

# Nittany Mineralogical Society Bulletin

Nittany Mineralogical Society, Inc.  
P.O. Box 10664

State College PA 16805

Editor (see page 8):

David C. Glick

November, 2011

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

November 16th meeting:

## Kimberlites and Lamproites: Windows to the Upper Mantle

by David (Duff) Gold  
Emeritus Professor of Geology  
Department of Geosciences  
Penn State

*Our November 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*

*7:30 to 8:00 p.m.: Annual Meeting & Elections,  
announcements, questions, answers;  
door prize drawings*

*about 8:00 p.m.: featured program*

*The event has free admission, free parking, and free refreshments, and is open to all – **Bring your friends and share an enjoyable evening.***

*Kimberlites interest us because they can contain not only diamonds, but other minerals and rock fragments from deeper than we can see by other methods. They erupt from narrow volcanic pipes and may leave less evidence on the surface than most volcanics. Dr. Gold has extensive experience researching kimberlites and will describe these complex rocks in his presentation. -Editor*

Kimberlites in the broad sense are OH-rich ultramafic rocks that may contain xenoliths (fragments of other rocks) of exotic olivine-pyroxene (opx and cpx) – garnet-spinel assemblages, as well as xenocrysts (individual foreign crystals) of pyrope-rich, picroilmenite, chrome-diopside, spinels and phlogopite. As certain minerals crystallize, the remaining melted rock tends to change or “evolve” toward being more silica-poor and carbonate-rich. Evolved varieties include phlogopite-rich (Type II) and highly potassic lamproites containing feldspathoids and K-richterite. They occur in fissures or thin dikes and as “blow-outs” in diatreme breccia pipes, too far from the source to be “normal” quenched magma melts. Consistent with their high fluid content, outgassing took place at great depth, and emplacement was achieved rapidly along hydraulically driven cracks from depths of the order of 50 to 150 kilometers. Diatremes are essentially epizonal, near surface structures, with both crater and vent facies preserved. No lava except for some lamproites has been verified. Outgassing fluids, with modeled velocities as high as Mach 2, plucked, entrained, rounded, polished and

*Continued on page 2*

## Junior Rockhounds meet November 16th

Junior Rockhounds are meeting at 5:00 p.m. on the third Wednesday of the month this Fall. That’s the same night as our regular meetings; this month it’s November 16. We’ll decide on the December meeting soon, and will post news on the web site.

Each month’s Junior Rockhounds 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 2012) 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 NOVEMBER MEETING?

Donations of door prize specimens are invited.

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

Bring a friend!

## December 21<sup>st</sup> meeting: Holiday Social at Hoss's - Please RSVP by Dec. 12 -

by David Glick, NMS President

Our annual December meeting/ social event will be held Wednesday, December 21<sup>st</sup> at 6:00 p.m. in a private room at Hoss’s Steak & Sea House restaurant, 1450 North Atherton St., State College PA 16803. Please RSVP to Ellen Bingham at 814-234-4532 or [emb22@psu.edu](mailto:emb22@psu.edu) by December 12. Guests, non-members and prospective members are welcome; please RSVP to Ellen.

NMS will pay for some appetizers for the group. Individuals will then order their dinners from the menu; there will be separate checks which will include 18% gratuity. The menu should be as shown at (we’ll have these links on our own web site, [www.nittanymineral.org](http://www.nittanymineral.org)): <https://www.statecollege.com/dining/613/hosss-steak--sea-house/> or <http://www.hosss.com/menu/> (Choose the various sections on the right side)

Almost all dinner entrees include Hoss’s salad bar (it’s extra with the sandwich menu).

Unfortunately it did not work out to have members selling their wares at the December social this year. The Board hopes to resume that possibility next year, at the December social or at some other venue. ❁

**Kimberlites** *continued from page 1*

mixed samples of the upper mantle and lower crustal rocks, up to 60 cm across, with more angular upper crustal lithologies, and polished the walls of some of the diatreme vents. “Kimberlites” were emplaced periodically throughout geologic time with a peak during Cretaceous times (at the time of disruption of Gondwanaland, the southern supercontinent). The predominance of lamproites to the Tertiary may reflect erosion depth rather than temporal distribution.

