

# GEM & MINERAL JOURNAL

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Publication of the Gem &  
Mineral Society of  
Lynchburg, VA, Inc  
[WWW.LYNCHBURGROCKCLUB.ORG](http://WWW.LYNCHBURGROCKCLUB.ORG)

## Presidents Message

Happy New Year To All !!

When we begin a new year I can't help looking back to where we have been. In years past the Club has had projects to add new equipment, buy a trailer to haul our goodies, or expand to take on a new Festival. We have planned teaching workshops as well as workshops for Club projects. I've found it's not what you accomplish but that you have a chance to work with good people and make new friendships. We sometimes find along the way while trying to teach something you end up learning a lot more than you could imagine. We have lost members in the past but more importantly are the new members that joined us in the past few years who have added so much to the life of our Club. I want to thank everyone that has added their time, talent and treasure to make this a great Club and adding to the



excitement of what this organization is all about.

Thanks to all the Officers elected in December that will serve to lead this Club into another year that I hope will be as prosperous and interesting as in years past.

Keep in mind the J.M.U. field trip in February as well as the Club's yearly auction, I know we will have some great specimens and items of interest to make this another successful auction. We are in the process of getting another gem, mineral and equipment collection from a local collector, I will know more details at our January meeting. That's all for now, I hope to see you at our January 16<sup>th</sup> meeting.

Keep Looking Down,  
John Haskins

## From the First VP:

Happy New Year to all and to your families. May all sorts of good things come your way this year! 2013 will find me working part time second shift at Central Virginia Training Center. No longer will I live the life of Riley with all kinds of free time on my hands. However, there still should be time for my favorite activities.

Dr. Steve Lenhart will join us for our January meeting and will speak on "How to Prepare and Show Rock Specimens." As curator of his museum at Radford University, he is a professional in this area and we are

honored to have him speak on the topic. Please be sure to come and hear his guiding words to help us display our treasures to the best advantage.

One of my favorite websites is About.com Geology. January's newsletter article has been gleaned from this site. They put out this neat article on New Year's Resolutions that you might enjoy.

### **10 New Year's Resolutions for Geologists**

By [Andrew Alden](#), **About.com Guide**

New Year's Day is the traditional time to make new resolutions, but a birthday or the start of school, or

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## December Meeting Minutes

**Meeting-**Wednesday, Dec. 19th, 2012

**Attendance-** 29 members and 2 guests

**Host-** For the December meeting we enjoyed our annual Pot Luck Holiday Dinner- Thanks to all who attended and brought food for everyone to enjoy. For the January meeting the host will be Natalie and Warren Darling

**On Time Drawing-** Winners were: Jean Midkiff, Bill Livingston, Ed Gls, Thom Noble, Brenda Glass, Jon Glass, Noel Weller, Bill Speck, Steve Grodon, Teresa Rhodes, Siglinde Allbeck, Debbie Kennedy, Sherry Shields, Deborah Tyler, Crystal Rhodes, John Kennedy, Frank Midkiff, Linda Noble and Sandy Speck.

**Old Business-** John Haskins: Slate of officers presented and voted in with a unanimous vote: President- John Haskins; 1st VP- Jack Curtin; 2nd VP- David Callahan; Secretary- Linda Noble; Treasurer- Frank Midkiff; Newsletter Editor- Natalie

Darling; Members At Large- Tony Shields and Bernard Rivera.

**First V.P.-** Jack Curtin: Unable to attend the meeting. For tonight's program we had our annual holiday dinner, specimens for sale by Dave Callahan, Jewelry for sale by Natalie Darling, and our famous Dirty Santa game for those who brought a gift.

**Second V.P.-** Dave Callahan: 1/26/2013- DMC trip to Jackson Crossroads in GAm Fee site; 2/16/2013- JMU museum field trip.

4 diamond wheels (cutter and polisher) were purchased, this is a great addition to our workshop equipment.

**Treasurers Report-** Franklin Midkiff: Balance at this time is \$8,309.90

**Minutes submitted by:**

**Brenda Glass, Secretary**

### 2013 ELECTED OFFICERS

**PRESIDENT - John Haskins**  
(434) 525-8430

[JMHaskinsI@netzero.net](mailto:JMHaskinsI@netzero.net)

**First Vice President**  
**Jack Curtin**

(434) 384 -6249

[jacwcurtin@gmail.com](mailto:jacwcurtin@gmail.com)

**Second Vice President**  
**David Callahan**

(540) 297-1853

[DBCALLI@aol.com](mailto:DBCALLI@aol.com)

**Secretary**  
**Linda Noble**

(434) 332-4869

[linda-noble@hughes.net](mailto:linda-noble@hughes.net)

**Editor - Natalie Darling**  
(434) 941-1899

[gmsleditor@gmail.com](mailto:gmsleditor@gmail.com)

