# Nittany Mineralogical Society Bulletin

Nittany Mineralogical Society, Inc.
P.O. Box 10664
State College PA 16805

*December, 2009* **Visit our web site: www.ems.psu.edu/nms/** *Editor (see page 8): David C. Glick*

Note: We had arranged a joint meeting with the Bald Eagle Archaeological Society for a program of mutual interest on flintknapping, but the speaker has a scheduling conflict and is unable to present it. We regret that we were unable to find another archaeological program, but our friends in the Archaeological Society are still cordially invited to attend our social hour and this program of interest to all Pennsylvanians.

***December 16th meeting:***

## An Overview of the Marcellus Shale Gas Resource Play in Pennsylvania

by Eric von Lunen
Advising Geophysicist
Little Pine Resources

*Our December meeting will be held Wednesday the 16th 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*
*Feel free to bring holiday snacks*
*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 – **please come, bring your family and guests, and share an enjoyable evening**! -Editor*

Eric von Lunen grew up in Johnstown, Pennsylvania; attended Penn State during the 1970's and graduated from the Geophysics program with a B.S. in Geosciences. He completed an M.S. degree at the University of Texas, and he has worked and run programs domestically, in South America and the Middle East. His travel and foreign experiences provide interesting and entertaining topics.

For many years he has advocated detailed geological studies on Black Shales in the Appalachians, with a specific emphasis on the Marcellus Formation. Currently he is spearheading the effort to shoot a 3-D seismic survey in parts of Clearfield and adjacent Counties. He will present an overview of the Marcellus play in Central Pennsylvania and he will discuss the influence of surface environment and near surface geology, the economic benefits and potential pitfalls as this major gas field develops. ❄

***Junior Rockhounds:***

## Next Meeting on Dec. 14th

Junior Rockhounds meetings are scheduled for 7:00 p.m. on the second Monday of the month this fall. The final meeting will be on December 14. The location is room 117 of Earth & Engineering Sciences Building, Penn State's University Park "West Campus." This is the same location as the last couple of years, and the same building as our regular meetings.

The schedule for January and future meetings will be announced when it has been decided. Your input is welcomed.

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 2010) 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*

**ATTENDING THE DECEMBER MEETING?**
This event is free and open to all - bring a friend!
Door prize contributions or giveaways are invited.
Your donated snacks & holiday baked goods will be welcomed. NMS will provide beverages, cheese and crackers, carrots and grapes, etc.

## Tax-deductible donations welcomed

by David Glick, NMS President

NMS received 501(c)(3) status from the IRS during 2008, which means that your donations to NMS are tax-deductible. Your donations will help fund our educational purpose and programs. Please make checks payable to 'NMS, Inc.,' include a memo noting that it is a donation, and send to the P.O. Box (in banner, above), or contact the president or treasurer (see p. 8) for more information.

## Minerals to school students

The idea has been raised to provide a gift of a mineral specimen to each student in a school. To advertise and raise interest, we would distribute specimens broadly in order to reach all interested children. A volunteer is needed to look in to how this might be accomplished. Please contact the president or another Board member.

- *Editor*

## Annie Passaneau
## 1922-2009

Annie A. Passaneau, a long-time member of NMS, died Monday, Dec. 7, 2009. An obituary is currently available through that section of the Centre Daily Times web site at www.centredaily.com There is a guest book available there, and the e-mail address listed there for her son John is jpassaneau@gmail.com. A memorial service is being planned but the date has not yet been set. We extend our sympathies to John at this difficult time.

