



Volume 61 ♦ Number 12 ♦ December 2015 ♦ A monthly newsletter for and by the members of MAGS

You are invited...

Join fellow MAGS Members
to
celebrate the season.

Friday, December 11, 7:00 pm
Shady Grove Presbyterian Church
MAGS will supply turkey and ham.
Members bring the fixin's.

New this year—MAGS will provide all
the gifts. Come and enjoy.

Food Games Music Friends

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BRING A DISH TO SHARE

We want to have plenty of everything at the MAGS Holiday Party. But suppose 50 people brought desserts and nobody brought vegetables. OK, some people would like that. But most of us would be disappointed. That's why we ask you to bring specific types of dishes.



Please bring a dish to share, based on the first letter of your last name:

- A-G ♦ Desserts
- H-N ♦ Appetizers or Side Dishes
- O-Z ♦ Entrees/Casseroles

MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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

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MAGS AND FEDERATION NOTES

Show Committee Information

All Show Committee meetings will be in the board room at the Agricenter, Monday evenings, 6:30 pm.

Meeting dates, and other information about Show plans, are on **P. 5**.

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

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.

December DMC Field Trip

This is also the December MAGS field trip.

WHERE: Durham Mines, Walker County, GA

WHEN: Saturday, December 5, 9:00 am-3:00 pm

COLLECTING: Pennsylvanian age plant fossils

INFORMATION: Jeff Deere, phone (770) 386-5447 or (770) 655-2298; email wjdeere@comcast.net or jeff.deere@brownbind.com.

Links to Federation News

- ➔ AFMS: www.amfed.org/afms_news.htm
- ➔ SFMS: www.amfed.org/sfms/
- ➔ DMC: www.amfed.org/sfms/dmc/dmc.htm

Morganite Please!

Amber Dunn

It's no wonder this gemstone has been making its way into women's hearts world over. Such a pale luminous soft pink, it basically goes with any outfit and can be set into gold or silver because it looks great in both. So where did this beautiful "gem" of a stone come from? Well, for starters morganite was not its original name, and although it's seen as a precious gemstone today this wasn't always the case.

Morganite, or should we say pink beryl, has been a well-known mineral for a long time. It has only recently been thrust into the public spotlight. Other more familiar forms of beryl include aquamarine and emeralds, which have always been highly sought after, but pink beryl was never considered anything special by other than rock collectors. It wasn't until 1910 when deposits of this stone were found in California and Madagascar (although deposits have since been found in other countries) that people began to fall in love with its beauty.



The following year Tiffany and Co. chief gemologist G. F. Kunz suggested it be renamed in honor of his good friend, the Financier/Gemologist J. P. Morgan (Morgan was one of the most important gem collectors in the early 1900s.

His collection was partly assembled by Tiffany and Company and their chief gemologist, Kunz.), which is how it got the familiar name we now know, morganite.

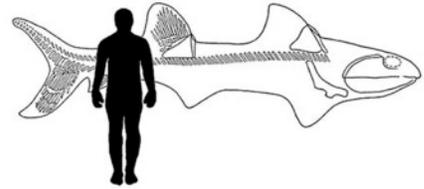


Today this stone is often valued most commonly by its color, with deep pink or magenta being the most valuable as it's the rarest. Of course many times heat treating is used to deepen the color since most natural stones are lighter in color. The subtle colors come from the presence of manganese. You can find morganites all over the internet, from carvings, to beads, to high quality fashion. Although it is rarer than aquamarine large stones are all over the market due to its popularity, which keep its price low. As with many other stones, faceting is the real key here. The better faceted the stone is the better it reflects light, which brings up its value.

This stone has also been noted as having an unusual intense red fluorescence when exposed to X-rays. The largest specimen ever found came from Maine in 1989, weighing almost 50 pounds. It's known as 'The Rose of Maine.'

Editor's Note: MAGSters at the November meeting saw quite a few minerals fluorescing under UV light. Morganite fluoresces pink to purplish under long-wave UV, but is notable for its intense red fluorescence when exposed to X-rays.

Texas Supershark



Last month's *MAGS Rockhound News* reported that our Texas friend Bob Williams was the co-discoverer of fossils of the oldest giant shark ever found. The fossils, discovered in Jacksboro, Texas, were braincases from two sharks that would have measured 5-8 meters in length. Bob and his co-discoverer Mark McKinzie worked with John Maisey of the American Museum of Natural History's Division of Paleontology to estimate how big the sharks would have been. The researchers donated the fossils to the museum, so now they will be on display in New York City, in one of the best-known museums in the world.