“Kimberlites” are of interest economically as the primary source of diamonds, albeit as the dispersant rather than the concentrating agent. Of more than 9000 known kimberlitic bodies, only approximately 5% contain diamonds (mainly as “micros”, <0.1 mm) and less than 10% of these are likely to be economic. Diamond exploration focuses on extensional settings in “OLD COLD CRATONS.” “Finds” are evaluated mainly on the presence of (a) G-9 and G-10 garnets (low Ca, high Cr pyrope), (b) the absence of an oxidation trend (overgrowths) in the spinels, and (c) the P-T regime inferred from co-existing sets of minerals in the xenoliths and diamonds with respect to the diamond/graphite inversion boundary (54 kbar/1300°C) and geothermal gradient. Diamonds are classified as “p-type” for peridotitic from “fertile” asthenospheric mantle, or “e-type” for eclogitic from a depleted or lithospheric mantle. The latter have implications on early subduction roots.

### Solution to September crossword, Se and Sn Minerals

S	L	A	B		G	A	P		P	A	L	A
E	C	C	L		U	L	E		I	R	O	N
	S	T	A	L	A	C	T	I	T	E	S	
		I	C	O	N		Z	N				
A	M	O	K		O	X	I	D	A	N	T	S
B	A	N	J	O		E	T		R	H	E	T
A	O		A	G	O		E	R	G		T	O
C	R	O	C		L	A		P	E	A	R	L
K	I	T	K	A	I	T	E		N	C	A	A
				A	V		L	A	T	E		
	C	A	S	S	I	T	E	R	I	T	E	
K	A	M	E		N	E	C		T	I	D	E
S	L	U	G		E	X	T		E	C	H	O

**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.nittanymineral.org](http://www.nittanymineral.org) or remind Dave Glick to bring a printed copy to a meeting for you to see.

The November issue presents a special opportunity, the availability of two scholarships to the 2012 Wildacres Workshop sessions for club members who have never attended. Applications will be printed in the December Newsletter. Pennsylvanian RJ Harris writes his first letter as EFMLS President, about being a mineral and fossil collector since his childhood. The safety article (reprinted on p. 6 of this Bulletin) notes the all-too-common mushroomed heads on our chisels, and how to properly grind that end of the chisel as well as sharpening the “business end.” The Each One Teach One, Club Rockhound of the Year, and All American Club awards are described and entries are requested.

The new EFMLS Junior Activities Chair is Darryl Powell of Diamond Dan Publications. His article (reprinted on p. 4 of this Bulletin) is about encouraging children who are interested in minerals, and how he started out (as many of us did) with the small Golden Guide series book on Rocks and Minerals by Zim and Shaffer.

The **AFMS Newsletter** is available by the same methods. The October issue announces a new format for the Judges Training Class (for competitive mineral displays): the four-day class will be presented at mineral show within a different Federation each year. The Junior activities column encourages Juniors to write articles for their club newsletters, and they can be entered in the bulletin contest.

The November issue unveils four valuable lapidary machines in the 2012 AFMS Endowment Fund Drawing. Four inductees to the National Rockhound and Lapidary Hall of Fame for 2011 are introduced. The “Quick Tips for Editors” column has some thoughts on the past and future of communications, and mineral club bulletins in particular. The ALAA column notes the importance of being part of the development of land use plans involving public lands which include collecting areas, rather than objecting after they are written.

Please see the web sites for the complete Newsletters. There’s a lot there!

- Editor

## Fluorescent Mineral Display at Discovery Space Created with NMS Member Assistance

by

Bob Altamura and  
John Passaneau

NMS members John Passaneau and Bob Altamura collaborated to help Discovery Space of Central Pennsylvania establish an exhibit of minerals and rocks which glow in the dark from ultraviolet fluorescence. Discovery Space of Central Pennsylvania <[www.mydiscoveryspace.org](http://www.mydiscoveryspace.org)> is a new museum in downtown State College “where children ages 2 to 12 can experience science first-hand.” Their long-anticipated Grand Opening took place October 22, but planning for the fluorescence exhibit began late last year. After discussion with the NMS Board, Bob made contact with Discovery Space leaders to learn what was being planned and to offer possible assistance with mineral-related exhibits. John and Bob stepped forward as interested individuals, met with Discovery Space Executive Director Art Heim and Exhibits Co-Chair Margaret Roof, and steered them in a positive direction to create the fluorescence exhibit, which is now available for viewing.