Annie was born in New Hampshire, and married and spent much of her life in Michigan. She joined our club when she moved here to live with her son John, one of the original organizers of NMS and a continuing Board of Directors member. For many years she was always at our meetings, contributing snacks and being social with everyone, and was instrumental in our annual picnic when she and John held it at their house. She collected figurines carved from rocks and minerals, and made a variety of crafts including whimsical "critters" made from pebbles and other natural materials which she donated for our events. She had moved from State College to Centre Crest Nursing Home in Bellefonte earlier this year. *- Editor*

## *A Note from the President*

by David Glick

The news that's on my mind as I work on this Bulletin is the loss of Annie Passaneau. In addition to the facts in her obituary and in the article at the left, I'll remember that I enjoyed her being sweet, but also having a pointed (yet good-natured) sense of humor. She liked to tell stories, particularly the one of how she met her husband so many years ago. Also many years ago, she encouraged her young son John to develop his interest in collecting and displaying minerals, and now we benefit from his expertise and his extensive collection. We will truly miss her.

Dr. Duff Gold has been working hard to bring us interesting speakers for our meetings. This month's program on the Marcellus Shale will keep us up-to-date on the biggest geology story in Pennsylvania news. We have several possibilities for the first half of 2010, and we will be working to finalize a good schedule.

Plans are moving along for Minerals Junior Education Day on Saturday April 10 and our Nittany Gem and Mineral Show on June 26-27. Volunteers are needed for both. ❄

## November Meeting

Those attending had a good time at our Holiday Social & Sale at Prospector's Restaurant. NMS members Ruth Park, Tim Holtz and Willard Truckenmiller sold their wares. We apologize for missing a photograph of Ruth. We thank them all for participating and providing items of interest for the meeting. *- Editor*

Tim Holtz discusses the many quartz crystals at his World of Rocks booth with customer Ed Echler.

Willard Truckenmiller at his sales tables with lapidary materials and jewelry. *M. Zelazny photos.*

# 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/** or remind Dave Glick to bring a printed copy to a meeting for you to see.

The December issue begins with the announcement that the speaker for the April 23-29 Spring Wildacres workshop session will be Bob Jones. Bob is the senior editor of Rock and Gem magazine, has been involved in the mineral collecting for decades, and has been a well-received speaker at Wildacres before. Registration for the session starts on January 1, the base fee is $350. For the week, and the list and descriptions of classes will be in the January EFMLS Newsletter.

Loren Patterson, EFMLS President, reviews the October convention held in Bristol, CT. Also (on page 6), the Bristol club president notes the positive results of the experience on the host club. Cathy Patterson describes the All-American Club Yearbook project and how a club can enter; the submission deadline is February 10. Ellery Borow relates how clubs can nominate their AFMS Club Rockhound of the Year; nominations for 2009 close on Dec. 31. Roberta Goldsmith, the new Junior Activities Chair, writes about taking kids on field trips, and providing a "Touch Table" at her club's show, where kids are encouraged to handle various specimens. Barbara Sky encourages us to enter a competitive display at the convention coming up in March in Delaware. Natalie Darling hands the Bulletin Editors' Contest off to Mary Bateman.

NMS made a donation to the AFMS Scholarship Fund in memory of NMS members who had passed away since the previous donation: Tom Confer, Reg Hardy, and Bob Newnham. Their names are included in the list of recent donations in Bob Livingston's column on page 6.

The Each One Teach One and eastern Foundation Fund programs are described. The issue concludes with the minutes of the Annual Baord of Directors' Meeting, the application packet for the Bulletin Editors' Competition, and the AFMS Code of Ethics.

The **AFMS Newsletter** is available by the same methods. The front page of the December-January issue includes some of the prizes for the Endowment Fund Drawing. We are encouraged to submit an All-American Club yearbook entry, and to notify Fran Sick about clubs which are not members of a federation. Rules for competitive displays are discussed, and trained judges in each federation are listed. The Future Rockhounds of America program for juniors is reviewed and all clubs are encouraged to participate; Jim Brace-Thompson reports that "we've distributed 1,698 membership patches and have awarded 2.904 activity badges." There are tips for editors to reduce "clutter" in writing, and for safety in the home shop. 2009 AFMS Scholarship students are listed. In the legislative update, many proposed wilderness areas are described. The 2010 web site contest and its procedures and judges are reviewed. The 2010 Inter-Federation Field Trip will be May 29-31 to Blue Forest in southwest Wyoming to collect petrified wood. The AFMS convention will be held June 18-20 in La Habra, California. Three award-winning poems are presented, and committees, the code of ethics, and the land use policy are listed.