Cretaceous Marine Life From Blue Springs

David Hanes

SFMS State Director for Mississippi

Geological History of the Blue Springs Site:

The Blue Springs, Mississippi, site represents the sea bottom sediments formed in the late Cretaceous. The sediment was formed when rocks, weakened by gradual spreading of the North American continent, sagged into a wide, shallow trough. The Gulf of Mexico filled the trough on several occasions between 80 and 50 million years ago. The

Mississippi Em- *Continued, P. 4*

Blue Springs Cretaceous Fossils
Continued from P. 3

bayment then stretched west from the Tennessee Valley to the area of Little Rock, Arkansas. It may have been 1,000 feet deep where Memphis is now. The embayment gradually filled with sand, clay, and gravel brought in by rivers on uplands to the north, east, and west (Wade 1926).

The margins of the bay teemed with marine life. Crabs, snails, lobsters, clams, scallops, whelks, nautilus, sharks, and other familiar animals lived in the warm, shallow sea, eating, reproducing, and being eaten (Sohl 1960 and 1964). Giant reptilian mosasaurs, highly ornamented cephalopods, and other less familiar sea creatures lived in the water. Their shells, bones, carapaces, teeth, and other hard parts were constantly being buried in the sandy mud of the sea floor.

The lack of distinct layering indicates that clams, shrimps, and other burrowing organisms mixed the bottom sediments. Periodic hurricanes may have brought in heavy loads of river sediment to bury the plants and animals living there. Conditions for life were ideal; the water was warm and of normal salinity (Wade 1926).

Collecting from the Blue Springs Site:

Heavy rains in the summer and fall of 2015 eroded gullies in the sand and mud slopes at this site, creating three distinct levels in the 35° slope, that stretches in a horseshoe shape. The sediment field enclosed by the horseshoe shaped slope contains the smaller

fossil fragments that have been washed down into the gullies.

On the most northern end of the slope, heavy rains exposed an extraordinary numbers of *Dakoticancer* crabs in discrete mounds with most of their appendages.



Figure 1. Careful Digging Exposes a Dakoticancer Crab with Appendages

As seen in Fig. 1, these crab mounds were more easily found when the sun reflected off the darkened, fossilized carapace of the crab. The fragile appendages wash away after the crabs are first exposed, during the next heavy rain. The soft matrix of the mold fossil easily broke during the extraction.

Occasionally vertebrate bones and turtle shells can be found. In Fig. 2, notice that the broken turtle shell had to be gently pulled from the limestone matrix, which forms the top “ring” to the horseshoe shaped hill.



Figure 2. Fractured Turtle Shell from Top Limestone Shelf

Most fossils collected from Blue Springs needed a thorough cleaning to expose their true form. The *Dakoticancer* crabs fossilized in the mud and sand and normally are only found as a mold fossil, where the appendages may still have their original covering.

***Hoploparia tennesseensis* Lobsters:**

Since 2012, my fossil collection from Blue Springs has grown. In 2015 I found better specimens of the *Dakoticancer* crabs and more examples of the *Hoploparia tennesseensis*. However in the spring of 2012, I found my first and best *Hoploparia* specimen in the sediment field. (See Fig.3.)



Figure 3. Hoploparia tennesseensis

In Fig.3, the bottom specimen closest to the ruler has all appendages still in the matrix. In 2012, this specimen was found in the sediment field! The top specimen in Fig. 3 was extracted from a block of matrix, and most likely crushed or predated before it was fossilized. The disarticulated pieces, associated with both specimens, can be found in the gullies in the slope of the site.

The *Hoploparia tennesseensis* in Fig. 4 (below), was flattened before fossilization, and was found close to the top specimen in Fig. 3. The appendages of the specimen in Fig. 4 can be seen in a symmetrical pattern in the

Continued, P. 5

Blue Springs Cretaceous Fossils
Continued from P. 4

right hand side of this bottom-up view.



Figure 4. Bottom-up View of a Flattened *Hopolaria tennesseensis*

In Fig.5, the top-up view of this specimen reveals that this lobster was crushed and flattened before fossilization.



Figure 5. Top-up View of a Flattened *Hopolaria tennesseensis*

Dakoticancer Crabs:

These mold fossils are usually found at the second level ring. After heavy rains in the fall of 2015, many specimens were uncovered with their appendages, as seen in Fig. 6.



