

GEM & MINERAL JOURNAL

September 2014 VOLUME 23~ ISSUE 9

Official Monthly
Publication of the Gem &
Mineral Society of
Lynchburg, VA, Inc
WWW.LYNCHBURGROCKCLUB.ORG

Presidents Message

Hello To All,

How much do you know about the G.M.S.L.? Some things I'm not even sure of. How and when were the beginnings of our Club? Who was our first President? How many Presidents of our club went on to own their own Gem, Mineral & Jewelry stores? Who created our Club logo? I'm sure there are many more questions, but I want to give someone the opportunity to become a sort of Club Historian and keep our history and activities on an up to date record. Are you that person? See if you can find the answers to these questions at our September 17th meeting. The answer to the question of who created our Clubs' logo may be not readily available, she is a past member, and a pretty fair artist, by the name of Connie Crank.

The Club has a lot of activities planned in the coming months. Please sign up for our big trip to Kyanite Mining Corp. at the end of the month. This is normally a great trip with maybe some new finds. October brings our trip to the Apple Harvest Festival at Amherst County High School. This is a two day event and we have a great time. Please plan to join in the fun. The November



meeting is our annual Auction night. We have a great assortment of gems, rocks & minerals to offer again this year. We will need help at the workshop picking out just the right mix of items to have another successful auction this year. This is a fund raiser for the club and gives everyone a chance to add something new to their collection. Last but not least on the list of activities is our Christmas Dinner. Everyone brings their favorite covered dish, whether it be pasta, vegetable or dessert and the Club supplies some great fried chicken. We also have a dirty Santa Gift exchange, more about this later. Plan to be there, it is like no other meeting of the year.

Nona & I will be on vacation during this months meeting, but I have left the meeting in the capable hands of our second vice-president Dave Callahan. I hope you will be kind to him, I don't want to get a bad report about your behavior. Remember to sign up for the field trip at our September 17th meeting.

Keep Looking Down,
John Haskins

From the First V.P.

Dr. Steve Lenhart will give his Gold talk at our September meeting barring any complications from his recent gallbladder surgery. Thanks to Dave Woolley for his outstanding Opal talk and supporting video on the gem stone. This month's article serves as a supplement to Dave's presentation and gives information on the various types of opals and discusses colors and

nomenclature. It was part of Geology.com's discussion of opals.

Editors Note:

We will run this article as a three part series over the next three monthly newsletters, so I can utilize the photographs along with the descriptions.

Thanks Jack, for your research and submission.

Next Month: "Opals Determined by Base Color & Geography"

Article begins on page 16

August Meeting Minutes

Meeting-Wed. Aug. 20,2014 @ 7:00PM

Attendance- 44 members

Host- Natalie & Warren Darling hosted tonight's meeting; Jean & Frank Midkiff will host the September meeting.

On Time Drawing Winners:Joan Moore, Dave Callahan, Jean Midkiff, Greg Lester, Josh Baroch, Gabriella Routon, Siglinde Allbeck, Frank Midkiff, Noell Weller, Marsha Engelstad. Dave Callahan won the 50/50 drawing.

Old Business- None

New Business: John Haskins: Club members agreed not to participate in the Jefferson Choir Society Holiday Bazaar at the Moose Lodge in November. Sedalia Center wanted club to come do demo on September 6th, Dave Callahan to contact Doug McCloud and talk to him about it.

Dave Woolley- Informed group of two new rock shops 1) Excalibur in Charlottesville and 2) Earthen Paradise in Appomattox.

First V.P.- Jack Curtin:Informed members that Dr. Lenhart is recovering from surgery and will present the September meeting.

Second V.P.- Dave Callahan: Field Trips: 9/20- DMC Trip for fossils in Georgia; 9/27- Willis Mountain Field Trip- Sign up sheet and safety rules apply. Dave also has a sign up sheet for ordering Club T-Shirts (\$8) and Hats (\$13). The prices are approximate and will be adjusted by the quantity ordered. He also

reminded us that Workshops will be held on the second Saturday of each month. The next workshop will be to prepare for our upcoming shows. We hope you can join us on September 13th and October 11th. There is much to be done.

Treasurers Report- Balance at this time \$4,504.04

Mineral of the Month - Dave Woolley gave a presentation on the identification of a mineral. He also presented the program, which was a video on the Opals.

Warren Darling brought specimens for our silent auction.

Minutes submitted by Linda Noble, Secretary.

There was no executive meeting this month.



2013 ELECTED OFFICERS

PRESIDENT - John Haskins
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(434) 941-1899
gmsleditor@gmail.com

Treasurer - Frank Midkiff
(434) 660-1565
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Members At Large-
Bernardino Rivera & Dave Woolley

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 our August 20th meeting Dave Woolley presented a video on The Beauty and Mining of Opals.

For our September 17th Meeting we are hoping to enjoy the much anticipated presentation on Gold, by Dr. Lenhart.

Bench Tips by Brad Smith

Get all 101 of Brad's bench tips in "Bench Tips for Jewelry Making" on Amazon <http://amazon.com/dp/0988285800/>

FREE BENCH TIPS E-BOOK

If you have a Kindle, there's two ways to get a copy of Brad's Bench Tips book for free. Amazon's new Unlimited program let's you download as many e-books as you want, and you can try out the program free for a month. Or if you are already in Amazon's Prime program to get free the shipping or to download movies, Prime lets you borrow the book for a month at no cost.

SILVER SOLDER FROM SCRAP

Sometimes you need a lot of silver solder to complete a piece the way you want it to be. For me it was when I was trying to join several castings. But silver solder is expensive, so I found a way to make my own from scrap with a little help from a penny.

First step is finding out what's in a solder. A search through the reference books (Tim McCreight or Erhard Brepohl) or a Google search will turn up recipes like:

- * Hard - AG 80% CU 13% ZN 7%
- * Medium - AG 70% CU 20% ZN 5%
- * Easy - AG 63% CU 30% ZN 7%

The silver (AG) and the copper (CU) are easy to come by, but finding some zinc (ZN) has always been my problem until I found out that our pennies are almost all zinc. According to Wikipedia a US penny minted after 1982 weighs 2.5 grams and is 97.5% ZN and 2.5% CU. So all I had to do is add a penny to some copper and a pile of silver scrap.