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

## Minerals Junior Education Day Volunteer Needed

We are planning for our 14th annual Minerals Junior Education Day on Saturday, April 10, 2010.

A volunteer is sought to organize the event under the Board's direction. That would involve arranging for about eight stations on a variety of topics including minerals, their properties and uses, fossils, geology and its applications, gems, gold, etc. Each station is staffed by people who can discuss the topic; some sort of hands-on activity for the students is very desirable, as is a pertinent specimen for each student to take home. We do have a number of people who are willing to present stations, so it's mostly a matter of contacting people early and arranging for who will do what part. NMS can help acquire the giveaway specimens if we have enough advance notice of what is needed.

Publicity and an advance registration method and personnel are also needed. If you are interested in organizing this, or have an idea for a station, etc., please contact Dave Glick or another Board member (see p. 8).

*- Editor*

## *10 years ago in NMS*

The December 1999 meeting was the first of our Christmastime Mineral Sale events. NMS member and mineral dealer Joe Dague sold specimens from the collection of Don Schmerling, who had collected extensively in Pennsylvania, the rest of North America, and around the world. Refreshments, socializing, and examining the displays in the Mineral Museum gallery rounded out the evening. *- Editor*

**Popular Mineralogy**

*Interesting mineralogy and earth science for the amateur mineralogist and serious collector - #29*

# Pearls and the Mother-of-all-Pearls

*by Andrew A. Sicree*

## What is nacre?

Nacre is the pearly lining found on the inside of the shells of mollusks. It is more popularly known as "mother-of-pearl." The formation of nacre is unique to the mollusks.

On the microscopic level, nacre is composed of flat platelets of aragonite (orthorhombic CaCO3). But nacre is not totally inorganic mineral matter: it incorporates proteins between and within the aragonite platelets. Chitin, a tough and semitransparent polysaccharide compound, also helps hold layers of nacre together. You're probably familiar with chitin without realizing it - chitin occurs in outer skeletons of insects, shrimp, lobsters, and crabs.

Each aragonite platelet is oriented with its central crystallographic c-axis perpendicular to the plane of the nacre layer (i.e., at a right angle to the surface of the shell or the pearl). Organic components such as chitin and proteins segregate the aragonite platelets into compartments. These small compartments reflect light and cause interference in the light - the result is the beautiful iridescence and desirable "pearly" luster of nacre.

## Nacre sandwiches

These "sandwiches" of aragonite platelets and organic materials also endow nacre with an extraordinary toughness. Note that toughness is not the same thing as hardness. Toughness is the general resistance to breakage (cracking, fracturing, cleaving, etc.) while hardness reflects resistance to scratching. Nacre, being mostly calcium carbonate, falls with calcite (hexagonal CaCO3) at about 3 on Mohs scale of hardness.

Pearls made by oysters are structurally the same as the nacre lining the inside of the oyster shell. The Japanese oyster, *Pinctada fucata*, and other oysters, clams, and mussels produce pearls by wrapping a nacre lining around any small irritant that gets inside their shells. Pearls can have a variety of colors and shapes but the most desirable pearls are those that are perfectly spherical. Oblong pearls, teardrop-shapes, etc., occur and are referred to as "baroque" pearls. Black pearls grow in the black pearl oyster, *Pinctada margaritifera*, and are comparitively rarer than white pearls.

Pearls, being made of nacre, have Mohs hardnesses of about 3. People sometimes test pearls by rubbing a strand of pearls across their teeth. Real pearls feel "smooth" as they rub across your teeth. This is because the enamel of your teeth, being made mostly of hydroxyapatite, has a hardness of about 5 on the Mohs scale. So you're really scratching pearls when you rub them across your teeth!