**Treasurer - Frank Midkiff**  
(434) 660-1565

[midkiff@aol.com](mailto:midkiff@aol.com)

**Members At Large-**  
Bernardino Rivera &  
Tony Shields

**COMMITTEE**  
**CHAIR PERSONS:**

**Field Trips-** David Callahan

**Hospitality-** Monthly Volunteers

**News Articles-** Natalie Darling

**Silent Auction-** Warren Darling

**Swap for Rocks-** Warren Darling

**Website-** Casper Voogt

**Workshops-** Dave Callahan

**FRA Adult Liaison-** OPEN

**Membership-** Thom Noble

# PROGRAMS

For **December** we enjoyed our Annual Holiday Pot Luck Dinner, and thank you to everyone who came out and brought delicious food to share. For those who brought a gift, (14 total) we played our Gem and Mineral Style Dirty Santa game. Everyone seemed to enjoy themselves.

For our **first program of the new year**, Dr. Steve Lenhart will join us for a discussion on **“How to Prepare and Show Rock Specimens.”** Please join us as we welcome back Dr. Lenhart once again to our monthly meeting.

Our annual auction will take place at the **February** 20, 2013 meeting. Don't miss your chance to acquire some new specimens and/ or hobby related items to add to your collection. Guests welcome.

## Bench Tips by Brad Smith

More Bench Tips by Brad Smith are at:  
[groups.yahoo.com/group/Bench Tips/](http://groups.yahoo.com/group/Bench%20Tips/)  
 or [facebook.com/Bench Tips](http://facebook.com/Bench%20Tips)

### ADJUSTABLE CHUCK FOR DREMELS

Many of us have a Dremel motor tool to use at home or when out to a class or workshop. The one thing that makes this tool much more productive is the addition of one inexpensive option, an adjustable chuck.

The basic motor tool as sold typically comes with a collet chuck. This means you have to use a wrench to change every tool bit, you have to switch collets to use different shaft sizes (3/32 or 1/8 inch bits), and you can't use ordinary drills at all - only the special ones that have a 3/32 shaft.

A simple and inexpensive (\$10) adjustable chuck solves all of this. It's available in most large local hardware stores or model making outlets. Tightening the chuck is done easily by hand to any size shaft. No key is required.



### AVOIDING SOLDER LINES

After finishing a soldered joint on say a bezel, have you ever seen it reappear when you solder the bezel to a base plate? What's happening is that every time you heat a soldered piece to the temperature that

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## FIELD TRIP REPORT... UP COMING FIELD TRIPS

### Contact Information for Field Trips

David Callahan,  
Field Trip Chairman  
Home phone: 540-297-1853  
Cell Phone- 540-874-5201  
E-mail [dbcall1@aol.com](mailto:dbcall1@aol.com)

### 2<sup>nd</sup> VP Report for January 2013

#### The Southeast Federation of Mineralogical Societies, Inc

The Friendly Federation - Founded in 1976 to serve.  
DMC Program of the SFMS Field Trip Committee  
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**An Official Field Trip of The Jacksonville Gem and Mineral Society (HOST)**  
**An Official Field Trip GMSL and RVMGS**

**9:00 AM to 5:00 PM,**  
**Saturday, January 26, 2013**  
**Jackson Crossroads Amethyst Mine**  
**Tignall, GA**

#### Fee Area

**Where:** Jackson Crossroads Amethyst Mine, Tignall, GA – see below for directions.

**FEE AREA:** \$15 per person, per day (as long as we have more than 10 people). All persons are required to sign a release form upon arrival. I will be close to the entrance collecting the fee and having you sign waivers.

**Children:** No one under the age of 12 allowed on the property even with an adult guardian accompanying them. Minors over 12 years old must be accompanied by paying adult.

**Pets:** Well behaved dogs may join their owners at the site, please keep on a leash.

**Collecting:** Amethyst – working the dump piles. No one is allowed in the pit.

#### What to Bring:

Clothing appropriate for this time of year in Georgia. That could be almost anything and I would suggest layers that could be removed and something in the event of a shower. Gloves (gems can be sharp), safety glasses (for breaking up rocks), and at least a good pair of shoe. Hand tools (Shovel, pick, hammer and chisel are examples) are allowed, no power tools. Be aware that this site is very rustic, which means no electricity, running water or bathroom facilities on the property (other than the woods) The closest restroom is 8 miles away in Tignall, so come prepared for that.

#### General info for dig:

Gates will be unlocked at 9 am by caretaker. Due to liability issues and government regulations, please do not enter areas that are roped off; this is the pit area which is being worked commercially. You are welcome to work the many dump piles all over the property. Please keep the property clean.

#### Local Accommodations:

Many visitors stay at the Jameson Inn in Washington, GA, which is about 25 minutes south of the mine on Route 17. They offer a “cleaning station” at the back of their building where guests can rinse off their finds at the end of the day.