I chose to use Sterling scrap so I adjusted for the amount of copper in it as well as the amount of copper from the penny. Here's what I used for components of Medium solder:

- * Sterling - 36.90 grams

* Copper - 9.35

* Penny - 2.50

Melt the silver and copper first in a melting dish, mix well with a carbon rod or titanium solder pick, add the zinc (penny) last, mix again, and pour into a small mold. The zinc is added last because melting it causes some to vaporize, and the fumes are a safety problem (They're a gray-green color). Be sure to have good ventilation.

To check the solder's melting temperature was correct (medium), I put a sample of the homemade solder on a piece of copper sheet along with a known sample of hard, medium and easy solders. I then heated the plate from the bottom and watched as the easy first melted, the medium melted, the homemade melted, and finally the hard.

Additional notes on converting the ingot to sheet, strip or wire form - If you have access to a rolling mill, that will be the fastest way to proceed. Either roll out the ingot into a sheet and cut strips or roll it out as wire if your mill has the grooves. If you don't have a mill, all you have to do is forge out the ingot into a rough sheet of the gauge you'd like and then cut thin strips with bench shears. Be sure to anneal the sheet every so often as you forge it.

Continued on page 19

FIELD TRIP REPORT...

2nd VP Report

OFFICIAL COMBINED MINERAL COLLECTING FIELD TRIP

THE GEM AND MINERAL SOCIETY OF LYNCHBURG, VA
INC. (HOST) AND
THE ROANOKE VALLEY MINERAL AND GEM SOCIETY
INC. (HOST)

KYANITE MINING CORP. ----- ANNUAL FIELD TRIP

WILLIS MOUNTAIN KYANITE MINE

If the mine is working, we may have to limit our
collecting areas

SEPTEMBER 27, 2014

9:00AM to 1 PM

*Sign-up is required, call me, email me or sign-up at
the meeting. If you cancel, notify me to be
taken off the list.*

All club field trip leaders send me a list of your total collectors so that I can compile a list and forward to the mine management by 9-25-14. There is a limit of 100 collectors from all clubs for this event so there should be room for everyone.

SAFETY: Everyone should arrive at the office parking lot between 8:30AM and no later than 8:45AM to sign the release form and hear the required safety briefing. Each Club field trip leader, or his appointed replacement, will act as safety observer and will be expected to be on the lookout for and correct all safety infractions from any collector. Keep in mind that this site is one of the few that is still open for collecting. **Not obeying all the safety rules will cause this site to be closed to all future collecting.**

DRIVING FROM THE ROANOKE AND LYNCHBURG AREA: From Roanoke, follow US 460 East to Lynchburg, to the Sheetz Station on US 460 and Rt. 811 in New London. Continue on the US 460 East by-pass around Lynchburg thru Appomattox and take Rt. 24 North to the end at US 60 at Mt. Rush. Continue on US

Contact
Information
for Field Trips
David Callahan,
Field Trip Chairman
Home phone: 540-297-1853
Cell Phone- 540-874-5201
E-mail dbcalls1@aol.com

60 East to Sprouses Corner. Turn right on US 15 South and drive 4 miles to Willis Mt. Plant Road. Turn left and stop at the stone mine office and park out of the way as not to block traffic. Allow 1 1/4 minimum hour driving time from New London west of Lynchburg.

GENERAL LOCATION and ASSEMBLY TIME:

Everyone will meet at the mine office for sign-in and safety instruction, be there between 8:30 and no later than 8:45am. The mine is located north of Farmville, Va. on Rt. 15 North. Proceed from US 460 North on Rt. 15 for a little over 12 miles to Willis Mt. Plant Rd. The stone mine office on the right. If you approach from Rt. 60 at Sprouses Corner, then go south on Rt. 15 for 4 miles to Willis Mt. Plant Rd. and the office will be on your left. Wait in the parking lot and do not block traffic. Many trucks may be using the road. While you're waiting, be sure to enjoy the beautiful blue kyanite bolder in the front yard from the old closed Baker Mountain.

COLLECTING: Willis Mountain is what's known as a monadnock. The kyanite exposure resisted weathering and, as the surrounding area was eroded and weathered away, the mountain outcrop was left standing. This is very much like the famous Graves Mountain kyanite mine in Georgia. The center of the mountain has been mostly mined away. We should be able to find plenty of white kyanite blades in the massive kyanite quartzite; pyrite; quartz; hematite with some iridescent, red mica, apatite and possibly some blue kyanite and pale green trolleite. Some of the white kyanite and quartz here have a beautiful light blue fluorescence.

Continued on next page.

UP COMING



FIELD TRIPS...

Continued from page 4

EQUIPMENT: The standard quarry safety gear required is a hard hats with a mfg. date of 5 years or less, safety glasses, wheel chocks either purchased, home made or a rock. Every time you leave the car, turn off the engine, put in park and apply the hand brake. ONLY STEEL TOED BOOTS WILL BE ALLOWED.THERE WILL BE NO EXCEPTIONS!!! . If you do not have the required safety equipment, you will not be allowed to enter the quarry. Also required are long pants, gloves, hammer and chisels, wrapping paper, buckets, food and water. Be prepared for windy, hot or wet weather. We will be on the mountain top and it's always windy. We can drive to the designated collecting area, so hand trucks should not be needed. Bring a camera, as the view is awesome.

AGE LIMIT: There is no age limit, but all children must be signed for, supervised by an adult and have all the required safety equipment. No Exceptions!!!

WEATHER: The trip will be canceled in case of hard rain or a thunderstorm. Call to confirm if there is any question.

DMC FIELD TRIP

An Official Field Trip of the Cobb County Gem and Mineral Society - Marietta, GA (HOST)
An Official Field Trip of the GMSL and RVMGS.

9:30 AM to 3:30 PM
Saturday, September 20, 2014
Sandersville, Georgia

Participation limited to 37 due to parking, you must register for this trip !

Collect: Fossils: sand dollars, skate teeth, shark teeth, vertebrate bone (such as Manatee), and a host of marine invertebrates (clam, oysters, snails). You will also find chert at this location. There will be about a 1/4 mile hike and a bit of a scramble down to the creek where we will be collecting, from the parking area.

Geology: The fossils are in the Sandersville Limestone and upper Eocene (Jacksonian) marine unit which is about 28 to 26 million years old. The base of the Sandersville Limestone is the Twiggs Clay where the Georgia Teckites (Georgirites) have been determined to be coming from.

