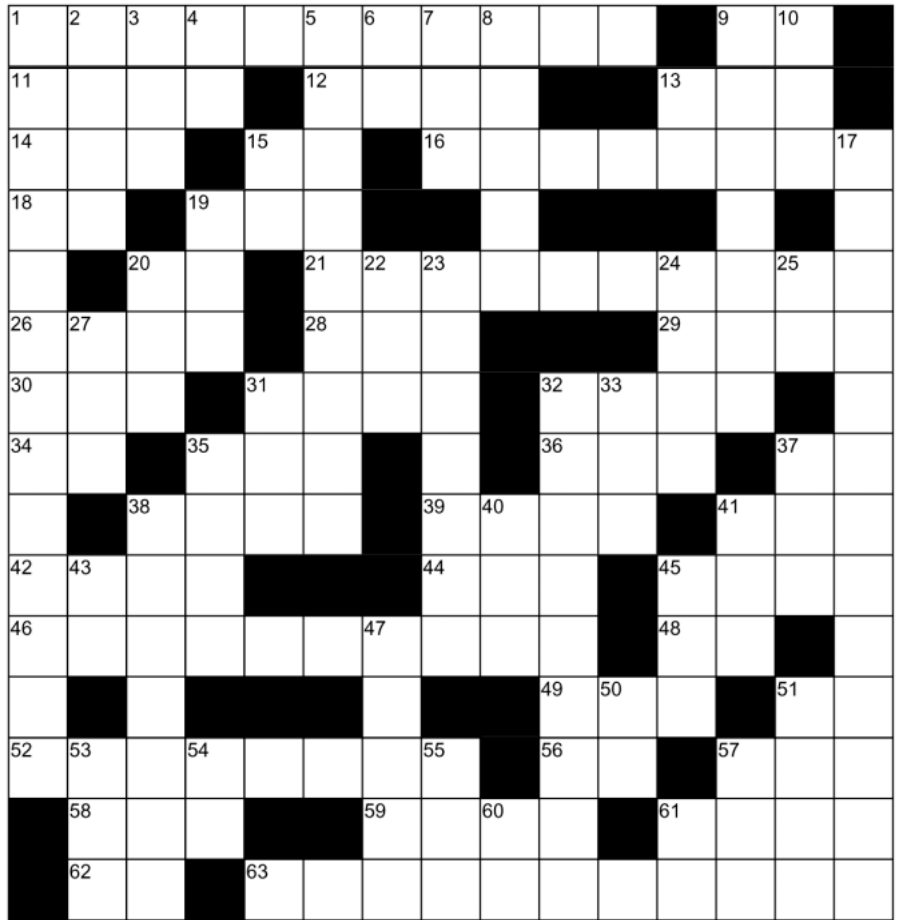
## More Zeolites

### ACROSS

- 1 found as cruciform twins
- 9 an element in emeralds
- 11 drives down the roads
- 12 written to remind
- 13 source of metal
- 14 rare earth element
- 15 the devil's element
- 16 what a phantom crystal is doing
- 18 favorite as poison
- 19 found in the home
- 20 chalcocite state
- 21 enthusiastic mineral collector
- 26 horizontal mine entrance
- 28 \_\_\_ the Season to be Jolly
- 29 said in Pittsburgh
- 30 Sn
- 31 boat doc
- 32 tree-filled valley
- 34 radon
- 35 a professional
- 36 to have dinner
- 37 politically correct
- 38 ball \_\_\_ hammer
- 39 rich kids school
- 41 the maid not SEAn
- 42 where the fox lives
- 44 a young boy
- 45 a hole in the ground owned by a liar
- 46 violet U oxide mineral
- 48 iridium
- 49 \_\_\_ ammoniac
- 51 lake (ab)
- 52 a zeolite
- 56 indium
- 57 twelve
- 58 to request
- 59 what mine trucks carry
- 61 sediment on river bottom
- 62 acidity scale
- 63 another zeolite

### DOWN

- 1 related to natrolite
- 2 colors of minerals
- 3 the end of minerals
- 4 not hi
- 5 cubic zirconia is an \_\_\_ diamond
- 6 physical education (ab)
- 7 Soc. of Mining Engineers
- 8 what halite is
- 9 English minerals source
- 10 Scots eyes
- 13 osmium
- 15 north east (ab)