## The world's largest pearl

In 1934, a giant clam near the island of Palawan in the Philippines produced the world's largest natural pearl. This pearl weighs about 14 pounds (6.4 kg) and is an irregular white mass. Its surface is non-nacreous so it has a porcelain-like appearance rather than a pearly luster.

Purists might object that pearl aragonite is not a true mineral because the oyster, an organic entity, produces it. It has, however, become apparent to geochemists that a large percentage of the Earth's minerals owe their origin to biological (typically bacterial) processes.



Ref.: Kroger, Nils, 2009, "The molecular basis of nacre formation," Science, v. 325, 11 Sept. 2009, p. 1352-1352.

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Dr. Andrew A. Sicree is a professional mineralogist and geochemist residing in Boalsburg, PA. 

## Mineral names with "-ite" endings

Why do mineral names have "-ite" endings? While not true in all minerals, a great number of minerals do have names ending with "-ite." The -ite ending is a noun-forming suffix that has its origin in the Greek ending -it, meaning "of, related to, or belonging." Thus an occupant of ancient Israel becomes an "Israelite."

Among its present-day meanings, the suffix can be used to indicate that a substance is a mineral. Use of the -ite ending first entered the English language in the 13th century, but its use became more widespread in the 19th century as advances in sciences such as mineralogy were accompanied by an expanding nomenclature that borrowed heavily from Latin and Greek roots.

In the 5th edition (1868) of his System of Mineralogy, James Dwight Dana made an effort to systemize the endings of mineral names by changing many of their endings to the -ite form. For example, pyrrhotine and chalcosine became pyrrhotite and chalcosite. Not all of Dana's changes were accepted. Analcime is still used along with analcite, for instance. Of course, there were minerals whose names were in such common and widespread use that even a scientist with the prestige and talents of Dana could not change them. No one would have accepted "goldite" or "berylite."

Dana also condemned F. S. Beudant's use of the -ise ending for minerals such as "uraconise," which Dana called "uraconite" (which was subsequently recognized to really be the mineral zippeite).

In 1876, Professor C. U. Shepard proposed reserving the -ine ending for those mineralogical materials whose identity and nature was still in doubt. While Dana's penchant for -ite endings has been more widely adopted for new mineral names in recent years, Shepard's proposal for use of the -ine ending has been ignored. Likewise, Dana's suggestion for the use of the -yte suffix for endings of rock names never caught on with scientists or the public.

Interestingly, the use of the suffix -lite for mineral names does not have the same etymological roots as the -ite ending, but rather it appears to derive from the German lith (and Greek lithos), meaning "a stone."

Ref.: A Dictionary of the Names of Minerals Including Their History and Etymology, Albert Huntingdon Chester, John Wiley & Sons, New York, 1896, 320 p.



# *Is your granite countertop killing you?*

For trendy, up-scale kitchens, granite countertops are all the rage. They are beautiful, durable, and expensive. But over the past several years, concerns have been growing over the fact that some granite countertops are rather radioactive. Could they be a health hazard?

## Not all granite is granite

Strangely enough, much of the granite sold for "granite countertops" is not true granite. The ornamental cut stone trade has two broad classes of materials. Stone dealers tend to label all carbonate rock as "marble" and all silicate rock "granite." Sold as "marble," a rock might be a marble (a metamorphic rock), or it might really be something like a travertine (which is a layered, chemically-precipitated sedimentary rock). In the trade, "granite" can be a true granite, or it might be a diorite, granodiorite, gabbro, pegmatite, or even a gneiss. It is important to distinguish between a trade name, devised to help sell the stone, and the petrologically-correct name. For instance, the stone sold as "Nero Black Granite" is known to petrologists (the guys who study rocks) as a gabbro.

## Where is the radioactivity?

First, it is helpful to understand why your kitchen countertop might be radioactive. Naturally-occurring radioactive isotopes can be found throughout your environment. Your body, for instance, contains a small amount of the radioactive isotope carbon-14 (C-14). Any rock that contains potassium feldspars contains a small amount of radioactive potassium-40 (K-40). Likewise, there was radioactive potassium-40 in all those bananas that your mom made you eat because they were "good for you!"