Elberton, GA has a wide variety of hotels, restaurants and stores and is about 30 minutes north of the mine.

*Continued on next page*

**Field Trip Report...** *continued from page 4*

Closest decent campground is Bobby Brown State Park which is about 25 minutes away. They have RV hookups, showers, bathroom facilities and sites with electricity.

**For directions, lodging, or further information, contact Field Trip Coordinator:** Lucy Miller.

[LucyAnn323@aol.com](mailto:LucyAnn323@aol.com)

Phone: 904-838-5026

Please leave a message as I am often somewhere where I don't get a signal....



**The Southeast Federation of Mineralogical Societies, Inc**

The Friendly Federation - Founded in 1976 to serve. DMC Program of the SFMS Field Trip Committee  
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**An Official Field Trip of The Tampa Bay Mineral and Science Club (HOST)**

**An Official Field Trip of the GMSL and RVMGS**

**9:00 AM to 2:00 PM,  
Saturday, February 9, 2013  
Vulcan Limestone Mine  
Brooksville, FL.**



The February 9, 2013 field trip hosted by the Tampa Bay Mineral and Science Club will be to the Vulcan Limestone Mine to collect echinoids (fossil sand dollars and urchins), druzy calcite crystals and chert for cabbing. [\[Link to the fossil flier PDF\]](#)

**The meeting time will be 8:45 AM** as we go into the mine in convoy at 9:00 AM. **The gates are locked behind us so don't be late.** If you are unavoidably detained, call Fred Hendershot [\(813-892-5864\)](tel:813-892-5864) or Carolee Boyles [\(813-431-4304\)](tel:813-431-4304).

**Vulcan is located** 10 miles north of Brooksville Florida on the west side of HWY 98. Their partner is CEMEX an the CEMEX sign is larger and easier to spot. Park in the large field and sign the waiver circulated by Carolee. For Google Maps and GPS units, the address is 16313 Ponce De Leon Blvd., Brooksville, FL 34613.

**Dress code** is sturdy closed shoes or sneakers, no sandals or open toed shoes. Jeans or long pants are preferred to protect your knees and long sleeve shirt or sun screen. If it is a bright day, a hat or ball cap would be useful. The one thing they do not have is a restroom, stop at the gas station in Brooksville before you arrive.

**Equipment** is simply a bag or bucket for rocks, a rock hammer for chert and a small garden shovel or butter knife to pry fossils from the dirt. This is primarily surface hunting, no digging required. Bring drinks and snacks as we stay until 12:00 noon and/or 2:00 PM. You can leave your cooler etc. in the car as we park where we hunt.



*Sea Biscuit Fossils from the Vulcan Limestone Mine.*

**Field Trip Report...** *continued from page 5*

**COMBINED LYNCHBURG / ROANOKE  
CLUB FIELD TRIP**

**SATURDAY, FEBRUARY 16, 2013**

**9AM until NOON (weather permitting)**

**JAMES MADISON UNIVERSITY,**

**Harrisonburg, Virginia**

**GEOLOGY DEPARTMENT and**

**MINERAL MUSEUM**

**Sign-up required...call me, e-mail me or see  
me at the meeting**

**We may have to limit the attendance due to  
the size of the facilities.**

We will all provide our own transportation and park in the JMU parking lot in the front of the new facility, Memorial Hall (The old High School). Plan to arrive between 8:45 to 9AM. See the directions below and walk directly to the Geology Lab. If you need transportation or any other information, please call or e-mail me for assistance. This is Dr. Kearns only available date. If the weather is bad, use your own best judgment before driving.

JMU has a fully equipped geology lab with state of the art equipment. Dr. Kearns is well known in his profession and has generously allowed us to visit his lab, museum and dedicate this Saturday morning to our clubs.

If you have any minerals that you need to identify, bring them along. We should have time to run five or six specimens thru the x-ray diffraction equipment. There will be microscopes available and other equipment for testing and viewing. Dr. Kearns also has a large fluorescent mineral collection for our viewing pleasure. Dr. Kearns may have some surplus mineral books, specimens, miniatures and micros for sale to benefit the museum, be sure to bring cash or your checkbook. This material will be first class and all the proceeds go toward future museum purchases.

**NORTH BOUND ON I-81 DRIVING  
DIRECTIONS TO JMU HARRISONBURG,  
VA.**

\* I-81 to Harrisonburg, VA. (About 2.5 hours driving time from Lynchburg and 1.5 from Roanoke).

\* Exit 245 (Turn left on Port Republic Road)

\* Proceed to S. Main Street (Rt. 11) and turn right at the light.

\* Proceed northward on S. Main Street to the third traffic light and turn left on to Cantrell Ave.