Tools: Two screens: as 1/4 inch hardware cloth to pick through the coarser sand on the top screen with window screen on the bottom for the finer sand, but you can use a colander. Some of the shark teeth are an inch long and

others are less than 1/4 in long. Shark and skate teeth will be found by sieving the sand and gravel in the stream. You will want a small or larger shovel to dig the gravel out of the stream to scoop into your colander or screens. You will want a chisel and hammer to get the sand dollars out of the rock. One of our participants brought a regular shovel to dig into the stream bed and found some large manatee bones as well as shark teeth. You will also want to bring something to carry your finds in. Bags and small containers are great for shark and skate teeth. You may want to bring paper to wrap sand dollars to put in your bucket, but they are very solid. You will need waterproof boots to wade in the stream, and an extra set of clothing in case you get wet. Long waterproof gloves are nice to have. Please bring fluids, and a snack or your lunch. We will provide hand wipes so you can clean your hands before you eat.

Children: 12 and over with adult supervision are welcome. No dogs will be allowed.

Directions: The trip is to Sandersville, GA which is in east central Georgia. Sandersville is east of Macon and Milledgeville in the kaolin belt of Georgia. We will email directions and the meeting place to the first 37 participants who register for the trip by emailing ccgms.fieldtrips@gmail.com.

Continued on next page

UP COMING



FIELD TRIPS...

Continued from page 5

Special: We are pleased that our favorite Paleontologist and CCGMS Field Trip Team Leader, Dr. John Anderson will be coming back to GA to lead this trip for our club. He now serves as the Dean of the School of Science, Technology, Engineering, and Mathematics at Virginia Western Community College in Roanoke, VA. John is wonderful at answering questions and helping trip participants, making field trips a very special experience for fossil buffs. We will also have two of our geologists available to help with questions and collecting techniques.

Contact: CCGMS Field Trip Team Coordinator, Toby Stewart at ccgms.fieldtrips@gmail.com to secure your spot on this trip. The meeting place and contact number will be emailed to confirmed participants.

Below: Items found on previous trips to this site include teeth, bone pieces and sand dollars from the creek bank.



DMC Program of the SFMS Field Trip Committee

An Official Field Trip of The KYANA Geological Society, Louisville, KY (HOST)
An Official Field Trip of the (GMSL and RVMGS)
Saturday, October 11, 20
Taylorsville, Spencer County, Kentucky
"Ordovician rocks and fossils"

Our plans, weather permitting, will be to take the participants on Saturday the 11th to a series of road cuts in the area of Taylorsville, Spencer County, Kentucky. We will be collecting Upper Ordovician fossils. The stratigraphic section ranges from the [Eden Fm - older name based on faunal assemblage Caster, Dalve, & Pope 1955 or the Kope based on Lithology Martin 1975] up through the Liberty or Bull Fork Fm. A good reference for these fossils is Cincinnati Fossils, An Elementary Guide to the Ordovician Rocks and Fossils of the Cincinnati, Ohio Region, by R.A. Davis, Publication 10, Cincinnati Museum of Natural History, 1720 Gilbert Avenue, Cincinnati, Ohio 45202, Phone [\[513\] 621-3889](tel:5136213889).

The primary formation we will be collecting in is the McMillan or Grant Lake, or the Maysvillian Stage. Most of the fossils will be loose, very little digging is required. There are about 100 different fossils in these units. Most participants can expect to find, with some diligence, 25 different fossils. There are many varieties of brachiopods, bryozoans, pelecypods, gastropods, along with corals, cephalopods, rare finds include trilobites, edrioasteroids, and a very rare cycloostoid was found here a couple of years ago. The highway department has severely scrapped most of the cuts on Hwy 44, thus reducing the usual amount of rubble, making collecting more difficult to find fossils.

Taylorsville State Park will be our meeting site for Saturday morning October 11, 2014. Highway 155/55 runs north south through the town of Taylorsville, turn east on to highway 44, take highway 44 to highway 248, take highway 248 east to the entrance of Taylorsville State Park, turn south on Park Road, pass the Park Office and to the covered picnic shelters, park here. If you go too far, you will end up at the Possum Ridge Boat Ramp.

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AUSTRALIAN UNDERGROUND CITY

This link was shared by member Linwood Hoffman. It shows a very interesting video about underground mine shaft housing and beautiful Australian opals. Thanks for sharing Linwood.

<http://www.ulive.com/video/australian-underground-city?>



Sunshine News

We hope that by now Dr. Lenhart has fully recovered from his recent surgery.

We also learned that John Haskins has been battling pneumonia.

Please keep these members in your thoughts and prayers .

**PLAN NOW TO ATTEND THE 2015 EFMLS CONVENTION-
To be held in Hickory, NC
March 27-29, 2015**

WELCOME TO HICKORY, North Carolina

by Baxter Leonard, Show Chair and Larry Huffman

The Catawba Gem & Mineral Club will host the 2015 EFMLS Convention on March 27-29 2015 at the Hickory Metro Convention Center (Hickory MCC) in Hickory, NC. Our organization was organized in 1969, joined the EFMLS in 1973, and hosted the annual EFMLS in 1973, and hosted the annual EFMLS conventions in 1989 and 1995. Its members take great pride in sponsorship of its annual show and are excited about the upcoming EFMLS accepting our proposal to host its annual convention in the Tar Heel State.

Hickory is located in the foothills region of the western Piedmont of our diverse state and North Carolina has 300+ minerals within its borders. The county which is home to Hickory has well known minerals within the quartz family, and everyone is familiar with the minerals of adjacent Alexander County which includes emeralds/ hiddenite/ and rutile.

This is our 45th annual show with a group of vendors that have quality mineral specimens, fossils, jewelry both finished and unmounted stones, lapidary material, and beads. The club has educational exhibits covering specific themes as well as personally collected and personally crafted specimens. We invite all attendees to join with us in sharing your exhibits...a display case may be reserved or you may bring your own. Look for showcase exhibit sign up info later.

We take much pride in setting aside the Friday morning for school groups to listen to various topics and have time for their questions. Also, demonstrations of wire wrapping, making cabochons, and faceting are present. Our club will conduct a field trip to the Reel Amethyst in close by Lincoln County, on Friday, March 27th where exceptional colored crystals and clusters have been found.