Figure 6. *Dakoticancer Crabs* found in 2015

Evidence of Cretaceous Vertebrates:

After extracting and joining the pieces of the turtle shell (in Fig. 2) collected from the limestone shelf in the top ring of the site, the specimen (in Fig. 7) confirms that turtles swam in the warm waters of the Cretaceous ocean.



Figure 7. Reconstructed Turtle Shell

At Blue Springs, Mississippi, other collectors have found fossil evidence of pre-daceous fishes, marine reptiles and various gastropods. The specimens described in this article are a small sample from a range of possible discoveries.

Conclusion—Diversity of Cretaceous Life:

Fossil collectors in Northeast Mississippi have found evidence of an active and diverse fauna, which has included evidence of ornithischian and theropod dinosaurs, fishes, sharks, turtles, marine reptiles, bivalves and gastropods. From 84 MYA to 65 MYA, the Cretaceous inland sea receded and advanced over the ancient Mississippi landscape. Fossils from the Mississippi Embayment, in extreme northeast Mississippi, give proof that there was an abundance of terrestrial life, as well as marine life in the warm oceans which covered most of Mississippi during this period. The fossils

found at the Blue Springs site give proof of a diverse marine fauna.

References

- Sohl, N. F., 1964, Neogastropoda, Opisthobranchia, and Barysommatophora from the Ripley, Owl Creek, and Prairie Bluff Formations. United States Geological Survey Professional Paper 331-B.
- Wade, Bruce, 1926, The fauna of the Ripley Formation on Coon Creek, Tennessee: United States Geological Survey Professional Paper 137, 272 p.

Show Committee Information

(continued from P. 2)

Show Committee Meeting Dates:

- December 7, 2015
- January 4, 2016
- February 1, 2016
- February 29, 2016 (March meeting)
- April 4, 2016

It is time to start planning for MAGS 2016 presentation of "The Earth Wide Open," our annual Memphis Gem, Fossil, and Jewelry Show. The dates are Saturday, April 23 and Sunday, April 24, 2016, at The Agricenter in Memphis. Thanks to huge donations from Ray Wallace, James Johnson, and other MAGS members, we have tons of rocks to stuff into grab bags, gem dig, and prizes. If you have an idea for a display or theme for the Show, or if you'd like to serve on the committee, contact Jim Butchko. MAGS raises several thousand dollars every year, which we use to promote the Earth Sci-

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Show Committee Information
Continued from P. 5

ences and lapidary arts throughout the year. Memphis Stone and Gravel, Cooper Moving and Storage, and other sponsors make the show profitable. Can you help to make it fun?

Jim Butchko



Fabulous Tennessee Fossils

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

Coral Paleoecology Donna's Fossil

At the risk of starting a trend, I am going to dedicate this installment of Fabulous Tennessee Fossils to the find of a particular individual. MAGSter Donna Pause was on the October 24 MAGS field trip to the Vulcan Materials Quarry in Parsons, Tennessee, where she collected a specimen of abundantly fossiliferous limestone that contained a particular educational specimen. "Donna's Fossil" is preserved on a slab of limestone most probably from the Rockhouse Limestone Member of the Lower Devonian Ross Formation (this is the same geologic formation studied by Yale paleontologist Carl O. Dunbar that I highlighted in *MAGS Rockhound News* Volume 61, Number 03, March 2015). Donna's Fossil is another example of how corals adapt to their surroundings by using their colonial nature and rapid growth potential, so this installment will be another lesson in coral paleoecology.



Figure 1. Donna's Fossil
(the length of the scale bar equals the diameter of a quarter)

Donna's Fossil (Figure 1) is actually two fossils preserving a biotic interaction, both belonging to the same genus of favositid coral—probably *Striatopora*. Figure 1 shows a clear dark line demarcating the long narrow specimen from the ball-like expansion near the right end. Also note in the photograph that one coral is a long slender "pole" and the second appears to be a growth around and partway up that "pole". Next, note that the individual corallites (round holes) of the "pole" coral are slanted to the left in the photograph, while the individual corallites of the attached coral colony radiate in all directions and are most pronounced in the direction opposite those of the "pole" coral. You can also see a small tapered portion (far right) of the pole coral just peeking out of the attached coral; the corallites on this piece belong to the attached

coral and are facing the opposite direction as those on the pole, but to the same direction as those on the attached coral. All together, these features provide enough clues to deduce a sequence of events and relationship between these two corals, which is that branch of paleontology we call "paleoecology"—establishing relationships of fossils to one another (biotic interactions) and to their environment.