\* Proceed over the bridge to the traffic light on South High Street (RT. 42).

\* Memorial Hall (the old Harrisonburg High School) is directly in front of you. Go straight into the parking lot on your left. Try to arrive between 8:45 and 9:00 AM.

\* To enter the Geology Department, walk around the building to the left (Grace Street Side)

\* When you enter the building, go down the flight of stairs on your left. Enter the double doors and you are in the Geology Department. Walk around to your right, and the mineralogy lab will be open.

\* The new Mineral Museum will be open so be sure to spend some time here. As you enter the building, turn right and walk to the end of the hall. The Museum is on your right. Notice the new brass plaque on the Virginia mineral collection cabinet.

***The Gem and Mineral Society of Lynchburg  
and The Roanoke Valley Mineral & Gem  
Society.***

***David Callahan, Field Trip Chairman***

***E-mail [dbc11@aol.com](mailto:dbc11@aol.com)***

***Home phone- 540-297-1853***

***Cell phone- 540-874-5201***

## Safety Matters-

by *Ellery Borow, EFMLS Safety Chair*

*Reprinted from January 2013 EFMLS News*

### My-Space

Upon an exhaustive search of a dictionary (in paper form and first copyrighted in 1916) I found no definition of “My-Space”. Perhaps it is no surprise to you that I found no information on the term- but what may surprise you is that I’m going to use it anyway. My-space is a term I use to refer to the space immediately surrounding me. Some of the things I do in My-Space affect only me. Some of the things I do in My-Space affect Your-Space and that is the reason for this Safety Matters article.

I may be wearing safety glasses, steel toed shoes, and a dust mask while I chip on a rock and eagerly try to extract a nice crystal- with just the right amount of matrix, but the dust I’m creating and the chips that I send flying are entering Your-Space. Even though you are wearing all the proper safety gear, you may not appreciate Your-Space being filled with debris flying over from My-Space.

As you may have now surmised, this Safety Matters article is about being aware of how your activities affect others. It is rather difficult to eliminate the noise from stone grinding, or the oil mist while slab sawing, or the chips from flying while sledge hammering a stubborn outcrop. If, however, someone enters an area where one is creating such a hazard we should be prepared to address any safety issues of the newcomer.

We could call out the potential hazard to the newcomer,- cease activity til the newcomer has left the area, or perhaps made sure the newcomer was attired with the proper safety guard. Whatever the issue, we should respect such safety matters because the person entering the area may not be aware of them.

A big issue now a days is second hand smoke from cigarette smoking. There are numerous places where second hand smoke is addressed in local laws and

ordinances. Most folks are quite aware of the presence of such smoke, it does after all have a distinct scent and color. The problem with some of our rockhound activities is that the general public may not be aware of the dangers of oil mist (or perhaps not recognize it as dangerous). Indeed some hazards may not offer discernible signs (such as flying debris, haze that is too thick to see through or noise so deafening as to be unbearable). Some risks are not all that obvious, for example, the clear liquid over there, the one that looks like water, may really be a mineral cleaning acid.

The thought for this issue is to please start the New Year with an effort to be respectful of the folks who enter “your-Space”. Please be respectful of the hazards with which you are involved and make sure you address them both for your own protection and those around you. We should all want to have a safe hobby, one we can keep on enjoying.

For this month’s safety refresher, please see Bill Klose’s excellent winter safety guide discussing frostbite and hypothermia in the February 2001 issue of the EFMLS News. If you do not happen to have the issue, it 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.



*Upcoming Events*

JANUARY 2013

**Feb. 16-** 23rd Annual Mineral, Jewelry and Fossil Show sponsored by So. Maryland Rock & Mineral Club. The Show Place, Marlboro, MD.

**Feb. 20th-** *GMSL Annual Auction. The Auction will be held at our regular monthly meeting, following a short business meeting. Members and guests encouraged to come and bid on some fabulous hobby related items.*

**Feb. 23rd-24th-** 20th annual James Campbell Memorial Gem, Mineral & Fossil Show and Sale sponsored by the Capital District Mineral Club and New York Academy of Mineralogy. NY State Museum, Empire State Plaza, Albany, NY.

**March 2nd-3rd-** 50th annual Earth Science Gem & Mineral Show sponsored by the Delaware Mineralogical Society. Delaware Technical & Community College, Newark, DE

**March 8th-10th-** 25th Annual Aiken-Augusta Gem, Mineral & Fossil Show sponsored by the Aiken Gem, Mineral & Fossil Society and Augusta Gem & Mineral Society. Julian Smith Casino, Augusta, GA.