- 17 zeolite from Luck Goose Creek Q in Virginia
- 19 an English mine
- 20 to triumph
- 22 old lady exclamation
- 23 man from Tel Aviv
- 24 Russian no
- 25 down (ab)
- 27 lots of noise
- 31 prefix for before
- 32 measures the Earth
- 33 local area network
- 35 alert, frisky
- 37 mightier than the sword
- 38 color of stilbites
- 40 tit for \_\_\_
- 41 Russian diamond pipe
- 43 anti-aircraft
- 45 one-thousandth
- 47 not sane
- 50 anorthite (ab)
- 51 found in Irish voice
- 53 large boulders: rip \_\_\_
- 54 sand calcite state
- 55 long time
- 57 Latin twelve

- 60 Vietnamese name
- 61 used in toothpaste tubes

### LAST MONTH'S SOLUTION: Crystal, Time and Space



## Some Upcoming Shows and Meetings

Our web site <http://www.ems.psu.edu/nms/> has links to more complete lists and details on mineral shows and meetings around the country.

**May 15 - 16, 2010:** World of Gems and Minerals, presented by Berks Mineralogical Society. Leesport Farmers Market Banquet Hall, Rt 61, Leesport PA. Sat. 10-5, Sun. 10-4. Saturday only for tailgater section.

**June 5, 2010:** Spring Mineralfest sponsored by the Pennsylvania Earth Sciences Association. Macungie Memorial Park Building, Macungie, PA. Saturday 8:30-3. [www.mineralfest.com](http://www.mineralfest.com)

**June 26 - 27, 2010: CANCELED Nittany Gem & Mineral Show**, State College, PA. See pages 1 and 3, and help us spread the news about the cancellation.

Sept. 18 - 19, 2010: Gem, Mineral and Jewelry Show by Central Pennsylvania Rock and Mineral Club. Zembo Shrine, Third and Division Streets, Harrisburg PA.

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

**2011:** EFMLS & AFMS July 7-10, Syracuse, NY

**2012:** EFMLS Sept.16-17, 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](mailto:dreinhold1@comcast.net) \*

### GeoSudoku Solutions from page 6

D	S	E	O	T	C	M	B	U
U	T	B	M	E	D	S	C	O
C	O	M	B	U	S	T	E	D
B	D	C	E	O	M	U	T	S
O	U	T	S	D	B	E	M	C
E	M	S	T	C	U	O	D	B
M	B	O	C	S	E	D	U	T
S	E	D	U	B	T	C	O	M
T	C	U	D	M	O	B	S	E

O	R	S	Q	T	E	A	U	Z
E	T	A	U	S	Z	O	Q	R
U	Z	Q	A	R	O	T	S	E
Q	E	Z	R	O	S	U	A	T
S	U	R	T	E	A	Z	O	Q
A	O	T	Z	Q	U	R	E	S
T	S	U	O	Z	Q	E	R	A
R	A	E	S	U	T	Q	Z	O
Z	Q	O	E	A	R	S	T	U

### 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)  
e-mail: [xidg@verizon.net](mailto:xidg@verizon.net)

**Dr. Bob Altamura (Vice-President)** 814-234-5011 (h)  
e-mail: [raltamur@fccj.edu](mailto:raltamur@fccj.edu)

**John Passaneau (Treasurer)** 814-231-0969 (h),  
e-mail: [jxp16@psu.edu](mailto:jxp16@psu.edu)

**Ellen Bingham (Secretary)**  
e-mail: [emb22@psu.edu](mailto:emb22@psu.edu)

### OTHER CONTACTS

**Field Trips: Ed Echler** 814-222-2642  
e-mail preferred: [eechler@comcast.net](mailto:eechler@comcast.net)

**Junior Rockhounds: Dr. Andrew Sicree**  
867-6263 (h) e-mail: [sicree@verizon.net](mailto: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](mailto:gold@ems.psu.edu)

**Door Prizes: Tim Holtz**  
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**Facebook: Mike Zelazny** e-mail: [maz166@psu.edu](mailto: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:

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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.