Preliminary work involved group discussion to identify a design for the cabinet (housing and ultraviolet lighting) and a darkened area for its location. The cabinet was then constructed by Discovery Space, and the electronics to control normal white light; short-wave and long-wave ultraviolet (UV) light in the cabinet were created by NMS’s own electronics expert, John Passaneau. John created a compact system built around a microcontroller containing his program written for this application. Solid-state switches controlled by the program are responsible for timing the sequence of lighting transformations from normal white light to short-wave ultraviolet light to long-wave ultraviolet light with 25-second intervals. Visitors to the exhibit push a button and the programmed sequence of transitions from one light source to the next begins. In addition to the minerals in the main display section, there is another compartment in the lower right in which students can place their own samples or objects and observe any reaction to ultraviolet light.

The new fluorescence exhibit, shown in the photo at right, has been stocked with fluorescent minerals and rocks donated to the museum by both John and Bob. Minerals were selected to portray those that fluoresce in short-wave, in long-wave, and those that phosphorescence after the UV light source has been turned off. If any members have brightly fluorescent minerals, especially long-wave responding minerals, that they would like to donate to the Discovery Space, please contact Bob or John (see page 8).

Another project at Discovery Space is a hands-on collection of interesting minerals, fossils and rocks which

kids can touch, turn, examine with a hand lens, etc. NMS members are already in the process of adding to this collection. Members who would like to donate more may also contact Bob or John. These specimens should be at least the size of a softball and exhibit some feature which would interest the children.

Elsewhere in town, John currently is helping the Penn State Earth & Mineral Sciences Museum develop its new fluorescence exhibit by building the same innovative lighting control for that museum. It will be available in the very near future.



Margaret Roof and John Passaneau discuss labels for fluorescent minerals in Discovery Space’s display.

*R. Altamura photo.*

## Geo-Sudoku

by David Glick

This puzzle contains the letters AEILMOPRT, and one row or column spells the highly potassic volcanic rock in this month’s program. 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.

			A	L				T
			T			R	O	A
		A	R		M			
	P	E			A	O		M
R	O		M	T	E			P
L			P				T	E
P	L	R	E			A		
	M			P				
				O				

# Inspire Someone

by Darryl Powell,  
 EFMLS Junior Activities Chair  
 From EFMLS News, November 2011

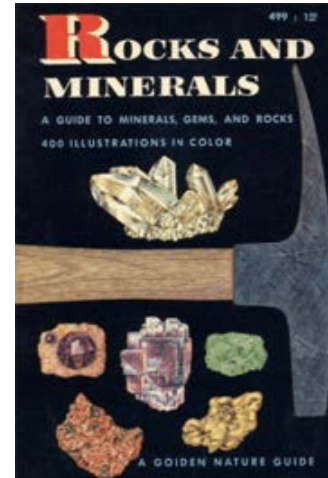
*Our new Junior Activities Chair is Darryl Powell. His name may be familiar to you as he's the brains behind Diamond Dan Publications, a small company devoted to Earth Science publications designed to encourage, inspire and inform children about the wonderful world of minerals, fossils and rocks. He lives in Manchester, NY, with his wife and three children and is a member of the Wayne Co. Gem & Mineral Club and the pastor of the First Baptist Church of Manchester, NY.*

Can you name the first person who helped you collect minerals? Was there someone who noticed that you had a new interest in crystals and he or she encouraged your interest? During vacation I was visiting my brother and we were talking about the teacher who lived next door to us where we grew up in Massachusetts. Her name was Mrs. Raymond. She was one of those teachers who noticed her students' interests and then said and did things to encourage them.

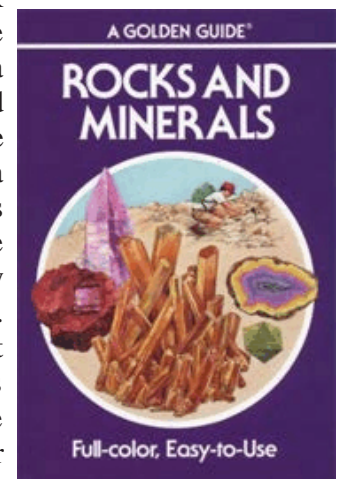
When I was in 5th grade, my science teacher assigned us a research project. We could pick any subject we wanted and write a 2 page report about that scientific subject. I don't know why, but I picked rocks and minerals. Really soon I found that I could look for rocks in my own neighborhood and add them to a collection. The minerals I saw in books were colorful and were found in amazing shapes. Right away I became interested in minerals.

