

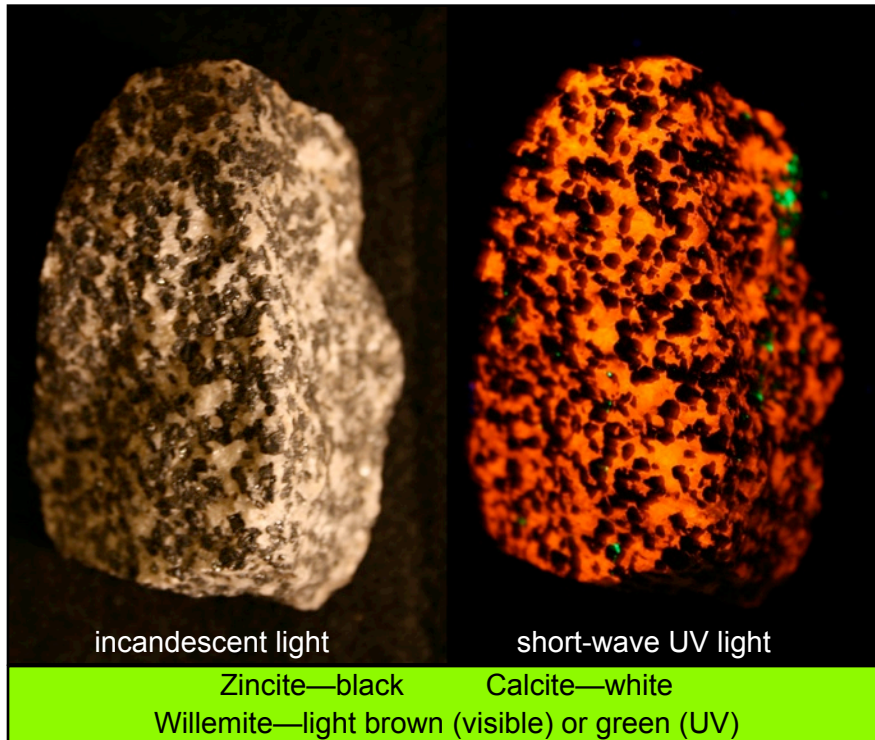


Volume 61 ♦ Number 11 ♦ November 2015 ♦ A monthly newsletter for and by the members of MAGS

## Fluorescent Minerals: Trick or Treat?

*Mike Baldwin*

Mike Baldwin, Bob Cooper, & Alan Schaeffer will present November Program



incandescent light

short-wave UV light

Zincite—black  
Willemite—light brown (visible) or green (UV)

Calcite—white

You probably saw a lot of blacklights and fluorescent colors just a few days ago. Glowing colors are one of the hallmarks of Halloween. But even more than blacklights, glowsticks, and glow-

in-the-dark costumes, I love fluorescent minerals. They are definitely a treat.

About ten years ago my family and I visited Franklin, New Jersey (the fluorescent

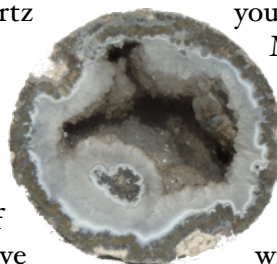
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### WIN THIS PRIZE!

The picture shows a 5 inch geode, quartz lined with calcite, from Mexico. Anyone who **renews or has already renewed** their membership for 2016 will be eligible for a chance to win this geode. Anyone can renew at the MAGS Membership Meetings, including January, or by mail. If you do use the mail, made sure I will receive



your check before the January Membership Meeting. The address is **Bob Cooper, 8695 Baylor Road, Arlington, TN 38002**. The drawing will be held at the end of the January Membership Meeting and you do not have to be present to win. Also, if you live out of the area and you do win, I will mail the geode to you.

*BOB COOPER*

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MAGS Rockhound News ◊ A monthly newsletter for and by the members of MAGS

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## MAGS AND FEDERATION NOTES

### Junior Programs

The MAGS Youth or Junior MAGSters will hang out with the grownups at the November meeting to look at fluorescent minerals. December is all party. The new year starts out with Dee-Dee Goossens teaching us the science of quartz and minerals in our daily lives. It's always wonderful to have new speakers. If you have something you'd like to show off, or something you think we should know, call, email, or telegram Jim Butchko to reserve your date.

MAGS General Membership Meetings and MAGS Youth Meetings are held at 7:00 P. M. on the second Friday of every month, year round. The meetings are held in the Fellowship Hall of Shady Grove Presbyterian Church, 5530 Shady Grove Road, Memphis, TN.

