Nittany Mineralogical Society Bulletin

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

March, 2011 **Visit our web site: www.nittanymineral.org** *Editor (see page 8): David C. Glick*

March 16th meeting opens at 6:00 p.m.:

Geode Night

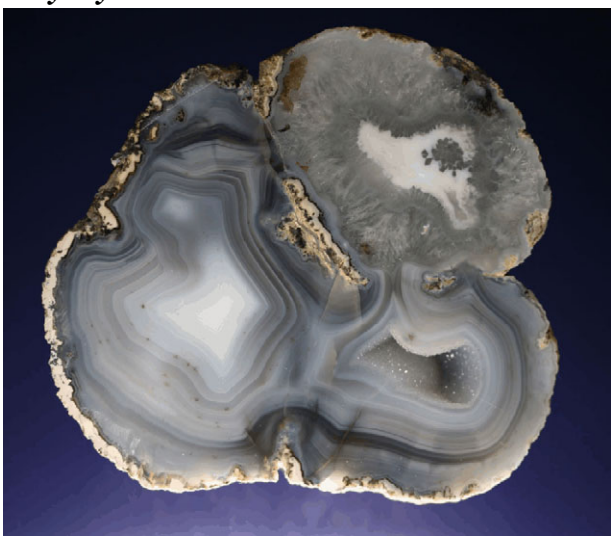
by Jeff Smith
"The Geode Guy"

Our March meeting will be held Wednesday the 16th in the lobby and in the room 114 auditorium of Earth & Engineering Sciences Building on the west side of the Penn State campus in State College, PA. Maps may be found on our web site.

6:00 to 7:15 p.m.: Purchasing & opening geodes in the lobby

about 7:30 p.m.: featured program on Mexican Geodes

The event has free admission and free parking,, and is open to all. No purchase is necessary; you can just watch geode cracking and attend the program. We don't plan to have door prize drawings this month, but they will resume in April. ***Geode Night is great fun for "kids of all ages," as they say. Don't miss it!*** *- - Editor*



An unusual geode with both solid and hollow sections.
Photo courtesy of Jeff Smith.

NMS is very happy to welcome back Jeff Smith, "the Geode Guy," to present Geode Night to our club. Starting at 6:00 p.m. in the lobby, several sizes of whole geodes will be available for purchase at $5 and up. After you buy, Jeff will crack them open for you and you'll be the first person ever to see the crystals inside. If yours turns out to be solid, you can pick another at no charge.

Jeff will have Mexican geodes from locations such as Las Choyas and Trancas, plus some others. In addition, there will be polished halves and larger opened geodes. The Las Choyas geode deposit was described in Jeff's extensive, illustrated article in the March-April 2010 issue of ***Rocks & Minerals*** magazine.

Continued on page 2

Junior Rockhounds: Come to Geode Night

Junior Rockhounds and their families are encouraged to come to Geode Night on March 16th; we will not have a separate Juniors' meeting in March. Arrive between 6:00 and 7:00 p.m. if you want to purchase geodes and have them opened, and watch others being opened.

Separate Junior Rockhounds meetings will be held at 6:30 on April 20 and May 18, in room 116 Earth & Engineering Sciences Building. That's during the social hour for the regular NMS meeting, so juniors and their parents can choose to come to the main meeting afterwards as well.

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

Minerals Junior Education Day planned for April 2

Our annual Minerals Junior Education Day is fun and rewarding for kids and parents who attend, as well as NMS participants. We can always use a few more volunteers (see page 2).

Students in grades 1 -8 and their parents are invited to come and learn about minerals, crystals, gemstones, and fossils. At this event, kids get an empty egg carton when they check in, then go to a series of stations, each concerning a different aspect of mineral properties, rocks or fossils. They learn about the topic from a demonstration or discussion, and receive a properly labeled specimen related to the topic, so they gather a whole collection in their egg carton. The following stations are being developed:

Rocks versus minerals	Polarized light
Light in gems: Iridescence	Piezeoelectricity
Sphere grinding machine	Fossils - shells and bones
Gold panning	Crystal growth

– plus a sales table at kid-friendly prices.