In granite and related rocks, the elements of concern are uranium and thorium, which can be present in a variety of minor minerals. Much of the uranium content of a granite, for instance, is usually present in minerals such as uraninite, thorite, monazite, allanite, zircon, epidote, sphene, rutile, and apatite. Minerals like uraninite ($UO_2$, cubic) are always radioactive because uranium is part of the chemical make-up of the mineral. Other minerals such as rutile ($TiO_2$, tetragonal), zircon

($ZrSiO_4$, tetragonal), and apatite ($Ca_5(PO_4)_3F$, hexagonal) may be radioactive if they contain traces of uranium or thorium, but uranium and thorium are not essential parts of their formulas. Although these minerals may be radioactive, at best they only make up a minor part of any granite. Some granites may have few of these minerals and thus be only slightly radioactive, while other granites with more uranium- or thorium-bearing minerals can be much more radioactive.

Uranium is present as the isotopes uranium-238 and uranium-235 and thorium is mostly thorium-232. All three of these isotopes slowly decay to lead isotopes, giving off alpha and beta particles and gamma rays in the process. Naturally-occurring radioactivity confined within the granite has little health impact because exposure levels are low (because, for instance, you don't spend much time sitting on your kitchen countertop).

Uranium and thorium decay, eventually, to lead, but along the way they must pass through a step in which they are in the form of radioactive radon isotopes. Because radon is a noble gas (as are helium and neon, for instance), it is possible for it to escape from the granite countertop. Once the radon gas is floating around in the air in your kitchen, it might impact your health adversely if the radon levels are high enough.

## Problems with testing

Radioactivity in a granite countertop does not automatically translate into a radon problem. Common sense tells us that a granite with low levels of uranium is less likely to release radon than one with higher levels of uranium, but it also matters where the uranium is located.

Heterogeneity (uneven distribution of uranium-containing minerals) may occur within the particular slab that was cut to make your kitchen countertop. If most of the uranium is locked up in rare uraninite grains and your countertop happens to be cut so that some of the grains are right at the surface of the polished granite, radon can easily escape the granite. On the other hand, if few of the grains are near the surface, the radon may remain trapped with the granite.

Variations may also occur from one slab to the next. For instance, granite slabs from one quarry may be consistently low in radon production. But if the quarry hits some coarse-grained pegmatite zones within the granite, radon problems may occur with slabs that contain portions of the pegmatite, because pegmatites tend to concentrate uranium and thorium in their crystalline centers.

Thus, while the industry can take steps to exclude stone from quarries that are known to produce highly-radioactive slabs, individual slabs from otherwise "safe" quarries might still produce enough radon to be of concern. The only way to be sure that your particular slab doesn't produce much radon would be to perform a radon check on your kitchen air before installing the slab, then again after the slab is installed. The radon monitor should not be set directly on the slab, by the way. Note that it is possible for radon to get into your kitchen even if you do not have a radon-producing granite countertop. Radon can move upward through or along the sides of the kitchen drainpipe, for instance.

I note that in general, risks presented by radon-producing countertops are minor, especially because levels are low and most kitchens are well-ventilated - which limits radon accumulation. It all boils down to a question of risk. Just about everything you do has some level of risk associated with it, and those countertops sure do look nice. Are you going to live forever?