MAGS Website: [memphisgeology.org](http://memphisgeology.org)

We aren't kidding when we say this is a newsletter for and by the members of MAGS. If an article has a byline the author is a MAGS Member, unless explicitly stated otherwise (we welcome articles by nonmembers). If there is no byline, the article was written or compiled by the Editor (a MAGS Member). Please contribute articles or pictures (everybody likes pictures) on any subject of interest to rockhounds. If it interests you it probably interests others. The 15th of the month is the deadline for next month's issue. Send material to [lybanon@earthlink.net](mailto:lybanon@earthlink.net).

### November DMC Field Trip

WHERE: Propst Farm, Lincoln County, N. C.

WHEN: Saturday November 7, 8:30 A. M.-4:00 P. M.

COLLECTING: Euhedral corundum crystals in various colors

INFORMATION: Randy Davis, (704) 915-5646 or [randybdavis@yahoo.com](mailto:randybdavis@yahoo.com)

### Links to Federation News

- ➔ AFMS: [www.amfed.org/afms\\_news.htm](http://www.amfed.org/afms_news.htm)
- ➔ SFMS: [www.amfed.org/sfms/](http://www.amfed.org/sfms/)
- ➔ DMC: [www.amfed.org/sfms/dmc/dmc.htm](http://www.amfed.org/sfms/dmc/dmc.htm)

**Outstanding!**

MAGSters came to the October 9 MAGS Membership Meeting expecting to hear an archaeology professor deliver a lecture on intriguing finds at an obscure Middle East site. What they heard was Jimmy Hardin telling a story—a fascinating story—about what went on thousands of years ago in a part of the world that is important to billions of people for a variety of reasons.

It was a good story, but it wasn't just entertainment. Jimmy Hardin told us about the hard science that backs it up. You don't have to be anti-religious to think that some things in the Bible may have been put there just because they teach an important lesson, and that the descriptions of actual events may have been "enhanced" when they were written down hundreds of years later (anybody who has ever played "gossip" understands). Where were the borders between different political entities, and when were they established? Who lived there and what happened at this remote lo-

cation in Israel thousands of years ago, and how closely can we pin down the dates?

Students from Mississippi State University, along with volunteers, collected data in an Israeli location near Gaza. We heard about how they collected and analyzed the data, as well as the conditions under which they worked. (One of those conditions was the rockets that one group in the area were firing at another group.) Some of the analysis, to get good dates for objects found at the site, used a cool new scientific technique—one also used in geology to date rocks and to establish the past locations of tectonic plates.

There are legitimate differences of opinion between people who have spent their professional lives studying questions like those in the second paragraph, and those who heard the October MAGS program learned something about them. There is more evidence now than there was a decade or two ago. What does the evidence say? Did the kingdoms of David and Solomon exist where and

when the Bible says? Did they exist, but possibly a century or two later? Or are they just stories about fictitious people who may be composites of several petty kings and tribal chieftains who actually existed?



If you were at the October meeting, you heard what the scientific evidence says. If you weren't there, you missed a good program.



**Another Dandy Dogtooth Pocket Day**

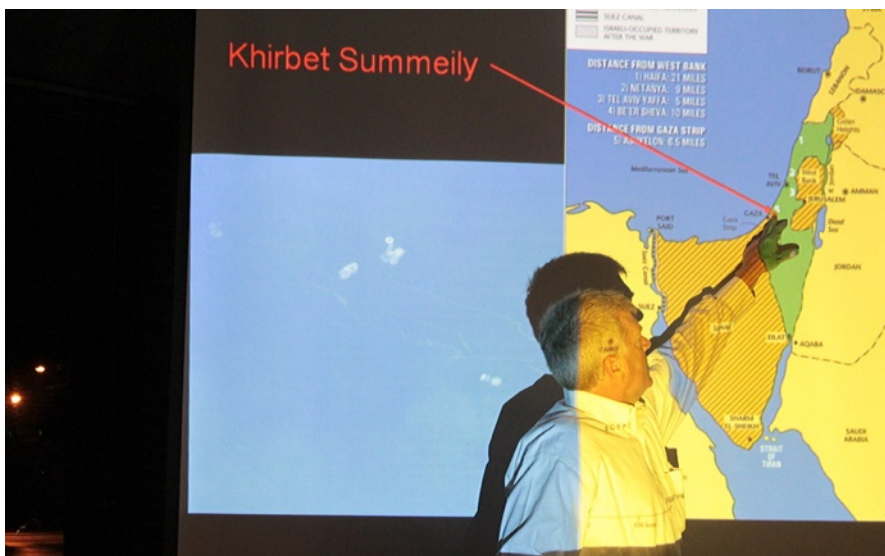
*James Johnson*

**Editor's Note: This is an edited version of material from James Johnson's website,**

**[www.jwjrocks.com](http://www.jwjrocks.com). You can find lots more good stories there.**

A few weeks ago I decided I was going to drive back down to the quarry at Eminence and see if I could find anything good. I figured after they stirred up both piles a bit, if they decided to work both piles evenly that is, that more material could be uncovered. Little did I know what lay in store.