The schedule for EFMLS events is:

Friday, March 27: 5:30pm- Cracker Barrel- Hampton Inn
7:30pm- Awards Banquet -Hickory Convention Center

Saturday, March 28th-
1:30pm- Annual EFMLS Auction-Hickory Convention Center
7:30pm Awards Banquet- Hickory Convention Center

Sunday, March 29-8:30am- Editors Breakfast-Hampton Inn

Lodging has been arranged at Hampton Inn of Hickory, adjacent to the Hickory Metro Convention Center...a block of rooms has been set aside for convention delegates. (rate \$104 plus tax). Be sure to mention that you are with the EFMLS Convention when calling.

Hampton Inn
1956 13th Ave. Dr, SE (I40 @ exit 125)
Hickory, NC 28602
828-624-2000

Upcoming Events

September 2014

Sept. 27 & 28- 50th annual Atlantic Cost Gem, Mineral, and Jewelry Show hosted by the gem Cutters Guild of Baltimore. Howard Co. Fairgrounds, 2210 Fairgrounds Rd. West Friendship, MD 21794

Oct. 3-5- Annual Fall Rock Swap and Dig at Graves Mountain GA. Call for information or just show up- Jr. Norman 706-359-1544 or 706-401-3173.

Oct. 4- 50th Anniversary "Autumn Mineralfest" Mineral, Fossil & Gem Show sponsored by the Pennsylvania Earth Sciences Association. Macungie Memorial Park, Macungie, PA

Oct. 10-12 - 58th Annual Desautels Micromount Symposium and Hall of Fame Induction. Friends School, 5114 North Charles St; Baltimore, MD. Registration and info. - C. Weinberger, PO box 302, Glyndon, MD 21071.

Oct. 18-19- 41st Annual Jewelry, Gem, Mineral & Fossil Show sponsored by the Kanawha Rock & Gem Club. So. Charlestown Community Center, So. Charlestown, WV

Oct. 24-26- Treasures of the Earth Gem, Mineral, Fossil, Jewelry and Bead Show, Harrisonburg, VA. Rockingham Co. Fairgrounds, commercial exhibits building. Admission \$3.00 ~ children under 16 free with accompanying adult. www.toteshows.com for additional information.

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13 Callahans Workshop
14	15	16	17 Meeting 7PM	18	19	20
21	22	23	24	25	26	27 Field Trip
28	29	30				



*****ATTENTION ALL CLUB MEMBERS*****

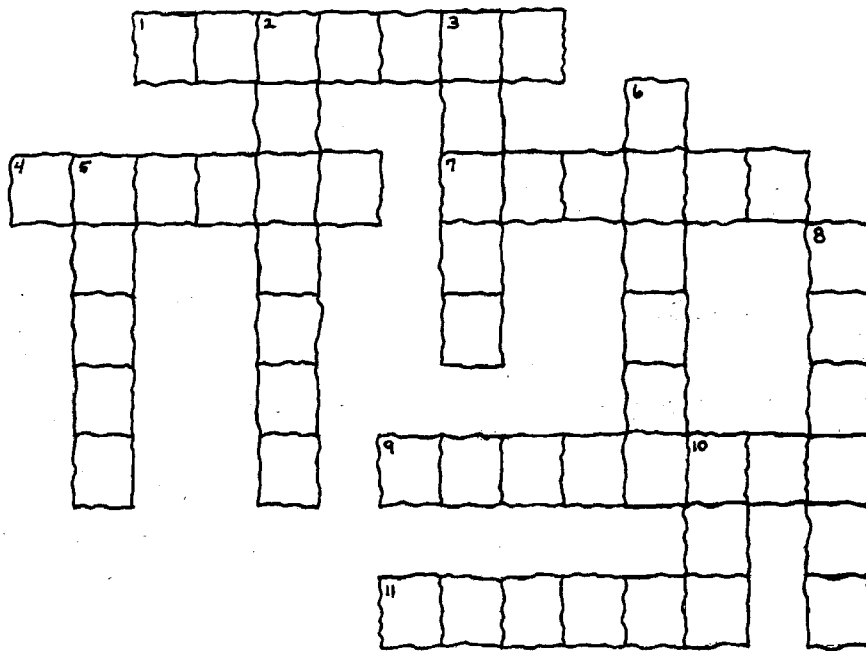
Workshops will be held regularly on the second Saturday of each month at Dave Callahan's. Start time is 9:00 AM, but come anytime and stay as long as you'd like. There is a store/deli about a mile down the road if you want to break for lunch and return.

The workshops will be open format, and the purpose will be for club members to learn how to use the lapidary equipment to turn rough specimens into finished lapidary pieces for their own personal use. Experienced members will be available to help teach and assist.

We have a great set up with several sets of wheels for capping, faceting machines, saws, and much much more. From time to time there may be special class offerings, so be sure to let us know what you are interested in.

Workshops are open to club members only, and due to liability we can not allow guests or non-members at our club workshops. Remember, membership is just \$15.00 per year for the first family member and \$3.00 for each additional family member.

MINERAL CROSSWORD PUZZLE



Across

1. A blue mineral named after a word which means *blue*.
4. A red variety of the mineral *quartz*. It can sometimes be yellow, too.
7. Also known as "Fool's Gold."
9. This mineral contains the element *fluorine*. It comes in many colors.
11. The mineral name for *salt*.

Down

2. Also called "Television Stone."
3. This mineral can form crystals weighing hundreds of pounds.
5. A variety of *quartz* with many colors and patterns.
6. This mineral is used in photography and chemistry. It can form long wires.
8. A very heavy mineral with metallic luster. It is an ore of lead.
10. This mineral melts above 32 degrees Fahrenheit.

We Use a LOT OF Minerals!

In a lifetime, the average American will use a LOT of stuff.
Much of this “stuff” comes from minerals.
In his lifetime, Corundum Carl will use . . .

1,600 pounds of Copper
(from azurite, malachite, cuprite)

32,300 pounds of salt
(halite)

920 pounds of zinc
(from sphalerite)

42,000 pounds of iron ore
(hematite and magnetite)

68,000 pounds of cement
(cement is made from lime-
stone, sand and gravel.
Limestone contains the
same material as calcite—
calcium carbonate)



1.7 Troy ounces of gold

5,700 pounds of aluminum
(from bauxite)

1,000 pounds of lead
(from galena)

20,500 pounds of phosphate rock

61,000 pounds of other minerals
(like gypsum, spodumene, sulfur, silver,
quartz, and fluorite)

You will use this much, too!!

*This information is from The Mineral Information Institute, Golden, Colorado.