My mother must have told Mrs. Raymond that I had a new interest. The very next day, Mrs. Raymond came over to our house with a small present for me. It was a copy of the little mineral book, "Rocks and Minerals" by Herbert S. Zim and Paul R. Schaffer (published by Golden Guide books). You would think she had given me a nugget of gold! I read that book from cover to cover and spent hours looking at the pictures. As my own collection grew, I began to compare specimens in my collection with the pictures in the book.

To this day, I believe that this little present from Mrs. Raymond pushed me from a passing interest in minerals to a full-blown love of the subject. So again I want to ask you, is there someone in your life who has encouraged your interest in minerals?



Above is a picture of the book that Mrs. Raymond gave me. This is what the cover looked like when it was printed back then. Today, the book looks like the picture to the right here, now printed with a purple cover. I would recommend this book as the best first mineral book for a young mineral collector. It is easy to read, full of accurate and colorful pictures, and easy to understand. When Mrs. Raymond gave me a copy, it cost only \$1! Today the cost is over \$10. It is still worth the price. (They publish a similar book about fossils, too.)



Think of a young person in the spheres of your life. Stop by her or his house someday, unannounced, and bring a good mineral book and some decent specimens and say, "I think you will really enjoy this hobby." These acts of kindness and generosity can literally set the stage for a child's future interests and even career.

Until next month, be blessed.

## Franklinite – The Non-Fluorescing Mineral From Franklin, New Jersey

by Brett Whitenack, McPherson Gem & Mineral Club

From: *The Post Rock*, 9/2010

(4<sup>th</sup> Place – AFMS Original Adult Articles)

If you were to ask a rockhound "What is franklinite?" there is a good chance that they might tell you it is a fluorescent material from New Jersey. In reality, while they would have the correct location, they would be greatly mistaken that it is fluorescent. The mineral franklinite is actually the name for the main zinc ore that was once mined in Sussex County near the towns of Franklin and Ogdensburg.

Franklinite was first discovered during the early 1800s and was named for the nearby town of Franklin Furnace (later to become Franklin) as well as to honor the name of Benjamin Franklin. Pierre Berthier, a French geologist and mining engineer, was responsible for naming the mineral and wrote that it was "derived from Franklin, in order to remind us that it was found, for the first time, in a place to which the Americans have given the name of a great man, whose memory is venerated equally in Europe as in the new world by all the friends of science and humanity."

While franklinite occurrences are rare elsewhere around the world, it is locally abundant and was considered the king of ores in the zinc mines in Sussex County. There, miners delved deep into the earth to retrieve this, the most valuable of the zinc ores found within the deposits. It once was thought that franklinite was found only in the Franklin Mining District of New Jersey. Over the last few years, deposits have been discovered in other parts of the world, though never in commercial quantities. A few of these localities include Australia, Germany, Sweden, and in the United States where it is also found in Alaska and New Mexico.

The major element composing franklinite is zinc along with iron and oxygen giving it the chemical formula  $ZnFeMn_2O_4$  and the formal name of zinc iron oxide in its pure state. The zinc portion was what made franklinite so desirable and valuable as an ore. Often, manganese is present as a second or third element (depending on its oxidation state) giving franklinite an official chemical formula of  $ZnFeMn_2O_4$ .

The franklinite deposits are believed to have occurred when carbonate rocks rich in iron, zinc, and manganese formed in marine environments and were altered by high temperature metamorphism. The outcome of an intrusion of high temperature igneous magmas into the cooler rock caused the franklinite to crystallize out of the resulting solution and led to great ore deposits in this region of New Jersey.

The "classic" specimens of franklinite are opaque and black in color exhibiting an octahedral (eight-sided) crystalline shape and occasionally, dodecahedral (twelve-sided) crystals. Crystalline franklinite can sometimes be mistaken for magnetite or spinel due to its octahedral shape. Unlike magnetite, which is highly magnetic, franklinite is only weakly so. Its reddish brown streak distinguishes it from spinel, which has a white streak. Franklinite crystals are also frequently found as small (2-3 mm), rounded, pebble-like grains within a calcite matrix associated with willemite and zincite. It is also found in large, amorphous masses within the ore body with no distinct crystalline shape.