I had talked to Nathaniel and he decided to ride down with me, and on the way down, he told me that he sure would like to find one of those chocolate brown colored dogtooth crystals. We didn't get a real early start, but as I told Nathaniel, it wasn't gonna get light 'til *Continued, P. 4*



*Another Dandy Dogtooth Pocket Day  
Continued from P. 3*

about 7:30 A. M., and it was gonna be cooler than what we were used to so far. So if we arrived around 9 A. M., with full sun, that would give it time to warm up a bit. We loaded up the truck as the sun was rising prettily.

On the way down there, we spotted two bald eagles in a tree top next to the highway near Houston. As soon as we passed them and confirmed it, I turned around and returned so we could both photograph them, pulling off the side of the highway to do so. As I turned around, one took flight and passed overhead, leaving one in the tree for us. We had to approach from the side so as not to spook him, and after a few seconds of snapping images, he took flight. We just kept shooting.



A local farmer stopped by to make sure we were okay and told us that there were a lot more eagles that could be seen along the river at Houston. Nathaniel used his phone camera and I was shooting with my Nikon D200 and zoom lens. I wasn't sure what I had in my images until I got home and looked at them after loading them into my computer. Sometimes my autofocus doesn't work as well as I would like it to. Need-

less to say, I was pretty happy with my images of the eagle. As I told Nathaniel, I have never seen two eagles in a treetop like that, so I took that as a good sign for our day ahead.

Shortly after, we arrived at the quarry and found the pile on the left side to be quite a bit less than when I was there the week before. The pile was steeper so there would be no climbing to the top, and we could see stuff sliding down. So we both donned our hard hats and grabbed tools and bags, setting out to check for signs of pockets. Nathaniel went to the right from the middle and I went to the left, stopping at a big boulder 20 feet from the middle, where it appeared that a few pockets were located—one under the boulder, and one or two on the left side. Pretty soon, Nathaniel went past me to the left and set up camp about 10 feet from me, finding some openings in what appeared to be a vuggy wall. And pretty soon after that, he was telling me that he had some nice dogtooth crystals inside.

I had walked back to the truck to get my flashlight to look inside my pocket at the base of the boulder, and I grabbed my camera as well. When I returned to the wall to see what he had found, he was pretty excited and I saw that he had good reason.

JACKPOT!!! I was excited for him and told him to get his phone out and photograph them before and after. Then I told him how to remove the ones that were anchored in there, after carefully removing the loose ones, and to go ahead and wrap them up soon af-

ter removing them if possible.

I then returned to my pocket and said a quick prayer, that while I was glad Nathaniel had found a great pocket of dogtooth crystals, I would sure like to find something similar as well. And the next thing you know, I am pulling dogtooths out of my pocket. Nathaniel took some photos of me with my finds, every time I pulled a nice one out. He said I was killing him pulling one after another out—as he was chipping that huge plate of his out of his pocket.



In no time at all we had been working those pockets for about three hours, opening the mouths of the pockets pretty big from the small openings we started with. Nathaniel had to open his up big time to remove that huge plate that he was chipping out. That alone took him about 30 minutes. When I was finally able to open mine up more, I shined my flashlight inside to see what all I had yet to pull out. It turned out to be about 15 inches deep inside and almost two feet across, with a massive base of chocolate colored calcite latched on to the top of the boulder and pointing down. Those were the singles I had pulled out before, having broken off the base. They were just lying there when I

*Continued, P. 5*

## *Another Dandy Dogtooth Pocket Day Continued from P. 4*

started reaching into the vug.

When that pocket ran out on me, I moved a few inches to the left and right and found a few more, and then another pocket under the boulder on the left side opened up. As I was checking it out, pulling a few plates of black and brown sparkly druse out, Nathaniel finally liberated that huge plate of dogtooth calcite crystals from his pocket. He turned around with it in his hands and a big smile on his face, and I snapped this photo.



After a short water break, we loaded Onyx up and drove over to the other side and checked out the

wall over there. We found some more nice pockets of dogtooth crystals once again, spending about 90 minutes before heading for home. I stopped off at Rocky Falls to see if there was any fall color there, and found some nice color and some kids there. Nathaniel remembered swimming there as a kid growing up in the Ellington area. On our way home, we saw several deer including a doe and two fawns. Both fawns were as big or bigger than their mama. Sure was nice to see so much wildlife; made for an even better day.