Taken overall, the slab contains all marine fossils...so obviously an ancient ocean. The fossils are dominated by suspension feeding invertebrates that preferred warm tropical waters that were not too murky as to clog their feeding mechanisms. Clear water is further supported by the coarse sandy nature of the grains in the limestone (carbonate bioclastic sand) and absence of mud matrix. The *Continued, P. 7*

Fabulous Tennessee Fossils presence of corals, fan-shaped bryozoans, brachiopods, and other fossils suggest shallow shelf; not too deep that wave or storm action couldn't reach the bottom to remove the mud and break fossils into bioclasts.

With that setting, we can now focus on the *Striatopora* corals. The "pole-like" morphology matches the typical "finger coral" morphology of modern corals like *Porites*, which prefers well-washed, clear, tropical water. The other *Striatopora* coral is encrusting partway up the "pole" form as an "epibiont" (organism living on another organism). Ecologically this is a strategy for partitioning resources, such as growing space or food, and also for allowing the more massive and rounded *Striatopora* species to get up off of the seafloor (prone to burial and grazing organisms) to feed higher in the water column. Vertical partitioning of living space is referred to as "tiering" in ecological terms, much like living in high rise apartments in the city.

The unanswered question at this point is whether or not the "pole" form was alive at the time the epibiont *Striatopora* colony grew? If the "pole" form was living, then a symbiotic relationship would have existed between the two corals. If the "pole" form was a dead colony at the time of encrustation, then it served solely as a substrate for attachment and no direct ecological interaction would have existed between the two corals—"post-mortem association". Look closely at the area

where the epibiont coral attaches to the "pole" of the other. Note that the "pole" coral is slightly more calcified and thicker in the area above the attached coral and that the corallites are infilled with calcite (solid—no holes). Both of these suggest the "pole" responded to the overgrowth of the encrusting *Striatopora* by secreting more calcite as a buffer zone between the two colonies. This is a typical occurrence among modern corals that encroach one another as colonies expand during growth. So these two corals were alive at the time of the interaction, making this a direct biotic interaction.

We can go further and hypothesize the nature of the relationship. In modern ecology we often speak of symbiosis ("living together"), which clearly our two corals were doing, but what was the nature of the symbiosis? Most symbioses are subdivided into "commensalism" (one organism clearly benefits and the other is not harmed by the association), "mutualism" (organisms live together and both benefit from the association), and "parasitism" (organisms live together with one benefitting and one being harmed by the interaction). In Donna's Fossil, the response of the "pole" form to expend energy and resource to thicken the corallum and make the buffer zone between it and the encruster would be interpreted as a loss, although not lethal, hence commensal for sure, possibly even to the point of parasitism. One could argue that the diversion of resources by the "pole" coral was minor and once the adjustment made, it was of little consequence to the coral

anymore. Donna's Fossil is thus a nice addition to understanding the biodiversity of the Rockhouse fauna, environment of deposition that the fauna inhabited, and paleoecological connections of the fauna as well. Nice find!

New Members

- Pam Martello (grandchildren Nick & Farrah Fowler)
- Nathaniel Reid
- Diana (Dee) Brunner
- Steve Adamson & Lacey Sipsey
- Dan Schultz & Nicole Philippo (son Vincent Schultz)
- Andrew Helton
- Peggy Barbee (grandmother Helen Kastner)

Also, there will be three new Life Members next year:

- Nancy Folden
- Doris Johnston
- Jerry Seamans

December Birthdays

- | | |
|----|--|
| 3 | Diane Pence
Diana (Dee) Brunner |
| 4 | Donna Pause |
| 5 | Brenda Hankins
Juliet Buckholdt |
| 6 | Lynn Spencer
David McAlister |
| 8 | Alan Schaeffer |
| 9 | Angela Underhill |
| 11 | Stephanie Savic Polk |
| 12 | Marc Mueller |
| 13 | Hongbing Wang |
| 14 | J. Barry Gilmore |
| 15 | Kathy Baker
Jerry Seamans |
| 16 | Genevieve Stockwell
Spence Herrington |
| 18 | Marvin Nutt |