Perfect crystals are highly sought after by collectors. The largest crystal on record is an octahedron that is seven inches on each edge and resides in the Canfield Mineral Collection of the Smithsonian Institution. Collectors should take care in choosing specimens however, as repairs to crystals or even outright fake crystals were common. It seems that miners would spend some of their down time filling in cracks or even constructing crystals from plaster and then coloring them with lampblack or some other dark pigment to conceal their handiwork. They would then sell these fakes to unsuspecting customers.

Other physical characteristics help in identifying franklinite from similar looking minerals. It has a specific gravity between 5.0 and 5.2 making it slightly above average for a metallic mineral. While it has no cleavage (the tendency to split along a definite plane), franklinite does have a conchoidal fracture and will exhibit a metallic luster, especially on freshly broken specimens.

The mines around Franklin, New Jersey no longer produce franklinite nor any of the other ores that were found there. The Franklin mine closed in 1954 and the Sterling Hill mine closed in 1987. Most of the mine shafts, some of which exceeded 2,500 feet in depth, have now flooded with water and mineral specimens can no longer be collected from the mines. One tunnel, located at the Sterling Hill Mining Museum, has been turned into a 1,300 foot long display where visitors can walk and view exhibits of the mine equipment that was once used when the Sterling Hill mine was in operation.

Lately, both professional geologists and amateur rockhounds are lobbying to make franklinite the "official" state mineral of New Jersey. An online poll recently had franklinite leading another candidate vying for the title, the beautiful green mineral prehnite, by a margin of 96% to 4%.

The Franklin, New Jersey area is home to more than 350 different mineral species with over two dozen of these found nowhere else in the world. Of these minerals, at least 90 different species are fluorescent, making Franklin the "fluorescent mineral capital of the world." However, a mineral from Franklin doesn't have to be fluorescent to warrant adding it to your collection. Just make sure that when you are trying to obtain a specimen of franklinite, that you and the person you are acquiring it from are both on the same page and that you mean the non-fluorescing mineral, the "king of the ores" that was once mined at the Franklin and Sterling Hill mines in New Jersey.

### References:

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# The Mushroom

by Ellery Borow, EFMLS Safety Chair  
From EFMLS News, November 2011

Lest one think this article is about mycology or perhaps a discussion of the various aspects of gourmet fungi, I'd like to set the record straight. We are instead covering the topic of rock chisels - specifically the mushroom head often formed on well used chisels.

No doubt most folks have heard the expression "chisel with a mushroom head." The expression refers to the look of a chisel head depicted in Figure 1. The condition results from extensive impact on its driven (head) end over an extended period of hammering. When a mushroom head forms on a chisel, it is unsafe to use. The deformed metal has work-hardened and become brittle. Parts of that brittle metal may break off upon impact and strike the hand, fingers, arm or face.

The common solution to the formation of a mushroom head on a chisel is to carefully grind away the deformed metal from the chisel's head. Some folks cease their grinding operation when the chisel reaches the look of that shown in Figure 2. The figure shows a nice right-angle shape end with squared-off edges. This too is not a recommended condition for a chisel. Those sharp right angle corners are easily broken off and may still cause injury to the user.

The properly ground head will have a small bevel around it's perimeter, as shown in Figure 3. If one were to look at new chisels in a hardware store, one would note their driven end (head) always has a small bevel around it's head with no square corners to break off.

On the working end of our rock chisels what we usually find, after long periods of hard use, is a somewhat dulled point. We do not find a mushroomed point. Instead of mushrooming, the once sharp point or edge has rounded over as depicted in Figures 4 and 5. The procedure for restoring the sharp edge is to carefully (without over-heating the metal) re-grind the point so that it once again exhibits its original edge profile.

Why does one end form a mushroom and the other end just dulls? The answer is metallurgy. The metal in a chisel's business end (point) has been treated to make it tough and relatively hard. The struck end of the chisel has been treated to make it a relatively softer metal than the point. We want the point to stay sharp so that it performs it's intended purpose. We want the head to

be softer so that when struck, it will purposely deform or mushroom. The reason for this is that it is preferable to have the head of a chisel deform instead of the relatively more expensive head of a rock hammer or maul.

One almost never sees a mushroom head on a rock hammer or pick. Instead, one is more apt to see a well worn surface rather than a mushroomed surface.

A chisel then is quite the metallurgical marvel.