## *Fluorescent Minerals: Trick or Treat? Continued from P. 1*

mineral capital of the world), for the first time. The Franklin mines used to be a significant source of zinc, manganese, and iron used to produce high-grade steel. The mines have been closed since 1954, but there are still significant minerals to be found there. During its heyday, mining there produced more than 350 different minerals. The shaft has been closed and the mine flooded for many years but collectors like you and me can still visit the Buckwheat and Trotter Dumps and find more than 100 different minerals. If you're persistent and willing to put in the time and effort to dig for it, you might even find zinc.

Zinc is not what interests me in Franklin. There are over 50 different fluorescent minerals to be found in the dumps. It's an adventure just searching for them. An experienced, trained eye can tell which hunks of rock might contain fluorescent minerals and

which ones are just more dolomite. I've only been to Franklin a half dozen times and each time I have to acclimate to the surroundings. During the first hour or so all the rocks look like fluorescent minerals, but after a few times of carrying two 5-gallon buckets full of rocks to the top of the mine, checking them under the ultraviolet (UV) light in the testing shack, and finding that 90 percent of them aren't fluorescent, I begin to examine the rocks a little bit closer before putting them in my buckets. Even if all the fluorescent minerals I find are calcite and willemite, I absolutely love it.

Many of the fluorescent minerals found in Franklin are found nowhere else in the world. The most common fluorescent minerals found there are willemite (fluorescing green to yellow-green) and calcite (fluorescing red-orange to red). Others found on occasion are clinohedrite (orange), experite (yellow), hardystonite (blue-violet) and scheelite (light blue).

Pure minerals do not fluoresce. It's the impurities in a mineral that create an opportunity for fluorescence. The impurities are classified as activators. Different activators generate different colors. If iron is present in a given mineral with an activator, the mineral will not fluoresce. The iron is classified as a quencher. The quencher neutralizes the activator. Calcite is an excellent example of fluorescence. Calcite from different locations exhibits different colors under UV light. Calcite from Franklin, New Jersey, shows red-orange due to its manganese activator. Calcite with uranyl ions present produces green fluorescence, while calcite with mercury activators produces bright pink under long-wave and blue under short-wave UV.

I've mentioned that it's the impurities in minerals that create the opportunity for fluorescence in some minerals. What causes this reaction? Fluorescence is the emission of light by

*Continued, P. 6*

*Fluorescent Minerals: Trick or Treat?* a substance (in this case, minerals) that has absorbed electromagnetic radiation. Simply put, these minerals absorb electromagnetic radiation. Due to the activators in the minerals, the absorbed energy escapes from the mineral at a longer wavelength (and with less energy) than it entered the mineral. This energy is absorbed in the ultraviolet region of the color spectrum, making it invisible to the human eye, while the escaping energy is emitted in the visible region of the spectrum, therefore producing a color that can only be seen by the human eye when viewed under UV light, with all ambient (white) light blocked out.

In a sense, I suppose one could say our visual comprehension of fluorescent minerals is tricked by the UV light. I still say that seeing these fluorescent minerals display their array of colors is a real treat. Happy hunting.



### Fabulous Tennessee Fossils

Dr. Michael A. Gibson, University of Tennessee at Martin

#### Amy's Steinkern

I am writing this essay on National Fossil Day, Wednesday October 14th—Happy National Fossil Day! My topic for this essay returns to modes of preservation in fossils, which I first discussed in Fabulous Tennessee Fossils Volume 61 ♦ Number 04 ♦ April 2015 where I was describing the preservation of sponges. Last week UT Martin had the privilege to host Dr. David Schwimmer's paleontology class from Columbus State University, Georgia, at the Coon Creek Science Center. On that trip, UT Martin geology major Amy McLemore unearthed a specimen of the snail *Turritella* preserved in such a perfect way as to be a lesson in fossil preservation (Figure 1). *Turritella* is a coiled snail with a high spire (hence "turreted") in a tight coil earning it the nickname "common tower shell" or "screw shell" due to its superficial resemblance to a screw or drill bit. Amy's specimen is infilled with a dark fine-grained phosphate-rich sediment that differs from the external green glauconite-rich sandy-clay of the Coon Creek Formation itself. The phosphate crystallized to form a very hard infilling inside the entire gastropod. Usually when sediment infills a fossil and makes an impression of the inside of that fossil, we refer to the mode of preservation as an "internal mold". Most often the impression is of a single valve of shell. However, when the internal mold makes a copy, or internal cast, of the entire inside of a shell that then is removed to become its own fossil specimen, we use another name for the preservation—*steinkern*. The term *steinkern* come from the German meaning "stone kernel" or "stone core". Another term occasionally used for this mode of preservation, mostly in archaeology, is an "endocast" (cast of the inside).