Tell your friends and relatives and their kids!

Register in advance:

Please register by e-mail if possible, as described on the web site www.nittanymineral.org - that's the easy way for us to get your information correctly

OR

Call John Passaneau at (814) 231-0969 between noon and 8 p.m. to reserve a starting time slot of your choice at

Continued on page 2

Geode Night, *continued*

If you finish early with buying, cracking, and watching, you can watch mineral videos in the 114 auditorium until around 7:30 (whenever the geode cracking is finished). Then Jeff Smith will present a program on geodes in that room. He and his family have visited the geode mine in Mexico, and he has slides, good stories and video of the long trip out to the mine and then going underground to mine a few geodes themselves. It's fascinating! The program is family friendly and very interesting!

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 March issue starts with an invitation to EFMLS's week-long Wildacres Workshops in the mountains of North Carolina, held this year in April and September. Betsy Oberheim discusses the joys of children and families becoming new and continuing members of our clubs, and another article talks about the ways children might become interested in minerals and rocks, and how we can encourage that. Ellery Borrow presents some thoughts about safety of radioactive mineral specimens. Fran Sick reports on contributions to the Eastern Foundation Fund. The Rochester Mineralogical Symposium and its Chairman, Dr. Steve Chamberlain, won the prestigious Carnegie Mineralogical Award for 2010; for the 2011 event (April 14-17), see <www.rasny.org/MineralSymp.htm>. Hazel Remaley relates how communication brought together donated used lapidary equipment and the all-student Mineral Minds club in western New York state. This year, the EFMLS and AFMS **conventions** will be held together July 6-10 in Syracuse, NY. Entries of competitive and non-competitive displays are encouraged. Forms for reservations, delegates, and displays are available from <www.amfed.org/show2011.htm>.

The **AFMS Newsletter** is available by the same methods. The March issue has descriptions and color photographs of the first four prizes for the AFMS drawing; tickets are $5 each or 4 for $20. President Bob Miller encourages both attendance and entry of display cases at the Syracuse convention & show. As always, contact the host hotel directly and state that you are part of the convention in order to get the special rate. Linda Jaeger discusses the use of Microsoft Publisher for club bulletins. A report on an explosion of butane gas leaking from a rechargeable cylinder in a club jewelry shop (no fire or injury, fortunately) reminds us to check and follow safety procedures with such equipment.

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

Junior Ed. Day *Continued from page 1*

the event (each half-hour from 9:00 a.m. to 1:00 p.m. on April 2). He will ask for names and addresses of the students so that checking in on-site will go quickly (we will also enter them in our door prize drawing and send them an announcement next year).

THEN send $4.00 per student (check payable to "Nittany Mineral. Soc." or simply NMS) to:

Nittany Mineral. Soc.
2231 W. Whitehall Rd.
State College PA 16801

Registration is limited so that we may provide a collection of specimens for each student. Parents come along for free, but don't get the specimens. Any spots open after March 30 (there might not be any!) will be $6.

We are seeking **volunteers** for publicity, set-up and clean-up, and helping to present the stations. We welcome advance donations of minerals, tumbled material or fossils which can be sold at child-friendly prices.

Also wanted in advance: fabric pieces, 8x11" or larger, to make grab bags which we will sell, and any ribbon, twill tape, string, etc. to make ties for them, minimum length 14 inches. Bring to monthly meetings, or call Ellen Bingham at 814-234-4532 and she will return your call later in the evening.

For updates, directions and maps, see www.ems.psu.edu/nms/

Fossils Collectors! See

Virginia Museum of Natural History 2011 Paleontology Field Trips

From Janet Roetken,
Virginia Museum of Natural History

Experience the fascinating geological history of the Middle Atlantic States' wide variety of ages and environments during the last 450 million years with VMNH Curator Emeritus of Invertebrate Paleontology, Dr. Lauck Ward, and museum volunteers while supporting VMNH research. Registration may be made by email at fieldtrips@vmnh.virginia.gov or telephoning (276) 634-4171. Space may be limited. Detailed field trip descriptions can be found at www.vmnh.net/index.cfm/topic/field-trip-adventures or clicking on the field trip link on the right side of the first page of the website. Scientifically significant specimens may be retained by curators for the VMNH collection.