Letter Scramble



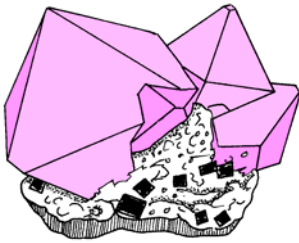
UNSCRAMBLE THE LETTERS OF THESE MINERAL NAMES. THEY ARE ALL FOUND IN THIS BOOK.

oretiufl _____

evlsri _____

rpjsae _____

ytierp _____



dlog _____

rmealde _____

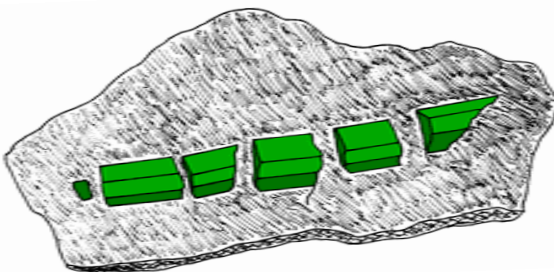
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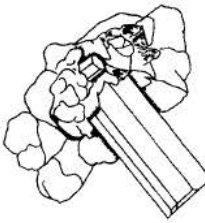

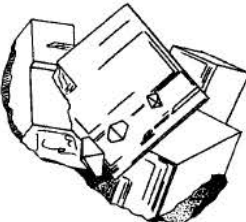

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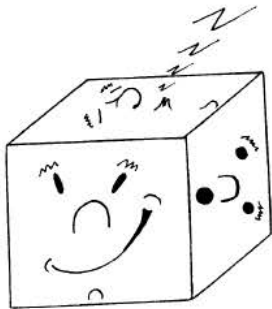
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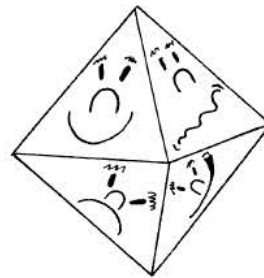


MINERAL COOTIE CATCHER

 <p>EMERALD</p>	<p>4</p>	<p>3</p>	 <p>SILVER</p>
<p>10</p>	<p>Emeralds can be more valuable than diamonds. Emerald is the green variety of the mineral beryl.</p>	<p>Silver is an element. It is used for jewelry & photography. Silver crystals form as cubes and wires. Silver is very soft.</p>	<p>2</p>
<p>6</p>	<p>Pyrite can have real gold trapped inside. Pyrite contains iron and sulfur. The sulfur is used to make chemicals.</p>	<p>Fluorite is used in making steel. It breaks into diamond-shaped pieces. The words "fluorine" and "fluorescent" are from the name of this mineral.</p>	<p>1</p>
 <p>PYRITE</p>	<p>7</p>	<p>8</p>	<p>FLUORITE</p> 



CRYSTAL FACES



Numerous articles have been written about the use of oxalic acid for cleaning and preparing mineral specimens. The trouble with most of the articles I've read has been that a good deal of the important safety information has been left out of them. In fact, most of the articles never even mention the very important matter of its toxicity. This month I'm turning over the Safety Matters column to Duane Leavitt. Duane is a chemistry teacher, mineral collector and contributor to the *Mineralogy of Maine Volume II*, published by the Maine Geological Society.

Safety

**by Ellery Borow, EFMLS Safety Chair
Reprinted from AFMS News, Sept. 2014**

Some Notes and Safety Tips on Using Oxalic Acid
by Duane Leavitt

One often reads about and sees reference to oxalic acid (wood bleach) in publications when the topic of cleaning minerals is discussed. This chemical, while an excellent cleaner for some types of minerals, poses some serious health risks which are not widely understood and can be confusing when considered in light of other acids that are sometimes used for cleaning purposes. Oxalic acid, chemically $H_2C_2O_4$, is an organic acid, which means that it contains, among other things, the element carbon. At room temperature is a white, crystalline, odorless solid, looking a lot like granular sugar in physical appearance. It melts at 101 degrees C and will vaporize at around 150 degrees C.

When we look at oxalic acid, strictly as an acid, we find that as acids go it is quite weak. Acid strength is measured by how much hydrogen acids give up in water solutions; a convenient measure of this is what is known as the K_a value, ionization constant value, of the acid. In a standard water solution oxalic acid has ionization constant (K_a) values of 0.0054 (primary) and 0.0000523 (tertiary). Compare this to K_a values of hydrochloric acid, K_a : 1; and nitric acid, K_a : 27.79 and is obvious that oxalic acid is nowhere near as strong or as soluble in water as these last two acids, which are also used in the mineral cleaning. This last statement is very true and is a BIG part of the problem with understanding oxalic acid. There is NO CORRELATION between acid strength and how poisonous it is, it's TOXICITY.

As an organic acid, oxalic acid, and /or it's water solutions, can be absorbed directly through the skin into

the bloodstream, powders from the dry acid and vapors from solutions can be absorbed into the body through the lungs- this has serious implications for those who like to clean specimens in a crock pot of simmering oxalic acid solution in their basement; residues from improperly neutralize and rinsed specimens may be absorbed through later handling. Dust from the sold acid can damage the cornea of the eyes.

In the body, oxalic acid removes calcium from the blood, forming insoluble crystalline masses of calcium oxalate that eventually wind up in the kidneys where they will obstruct and abrade the kidney tubules causing the kidneys to bleed. They may block the kidneys and have to be removed surgically- kidney stones. In respiratory passages the material will cause severe irritation, possible hemorrhaging of these tissue and burns. When the material gets into the digestive tract it causes severe gastroenteritis and vomiting, shock and convulsions, cardiovascular collapse and / or kidney failure which can lead to death. A lethal dose of oxalic acid is somewhere between 5-15 grams. Severe health problems occur at much smaller levels of exposure. OSHA recommends a TLV (threshold limit value) of no more than 1mg (that is one thousandth of a gram)/ cubic meter. For comparison, 1 restaurant packet of sugar contains about 1 gram of material or 1000 times the recommended exposure value.

Unlike neutralized hydrochloric, muriatic and nitric acids, the products of "neutralized" oxalic acid are STILL poisonous- they just are no longer acidic. Oxalate compounds of any nature are still a threat to your health.

People wishing to use oxalic acid can do so successfully and safely provided they incorporate the following procedures into their mineral cleaning:

1. Always use long-sleeved rubber gloves, a splash proof apron, and full eye/nose protection when handling either dry oxalic acid crystals or oxalic acid solutions.
2. Avoid heating solutions of oxalic acid...it will work cold, it just takes longer
3. Keep containers of soaking specimens covered so that acid vapors stay inside the container. Lids should NOT be airtight.
4. Rinse any specimens cleaned with oxalic acid with copious amounts of water and test with pH paper to ensure that all acid is gone. A post treatment bath in dilute (household) ammonia or sodium bicarbonate solution is a good idea.

