Nittany Mineralogical Society Bulletin

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

October, 2008 **www.ems.psu.edu/nms/** *Editor: David C. Glick (see p. 8)*

October 15th meeting:

Bubbles in Minerals: Trapped Mineralizing Solutions

by
Bob Altamura

Our October meeting will be held Wednesday the 15th at 7:30 p.m., 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; door prize drawings, Annual Meeting & elections (below right)
about 8:00 p.m.: featured program

The event has free admission, free parking, free door prize drawings and free refreshments, and is open to all – please come and share an enjoyable evening! - - Editor

To more thoroughly understand an area's geological history, we need to know the conditions at which minerals crystallized there. Fluid droplets trapped during the process of crystallization of minerals from hot-water solutions can yield information about the temperature and pressure of formation, as well as the composition of those mineralizing fluids. Using the microscope, suitable grains with fluid inclusions showing both liquid and vapor are selected. Within an enclosed chamber, the specimen is heated until the liquid is seen to occupy the entire volume of the inclusion. This reveals the minimum temperature at which the inclusion was trapped during crystallization. These and other methods fluid inclusionists use will be reviewed in this program. Case study examples of quartz veins from southern New England and Gebel Zeit (translated as Oil Mountain), Egypt, will be discussed. ***Continued with photos on page 2***

ATTENDING THE OCTOBER MEETING?
This event is free and open to all - bring a friend!
Donations of door prize specimens are invited.
Your additional snacks will be welcomed.

Junior Rockhounds

Meetings Scheduled

Junior Rockhounds meetings with hands-on, fun and educational activities will continue on Thursdays this Fall:

Oct. 30: Identifying Igneous Rocks
Nov. 20: Identifying Sedimentary Rocks
Dec. 18: Identifying Metamorphic Rocks.

The meetings are scheduled for room 117 EES Building, the same as last Spring. Check the web site for any updates, or call Dr. Andrew Sicree at 814-867-6263.

NMS Dues are Due

Members whose dues have not yet been received will find another dues form enclosed with this Bulletin. Please send your completed form and payment promptly, or bring the form and payment to the Oct. 15th meeting. Our membership year and fiscal year end on October 31st.

The mission of NMS, as stated in our Articles of Incorporation, is education and encouragement of interest in the scientific fields of mineralogy and the earth sciences. Your dues are used to accomplish that mission by paying for: printing and mailing the Bulletin, insurance which allows NMS members to undertake field trips and other events, honoraria for invited speakers, dues to the Federations which provide services and further our goals, and other projects chosen by the Board of Directors.

November: Invited Speaker

At our regular meeting on Wednesday, November 19th, **Dr. Ted Daeschler (**Associate Curator of Vertebrate Zoology, Academy of Natural Sciences, Philadelphia), will speak on **Great Steps in the History of Life: Late Devonian Vertebrate Fossils from Pennsylvania and Beyond.** We will meet as usual in the room 114 auditorium of EES Building. Dr. Daeschler writes:

This presentation will describe paleontological projects to search for Late Devonian-age fossils along Pennsylvania roadsides and high above the Arctic Circle in Canada's Nunavut Territory. Among the discoveries from these projects are the oldest limbed vertebrates from North America and *Tiktaalik roseae*, an animal that is widely recognized as the best evolutionary intermediate between fishes and limbed vertebrates. The presentation incorporates the logistics of exploration in these different terrains and the science behind the paleontological research.