Chambersburg Show March 26-27

The Franklin County Rock and Mineral club will have their 33 rd annual show at Shalom Christian Academy, 126 Social Island Rd, Chambersburg, PA, Saturday 10-5 and Sunday 10-4. Their editor, Mike Mowen, reports that there will be 20 dealers and 60-plus tables. Also included are the PA Geological Survey, micromounters displaying their specimens, native American artifacts, and food available on-site. -*Editor*

NMS Carnegie Museum Tour

by David Glick

NMS members and guests enjoyed an extensive tour of recently renovated Hillman Hall of Minerals and Gems (including the new Wertz Gallery of Gems and Jewelry) at Carnegie Museum in Pittsburgh. We are very grateful to Marc Wilson, Head of Section of Minerals at the museum, for starting the process by inviting us, and for all the time that he spent with us.

Early in the Hillman Hall tour, Marc Wilson explains the four-part exhibit on crystal twinning. *D. Glick photo*

About twenty people were part of Marc's guided tour of the galleries in the morning. The entrance to Hillman Hall has some of the most aesthetically impressive specimens, and we started with some time to examine that area. We proceeded to see exhibits on specific topics or mineral-producing localities, such as Russia and the Deccan Plateau of India. Marc explained some of the science, such as crystal twinning and pseudomorphs, and told stories of how some of the displays were planned and the best specimens were acquired. We also toured the Wertz Gallery, then proceeded to the Pennsylvania cases and the extensive, well-displayed systematic collection. After a late lunch, about eight of the die-hard mineral collectors were treated to a behind-the scenes tour for the rest of the afternoon. That included some fascinating Pennsylvania specimens from the Philadelphia Academy of Natural Sciences collection, and much more. ❄

"City in the Clouds," a specimen of tourmaline and albite var. cleavelandite from Brazil. *J. Passaneau photo*

A large specimen of a hemimorphite pseudomorph after calcite from Joplin, Missouri, acquired by the museum as its first "world-class" specimen in 1897. *D. Glick photo*

Marc Wilson pulled out many drawers and specimens for our behind-the-scenes tour. *D. Glick photo*

Siderite and galena on quartz. *J. Passaneau photo*

POPULAR MINERALOGY

Fascinating mineralogy and earth science for the amateur mineralogist and serious collector - #40

The Universe's First Minerals

by Andrew A. Sicree, Ph.D.

Before the minerals

In the beginning, the universe was devoid of minerals. And for quite some time after the Big Bang that got everything started (about 13.7 billion years ago last Friday), the universe stayed mineral-free.

At first, the universe was mostly quark soup. Then the quarks condensed to form vast quantities of atoms of the lightest elements – mostly hydrogen, helium, and lithium, not much for a mineralogist to work with. In fact, these atoms were too hot to form any solids at all. They existed as gases. The universe expanded, meaning all of both space and time got bigger (I know it sounds weird – but it wouldn't be physics if it didn't sound weird), and cooled. Hydrogen and helium atoms, pulled together by their own gravity, condensed and ignited as the first stars.

Making the elements

These early stars were powered by the fusion (i.e., joining together) of various light elements (i.e., hydrogen and helium) to form heavier elements. Fusion reactions produced energy and kept the stars lit, and while they burned, these early stars manufactured lithium, carbon, oxygen, silicon, and other heavier elements. Fusion processes, however, can't easily form elements heavier than iron and nickel so the universe's first minerals had to be drawn from the lighter, first quarter of the Periodic Table of Elements. In those days, the heaviest elements were iron and nickel, but carbon, nitrogen, oxygen, aluminum, and silicon were plentiful. The creation of the elements between nickel and uranium is mostly a function of supernova explosions – a topic for another discussion.