SUN	MON	TUES	WED	THURS	FRI	SAT
		1	2	3	4	5
6	7	8	9	1	11	12
13	14	15	16 <i>Meeting 7 PM</i>	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

**IMPORTANT ~ NEW MEETING LOCATION**

**Fairview Center**  
 (A division of Lynchburg Parks and Recreation)  
 3621 Campbell Ave.,  
 Lynchburg, VA, 24501  
 (434) 847-1751

**Directions to Fairview Center:** From Route 29 expressway or Route 460, take the Campbell Avenue Exit. Follow Campbell Ave. to **3621**, which is across the street from a **Citgo Gas Station**. There is a fence around the building and parking on both streets running along the sides of the property as well as a lot in the back. We will be looking for you!



## ATTENTION Rock Raiders

### ***YOUTH POSTER CONTEST: FOSSILS OF THE WORLD***

*by Jim Brace-Thompson, AFMS Junior Activities Chair*

*If you would like to enter, you may bring your "Poster(s)" to the January or February meeting and the club will mail them before the deadline; or you can have your parents mail them for you at the address below.*

For the past few years, the Summit Lapidary Club of the Ohio has been sponsoring a poster contest for kids in conjunction with their annual show and the Midwest Federation of Mineralogical & Geological Societies convention. The contest is open to any kids within an AFMS-affiliated club, especially those who already may be involved in the AFMS Future Rockhounds of America program. (Like the Rock Raiders). David Rich has emailed to let me know the tradition continues, and this year, the contest is focused around a theme of "Fossils of the World". Kids wishing to enter the contest should prepare a poster illustrating one of more fossils that interest them, from anywhere in the world.

The contest is open to kids in grades 1 through 8. Each grade level will have a winner. Ribbons will be awarded for 1st through 4th place, and 1st place winners will also receive a prize. rules are as follows:

- all entries must be presented on 12X18-inch paper;
- artwork can be pen, ink crayons, magic marker, paint or any other artist's medium but no three dimensional posters accepted;
- include name, address, age and school grade of participant on back of entry;
- the title may be on the front or back;

- list of names of the fossils and why you chose them; and
- all entries become the property of Summit Lapidary Club and the midwest Federation.

Points will be awarded as follows:

- Originality & Art work- 30 points
- Design- 25 points
- Title- 25 points
- Listing of Fossils and Reason you Chose Them- 20 points.

Entries must be postmarked by March 2, 2013 and should be mailed to :

Jennifer Fike  
PO Box 26276  
Akron, Ohio 44319

Winners to be announced April 6, 2013 at the MWF convention. Winners need not be present. Further contest info may be found at <[www.lapidaryclubofohio.org](http://www.lapidaryclubofohio.org)>, and if you have questions, contact Poster Judge Jennifer Fike by email at <[SLC.youth.poster.contest@gmail.com](mailto:SLC.youth.poster.contest@gmail.com)>

## *From the First VP:* continued from page 1

any other day works too. Just as every place is at the center of a round world, so is today always the central point between past and future—the only time when a change in direction is possible. With that, here are some recommendations for a resolution.

### **1. See more rocks!**

This one is easy to make (finding the time, maybe not so easy). Seeing more rocks makes you a better geologist, whether you're an enthusiast or a professional. At the same time, look more closely at rocks too, the minerals and fossils and features they contain, and don't forget the landforms where they crop out. And be sure to identify the rocks you bring home.

### **2. Make a realistic life list.**

Everyone says they want to see the dinosaur beds of the Gobi desert, an Antarctic glacier and the fall of a meteorite, but how many of us will ever actually succeed with that kind of life list? Better to make a list of geologic sites and destinations that you have a fair chance of completing. Better, perhaps, to make a list that matters by (1) having a time limit on it and (2) forcing you to go a little farther than before, not hopelessly farther.

### **3. Take a field trip.**

Anyone can do this, and it always stretches your mind. If you're attending a meeting, see what field trips are offered in the days before and afterward. If you're at home, get a field-trip guide for your region; pick one and follow the road log and locality notes on your own. Or join a local interest group, whether it's for rockhounds, fossil hunters or geoscientists, and enjoy some time in the field with them. You can even repeat a field trip but with different routes and schedules—sites can look completely new this way.

### **4. Appreciate your local resources.**

Whether it's metal ore, aggregate, topsoil or geographic attractions, your area has Earth resources that contribute to your local economy and culture. Get closer to them in some way. Perhaps you can be included in a special tour—maybe as a class parent along with your kids. Do geology-related businesses support campaigns in your city? Seek them out and give them recognition. Are geologic resources unappreciated? Highlight them. Are they threatened? Defend them.

### **5. Add to your field equipment.**

Here's another easy one. Whether it's a specialized pry bar or a better GPS unit, there's something new that will make your activities more productive. But also consider donating old field clothing and equipment to your car trunk. Someone saved my hide once in 2005 by pulling out an extra poncho. And you can never have too many magnifiers.