Election Candidates and Committee Volunteers

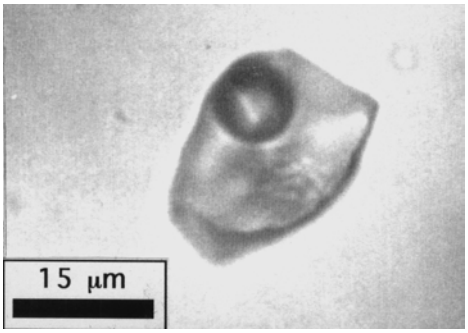
by David Glick

Elections are coming up at our corporation's Annual Meeting on October 15. No volunteers or nominations were received at the September meeting. The candidates put forth by the Nominating Committee at the September 3 meeting of the Board are the current incumbents:

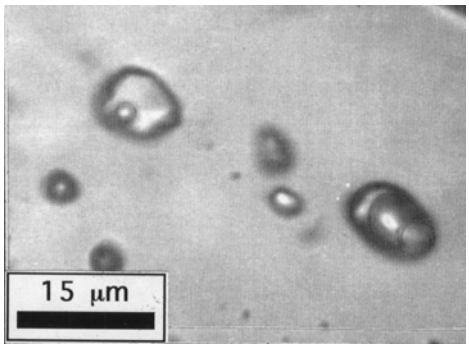
President: David Glick
Vice-President: Robert Altamura
Treasurer: John Passaneau
Secretary: Frank Kowalczyk.

NMS is also **seeking volunteers** to engage in publicity and public relations, Junior Rockhounds activities, organizing refreshments for meetings, and more. Please contact Dave Glick or another Board member (page 8) if you'd like to volunteer. ❄

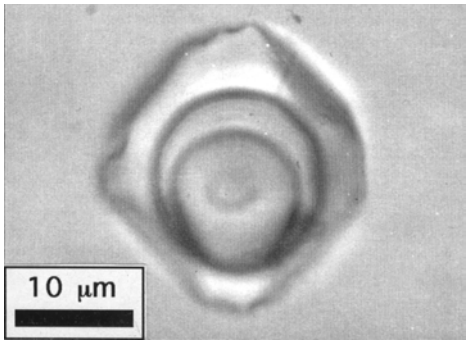
Bubbles *continued from p. 1*



Two-phase H_2O_{vapor}- H_2O_{liquid} bubble in main-stage quartz from the Lantern Hill vein complex (Connecticut) as photographed through a petrographic microscope.



Co-existing two-phase H_2O_{vapor}- H_2O_{liquid} and three-phase $CO_{2\,vapor}$- $CO_{2\,liquid}$ - H_2O_{liquid} bubbles in early-stage quartz from the Lantern Hill vein complex (Connecticut) as photographed through a petrographic microscope.



Three-phase $CO_{2\,vapor}$- $CO_{2\,liquid}$ - H_2O_{liquid} bubble in early-stage quartz from the Lantern Hill vein complex (Connecticut) as photographed through a petrographic microscope. *R. Altamura photos.*

At a quartz crystal collecting locality at Lantern Hill near Ledyard, CT, inclusions of water, and carbon-dioxide plus water, are present in quartz that occurs as veins. Four hundred twenty-two inclusions that were petrographically evaluated to be suitable for fluid-inclusion study were analyzed in an effort to statistically characterize the temperature and pressure of crystallization of quartz. Pressure-corrected results indicate that earliest mineralizing fluids were hottest (~282 ˚C) and that late-stage mineralizing fluids were cooler (~208˚ C), suggesting cooling through time. Along with ages determined from muscovite crystals present along with the quartz, this pressure / temperature environment was consistent with formation at the time of the embryonic opening of the Atlantic Ocean during the Mesozoic era.

On the west coast of the Gulf of Suez, Egypt, quartz veins in granite contain fluid inclusions. Wells produce oil from sedimentary formations beneath the waters of the Gulf, and open pits on land along the coast contain pools of oil. These oil pits are reported to have been used in ancient times by the pharaohs. From an understanding of the timing of fractures and oil development, my colleague and I hypothesized that the quartz veins might contain hydrocarbon fluid inclusions. Our study revealed that liquid hydrocarbon (oil) and vapor (natural gas) inclusions were present. Silica-bearing solutions must have come in contact with hydrocarbon reservoirs in the area before depositing the quartz in the veins. Those mineralizing fluids could not have exceeded 150˚C (the top of the oil maturity window) for significant periods of time. This is quite a low temperature for quartz veins.