Ur minerals

As the first generation of stars burned out, some exploded and the elements created inside these stars were spewed out into the void of space as clouds of gas. As these gases cooled, some atoms joined together into simple molecules. Likewise, some atoms joined together into a fine dust of solid materials – some as glasses and some as crystals: the first minerals. What were these early minerals, which some authors call "Ur minerals"? (The prefix "ur-" means "proto-" or "primitive.") And how can we know anything about them?

Carbon is formed in copious quantities in present-day stars and would have likewise been formed in the earliest stars. As carbon atoms cooled in the clouds of gas left over from the explosion of an early star, they would condense into the various forms of elemental carbon – in other words, the carbon minerals graphite (C, hexagonal), diamond (C, cubic), and lonsdaleite (C, hexagonal) would be among the first minerals to form.

Silicon, oxygen, nitrogen, and aluminum are also among the elements formed in large quantities in stars. These elements can react with carbon to form minerals. Thus, one might predict that the list of Ur minerals should include carbide, nitride, and oxide minerals such as moissanite (SiC, hexagonal), nierite (α-Si_3N_4, trigonal), and corundum (Al_2O_3, hexagonal).

Samples of the first minerals

So far, our list of Ur minerals comes from speculation based on the history of the universe during the couple of billion years or so after the Big Bang. It sure would be nice if we could find an old mineral collection from those early days. That sounds impossible, but it just so happens that Mother Nature did provide us with just such a collection.

Meteorites constantly fall on the Earth and many thousands of meteorites have been collected. Some of these meteorites are fragments of asteroids and have compositions similar to those of the rocky planets (Mercury, Venus, Mars, and the Earth). But many meteorites contain unusual spherical structures we call *chondrules*. We call meteorites containing chondrules *chondrites*. Chondrules are spherical bodies generally less than 1 mm in diameter; they are typically composed of olivine and pyroxene minerals. Chondrules are thought to have formed during the early days of our Solar System – thus, although they are older than any minerals found on the Earth, their minerals do not qualify as Ur minerals.

But within the fine-grained matrix that cements the chondrules together, we find minerals that are isotopically-distinct from the minerals in the chondrules. These mineral grains are called *presolar grains* because they are thought to have formed after early supernova explosions or from the output of Red Giant stars that contributed to the nebula from which our Solar System formed. For instance, in these matrix minerals the ratio of carbon-12 to carbon-13 varies much more widely than does the same ratio in the chondrules. This supports the idea that the presolar grains have distinctly different galactic sources than do the chondrules. Thus, presolar grains in meteorites such as the type-3 chondrites (these are chondrule-bearing meteorites that have not seen any post-formation alteration) are our best bet for collecting Ur minerals.

Listing the Ur minerals

What minerals are found as presolar grains in Type 3 chondrites? In addition to the predicted graphite, diamond, lonsdaleite, moissanite, nierite, and corundum, meteoriticists have also found osbornite (TiN), rutile (TiO_2), spinel ($MgAl_2O_4$), hibonite ($CaAl_{12}O_{19}$), forsterite ($MgSiO_4$), and minerals with the perovskite structure ($MgSiO_3$). Our list of the Ur minerals – the first minerals in the universe – is thus only twelve species long.

Today, we know of more than about 4400 mineral species that have been found in the crust of the Earth or in meteorites. The universe has changed appreciably since the days when there were only about a dozen or so minerals to be found.

Ref.: Hazen, R. M., et al., 2008, "Mineral evolution" *American Mineralogist*, vol. 93, p. 1693-1720.