Amy's Coon Creek specimen (Figure 1) began to break as she removed the sediment from around the fossil to expose it. This is typical of the *Turritella* from that formation as they were composed of the carbonate mineral aragonite. Aragonite is the softer, least stable form of the polymorphs calcite—aragonite. While this usually results in our lamenting about broken *Turritella* fossils as we

*Continued, P. 7*

## C.L. Dake Geological Society Annual Rock & Mineral Auction

Missouri S&T, McNutt Hall, Room 204      Saturday, November 7, 2015

Silent Auction  
Children's Auction

Check in: 7:30 AM  
Auction Starts: 10:30 AM

Come and join the fun! Open to Dealers & the Public  
Limit: 8 Flats per person for Main Auction  
4 Flats per person for Silent Auction

Food & Refreshments will be available for purchase



For more information contact:  
Kathlyn Loneragan (kml5hd@mst.edu)  
129 McNutt Hall, 1400 N. Bishop  
Rolla, MO 65409-0140



*Fabulous Tennessee Fossils*  
*Continued from P. 6*



**Figure 1.** Amy's Steinkern of the Coon Creek snail *Turritella*. The shell has eroded to expose the phosphate rich internal cast, "steinkern", of the inside of the snail. Steinkerns are usually found as stand-alone fossils within deposits where dissolution has removed the actual shell minerals. Steinkerns of snails and bivalves are most common in the Coon Creek Formation of Tennessee. (Photo by Michael Gibson; Scale bar in cm).

remove the matrix from the fossils, in this case it provided us with an exemplary sample that shows the true nature of steinkerns as internal casts. The broken "cut-away" view in the Figure 1 clearly shows how the phosphate rich sediment infiltrated the hollow curved tube of the snail shell and lithified to make a copy (endocast) of the inside of the shell—Amy's Steinkern. Notice how the external sediment around the shell is coarser grained and different in composition. Most steinkerns form this way—with a geochemical juxtaposition of conditions from inside to outside of the shell dur-

ing burial. Later, after the fossils are exhumed by erosion, the softer shell weathers away, freeing the hardened steinkern to be the only remains of the snail. While steinkerns do indicate the presence of snails in a deposit, usually the necessary morphological features to identify genus and species are lost. Only in deposits like the Coon Creek where we get all stages of the process can we reasonably associate a steinkern with its parent fossil.

So what did I do with such an illustrative specimen as Amy's Steinkern? Upon seeing Amy's fossil, my educator's knowing eyebrow raised as I realized the opportunity! How appropriate for National Fossil Day. I couldn't resist...I used it as a test sample on the laboratory midterm in Paleontology...which I administered on the eve of National Fossil Day. Amy was overjoyed when she saw her specimen on the exam—others were not. Such is the nature of an exam. I have relinquished Amy's Steinkern back to her as the rightful owner where it will be proudly displayed among her other fossil riches.

**Way To Go, Bob!**

An October 16 presentation at the 75th annual Society of Vertebrate Paleontology Conference in Dallas, Texas, described a shark fossil discovered in Jacksboro, Texas. The shark, more than 8 m long, lived 300 million years ago. Until now, the oldest giant shark was found in rocks dating to 130 million years ago. Further research is needed to determine whether the Jacksboro specimens

represent a known species of shark or a new one.

One of the authors (and co-discoverer) was Robert Williams of the Dallas Paleontological Society. MAGSters who went on any of the ammonite-hunting trips to Texas will recognize Bob Williams, who took us to all of those great sites. He even took some of us to Jacksboro, but we only found small stuff there.

You can find more details on the web, at [www.livescience.com/52506-texas-supershark.html](http://www.livescience.com/52506-texas-supershark.html).

**Jewelry Bench Tips** by  
*Brad Smith*

HOMEMADE WAX TOOLS

Save your used X-Acto or scalpel blades for utility work on the bench. They're wonderful for delicate wax work. Use a cutoff wheel or other type of grinding wheel to shape the blades to what you need. For instance, you can carve away excess metal on the spine to make yourself some narrow carving knives that do a great job of detailing small pierced areas of your waxes.



REMOVING A STONE FROM BEZEL SETTING

If you've forgotten to use dental floss and got your stone caught *Continued, P. 8*

*Jewelry Bench Tips* in a bezel,  
*Continued from P. 7* there's one  
thing you can  
try before starting to pry.

Find some sticky wax or beeswax. Roll it into a pencil-sized cylinder and stick the end onto the top of the stone. Mold it on well and yank.

But if the stone is really stuck, there are two other tricks—but each with risks and consequences. The first is to pry open the bezel with a sharp knife blade, being very careful not to wrinkle or tear the bezel. If you try this, make sure to pry gently in several passes around the stone.

The last solution is to drill a small hole into the bezel setting from the back side so that you can push the stone out. Note that this does leave a hole, but in some cases you can use it to saw out a design under the stone.

*Bench Tips for Jewelry Making*  
and *Broom Casting for Creative Jewelry*  
are available on Amazon.