# Geo-Sudoku

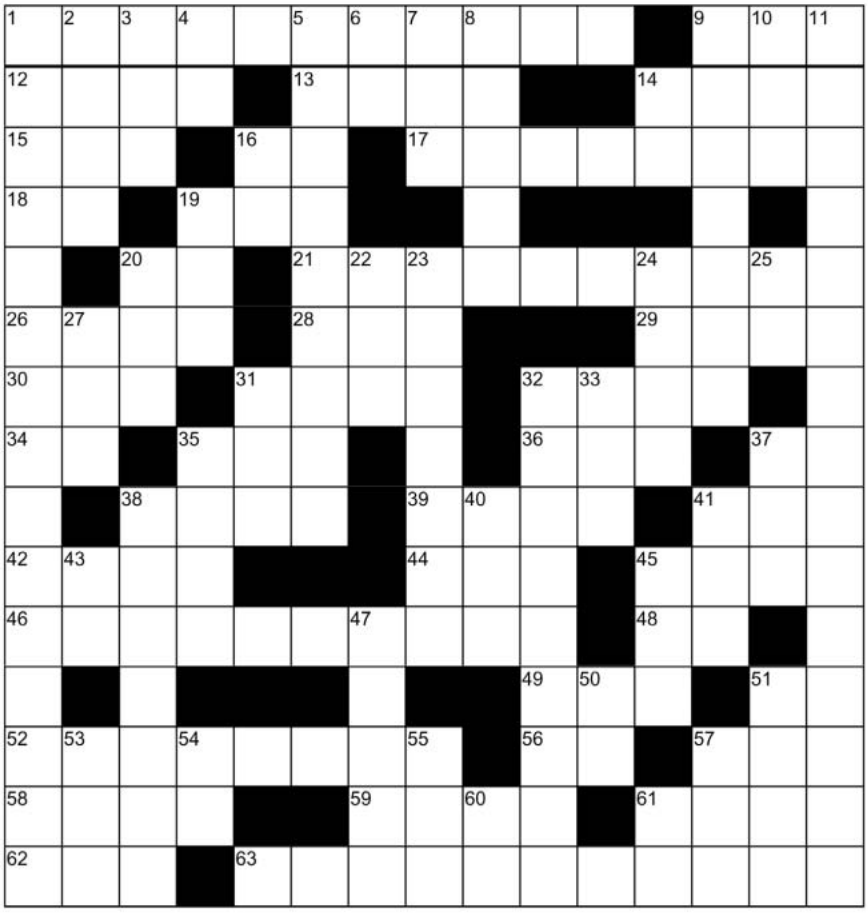
by David Glick

This puzzle contains the letters ACEHILPRS, and one row or column spells out the general shape of a pearl. 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.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | P | | | E | S | | |
| | | S | | | P | | L | H |
| | | | S | A | | P | I | C |
| | R | I | | | | | | |
| | P | | | R | | | | |
| | E | C | P | | L | R | S | I |
| | | R | A | L | | | | |
| | | | | E | | A | | |
| | H | | | P | R | L | E | S |

# Crystal Matrix Crossword

## *Not "ites"*



**ACROSS**

1 with a regular internal atomic order
9 bulletin board
12 deserve it
13 what a Uke has in its bed
14 artist Romain de Tirtoff also known as
15 more than one train track
16 light-weight component of many minerals
17 not found in selenites
18 that is
19 to and ___
20 where Crater Lake is
21 minerals having phosphorus are
26 park on a driveway, but drive on a ___
28 boy's nickname
29 used on scary apples
30 comes with a yang
31 Egyptian dry river
32 produced by rock drill
34 found in uranium mineral
35 noise made by mining
36 Alley ___
37 Nazis
38 river in Normandy
39 gotten from Google
41 found on a ladybug
42 used to display minerals
44 science funding agency
45 Hawaiian dance
46 half a sphere
48 for example
49 big mean meat eater
51 W of IN
52 volcanic glass
56 another Ph.D.
57 TGI
58 found on horse
59 gypsies
61 constituent of magnetite
62 energy dispersive spectroscopy
63 pigment made from lapis

**DOWN**

1 cerium-rich pyrochlore mineral
2 valuable minerals
3 years (ab)
4 found in stannite
5 an amorphous hydrous aluminum silicate mineral
6 not hi
7 ___ mujeres
8 better ____
9 rocks that crack
10 British Thermal Unit
11 having crystalline parts
14 inside (suffix)
16 quartz crystal state
19 way to cook
20 once you buy mineral
22 have in the past
23 greenish silicate mineral
24 retirees
25 Iowa
27 killed in action
31 not too low
32 temporary dam
33 fine steel wool
35 German three
37 the Sun
38 reversed to desalinate water
40 National Swine Registry
41 how he got minerals
43 after Earth
45 six-sided crystal
47 what a steinkern looks like
50 emergency room
51 in the core of the Earth
53 stratigraphic layer
54 indium
55 neither…___
57 last work day
60 where Harvard's mineral collection is located
61 beyond the red