The Glint of Gold

Gold was perhaps the first metal found and worked by early Man. He pulled nuggets and grains of the yellow metal from stream bank deposits and valued the glittering metal for the ease with which he could hammer it into shape. But these early miners of alluvial gold soon discovered that there were also other glittering minerals among the stream-worn pebbles. Mica and pyrite proved to be glittering counterfeits of gold and the proverb "Not all that glitters is gold" was born. Shakespeare, in *The Merchant of Venice* (II, vii), gives the proverb as "All that glisters is not gold; often you have heard that told," thus giving a nod to the fact that it was well-established before he used it in his play. (If you say "all that glitters is not gold" often enough, sooner or later someone will correct you, telling you that the correct word is "glisters" – but you can correct them by informing them that the proverb has had many different wordings and is much older than Shakespeare. It may be even older than Aesop.) The proverb continues to be used today. In *The Lord of the Rings*, J. R. R. Tolkien turns the proverb on its head in Frodo's poem about Strider (Aragorn) with the line: "All that is gold does not glitter, Not all those who wander are lost".

The Mineral-Changing Dwarfs of Switzerland

Folklore from many European countries features tales of Dwarfs. Depicted as a solid and almost magical people, the Dwarfs are skilled and successful miners. Naturally, some of tales of the Dwarfs record their mineral treasures. One suspects that the Dwarfs were also great mineral collectors. At least, they mined and collected gemstones. From Switzerland comes "The Tale of the Rejected Gift":

One night, long ago, a Dwarf climbed down from the mountains to the village of Walchwyl, searching for a midwife. One midwife, a woman of the village, consented to accompany the Dwarf. Bearing a light, he led her high up the mountain, whereupon they passed into a cleft in the rock. Upon entering the mountain, the midwife was surprised to find herself in a magnificent hall, cleft from the living rock. After passing through several opulent rooms, she was brought to the Queen of the Dwarfs, who was in labor. The midwife performed her duties well, and a new young prince was born to the Dwarf Queen. The Dwarfs thanked her, and her guide appeared one more to lead her home. After bringing her down the mountain, the Dwarf filled her apron with

something, telling her that, under no circumstances, should she look at the gifts until she got back to her house. But after the Dwarf departed, she could not restrain her curiosity. She opened her apron and beheld close to one hundred chunks of coal. Disappointed and disgusted, she flung the coal to the ground. But she kept two fragments of the coal, carrying them home to Walchwyl to attest to the ingratitude of the Dwarfs. At home, she told her story and cast the pieces of coal on the ground in front of her husband. He looked at them in amazement, for they shown like carbuncles. The midwife insisted that the Dwarf had given her only coal. But her husband carried the stones to a jeweler, who pronounced them gems of great value. The midwife then raced back to where she had discarded the bulk of the coals. But all had disappeared.

According to this and other legends, coal was the usual form under which the Dwarfs disguised their treasures.

Ref.: Keightley, Thomas, "The World Guide to Gnomes. Fairies, Elves, and Other Little People", (1978, Gramercy Books, New York), p. 275.

Color Changes in Tanzanite

Few purple gemstone species exist. Amethyst, of course, is a rather common variety of quartz, and it can be cut to yield flawless purple gems and has been used since the days of the ancient Greeks. In recent decades, a new purple gemstone has entered the market. Called "tanzanite," this stone is a variety of the mineral zoisite, orthorhombic $Ca_2Al_3(SiO_4)_3(OH)$. Zoisite is more commonly known as the massive, bright green matrix which sets off hexagonal crystals of ruby in specimens labeled "ruby in zoisite". Tanzanite is the purple to blue variety or zoisite. Interestingly, when found, tanzanite crystals are strongly trichroic – meaning they have three different colors. A tanzanite will appear to be violet, deep blue, or reddish brown depending upon the direction from which you are looking at the crystal. Most tanzanite crystals are reddish brown when found. All gem tanzanites are then heat-treated to yield a deep blue to purple color. Your jeweler won't mention this heat-treatment – if he even knows about it – because it is done to all tanzanites, it is considered a generally accepted practice. You can detect a heat-treated tanzanite because it is dichroic (it shows only two colors: blue and purple).

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

Geo-Sudoku

by David Glick

This puzzle contains the letters CDEHINORT, and one row or column describes a meteorite containing spherical structures. 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.