❄

View from Gebel Zeit study area in Egypt, across the Gulf of Suez toward the Sinai Peninsula. Mount Sinai is near the center on the horizon and an oil tanker is visible in the Gulf on the right. *R. Altamura photo.*

EarthCache Day October 12

by David Glick

As part of Earth Science Week, Sunday, October 12, is the Third International EarthCache Day. EarthCache is one of the educational programs of the Geological Society of America. It's an educational variation on geocaching, in which global positioning system units are used to find sites of earth science interest. The web site www.earthcache.org/ has descriptive information about each site.

The web site describes it: "As a part of geocaching — an adventure game for Global Positioning System (GPS) users to cache and find locations with actual hidden items — an EarthCache adventure is treasure hunting for the caches that the Earth has stored. EarthCache sites do not use stored containers; their treasure is the lessons people learn about our planet when they visit the site." See the list of worldwide EarthCache sites on the web site. ❄

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.

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 EFMLS October Newsletter includes thank-yous and comments from outgoing President Ellery Borow, and a call for nominations for EFMLS officers for 2009-2010. A safety suggestion is to have more experienced members serve as mentors to the newer folks on collecting trips, and in the lapidary shop too. Videotapes in the EFMLS lending library are being converted to DVD, and will also be for sale as DVDs. EFMLS's insurance program for clubs continues with no price increase for the coming year [NMS has sent in our payment]. There's more on the Paleontological Resources Bill (HR 554). A recap of both 2008 Wildacres sessions, with lots of color photos in the on-line version, is presented. All-American Club notebooks, the Bulletin contest, and games for juniors meetings are covered.

The AFMS Newsletter is available by the same methods. In the October issue, most of the Scholarship Awardees are listed; AFMS has distributed about $1.3 million in scholarships to date. There's news on Junior activities, All American Club yearbooks, the Bulletin contest, and Rockhounds of the Year.

Please see the web sites for the rest of these articles and many others in both Newsletters. There's a lot there! - *Editor*

NMS Minerals & Crystals at Spring Creek Day: Bob Altamura organized NMS's participation at Spring Creek Day, Sept. 28. He and John Passaneau explained (with posters and models) the process of crystal growth in minerals, and gave away silicate nodules (which they cracked open) and garnet crystals. *D. Glick photo.*

Some Pennsylvania Shows and Events

from their web sites and press releases

Show season continues! See other listings on page 8.

South Penn Rock Swap October 25

The Annual South Penn Rock Swap, by Central Pennsylvania Rock & Mineral Club (Harrisburg) and the Franklin County Rock & Mineral Club (Chambersburg), will be held on Saturday, October 25th, from 8:00 to 3:00. It's at the South Mountain Fairgrounds, 1.5 miles west of Arendtsville, PA (Northwest of Gettysburg in Adams County) on Rt 234. General admission is $1.00, and tables for swappers are $10.00 (multiple tables allowed for the one $10.00 fee).

Ultraviolation October 25

Ultraviolation is a fluorescent-minerals-only show presented by the Rock & Mineral Club of Lower Bucks County, PA. The location is northeast of Philadelphia, at the First United Methodist Church, 840 Trenton Rd, Fairless Hills, PA. There are lots of dealers, and the room lights go off for about 15 minutes at a time so that ultraviolet lights can be turned on. The show is Saturday only, 9:00 - 4:00.

Friends of Mineralogy - PA Chapter Nov. 1-2

The Friends of Mineralogy- Pennsylvania Chapter is planning a variation on their usual Media, Pa., Symposium. This year an all-field-trip meeting is in the planning stages. FoM-Pa membership is required for attendance. If you're interested and you're not a member, contact a member such as Dave Glick or Ed Echler (see page 8) for news as it becomes available.