**October Puzzle Solution: Blue Green**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G | L | A | U | C | O | P | H | A | N | E | ■ | O | O | F |
| L | A | V | A | ■ | C | H | A | D | ■ | ■ | S | L | U | R |
| A | B | E | ■ | P | T | ■ | D | I | G | E | N | I | T | E |
| U | S | ■ | G | O | A | ■ | ■ | E | ■ | ■ | ■ | V | ■ | I |
| K | ■ | B | A | ■ | G | L | A | U | C | O | N | I | T | E |
| O | P | A | L | ■ | O | P | P | ■ | ■ | ■ | O | N | E | S |
| S | K | Y | ■ | E | N | G | R | ■ | G | I | V | E | ■ | L |
| P | G | ■ | D | E | A | ■ | I | ■ | E | C | O | ■ | X | E |
| H | ■ | J | E | L | L | ■ | O | B | O | E | ■ | R | I | B |
| A | R | A | L | ■ | ■ | ■ | R | A | D | ■ | C | A | V | E |
| E | U | D | I | D | Y | M | I | T | E | ■ | A | Y | ■ | N |
| R | ■ | E | ■ | ■ | ■ | E | ■ | ■ | S | I | L | ■ | L | I |
| I | X | I | O | L | I | T | E | ■ | I | R | ■ | L | O | T |
| T | I | T | O | ■ | ■ | A | L | P | S | ■ | J | A | D | E |
| E | V | E | ■ | H | E | L | I | O | T | R | O | P | E | S |

## 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.

**March 6 - 7, 2010:** EFMLS Convention & Delaware Mineralogical Society Show, Stanton, DE.

**June 26 - 27, 2010:** Nittany Gem & Mineral Show, State College, PA. ❄

Geo-Sudoku Solution from page 6:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| H | C | P | L | I | E | S | R | A |
| I | A | S | R | L | P | E | L | H |
| R | L | E | S | A | H | P | I | C |
| L | R | I | C | S | A | H | P | E |
| **S** | **P** | **H** | **E** | **R** | **I** | **C** | **A** | **L** |
| A | E | C | P | H | L | R | S | I |
| E | S | R | A | L | C | I | H | P |
| P | I | L | H | E | S | A | C | R |
| C | H | A | I | P | R | L | E | S |

## For sale / trade: Equipment & Materials

**For sale or trade** for non-PA minerals: Alaska Gold Survey book, the18th Annual Report of Dept. of Interior Vol. 3 1897, with 390 pages including illustrations on Alaska gold prospecting, mining & geology, plus more. E-mail Tim at <stamprockcoin314@hotmail.com>

**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:** Very nice rock and mineral collection along with four display cases. Call Dale at 717-252-1363.

**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 ❄

### *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
**Dr. Bob Altamura (Vice-President)** 814-234-5011 (h)
e-mail: raltamur@fccj.edu
**John Passaneau (Treasurer)** 814-231-0969 (h),
e-mail: jxp16@psu.edu
**Ellen Bingham (Secretary)**
e-mail: emb22@psu.edu

### OTHER CONTACTS

**Field Trips: Ed Echler** 814-222-2642
e-mail preferred: eechler@comcast.net
**Junior Rockhounds: Dr. Andrew Sicree**
867-6263 (h) e-mail: sicree@verizon.net
**Membership Chair: David Glick** (see above)
**Programs: Dr. Duff Gold** 865-7261(o), 238-3377(h)
e-mail: gold@ems.psu.edu
**Door Prizes: Tim Holtz**
e-mail: stamprockcoin314@hotmail.com
**Publicity:** *Volunteer Needed!*

**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.