	I				H			
		E					R	
			N	D				E
		D	C					
		H						C
			H	E			D	
	E					C		O
I		C		R				N
	O						E	T

Annual Che-Hanna Show March 26-27

The Che-Hanna Rock and Mineral Club will hold its 42nd annual gem and mineral show in Sayre, PA. The hours are 9-5 on Saturday, March 26, and 10-5 on Sunday, March 27. The location is the Athens Township Volunteer Fire Hall at 211 Herrick Ave., Sayre. In addition to a variety of dealers, there will be a special exhibit and auction by Carnegie Museum of Pittsburgh, a fossil exhibit by the Paleontological Research Institute, fluorescent mineral programs, fossil identification, childrens' activities, and more. The web site at www.chehannarocks.com/show.html has detailed directions and descriptions.

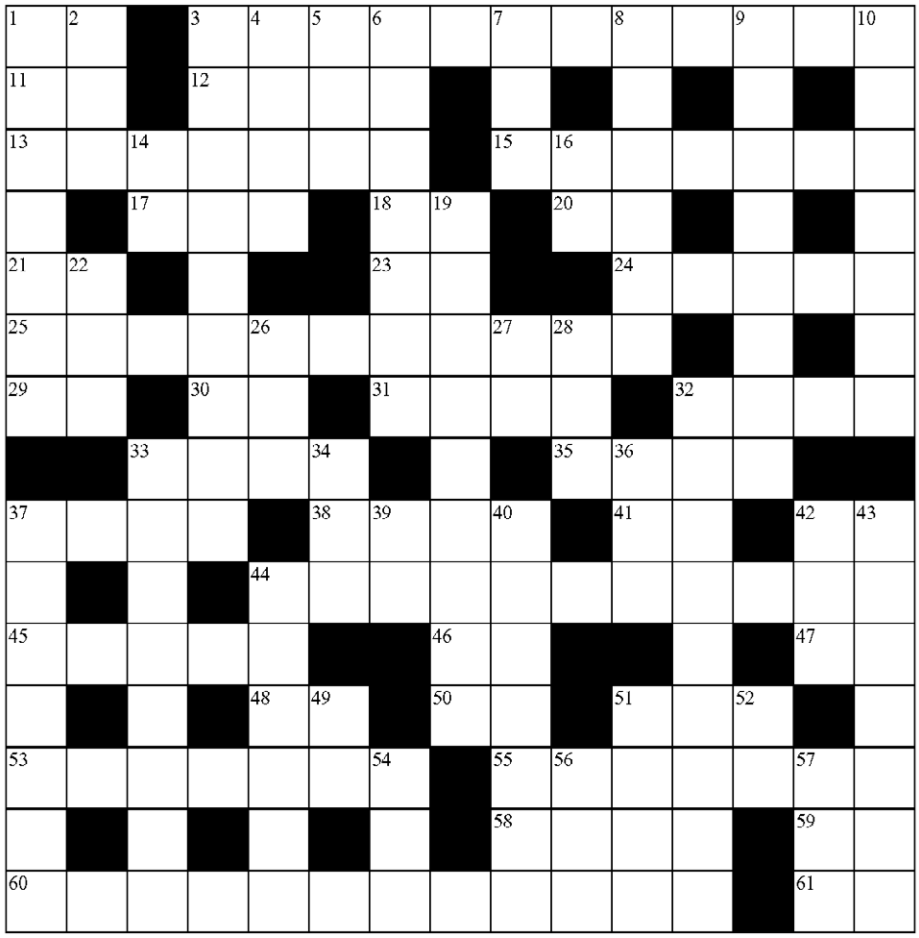
Their club web site recently added "classified geo ads" of merchandise for sale. They can be seen at www.chehannarocks.com/Classified Geo Ads.html

Rochester Mineral Symposium April 14-17

The annual Rochester Mineralogical Symposium, with a variety of presentations in mineral collecting and mineralogy, will be held April 14-17, 2011. Discounted registration is available before March 15. See the preliminary schedule and the registration form at www.rasny.org/MinSymposium/MineralSymp.htm