Gemarama November 1 - 2

Tuscarora Lapidary Society's annual Gemarama show will be held west of Philadelphia on Saturday Nov. 1 (10:00 - 6:00) and Sunday Nov. 2 (10:00 - 5:00). The location is The School at Church Farm, Exton, PA, on the north side of Bus. Rte. 30, off Rte. 202, 0.5 mile west of Frazer. "Gemstones of South America" will be the theme, and as usual there will be dealers, finished jewelry, cut and uncut stones, fossils, beads, tools, demonstrations, jewelry artistry, exhibits, children's activities, door prizes. See www.lapidary.org ❄

POPULAR MINERALOGY

Mineralogy and earth science for the amateur mineralogist and serious collector - #17

Magnetism and Magnetite, Lodestones and Lightning

by Andrew A. Sicree

The first lodestones

According to ancient Greek legend, the first lodestone was found by a shepherd, *Magnes*, when the iron tip of his shepherd's staff stuck to the black stone. Unlike many such stories, this legend is quite plausible: being a natural magnet, the lodestone will attract iron metal or deflect the needle of a compass. Like the ancient Greeks, contemporary youngsters are fascinated by a magnet's ability to project an invisible force and almost every young mineral collector has a piece of lodestone in her or his collection.

A little bit of etymology

The town or district of Magnesia is located in Thessaly in central Greece (was the location named for the shepherd or the shepherd named for the location?). Historically, this district produced black stones that attracted iron. The classical name *lithos Magnetis* or "stone of Magnesia" is the source of the modern term *magnet* from which we derive the mineral name *magnetite*.

Lodestone, on the other hand, is derived from the Anglo-Saxon *lâd*, meaning "way" or "journey." Thus, a *loadstone* or *lodestone* was a stone that "showed the way." This was because an elongated lodestone could be suspended from a string and used as a navigational tool.

Being polarized, a lodestone would always point in the same direction – a helpful characteristic when one is sailing a ship on the sea beyond the sight of land. In Dutch, the navigational use of the lodestone was expressed in the word *zeilsteen*, from *zeilen*, "to sail," and *steen*, "stone." Thus a lodestone or *zeilsteen* was a "sailing stone."

A little bit of science

A magnet is any object that possesses an external magnetic field. In common usage we use the term "magnetism" to describe phenomena such as a steel bar magnet sticking to the door of a refrigerator, or a piece of lodestone which, although too weak to hold its itself to the refrigerator door, deflects the needle of a compass. To scientists, these are two different, but related, displays of two important types of magnetic phenomena called *ferromagnetism* and *ferrimagnetism*.

All magnets are magnetic because of the motion of the electrons surrounding their atoms (moving electric charges generate magnetic fields). In a *ferromagnetic* material (such as iron metal, nickel, cobalt and most steels), the atomic magnetic fields align themselves parallel to an externally applied magnetic field, and produce a strong magnetic field of their own. In a *ferrimagnetic* material, the atomic magnetic fields align themselves both parallel and "anti-parallel" (parallel but with a polarity opposite to that of the parallel components) to the applied fields. The parallel components are stronger than the anti-parallel and thus the material is magnetic. Magnetite or lodestone is *ferrimagnetic*. (Note that older mineralogy texts sometimes called magnetite a *ferromagnet*; in the 1940's Louis Néel provided the theory to explain that magnetite was really a *ferrimagnet*. Yes, I know that there is only one letter difference between the two, but that one-letter difference represents a real difference in magnetic characteristics.)

Thus, we note that *ferrimagnetism* is a property intrinsic to the material itself. But, if this is so, why aren't all pieces of magnetite lodestones?

In order for a specimen of magnetite to display a strong external magnetic field (i.e., become a lodestone), the magnetic "domains" in the specimen must be aligned to give a net magnetic field. When magnetite first forms, its magnetic domains (you can think of them as many, many small bar magnets, each with a North and a South end, making up the magnetite) are more-or-less randomly oriented, thus the magnetite does not behave like a lodestone (the randomly-oriented bar magnets cancel each other out). If a strong electromagnetic field is applied to the rock, it will cause many of the domains to align themselves in the same direction. This aligned magnetite will be a lodestone.