## Save The Dates

The Mid-Tennessee Gem & Mineral Society announces the 35th Annual "Earth Treasures" Jewelry Mineral, Fossil Show & Sale. It will take place Saturday and Sunday, December 12 and 13, at the Ag Expo Park in Franklin, Tennessee. There will be over 30 dealers, classes, speakers, silent auction, and door prizes. Admission is \$4 for adults (\$6 for a 2-day pass), \$1 for students 18 and under. Children under 12 with an adult, and Scouts in uniform, will be admitted free. More information is available at [www.MTGMS.org](http://www.MTGMS.org).

## The Necessity Of Eye Protection

Alan Schaeffer, M. D.

**Editor's Note: Alan Schaeffer is a MAGS Member who will be talking to you about fluorescent minerals in this month's program, and also an ophthalmologist who has practiced in this area for years. When he isn't hunting for fluorescent minerals you can find him at Desoto Eye Care in Southaven and Olive Branch**



The call came at 1:00 A. M. on Saturday. It was the emergency room. Why do people always wait till the wee hours of the morning to go to the ER? "Dr. Schaeffer, we have a patient with a foreign body in their eye. They were doing something stupid and have foreign material in their cornea that will not come out. We have tried everything!" In addition to waiting 6 hours in the ER waiting room there will be a \$300+ ER bill.

While a foreign body to the eye is very painful it is rarely sight threatening. If a lash in the eye is uncomfortable imagine how a foreign body feels. Even an abrasion to the eye hurts like hell. Unfortunately, other more serious injuries can occur. Lacerating the cornea or sclera needs immediate treatment to suture the eye back to its anatomic position. Foreign bodies in the globe need to be removed, and then the globe needs to be repaired. Individuals often lose sight or even their eyes from these more serious injuries. The \$300 ER bill is minuscule compared to surgical charges and loss of sight.

So, how do we keep from waking Dr. Schaeffer up at 1:00 in the morning? I am not suggesting you call me when it happens, although that is a preferable option. You should wear eye protection whenever you are hammering, chiseling, nailing, or drilling. Eye protection can range from safety glasses with sides to goggles. You can buy goggles for less than \$2 at Harbor Freight or Walmart. Safety glasses can be obtained at most optical offices. The small cost of protection can save not only dollars but also your sight.



## Displays

Debbie Schaeffer

It's always fun to see what cool finds people have, so don't forget to bring a display to share with the club at the upcoming meeting. This month, in honor of Thanksgiving, I thought it would be fun for everyone to bring a display of things they have found at Turkey Creek. Haven't been there? No worries. Another option is to bring fluorescent minerals. This month's program is all about the "magic" of fluorescence. Mike, Bob, and Alan will have their long/short wave lights on hand so you can check out how your specimens fluoresce and phosphoresce under the UV light. As always, if you have something neat that you want to share with the club that doesn't fit into either of these categories, please bring it along. We would love to see it!





## Return To Parsons

We were very lucky with the weather.



Side trip to Melba Cole's property

On October 24 a group of MAGSters and NMGMS members hunted for fossils at Vulcan Quarry in Parsons.



Hunting was good.



Photo by Mike Pause

Everyone brought home lots of fossils.

### Vulcan Fossil ID Help

Those who brought home fossils from Vulcan Quarry in Parsons can get some help identifying them from the MAGS website. Mike Baldwin wrote a good article on Birdsong Shale Fossils, available at

[www.memphisgeology.org/p\\_birdsong.htm](http://www.memphisgeology.org/p_birdsong.htm). And for even more details, the Kieran Davis booklet, *Lower Devonian Fossils of Tennessee*, is available at [www.memphisgeology.org/images/Devonian%20Fossils%20of%20West%20Tennessee.pdf](http://www.memphisgeology.org/images/Devonian%20Fossils%20of%20West%20Tennessee.pdf).

### September Board

#### Minutes

Mike Baldwin

Called to order at 6:30 pm. Present: Bob Cooper, Bonnie Cooper, W. C.

McDaniel, Matthew Lybanon, Carol Lybanon, Paul Sides, Charles Hill, Nannett McDougal-Dykes, Mike Baldwin, Kim Hill, & James Butchko. James Butchko was nominated and elected as 2016 Show Chair. Kim Hill resigned as Assistant Program Director. W. C. nominated Kim as Assistant Field Trip Director. Jane Brandon would like to be Assistant Librarian. W. C. will nominate her at the Membership Meeting. Leigh Scott was nominated to be Assistant Program Director. Discussion: Can an out-of-town person be a Board Member and not attend Board or Membership Meetings? No, according to Bylaws. **Secretary:** No report. August report will be emailed to Board Members following tonight's meeting.