Continued on page 17

The Story of Montana Agates

From Petrified Digest 2001, reprinted from Rock Writings, Sept. 2014

It has always been a mystery how the peculiar little scenes got inside a rock as hard as agate. It is the claim of geologists that the spots were caused by infinitely minute seams or fissures in the softer parts of the rock being filled with metallic oxides when the world was young. These oxides made four different colors that form various combinations of color when blended together, or appear in single colors in each rock.

The red color is oxide from iron. The black is oxide of manganese. The green is oxide of copper. The blue is oxide of nickel. This theory has been elaborated by the help of high-powered microscopes which show the tracings of little canals so close the necked eye could not detect it; but the oxides remained, staining the rocks in wonderful designs. The fernlike and branch effects of the trees grass and shrubbery, come from the fact that the

tiny canals branched out in various subdivisions forming smaller canals for a common center. In addition to these canals, the rock became flawed through shrinkage while passing through a period of evaporation which, according to scientists, has taken more than three million years to reduce the stone to the hardness of 7 on the Mohs scale.

These canals and flaws have been perfectly healed by soft silicate formations of which the stone is a part, and the evaporation has doused the oxides to take on such forms as seen on the window after a frosty night. Technically, Montana agate is known as "dendritic" agate, and the moss spots are called "dendrites".



It is the third hardest stone in the world, and is cut only with a diamond saw. There can never be two pieces alike even though cut from the same stone.

Birthstone for September
SAPPHIRE

by Jonathan North, reprinted from Rock Writings, September 2014

Sapphires have been a greatly valued gemstone for thousands of years. It is said that King Solomon wore a sapphire ring. The blue sapphire has been associated with the heavens and sky. The ancient Persians believed that the earth rested on a giant sapphire and its reflection colored the sky. Sapphire symbolizes sincerity and faithfulness. They also represent Divine favor, and were the gemstone of choice for kings and high priests. The Crown Jewels of Britain are full of large blue sapphires.

Sapphire is one of the few gems that comes in a variety of colors, all being treasured. They come in pink, orange, yellow, blue, green, purple, black and colorless. A pure sapphire is colorless, and colored sapphires are a result of chemical impurities. The impurities are usually iron, titanium, and chromium. The most valuable sapphires are a vivid blue color. Sapphire is composed of Al₂O₃ and has hardness of 9. It ranges from transparent to opaque. It has no cleavage. Cat's eyes and stars can be found in sapphires, caused by rutile needle inclusions.



Sapphires come from Burma, Kashmir, Sri Lanka, Thailand, Australia, Cambodia, Nigeria, Kenya, Tanzania, China, Vietnam, Madagascar, and the United States. The best source in the United States is Montana.

Those folks that have sapphire for a birthstone, are sure a lucky lot. This is an extraordinary gemstone.

Racetrack Playa mystery in Death Valley Solved

re-printed in part from:

<http://www.grindtv.com/outdoor/nature/post/racetrack-playa-mystery-death-valley-solved/>

Submitted by Warren Darling

For decades, scientists have been trying to figure out how rocks moved across a dry lake bed and left trails behind, but now they know blown ice sheets cause it. The phenomenon of the “sailing stones” on Racetrack Playa in Death Valley National Park has baffled scientists for decades.

By some mysterious force of nature, rocks move along the flat-as-a-pancake playa and leave long trails behind. What causes the stones to move?

One popular theory was that strong winter winds upward to 90 mph combined with just enough rain to make the clay slippery caused the stones to “sail.”

Another is that ice sheets pick up the rocks, or ice forms around the rock enabling it to move with the wind, leaving a series of rock trails.

But now, the mystery is solved.

Scientists can say conclusively that these synchronized trails left by rocks, some up to 700 pounds, are caused by thin sheets of ice pushing the rocks across the desert floor under certain conditions, a theory that had been previously dismissed in 1976 after a test.

The conclusion was reached by a team led by paleobiologist Richard Norris of the Scripps Institution of Oceanography, UC San Diego, with the results published Wednesday in the [journal PLOS ONE](#).

To read the complete article, along with additional photographs, video and research information, please visit the website above.

Photographs- Top: Racetrack Playa researcher Richard Norris standing by a trail likely formed more than a decade before this December 16, 2012 photo. Trails can last for years or decades between events. Photo from Richard Norris courtesy of Scripps Oceanography

Bottom: Parallel trails carved into the wet, mud-cracked surface of Racetrack Playa in Death Valley. Photo by Jim Norris courtesy of Scripps Oceanography



From the First V.P.
continued from page 1

Wonderful Names Used to Describe Opal

There are many types of opal and a wide variety of names are used to communicate about them. If you have spent a small amount of time looking at opal you have probably been surprised by this extensive vocabulary of wonderful names. There is actually a logic behind names such as fire opal, black opal, jelly opal, boulder opal, matrix opal, Coober Pedy, Mintabie, Andamooka, precious opal, opal doublet, and opal triplet. The stories on this webpage will present that logic and help you see the common sense behind the names. And, since pictures are worth a thousand words we share our favorite opal photos to help you understand. Enjoy!

Types of Opal: Precious Opal- Common Opal- Fire Opal

Precious Opal- "Precious opal" flashes iridescent colors when it is viewed from different angles, when the stone is moved or when the light source is moved. This phenomenon is known as a "play-of-color". Precious opal can flash a number of colors such as bright yellow, orange, green, blue, red or purple. Play-of-color is what makes opal a popular gem. The desirability of precious opal is based upon color intensity, diversity, uniformity, pattern and ability to be seen from any angle.



Precious opal is very rare and found in a limited number of locations worldwide. Most precious opal has been mined in Australia, secondary sources include: Mexico, Brazil, and the United States. Canada, Honduras, Indonesia, Zambia, Guatemala, Poland, Peru, New Zealand and Ethiopia. The black opal on the left was mined at Lightning Ridge, Australia and the white opal on the right (above) was mined at Coober Pedy, Australia..

Common Opal-"Common opal" does not exhibit a "play-of-color". It is given the name "common" because it is found in many locations throughout the world. Most

specimens of common opal are also "common" in appearance and do not attract commercial attention.