The first important side note - when grinding away those mushroom heads or dull points prior to your next collecting trip, please remember to wear those all-important safety glasses and keep your hands well protected with gloves. Grinding often creates sparks that can bounce in any direction and toward your eyes. Also, grinding metal heats it to quite a degree (or two) ! Best bet is to keep the metal cool - and wear gloves for additional protection.

The second important side note - it is never, ever safe to use a carpenter's hammer to strike a rock chisel. A carpenter's hammer is not designed to strike the type of hard steel found in a rock chisel. Carpenter's hammers are designed to strike the relatively soft (and all too-easily bent) metal of a nail. Please do not use carpenter's hammers with rock chisels. Disaster is always over the hill - it's never a good idea to send it an invitation to come on by!

For this month's safety refresher, please review Jim Doran's fine article on letting someone know where you are when you go collecting from the June-July 2010 issue of the EFMLS News, which if you do not happen to have is available on the EFMLS website at [www.amfed.org/efmls](http://www.amfed.org/efmls). Click on the "Newsletter" tab and then download the issue. It will arrive as a pdf file.

Be mindful of those mushrooms - they can grow on you, and remember, your safety matters.



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

Summary of the MSDC January Program  
**(The Bridgewater Titanite Follies:  
 A Presentation by Carter Rich)**

by Betty Thompson,

Mineralogical Society of the District of Columbia

From: *Mineral Minutes*, 2/2010

(1<sup>st</sup> Place – AFMS Original Adult Articles)

Carter Rich "mined" the rich history -of Chester County, Pennsylvania, to share the story of the Bridgewater titanites. These 30 pieces (which were also known as sphenes) were found in September 1876 - and no other titanites have been found there, before or since. Although generally very ordinary specimens, their rarity and the fact that they were the first titanites added to the Pennsylvania list of minerals quickly generated great interest and competition for them.

In the 19th century, Philadelphia was the hub of the mineral collecting world, with prolific mineral societies and study groups, and diligent field collecting. Membership in the Academy of Natural Sciences was prized. Collectors' interests were scientific, focusing on species identification and crystallography. Mineral enthusiasts competed to obtain new, unusual minerals, and the Bridgewater titanites excited the interest of many prominent members of this group.

William H. Forwood, a physician and, at the time, a major in the US Army, found the titanites. He kept most of the titanites with him in his military travels. He reported his find to the Academy of Natural Sciences, to which he donated two casts and one titanite. In 1902, he loaned 28 of the specimens to the American Museum of Natural History and all were bequeathed to the Smithsonian upon Forwood's death in 1915.

In a letter of September 19, 1876, Forwood said that he had exchanged titanite (or sphene, as it was then commonly called) only with Joseph Leidy, M.D., and Theodore Rand, who offered him a small collection in return. These specimens later were obtained by Clarence S. Bemont. W.S. Vaux and Colonel Joseph Willcox obtained titanites later. Others sought titanites and never succeeded in getting them, including Dr. A. E. Foote, who compiled an extensive *Catalogue of Minerals*, with prices, and William W. Jefferis, an excellent field collector active in the Academy of Natural Sciences.

Those who did obtain titanites were prominent men of science, and most were members of the Academy.

- W.S. Vaux was a wealthy collector who hosted "Saturday afternoon soirees" of sufficient significance to have been noted in the 1922 Proceedings of the Academy. His son George built on this collection and eventually gave 15,000 specimens to Bryn Mawr College.

- Leidy, a prominent Academy member and collector, wrote about the first complete dinosaur unearthed in the U.S.,

in Haddonfield, NJ; discovered the trichinosis parasite in pork; and was an early supporter of Darwin regarding evolution.

- Rand was director of the Geological and Mineralogical Section of the Academy and amassed a collection of 20,000 specimens, which eventually went to Bryn Mawr College.

- Colonel Joseph Willcox was a member of the Board of Commissioners of the Pennsylvania Geological Survey. His family owned a fine-paper business that supplied paper for US currency and for bank notes.

Carter Rich has identified museums that eventually obtained the Bridgewater titanites:

- The Smithsonian received 28 in the original 1915 bequest, and still has at least 14.

- The American Museum of Natural History had all 28 on loan until 1915, and got the Leidy and Willcox pieces in 1902.

- Yale was given a titanite by Forwood in October, 1876.

- Bryn Mawr received two titanites from Vaux and one from Rand.