### **6. Get a local geologic map.**

Let it show you your local landscape in a new guise. Researchers are always revising and improving the old maps, not just with new observations but with new explanations based on contemporary theories. Government agencies have extensive programs for publishing maps of bedrock, surficial deposits, soils and hazard susceptibility. Make use of this tax-supported asset. And one way or another, let a child stare at a geologic map and help it make sense to him or her. Maps can bring a kid's mind to life.

### **7. Speak up on a geologic issue.**

Even if you don't know much about geology, you know more than most voters—and most government officials. If you think, as I do, that civilization would run better if it worked within its geologic constraints, then we have a lifetime's work ahead and this year is time to get started. This resolution is easy to satisfy

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*From the First VP:* continued from page 10

with a letter-to-the-editor, or by keeping up a sustained, thoughtful presence on a popular blog. But if you have the credentials, consider speaking in person to an organized group or showing up to testify at a government hearing.

**8. Try a new journal.**

I say "journal" because that's what I read the most, but there is something for you whatever your level, starting with general-interest publications like *Scientific American* or, for geology, *Earth*. Even a subscription to my free weekly e-mail newsletter can satisfy this one. At the professional level, a possibility is to use the prepaid plans from GSA and AGU that let you pick a certain number of individual articles from a whole range of journals. These days, e-journals do away with the excuse that the bookshelves are full. I also think professionals should read a few popular geology books, just to know what the public is learning.

**9. Put together a hazard kit.**

Every place has some sort of hazard that involves Earth science. Mine is earthquake, but some of my neighbors also face floods, landslides, and wildfire too. List all of yours, then learn what you need to get through at least three days without housing or power in good shape. Put together a survival kit. This is a resolution that all of us are bound to fail, because there's never enough preparation—after securing yourself, work on your neighborhood, workplace and city next.

**10. Share your knowledge.**

This resolution is an element of some of the previous ones. But what I mean here is to talk about geology to nongeologists, talk about science to nonscientists, talk about your version of the landscape to people who do other outdoor activities. I have a special request for geologists that I've been making for many years: Add something of your own to the Web, something in your

own words and from your own heart. Inspire yourself by picking a few favorite geology blogs—maybe you'll start one too. For geology to assume the role it deserves, more people must learn what geologists know, what moves them and how their discipline is practiced.

**EFMLS Wildacres Workshops... Indulge your passion for minerals, gems, jewelry, and craft. Join entry and intermediate level short classes. Enjoy programs from our great Speakers-in-Residence. Form new friendships and deepen old ones.**

**Do it all at Wildacres~ a beautiful retreat center atop the Blue Ridge Mountains in North Carolina**  
*What could better!*

Schedules, class information, and applications are now available at:  
<http://www.amfed.org/efmls/wildacres.htm>.

The GMSL will also offer scholarship assistance to qualifying club members.

## ***Diamonds, Coal, and Carbon: With All The Coalfields in America, Why Aren't More Diamonds Found Here?***

by Andrew A. Sicree

Reprinted with permission, *Popular Mineralogy* #1, 2007

### **Diamonds and coal are carbon, no?**

*Diamonds* are pure carbon. *Coal*, however, is a complex mixture of large organic molecules consisting mainly of carbon, hydrogen, and oxygen with some nitrogen, sulfur and other elements. Coal beds formed from thick layers of plant matter that were buried, compacted, and lithified (turned to rock). Diamonds and coal are quite different.

### **Can we find diamonds in coal mines?**

In nature, diamonds form in the Earth's mantle under very high pressures (54,000 times atmospheric pressure). In order to be turned into diamond, coal would have to be pushed down to depths of at least 100 miles. None of our coals were ever buried anywhere that deep! Even the *anthracite*, or hard coal, from eastern Pennsylvania was never buried any deeper than about three to six miles. So don't go looking in the coalfields for diamonds.

You may hear the term "black diamond" used for shiny black anthracite coal; this is a miner's nickname for coal, not a geological term. Dark or black diamonds are called *bort* or *carbonado*, but they have no relationship to coal. Most *bort* is from the Congo, and most *carbonados* are from Brazil or the Central African Republic.

### **Formation of diamonds**

Diamonds are as interesting to the mineralogist as they are to the jeweler. They are important to earth scientists because they carry information about the

nature of the Earth's mantle where they formed. [The mantle is that layer of the Earth's structure which lies between the Earth's crust and its core: under most continents it lies about 20 miles down and continues to 1800 miles in depth.] The most common way diamonds can be carried out of the mantle is during a volcanic eruption of a very unusual igneous rock called *kimberlite*.