A stroke of lightning

So, if you want to make magnetite into lodestone, how do you apply a "strong electromagnetic field" to the rock? In Nature, a bolt of lightning does the trick. Lodestones are thought to form when lightning strikes magnetite in the rock. The pulse of lightning realigns most of the magnetic domains in the magnetite. When the North and South ends of most of its magnetic domains are aligned with the same orientation (all the bar magnets are arranged in the same direction), a magnetite specimen will produce an external magnetic field. Thus magnetite is transformed into lodestone. Apparently most, if not all, natural lodestones are produced by lightning strikes.

Evidence in support of this theory comes from the fact that on the ridge-tops and summits of mountains built of rocks containing small amounts of magnetite, one may typically observe strong deflections of one's compass needle. Elsewhere, these same magnetite-containing rocks will not deflect a compass needle. This phenomenon is attributed to the effects of lightning striking the higher ground and converting mountain-top magnetite to lodestone.

Interestingly, you can change a lodestone back into ordinary magnetite if you heat it up. If you heat lodestone above about 575˚C (1067˚F), the "Curie point" for magnetite, and then cool it back down, it will become ordinary, non-lodestone magnetite.

The magnet test

Magnetite is the most strongly ferrimagnetic mineral and of all ferrimagnetic minerals it will most vigorously respond to a bar or a horseshoe magnet. A magnet thus becomes a useful tool for determining the presence of magnetite. Any small but strong magnet hung on a pivot or suspended from a string will be attracted to rocks containing the mineral.

Some minerals other than magnetite are also affected by a magnet. These include pyrrhotite (Fe_7S_8), greigite (Fe_3S_4), maghemite (γ-Fe_2O_3), goethite (α-FeOOH), feroxyhyte (δ-FeOOH), and jacobsite ($MnFe_2O_3$) – all of which are ferrimagnetic. In these minerals, the effect is considerably weaker than in magnetite and the property is thus harder to detect. Native iron (rare, but found on Disko Island, Greenland) and iron-nickel metal found in meteorites are also strongly attracted to a magnet.

One good magnet test technique is to crush a suspect mineral into small grains and place them on a smooth sheet of paper. If a strong magnet is brought close to the grains, some will jump onto it. Grains of weakly magnetic minerals may not cling to the magnet, but it may be possible to detect their weak magnetism when they are disturbed and moved slightly when the magnet is passed over them.

Native Iron from Disko Island

Native iron is a very rare mineral. In spite of the fact that, on the Earth, iron is a plentiful element, it almost always occurs combined with other elements. It can be found in the form of oxide minerals (hematite, magnetite, goethite, etc.), sulfide minerals (pyrite, chalcopyrite, etc.), silicates (pyroxenes, amphiboles, etc.), or other minerals. Iron is usually in the oxidized or reduced form rather than being present as an uncombined "native" element. Even the iron in iron meteorites usually occurs as the iron-nickel minerals kamacite (α-Fe,Ni) and taenite (γ-Fe,Ni).

You may have heard it said that the core of the Earth is solid iron. The innermost core is solid metal and the outer shell of the core is liquid metal, but the composition of these layers is thought to be a mixture of iron and nickel rather than pure iron. In fact, metal in the Earth's core probably is similar to the iron-nickel metal found in the iron meteorites.

Disko Island, off the east coast of Greenland, is famous for producing native iron. This iron occurs in the porphyritic feldspar basalt of Ovifak on Disko Island (a.k.a. Qeqertarsuaq). Native iron is usually found as small blebs in the basalt, but larger masses are found as well. One large mass weighed more than 20 tons.

Native iron formed when hot basaltic magmas erupted through local coal beds. The super-heated coal served as a reducing agent reacting with iron in the basalt to produce native iron metal. This is similar to what happens in a blast furnace when iron ore minerals are mixed with "coke" (essentially cooked coal) at a high temperature. The iron ore is reduced and molten iron is the result.

In addition to its fame as a locality for native iron, Disko Island is geologically quite interesting. Various mineral deposits and fossil beds occur, and more than 2000 hot springs are found on the island. *©2008 A. A. Sicree*

Cristobalite: Pseudo Quartz

Quartz is a very plentiful mineral. It shows up in almost every mineral collection. Even beginning rock collectors quickly learn that quartz is hexagonal and has a simple chemical formula: SiO_2 or silicon dioxide.