**Treasurer:** Current bank statement has not been received yet so we do not know if the 2 outstanding checks have cleared.

**Membership:** Added 2 new members since last month. Discussion: Do we need to modify the dues or should they remain the same? Bob suggested a dues change to \$15 for single members. Should we increase family membership to \$30? Consensus is that college students should remain listed as adults. Hardship cases will be addressed on a case-by-case basis. Motion carried to leave 2016 dues the same as the current dues.

**Field Trips:** September field trip is to Nonconnah Creek. The Vulcan Quarry trip is full. Members who are on the list and cannot attend, please notify the trip leader so the next in line can be included. The Potosi, Missouri, trip is scheduled for December but W. C. suggested we change it to early 2016. Charles will reschedule Richardson's Landing to December 12.

**Adult Programs:** Carol noted that Lori Carter is coming from Atlanta in *Continued, P. 10*

# MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

MAGS Rockhound News ◊ A monthly newsletter for and by the members of MAGS

*September Board Minutes Continued from P. 9* September and James Hardin is coming to talk about digging in Israel in October. Mike Baldwin, Alan Schaeffer, and Bob Cooper will present a program on fluorescent minerals in November. Alan Parks will present a program on Reelfoot Lake in January, perhaps followed by a field trip to Reelfoot.

**Youth Programs:** In September the youth will elect officers. The board decided to select Michael Montgomery as Youth Liaison. The youth will attend the adult program on fluorescence in November. A discussion followed about UV lamps. Board agreed that MAGS youth should have one.

**Rock Swaps:** International Archaeology Day is October 17, which conflicts with the rock swap at the McDaniel's. Rescheduled to 10-2 on November 7. W. C. suggested we have a club table at Chucalissa on Archaeology day.

**Library:** Marc is looking for book sales to replace some missing books.

**Web:** The website has been updated. It will be updated with new Board Members.

**Newsletter:** Thanks to those who sent in articles for the September newsletter. SFMS requested a copy of the field trip safety articles for the Lodestar. Matthew asked for more safety articles.

**Show:** W. C. and James will get together soon to begin plans for the 2016 Show. Discussion followed concerning table vendors for the Show, since last year's table price was more expensive than past years.

**Old Business:** Bylaws revisions were reviewed; vote on moving meeting time to 7:00 passed by the Board, will be brought before the membership next week; we need to begin planning community education; discussion about an identification committee and formal procedures.

**New Business:** International Archaeological Day proceedings approved. Carol suggested that MAGS reimburse Mike for his recent purchase of a black tent for use with fluorescent minerals. Mike declined the request and retains ownership of the tent. Mike asked for volunteers to present a program for the Campus School CLUE classes. None found. Meeting adjourned 7:15 pm.

## November Birthdays

### Happy Birthday

- 1 W. C. McDaniel
- 2 Mike Schaeffer
- 3 Carley Crawford
- 4 Walter Polk
- 5 Keagan McMann
- 9 Robert D. Gage IV
- 10 Bill Cowell
- 11 Alisa Neal
- 13 Matthew Lambert
- 15 Philip Goossens  
Gene Slater
- 16 Chris Scott
- 18 Cathie Jacobs
- 19 Clyde Chrisman
- 22 Angela Hill  
Melba Cole
- 23 Shirley Ruth Chrisman  
Brittani Lambert
- 24 Charles Carter
- 26 Samantha Craig  
Christina Craig
- 27 Dylan George
- 28 Diane Donohue  
Alan Parks
- 29 Crystal Dunn  
Ashley Von Boeckman  
Mike Pause
- 30 Robert Neill

## September Meeting Minutes

*Mike Baldwin*

Meeting called to order at 7:37 pm; 8 visitors and 37 members present.

Proposed Bylaws changes were read to the membership. Motion carried by unanimous vote to accept the changes. The membership voted to change meeting time to 7:00. Motion carried with majority vote. A notice will be sent via web, email, and newsletter and the membership directory.

Field trip to Nonconah Creek, behind Halle stadium, will be tomorrow. Charles has secured a rope at the site for easier access. October trip postponed due to DMC trip to Coon Creek on October 3. Weather should be reasonably nice for the Nonconah trip. Bob Cooper demonstrated the singing bowl, donated by Melba Cole. The bowl will be raffled off at the holiday party in December. Buy tickets tonight. James Butchko has agreed to be Show Chair for the 2016 Show, which is only 6 months away.

Displays: Marvin Nutt, a new mineral he found at Nonconah Creek. Debbie Schaeffer, sand collection from US and international locations, including colorful sands from Hawaii; Kim Hill display.

Juniors were dismissed to their program. Adult program was given by Lori Carter, MAGS Member from Atlanta, on sand.