Crystal Matrix Crossword

A World of Minerals



1 found in greenockite
3 named for asymmetric crystals
11 __ track, __ site, __ target
12 motorcycle maniac
13 ore for soda cans
15 always telling you mineral names
17 a bit more than four liters
18 found in antimonite
20 ex infra (from below)
21 comes up like thunder
23 state for fluorspar
24 cuts stone vases
25 dark red lapidary material
29 not in selenite, but sounds like it
30 found in the core, and in meteorites
31 more than one little lamb
32 tied when you're at the end
33 site of mine disaster
35 what Irish have in speech
37 made synthetic diamonds
38 sung by sopranos
41 home of Keokuk
42 taken from weathered ores
44 an iron, Mn phosphate
45 might like some gneiss
46 elemental Europe
47 this is in Spanish
48 in pyrite, goethite, etc.
50 cassiterite is an ore
51 moves up and down on sea
53 hangs down, not a stalactite
55 stolen minerals
58 made by a horn
59 hydroxide
60 glows in the dark
61 nitric oxide

DOWN

1 found on old collections
2 found in mammoth bones
3 not the system for mica
4 the other type of evel
5 ave atque vale = "hail and well ___"
6 green Mn Zn sulfate
7 rock of value
8 students of mineralogy
9 dust is an ___
10 take the ___ route
14 primitive expression
16 noble gas
19 formerly used in mineral identification kits
22 said by matador
26 done by rockhound
27 northeast
28 for immigrants
32 an organic mineral (phthalimide)
33 found in athabascaite
34 rows your boat
36 Roman three
37 used to tell time
39 small New England state
40 potassium Al sulfate
42 did with halite (salt)
43 diamond-mining country
44 made from fluorite
49 ferrous, ferric
51 formed by Soviets
52 before Christ
54 distress call
56 longitude (ab)
57 charged particle

SOLUTION to last month's Minerals & Shakespeare

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

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.

March 26-27, 2011: 42nd Annual Gem & Mineral Show sponsored by the Che-Hanna Rock & Mineral Club, Athens Township Volunteer Fire Hall, 211 Herrick Ave., Sayre, PA www.chehannarocks.com/show.html

March 26-27, 2011: 33rd Annual Gem-Mineral & Jewelry Show sponsored by the Franklin County Rock & Mineral Club. Shalom Christian Academy, Chambersburg, PA.

April 2-3, 2011: Annual Mineral Treasures and Fossil Fair sponsored by the Philadelphia Mineral Society & Delaware Paleontological Society. LuLu Temple, Plymouth Meeting, PA.

April 14-17, 2011: Rochester Mineralogical Symposium Discounted registration before March 15. www.rasny.org/MinSymposium/MineralSymp.htm

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

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

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

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

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

For sale / trade: Equipment & Materials

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

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

GeoSudoku solution from page 6

R	I	T	E	O	H	N	C	D
N	D	E	T	C	I	O	R	H
C	**H**	**O**	**N**	**D**	**R**	**I**	**T**	**E**
E	R	D	C	T	O	H	N	I
T	N	H	R	I	D	E	O	C
O	C	I	H	E	N	T	D	R
H	E	R	D	N	T	C	I	O
I	T	C	O	R	E	D	H	N
D	O	N	I	H	C	R	E	T

INVITE A FRIEND TO JOIN THE SOCIETY

The Nittany Mineralogical Society prides itself on having among the finest line-up of speakers of any earth sciences club in the nation. Everyone is welcome at our meetings. If you'd like to be part of our Society, dues are $20 (regular member), $7 (student rate), $15 (seniors), $30 (family of two or more members, names listed). Your dues are used for programs and speakers, refreshments, educational activities, Bulletins, and mailing expenses. Please fill out a membership form (available at www.nittanymineral.org), make checks payable to "Nittany Mineralogical Society, Inc." and send them to

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

or bring your dues to the next meeting.

We want to welcome you!

SOCIETY OFFICERS

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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.