However, some specimens of common opal are attractive, colorful and lustrous. They can be cut into gemstones that accept a high polish. They can be beautiful but simply lack a play-of-color that would earn them the name "precious". Common opal is frequently cut as a gemstone and can command reasonable prices. Shown at right is a honey-colored opal from Mexico and teardrop-shaped stone cut from Peruvian blue opal.



Fire Opal- "Fire Opal" is a term used for colorful, transparent to translucent opal that has a bright fire-like background color of yellow, orange or red. It may or may not exhibit a "play-of-color". The color of fire opal can be as vivid as seen in the three stones shown in the photograph at right.

Some people are confused by the term "fire opal". When they hear the word "fire" they immediately think of the flashes of spectral color, known as "fire" that are produced by gem-quality diamond. Or, they think of the flashes of spectral color, known as "play-of-color" that is produced by precious opal. Fire opal might exhibit flashes of color but such a display is usually weak or absent. Fire opal is simply a specimen of opal with a wonderful fire-like background color. The color is what defines the stone.



Opal Names: based on the opal and host rock relationships

Solid Opal --- (Type 1 Opal)- "Solid opal" is a name used for a rough or cut stone that consists entirely of
Continued on next page

From the First V.P.

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opal material without any host rock or other significant inclusions contained within the stone. Solid opal can be a combination of precious opal and common opal. The solid opal on the left is a white opal made from material mined at Coober Pedy, Australia. The black opal on the right was made from material mined at Lightning Ridge, Australia. Solid opal is also known as "Type 1 Opal".



Boulder Opal --- (Type 2 Opal) "Boulder opal" is a term used for a rough or a cut gemstone that displays opal within its host rock. Opal often forms within voids or fractures in its host rock and specimens of boulder opal reveal this aspect of opal's origin. The contrast of color can be striking when a bright flash of opal is seen within a the surrounding rock material. Many people enjoy the natural appearance of boulder opal and find these gemstones to



be beautiful, interesting and educational. The specimen on the left is a boulder opal bead cut from material mined in Australia. It is 10 millimeters by 6 millimeters in size, and weighs about 1.9 carats. It shows numerous fractures in the parent rock that have been filled with opal material. It is a story in a stone. The stone on the right is a boulder opal from Honduras. It is unusual because the host rock is Andesite. It is about 8 x 13 millimeters in size and weighs 2.9 carats. Boulder opal is also known as "Type 2 Opal".



Matrix Opal - (Type 3 Opal) "Matrix opal" is a term used for rough or finished gemstones in which precious opal is in an intimate mixture with the parent rock instead of the opal being confined to seams and patches as in boulder opal. The specimen on the left is a cabochon cut from matrix opal mined at Andamooka, Australia. The specimen on the right is a bead cut from matrix opal mined in Honduras. This material is often known as "Honduras Black Opal" because of its black base color and pinfire appearance. Matrix opal is also known as "Type 3 Opal".

Safety

Continued from page 13

5. In the event of a spill remove affected clothing immediately, rinse affected areas with copious amounts of water, rinse and wash affected clothing. If there is any doubt as to the severity of the exposure seek medical help immediately.

6. Small amounts of used solutions of oxalic acid can be disposed of by the following method:

- a) Neutralize the solution with sodium bicarbonate or sodium hydroxide; TEST with pH paper to make sure it is neutral (or slightly basic).
- b) Dilute the solution from step 1 above, 20 fold with water (example: add 1 pint neutralized acid solution to 20 pints of water).

- c) Pour solution 2 down the drain with plenty of cold water. This disposal technique is identical to Flynn Scientific disposal technique 24A (Flynn, 2006).

7. Read up on cleaning techniques (cleaning and preserving Minerals by Richard Pearl is a good place to start) and educate yourself about techniques, materials and alternatives.



UpComing Field Trips... *Continued from page 6*

I would like to leave the meeting area at 9:00 AM EST. We will be collecting along highway 44 and perhaps highway 155.

If you arrive early please, do not collect these stretches of highway.

At a time yet to be determined, we will break from collecting and join KYANA Geological Society at our Annual Picnic at one of the covered shelters where we met in the morning. It is a pot-luck with KYANA providing the meat [fried chicken] and the drinks. You are not required to provide anything, it is our treat!

For the afternoon we will either continue to collect the Taylorsville area or travel to the Frankfort area and collect in the Middle Ordovician, Lexington Limestone along the valley of the Lower Kentucky River [very pretty]. The KYANA Fossil Study Group has been investigating this area and has been tracking trilobite bearing layers in hope of finding Kentucky's largest Ordovician trilobite *Isotelus* sp. We have found hundreds of tails, a few heads, some thorax segments attached to tails and at least three trilobites that were all there except for the head. One small enrolled one was complete. The *Isotelus* trilobites range in size from one inch to ten inches in size in these deposits.

There will be enough KYANA member guides to do both.

What to bring: Standard rock hound tools [hammer, chisels, goggles, wrapping materials, buckets] we will be in the sun, sunscreen, sun hat, sun glasses.

You can access our website <http://kyanageo.org/> and see some of these fossils and more.

The camping rates at Taylorsville Lake are; Primitive \$15 Sunday - Thursday, \$ 17 Friday & Saturday RV \$ 21 Sunday - Thursday, \$23 Friday & Saturday There are a number of hotels and motels nearby.

Contact Charles Oldham for additional information charlesoldham@ymail.com or 502-2410-8755.



Welcome to the future. Pay ahead.

The status of the Bill can be read here <https://www.govtrack.us/congress/bills/113/hr5204>
The Text of the Bill is here <http://www.gpo.gov/fdsys/pkg/BILLS-113hr5204ih/pdf/BILLS-113hr5204ih.pdf>

Congress is on vacation until the week after Labor Day. When they return, the 2015 appropriations bills will be among the top items of business. If Bishop and Hastings succeed in getting HR 5204 attached to one of them, it's almost guaranteed to pass.

What can stop it?
Only one thing can:
PUBLIC OUTRAGE – PUBLIC ACTION.

If you care about our public lands being turned into commodities available only to those who can afford to pay fees for everything, then you must let YOUR Representative and YOUR Senators hear from you. Tell them that this major change in public policy cannot be allowed, particularly without any public hearing or debate.

HR 5204 lacks any over-arching vision or framework of our public lands being spaces where we all are welcome and have access. Yet it's being supported by groups like the National Parks Conservation Association, The Wilderness Society, and America Outdoors, because it throws a bone here and there to their special interests. But for the general public, there is nothing redeeming in this bill, nor any way it could be amended into something acceptable. It represents a complete change in public lands policy.