But not all silicon dioxide is quartz. A number of polymorphs exist. These polymorphs have the same chemical composition as quartz but possess different crystal structures. Polymorphs of quartz include the minerals *coesite*, *stishovite*, *tridymite* and *opal* (which is amorphous).

Another polymorph of quartz is the mineral *cristobalite* (tetragonal SiO_2). Cristobalite occurs in cavities in volcanic rocks such as obsidian and rhyolite. White "snowflakes" in "snowflake obsidian" are sprays of cristobalite crystals that crystallized out of the glassy obsidian matrix. It is even possible to break out spheres of cristobalite from the encasing obsidian.

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Josephinite: A Rock Out of the Core?

In the streams of Josephine County, southwestern Oregon, nuggets occur which are predominantly composed of nickel-iron. Known as josephinite, this material is more properly termed a rock rather than a mineral. Studies have shown that in addition to being made up of more than one nickel-iron alloy mineral, josephinites can also contain andradite garnets, iron-cobalt alloy minerals, iron-nickel arsenide and iron-copper-nickel sulfide minerals. Masses up to 100 pounds have been found but small nuggets are more common.

Even more fascinating than the composition of these nuggets are the controversial theories for their origins. One theory claims that josephinites resulted from reductive desulfurization during metamorphism – in other words, that they were produced from iron-nickel sulfide minerals. Evidence for this theory is based on josephinite mineral textures. Another theory claims that the nickel-iron was derived from deep in the Earth's mantle, perhaps from the core-mantle boundary or even the outer core itself. The nickel-iron could have been carried upward by plastic flow of rock within the mantle, then obducted upward through the crust. Although some critics have derided this theory, other researchers have discovered that josephinites have excesses of the isotopes helium-3, neon-21, and xenon-129. This has been interpreted as support for the idea that josephinites came out of the Earth's mantle. Thus, they could be the "deepest" rocks ever brought up the Earth's surface and perhaps the only available samples of the materials making up the Earth's core.

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The Importance of Polymorphism

(from Pop. Min. #14)

Three important rock-forming minerals share exactly the same chemical composition: Al_2SiO_5. These three aluminosilicate minerals are andalusite, kyanite, and sillimanite, and they are *polymorphs*. Kyanite belongs to the triclinic crystal system, while sillimanite and andalusite are orthorhombic (they have different "space groups" – meaning that the atoms, although the same, are arranged slightly differently).

These three minerals are of interest to petrologists (guys who study rocks) because they can be found in many aluminum-containing metamorphic rocks. The particular Al_2SiO_5 species present tells us something about the degree of metamorphism to which the rocks have been subjected. For example, kyanite tends to form in metamorphic rocks that have been subjected to great pressures. Buried at great depths, rocks feel pressure of about 1000 times atmospheric pressure for each 2 miles of burial depth (thus rocks at 20 miles down feel pressures of about 5000 atmospheres). Sillimanite, on the other hand, tends to form at temperatures above 500˚C.

You may hear a geologist talk about the "sillimanite zone" or "kyanite zone." This is because kyanite, sillimanite and andalusite can be used as index minerals to the grade of metamorphism. Kyanite, sillimanite and andalusite are relatively common minerals and are easy to recognize in hand specimens. Thus, a field geologist can walk across a region of metamorphic rocks and examine rocks for the presence of index minerals. When our geologist passes from rocks that contain kyanite to rocks that contain sillimanite, he knows that he has passed from the "kyanite zone" to the "sillimanite zone" and that the rocks have been heated to more than 500˚C. Boundaries between these zones can plotted on a geological map and are referred to as isograds (lines of the "same grade"). *©2008, Andrew A. Sicree, Ph.D.*