Meeting adjourned 8:32 pm. A short Board Meeting followed: W.C. nominated 3 Board Members; Leigh Scott as Assistant Youth Program Director, Debbie Schaeffer as Assistant Program Director and Jane Brandon as Assistant Librarian. Unanimous vote of approval.

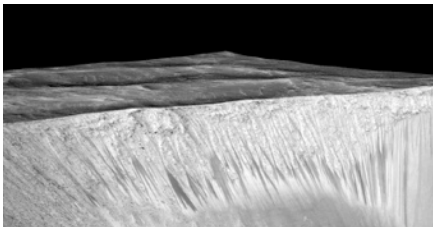


## Send Carol Ideas

Interested in having a particular type of program at a MAGS Meeting? Contact Carol and let her know your idea (how else will she know?). [sgcarol@earthlink.net](mailto:sgcarol@earthlink.net) or (901) 757-2144.

## Water On Mars?

A new study led by scientists at the Georgia Institute of Technology provides the strongest evidence yet that there is intermittent flowing liquid water on modern Mars. Lujendra Ojha, the Georgia Tech Ph. D. candidate who led the study, first noticed some puzzling features in High Resolution Imagine Science Experiment (HiRISE) images returned by the Mars Reconnaissance Orbiter (MRO) spacecraft as an undergraduate at the University of Arizona in 2010.



The features were streaks, known as recurring slope lineae (RSL), which form and snake down the planet's steep slopes during warm seasons when temperatures exceed  $-23^{\circ}\text{C}$ . They disappear at colder times during the Martian year.

Spectral signatures of hydrated salts were visible in many RSL if they were relatively wide. When the researchers looked at the same locations when RSL weren't visible, the hydration signatures had disappeared.

The team, which also included researchers from NASA Ames Research Center, the Johns Hopkins University Applied Physics Laboratory, University of Arizona, Southwest Research Institute, and Laboratoire de Planétologie et Géodynamique, used data acquired by MRO's Compact Reconnaissance Imaging Spectrometer for Mars (CRISM) to identify the spectral signatures.

"Something is hydrating these salts, and it appears to be these streaks that come and go with the seasons," said Ojha. "This means the water on Mars is briny, rather than pure. It makes sense because salts lower the freezing point of water. Even if RSL are slightly underground, where it's even colder than the surface temperature, the salts would keep the water in a liquid form and allow it to creep down Martian slopes."

The researchers believe that the signatures are caused by hydrated minerals called perchlorates. They state that the hydrated salts most consistent with the chemical signatures are probably a mixture of magnesium perchlorate, magnesium chlorate, and sodium perchlorate. Some perchlorates have been shown to keep liquids from freezing even when conditions are as cold as  $-70^{\circ}\text{C}$ .

"When most people talk about water on Mars, they're usually talking about ancient water or frozen water," Ojha says. "But there's more. This is the first spectral detection that unambiguously supports our liquid water-formation hypotheses for RSL."

**Ref.: L. Ojha et al., Spectral evidence for hydrated salts in**

**recurring slope lineae on Mars, Nature Geoscience (2015) doi:10.1038/ngeo2546, Published online 28 September 2015**

*Image credit: NASA/JPL/University of Arizona (from Georgia Tech News Center Release).*

## Can You Dig It?

Tina Walker

Yes, you can, in Marion, Kentucky. Come dig for fluorite and related minerals during the day and fluorescent minerals at night.

Scheduled Dig Dates for 2016:

- April 9, 2016
- May 7, 2016
- June 4 & 5, 2016\*
- July 9, 2016
- August 6, 2016
- September 3, 2016
- October 1, 2016
- October 29, 2016

\* Dates of the 11th Annual Clement Gem, Mineral, Fossil, and Jewelry Show

Pre-registration is required. Register early as space is limited to the first 30 people per date. Registration forms can be found at [www.clementmineralmuseum.org](http://www.clementmineralmuseum.org) or you can get one from the museum.

If you have any questions or would like to schedule a private dig, please call the museum, (270) 965-4263.


For More Information Contact:

Ben E. Clement Mineral Museum  
P. O. Box 391, Marion, KY 42064  
Phone (270) 965-4263 Website  
[www.clementmineralmuseum.org](http://www.clementmineralmuseum.org)

**Editor's Note: Tina Walker is Director of the Ben E. Clement Mineral Museum.**

# MAGS At A Glance

## November 2015

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4	5 Board Meeting, 6:30 pm, St. Francis Hospital	6	7 MAGS Rock Swap postponed/DMC Field Trip, Propst Farm
8	9	10	11	12	13 Membership Meeting, 7:00 pm, "Fluorescent Minerals"	14 MAGS Field Trip, Richardson Landing
15	16	17	18	19	20	21
22	23	24	25	26 Happy Thanksgiving 	27	28
29	30	1	2	3	4	5

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