Tell your congressional delegation to **OPPOSE HR 5204 and TO NOT ALLOW IT TO BE ATTACHED TO AN APPROPRIATIONS BILL!**

All the contact information you need can be found at www.house.gov and

www.senate.gov.

- * Use their webform.
- * Call their office in Washington.
- * Call their local office.
- * Write, phone, fax, drop in in person.

Do all of the above. And then do it again!
Your personal action is urgently needed or this bill **WILL PASS!**
IF THAT HAPPENS, KISS YOUR ACCESS TO PUBLIC LANDS GOODBYE.



Northern Virginia Mineral Club Annual show

November 22-23, 2014

George Mason University, The HUB Ballroom; 4400 University Dr, Fairfax, VA

Saturday 10-6; Sunday 10-4

Cost: Adults \$5.00, seniors \$3.00; Students (13-17)- \$3.00; Children 12 and under, Scouts in uniform and GMU students with ID- FREE.

More than 20 dealers, minerals, fossils, gems, jewelry, meteorites, crystals, demonstrations, exhibits, door prizes, kids' mini-mines, learning activities, cub scout activities, silent auction on Sunday. Web site www.novamineralclub.org Show Co-Chair: Jim Kostka 202-207-5437



The Shenandoah Valley Gem & Mineral Society

◆◆◆ Presents ◆◆◆

The 47th Annual Gem & Mineral Show

◆ New Location! ◆

The Augusta Expo - 277 Expo Road - Fishersville, Virginia

◆ New Dates & Times! ◆

Friday, 9/26/2014 - 2 pm - 6 pm

Saturday, 9/27/2014 - 10 am - 6 pm

Sunday, 9/28/2014 - 11 am - 5 pm

◆◆◆◆◆

◆ Events & attractions for you to enjoy at this year's show include ◆

- Exhibits from SVGMS members & vendors illustrating the beauty & fascinating aspects of the rocks & minerals found in the Shenandoah Valley & around the world
- Retail sales of items of interest to show attendees - featuring numerous vendors from around our region
- Gold panning demonstration & presentation by The Central Virginia Gold Prospectors
- A 'treasure hunt' for the wee folks - let the kids hunt for 'gold' & 'rubies'!
- A rock tumbling display & discussion area - have you tried rock tumbling?
- Video presentations on rockhounding & lapidary topics
- Door prizes contributed by our vendors & members - hourly drawings!

◆◆◆◆◆

Admission is \$3.00 for Adults ◆ \$2.00 for Students & Seniors
Children age twelve & under & Scouts in uniform admitted free

◆◆◆◆◆

See all the latest developments & information regarding the show at our web site:

<http://www.shenandoahvalleyrockclub.org/activities-meetings/47th-annual-svgms-show.html>

Or scan the QR code to the left with your phone or tablet to acquire the link

◆ Scheduled Vendors Include ◆

Amber America - Brooklyn, NY
Lost Cove Minerals - Marion, NC
Unique Russian Minerals - Ft. Lee, NJ
The Gem Tree - Covington, VA
VA Rockhound Shop - Nellysford, VA
Canton Collectibles - Martinsburg, WV

Velima's Crafts & Varieties - Bristol TN
Beverly Beahm - Stanardsville, VA
AGQ Design - Broadway, VA
White Rock Shadows - Annandale, VA
PGR Design - Penn Laird, VA
...See web site for updates to this list!



Bench Tips by Brad Smith

Continued from page 3

SPOT SANDING BRUSH

Sometimes you have a little discoloration or debris to clean from the bottom of a pocket, from an area of coarse textured surface, or from a small space between two soldered objects. Finding something to get into those close areas is always an effort in creativity.

One tool I have for these special occasions is a glass fiber spot sanding brush. It's great for cleaning a small area and doesn't leave deep scratches, only a faint satin finish.

There's probably several manufacturers of these pens, but one is the PrepPen Adjustable Sanding Pen selling for US\$ 7.96 from Amazon. You can see it at <http://www.amazon.com/Prep-Pen-PrepPen-Adjustable-Sanding/dp/B000J18RT6/>



**Gem and Mineral Society or Lynchburg,
VA INC**

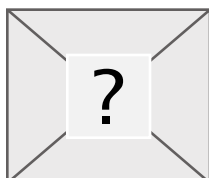
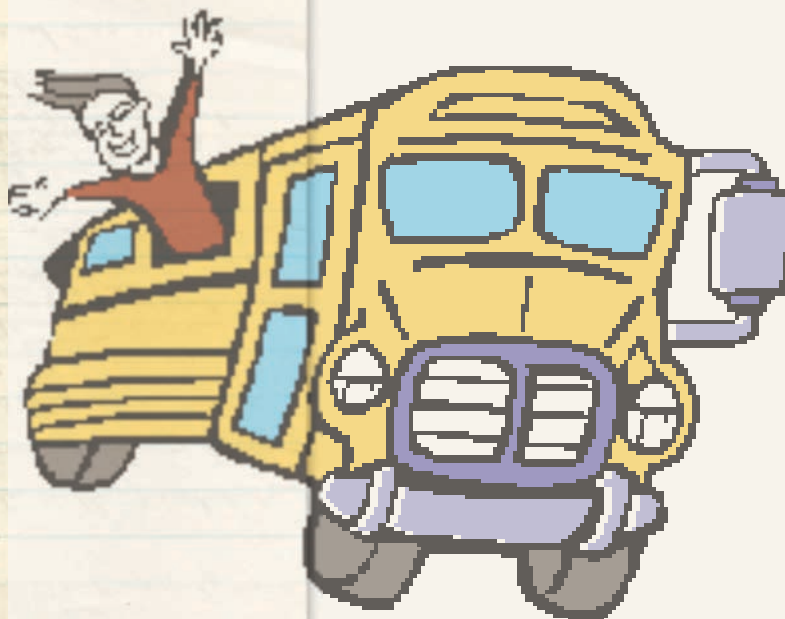
Natalie Darling, Editor
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The purpose of the Gem & Mineral Society of Lynchburg, VA is to promote education in The Earth Sciences, including: Mineralogy,



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



MEETING LOCATION

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

DIRECTIONS: Fairview Center; 3621 Campbell Ave., Lynchburg, VA 24501 434-847-1751~
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!