- The Academy in Philadelphia received three from Forwood and one from W.S. Vaux.

- The Carnegie Museum got two or more from the Academy sale in 2008.

- The British Museum is rumored to have one titanite.

The lecture was fascinating in conveying a picture of one part of Philadelphia society in the late 1800s. For this group of men, wealth and science converged in eager exploration of the natural world and in competition to claim new discoveries for one's personal collection. Carter Rich let us meet members of this group, and glimpse their backgrounds and relationships as they variously discovered, sought, and prized - or failed to gain - 30 specimens still notable as the first titanites found in Pennsylvania, and the only titanites found in Bridgewater.

Tom Tucker mentioned that in 1954, at the Gem Queen mine in Montana, Ray Davenport discovered titanite crystals; one is more than 7 inches across. Lots came out of that mine and were distributed widely. Tom said that all northern Virginia and Maryland trap rock quarries probably have some titanite. George Loud agreed, noting that his neighbor had had 20 tons of gravel dumped in his driveway from the Beallton quarry (now closed); the day before this meeting, George took a look at that gravel and immediately found a small sphene. As he said, "Rocks are where you look for them." Thanks to Carter Rich, we can appreciate the fact that William H. Forwood looked in Bridgewater in 1876 - which led to the reminder that we, too, may find something special, even in a neighbor's driveway. ✨

## 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.

**Nov. 19-20, 2011:** Gem Miner's Holiday Festival, by Mid-Atlantic Gem & Mineral Association. Lebanon Expo & Fairgrounds. Sat 10-5, Sun. 11-4. [www.gem-show.com](http://www.gem-show.com)

**2012:** EFMLS Sept.15-16, Harrisburg, PA \*

## For sale / trade: Equipment & Materials

For sale: Rock cutting oil for sale. Food grade clear mineral oil. Up to 10 gallons available. \$12 / gal. Contact Jim Garthe at [jwg10@psu.edu](mailto:jwg10@psu.edu) or call 814-667-2409.

For sale: Highland Park lapidary saw, Model E4, 8" diamond blade, mounted on a stand, ready to use. Contact Willard Truckenmiller, phone 814-625-2531 (9:00 a.m. to 9:00 p.m.) or e-mail [jowilltruck@aol.com](mailto:jowilltruck@aol.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: Jade in various types & colors; mostly rough, plus some slabs; some fine Coober Pedy opal. Also equipment and jewelry making supplies from jewelry studio and production shop. Contact Daniel G. Reinhold in Mill Hall, PA; phone 570 726-8091 after lunch every day, or e-mail: [dreinhold1@comcast.net](mailto:dreinhold1@comcast.net) \*

**Geo-Sudoku** solution from page 3:

I	R	P	O	A	L	E	M	T
M	E	L	T	I	P	R	O	A
O	T	A	R	E	M	P	L	I
T	P	E	I	L	A	O	R	M
R	O	I	M	T	E	L	A	P
L	A	M	P	R	O	I	T	E
P	L	R	E	M	T	A	I	O
A	M	O	L	P	I	T	E	R
E	I	T	A	O	R	M	P	L

### 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). Those joining in March or later may request pro-rated dues. 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](http://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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Dr. Bob Altamura (Vice-President) 814-234-5011 (h)

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Ellen Bingham (Secretary)

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### OTHER CONTACTS

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Junior Rockhounds: Dr. Andrew Sicree

814-867-6263 (h) e-mail: [sicree@verizon.net](mailto:sicree@verizon.net)

Membership Chair: David Glick (see above)

Programs: Dr. Duff Gold 865-7261(o), 238-3377(h)

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Door Prizes: *volunteer needed!*

Facebook: Mike Zelazny e-mail: [maz166@psu.edu](mailto:maz166@psu.edu)

The Bulletin Editor will welcome your submissions of articles, photos, drawings, cartoons, etc., on minerals, fossils, collecting, lapidary, and club activity topics of interest to the members. Please contact:

David Glick E-mail: [xidg@verizon.net](mailto:xidg@verizon.net)

209 Spring Lea Dr. phone: (814) 237-1094 (h)

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Newsletter submissions are appreciated by the first Wednesday of the month. If you include photographs or graphics, please do not embed them in word processor files; send them as separate graphics files (TIF, or good to highest quality JPEG files, about 1050 pixels wide, are preferred). Please provide captions and name of photographer or artist.

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