### **Diamond host-rocks**

Kimberlite is typically a gray or bluish rock with large crystals of a dark brown mica, the mineral *phlogopite*, visible in it. The fine-grained matrix is mostly *peridotite*, a blue- or green-gray rock made up mostly of the minerals *olivine* and *pyroxene*. Kimberlites may also contain small crystals of bright green *diopside*, blood-red *pyrope garnets*, and glossy black *ilmenite*, as well as other minerals. Fragments of other rocks from the Earth's mantle and crust in the form of *xenoliths* (i.e., "strange rocks") may also be trapped in the kimberlite matrix.

Of course, the included mineral that really interests everyone is *diamond*. Sometimes, diamonds occur as crystals with octahedral shapes, reflecting their underlying cubic crystal structure. More often, diamonds are odd-shaped because they were fragmented or partially redissolved before the kimberlitic host formed.

Diamonds are also found in another unusual mantle-derived igneous rock called *lamproite*. They also occur in meteorites and in rocks that have been shocked by the impact of large meteorites. Meteoritic diamonds are quite small and often imperfect, rather than large gem-grade, specimens. Carbonado diamonds are thought to have been formed in interstellar space and have been carried to Earth in meteorites.

### **Stability of diamond and graphite**

*Continued on next page*

## Diamonds, Coal, and Carbon:

*continued from page 12*

Diamonds, with a cubic crystal structure, are crystals of pure carbon formed under high pressure. Temperature is also important: typically, diamonds form only in those parts of the mantle where the pressures are greater than about 54,000 atmospheres and the temperatures are less than 1300°C (2370°F).

The only truly stable form of pure carbon at the surface of the Earth is the mineral *graphite*. Like diamond, graphite is pure carbon, but graphite has a planar hexagonal crystal structure. Between the hexagonal layers of carbon weak bonds make graphite soft and slippery-feeling. Writing pencil “lead” is really graphite – used because it is so soft that it rubs off on paper and makes a black mark. Thus, the hardest mineral and one of the softest of minerals share the same chemical composition: crystal structure is what matters!

Because diamonds form in the mantle, the fact that we find them on the surface implies that rocks can escape from the Earth's mantle to its surface. The magma that solidifies to form kimberlite must move rapidly from the Earth's mantle to the surface, and cool quickly, if diamonds are to avoid conversion into graphite. It has been calculated that a kimberlite eruption may occur at twice the speed of sound! You wouldn't want to be nearby when one blew, but there have been no kimberlite eruptions during historic times.

### Pseudomorphs after diamond

One of the most interesting, if not also among the most disappointing, of the *pseudomorphs* (pseudomorph = “false-form”) is that of graphite after diamond. Small octahedrons of graphite have been reported in rocks in North Africa. Because graphite is hexagonal and diamond is isometric (cubic), these are thought to

have been diamonds, formed at great depths, but converted into graphite as they were carried upward slowly out of the Earth's mantle by the process of *obduction*. Although they are now graphite, they retain the shape of the original octahedral diamond crystals: disappointing to the would-be miner, but interesting to the mineral collector.

### Where are the kimberlites?

We all know of the great diamond mining districts in Africa and the more recent diamond discoveries in northern Canada. Diamonds always seem to be exotic and far away. But kimberlites are more common in North America than many might suspect. Kimberlites and related rocks have been found in Arkansas, Kentucky, Wyoming, Colorado, New York, and elsewhere. Colorado and Arkansas have even produced some diamonds, but efforts to mine diamonds in those states have proven to be uneconomic.

Kimberlites even occur at three locations in Pennsylvania. Interestingly enough, two of these kimberlites were actually encountered in coal mines in Indiana County, Pennsylvania. They haven't yet been detected on the surface. But the third kimberlite can be seen on the surface near Masontown in Fayette and Greene Counties. These kimberlites have been determined by Professor Michael Bikerman of the University of Pittsburgh to have been formed about 147 million years during the Late Jurassic Period.

While, in theory, any kimberlite could carry diamonds, only one kimberlite in a hundred is diamondiferous. No diamonds have yet been found in any kimberlite in the eastern United States, but we keep looking!

- A. A. Sicree

## January's Mineral of the Month

### ~ Azurite

*reprinted from PESA Rock News, December 2012*

**What is Azurite?** Azurite is a copper carbonate which reacts readily with most acids. Azurite is a prized and beautiful mineral which is a favorite of collectors worldwide. Its azure blue color accounts for its name which makes it an easy mineral to identify. Its variable crystal form and luster and its association with green malachite creates a color combination which collectors find pleasing; unfortunately, that color combination makes azurite a very expensive mineral to collect when offered in fine crystals. Often azurite alters to malachite which is known as pseudomorphs of malachite after azurite.

**Diagnostic features:** Specific gravity- 3.8; Hardness- 3.5-4 (Moh's Scale); Crystal Shape- Monoclinic, prismatic; Streak- Blue; Cleavage- Perfect in one direction; Luster- Glassy; Color- Light blue to almost black.