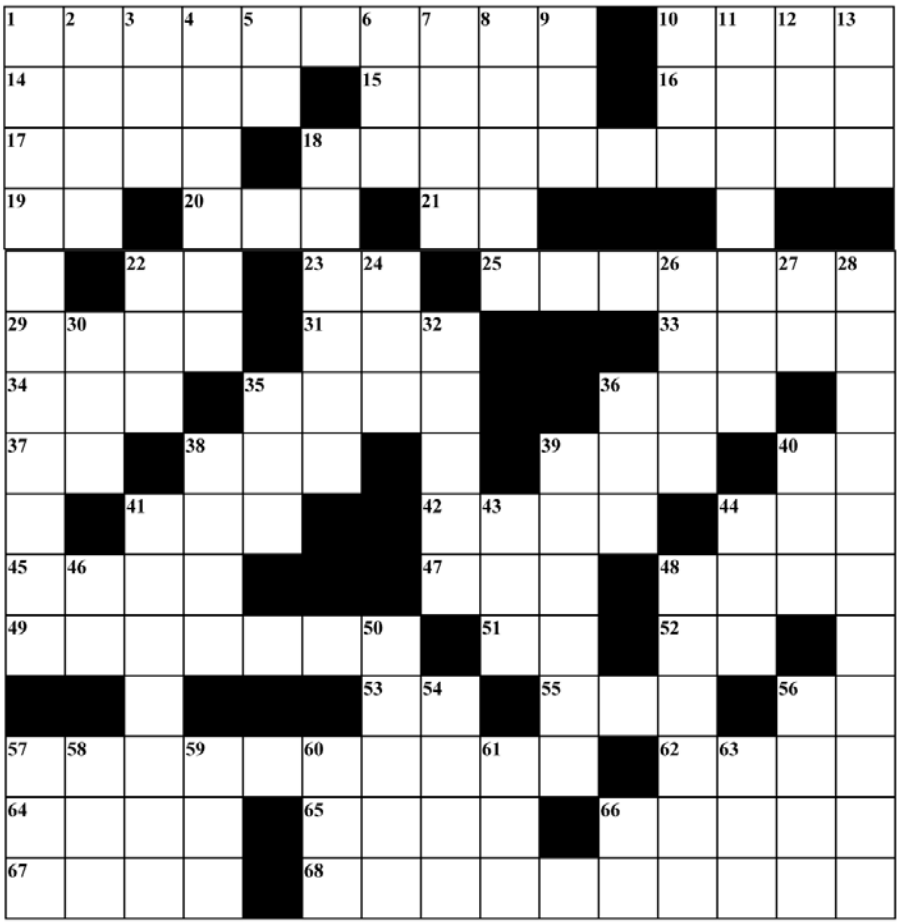
10 Years Ago in NMS

Our October 1998 meeting program was Mining and Making Iron at Greenwood Furnace, presented by Paul Fagley of Greenwood Furnace State Park. The Junior Rockhounds topic was igneous rocks (*déjà vu* - see page 1!). The recent Minerals Junior Education Day had seen almost 170 young students attend and enjoy. The Saltillo mastodon dig was continuing, with two more Saturday digs in October.

- Editor

Crystal Matrix Crossword

Mineral Miscellany



ACROSS

1 ability to break a mineral
10 what coprolites are fossils of
14 planet where we find minerals
15 opposite of an outee
16 said when you drop the Hope Diamond
17 means rich
18 calcite displays double ___
19 country road
20 the Sun King
21 where you find josephinite
22 lightweight metal
23 a bachelor
25 where diamonds are sold
29 useful for finding minerals
31 means the same
33 a girl, not a caribou
34 period of geologic time
35 tetragonal (ab)
36 Geographic Info System
37 __ Dog, __
38 your old lady
39 atmospheric pressure unit
40 color of malachite (ab)
41 ___ Fawkes Day
42 over the engine of a car
44 Chinese guy and a suit
45 had a farm _ _ _ _ O!
47 Org. of African Unity
48 a carbonate mudstone
49 thorium silicate mineral
51 peninsular state
52 Internet Provider
53 ruthenium
55 geological time
56 Attorney General
57 stones used on knives
62 Zulu military unit
64 long tube
65 make a duet
66 mountains in Peru
67 black silica rock
68 studies gems