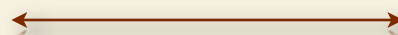
**Where is Azurite Found?** Azurite is found worldwide in all types of geologic environments and rock types, often associated with native copper and copper sulfides. Prime locations for azurite are Chessy, France; Tsumeb, Namibia; Touissit, Morocco; Guandong, China; Sardinia, Italy and New South Wales, Australia. The best known localities in the United States are the Bisbee and Morenci regions of Southern Arizona. In Pennsylvania, azurite occurs sporadically in the copper deposits near Rossville, York County and in the Columbia and Sullivan county uranium deposits. Beautiful botryoidal azurite was found at the Cornwall Iron Mine in Lebanon County. What many consider to be the world's finest azurite specimen is on display at the American Museum of Natural History in New York City. The specimen over a foot across has lustrous crystals over 8 inches in length. It comes from Tsumeb, Namibia

and is known as the "Newmont Azurite" after the mining company that owned the mine.

### **Where was Azurite first found and identified?**

No one knows who found and smelted the first piece of Azurite. Scientists believe that azurite was smelted around the same time copper was smelted thousands of years ago in the Middle East. Ancient cultures are known to have used crushed azurite as a face paint and pottery glaze.

**Is there gem-quality Azurite?** Azurite has been cut and polished into cabochons and slabs usually associated with Malachite or other copper minerals.



### **Websites to visit-**

*reprinted from PESA Rock News, December 2012.*

Mineral Collectors Page by the Mineral Club of Antwerp: [www.minerant.org](http://www.minerant.org)

For a detailed listing of Mineral and Earth Science shows/ events, you can visit website: [www.mineralfest.com](http://www.mineralfest.com).

For museum information and photographs of minerals from classic locations: [www.agiweb.org/smmp/museums.htm](http://www.agiweb.org/smmp/museums.htm)

A great internet site for the discussion of the earth sciences is Mindat. You can join in discussions, ask questions, identify minerals and set up your own web page on which you can post photographs of your specimens, free of charge. [www.mindat.org](http://www.mindat.org).

**Western Mass. Mineral, Jewelry & Fossil Show** **March 23-24, 2013**



★ **NEW LOCATION** ★

★ **Clarion Hotel & Conference Center** ★

★ **NEW LOCATION** ★

Show Hours: Sat 9:30am - 5pm, Sun 10am - 4pm  
Admission: \$5 per person, Kids 12 and under FREE with adult

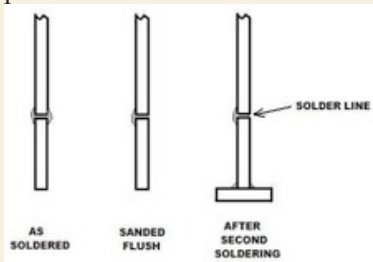
1 Atwood Drive  
Northampton, MA 01060

**BenchTips** ...continued from page 3

solder flows, the liquid solder dissolves a little bit more into the base metal. This leaves a small furrow where the solder had been sanded off flush at the joint. To get rid of the furrow, you have to re-sand the joint area down to the bottom of the furrow.

To avoid this when I have another soldering operation to follow, I try to leave a little extra solder on my joints. For instance, when trimming off excess base plate from around a bezel, I leave a paper thickness of excess plate material whenever possible until I'm done with all soldering.

Of course, this isn't always possible as when a soldering operation will prevent you from gaining access to an area for final sanding and polishing. In that case I coat the finished solder joint with ochre to prevent a furrow.



DRAGON CROSSBOW

It's always fun to make something that's functional. Sometimes it's a handle for your favorite hammer, other times it's a custom stamp or punch for special task, but if you're heading out to slay a dragon, you might need a cross-bow. Here's how Hans Meevis built his Dragon Bow:

<http://ganoksin.com/blog/meevis/2012/07/12/the-dragon-bow-start-to-finish/>



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The purpose of the Gem & Mineral Society of Lynchburg, VA is to promote education in The Earth Sciences, including: Mineralogy, Geology, Gemology, Paleontology, and Crystallography



Lynchburg Rock Raiders is the official Future Rockhounds of America association of the The Gem & Mineral Society of Lynchburg, VA. Inc.

**IMPORTANT NOTICE REGARDING INCLEMENT WEATHER POLICY:**

*If the public schools are closed or close early on the day of our scheduled meeting, then our meeting will be cancelled.*



**BEADS FOR SALE...**

There will be a limited supply of beads and pewter findings for sale at the January 16, 2013 club meeting.



Arrive a little early for best selection. Natural Stone, Pearls and Glass beads will be available. 20% of the sale amount will be donated to the club treasury.



**Reminder...**

**NEW MEETING LOCATION**

Lynchburg Parks and Recreation  
Fairview Center  
3621 Campbell Ave.  
Lynchburg, VA

*Directions on page 8*