DOWN

1 magnetite type magnet
2 small sudden attack
3 Intern'l Red Cross
4 volcanic ring islands
5 Islamic B.C.
6 not the truth
7 short for more data
8 land, ____ firma
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11 used to remove minerals
12 A.D., ___ Domini
13 2000 pounds
18 corundums
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26 blocks a stream
27 rock (ab.)
28 studies rocks
30 long ___
32 orthorhombic
35 nice ___
36 type of chisel
38 Yosemite naturalist
39 how synthetic gems come
40 Green River fossil fish
41 measuring the Earth
43 clumsy guy
44 useful for finding gems
46 International Harvester
48 produces gold, copper
50 wear down rocks
54 E Pluribus ___
56 Planet of the ____
57 what owl says
58 affectionate name
59 Terlingua calcite state
60 price label on mineral
61 = Employ Opportunity
63 Mount Desert Island
66 Japanese blue and green

LAST MONTH'S SOLUTION:
Some Fossils

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

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.

See also page 3.

Oct. 11-12 Kit-Han-Ne Rock & Gem Club Show, West Franklin Firehall, corner of Cherry & Linton St., Worthington, PA. Six vendors, silent auction, displays, Gem Mine for young and old, Plinko for kids. Sat. 10-6, Sun. 10-5. www.facetersco-op.com/zabinski/gemshow.htm

Oct 25: South Penn Rock Swap, by CPRMC and Franklin County RMC, South Mountain Fairgrounds , 1.5 miles west of Arendtsville, PA on Rt 234. Sat. only, 8-3.

Oct 25: "Ultraviolation 2008" Fluorescent mineral show, by Rock & Mineral Club of Lower Bucks County, PA; First United Methodist Church, 840 Trenton Rd, Fairless Hills, PA; Sat. only, 9-4.

Nov. 1 - 2, 2008: Gemarama, by Tuscarora Lapidary Soc.. The School at Church Farm, Exton, PA. North side of Bus. Rte. 30, off Rte. 202, 0.5 mile west of Frazer. "Gemstones of South America" theme ; dealers, finished jewelry, cut and uncut stones, fossils, beads, tools, demonstrations, jewelry artistry, exhibits, children's activities, door prizes. Sat. 10-6, Sun. 10-5 www.lapidary.org

Nov. 1 - 2, 2008: Friends of Mineralogy - PA Chapter plans a field trip meeting. Membership required for field trip attendance. Watch for details.

Nov. 8: Fall Rock Swap, by Richmond Gem & Mineral Society, 1515 East Ridge Rd., Richmond, Virginia. Sat. only, 9-3. ❄

INVITE A FRIEND TO JOIN THE SOCIETY

The Nittany Mineralogical Society prides itself on having the finest line-up of speakers of any earth sciences club in the nation. 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, 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!

50 Years Ago in Rocks & Minerals

The Sept.-Oct 1958 issue included a report on a Mineralogical Society of Pennsylvania field trip to the old Leiper Quarry (Facenda Quarry) near Swarthmore, Pennsylvania. The attendance was 180! The second edition of Brian Mason's Principles of Geochemistry textbook was reviewed. Estwing picks (the "new" design with blue vinyl grips) were advertised for $4.98 ❄

For sale / trade: Equipment & Materials

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

Mineral Business and personal collection for sale (hundreds of specimens plus supplies and equipment included). Call Terry at 570-672-2325 Mon. - Sat. 9:00 a.m. - 11:00 p.m. If I'm not there, leave a message.

For sale: Very large collection of gemstone material, prefer to sell as one lot; including much 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 570 748-3201 after lunch every day, or e-mail: dreinhold@suscom.net ❄

SOCIETY OFFICERS

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Membership Chair: David Glick (see above)
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e-mail: gold@ems.psu.edu
Publicity: Volunteers 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 the name of the photographer or artist.