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Mid-Tennessee Gem & Mineral Society, Inc. 35th Annual
2015 "Earth Treasures" 2015
Gem, Jewelry, Mineral, Fossil Show & Sale
Ag Expo Park, Franklin, TN
 4215 Long Lane • Franklin, TN 37064
Saturday, December 12th, 2015
 9 AM—6 PM
Sunday, December 13th, 2015
 10 AM—5 PM
Admission: Adults, \$4.00 (2-Day Pass, \$6.00) • Students 18 & under, \$1.00
 Children under 12 with adult, FREE • Scouts in uniform, FREE
Over 30 Dealers • Classes • Speakers
Silent Auction & Door Prizes
 Mineral & Fossil Specimens
 Lapidary & Faceting Rough
 Beads • Cabochons • Gem Stones
 Tools & Supplies • Crystals • Slabs • Geodes
 Finished Jewelry • Demos • Stone Carvings
 and Native American Jewelry
Free Parking!
 Visit www.MTGMS.org for more information

things like "I have to say this quarry had some of the ugliest rock I have ever seen....leaverites for sure...."



Jewelry Bench Tips by Brad Smith

FOREDOM STAND

A quick and easy way to suspend a flexshaft over your jewelry bench is to use some steel pipe components from your local hardware store. It attaches with a couple screws and only costs about \$10.

I use 1/2 inch galvanized pipe and fittings. To build a stand that attaches to the top of your bench, all you'll need is a flange and a thirty inch length of the pipe. If you prefer a stand that attaches to the side of your bench, you'll need a little longer pipe, three foot, a flange, and a 90 degree "street elle".



Finally, make a hook that goes into the top of the pipe to hang the motor from. You can use heavy coat hanger wire or 1/8 steel rod from the hardware store.

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December Birthdays Continued from P. 7

- 19 Paula Gunter
- 20 Ed Underhill
- 21 Yeh Hsueh
- 21 Cheri Crews
- 23 Jim McNeil
- Joseph Kuc
- 24 Alan Grewe
- 27 Robert Craig
- 28 Walter Heger
- 29 Bebe Buck
- Brandon Mayer



Arkansas Fall Trip

In the next column you can see a few photos from MAGster James Johnson's recent trip to several sites in Arkansas. You can see more pictures, and read about his trip, by going to James's website, www.jwjrocks.com. If you do, you'll get to read

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Jewelry Bench Tips
Continued from P. 8

BROKEN DRILLS

Have you ever broken a drill bit off in a hole? Sometimes you can grab it with pliers, but other times the steel piece is below the surface in the hole. If this happens, a quick fix is to dissolve the steel in a solution of alum or fresh pickle. The solution will not affect your silver or gold piece.

Alum is typically available from a food store. It's used to preserve some foods. Use about a tablespoon per cup of warm water. Submerge your piece so that the partially drilled hole is facing up to let the bubbles float free and not block the hole.

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

October Board Minutes

Mike Baldwin

Called to order at 6:31 pm. Present: W. C. McDaniel, Carol Lybanon, Matthew Lybanon, Michael Montgomery, Jane Brandon, Mike Baldwin, James Butchko, Leigh Scott, Bob Cooper, Bonnie Cooper, and Debbie Schaeffer.

Secretary: September minutes accepted subject to revisions.

Treasurer: This month's statement has not been received. Bonnie distributed a summary of activity for review. Motion carried to approve the treasurer's report subject to audit. Discussion followed concerning the possibility of moving some of our current balance to a CD. Rent paid for the remainder of the year. Federation insurance and web hosting fees due in January. Carol suggested we wait until January to move the funds to CD,

after Bonnie's year-end report.

Membership: 3 new family memberships added since last month along with several renewals.

Adult Programs: In November Mike Baldwin, Alan Schaeffer and Bob Cooper will present a program on fluorescence. December is the annual holiday party. It would be nice if we think of a new approach to brighten up the festivities. The October speaker is Dr. James Hardin, an archaeologist who has worked in Israel. In January Alan Parks will speak about Reelfoot Lake. February open. In March Bill Lawrence (a pre-historic archaeological and state park assistant) will speak on the archaeology of Reelfoot Lake. He will arrange a Reelfoot Lake field trip for the day after the Membership Meeting.

Junior Programs: Leigh Scott and Michael Montgomery are part of the new junior leadership. There will be a topography map program in October. In November the juniors will meet with the adults for fluorescence. December is holiday party. Juniors will receive the best of the UV lamps given to the club by Nancy Folden.

Historian: November 7 will be a rock swap at the McDaniels [10-2]; bring snacks. Perhaps contests and games at the holiday party vs. gift exchange would help liven it up.

Librarian: Everything's good with the library.

Newsletter: Please send material for the newsletter. The more information the better the newsletter will be.

Show: The first Show meeting for 2016 will be Monday, October 12. We need to approve the contracts. November 2 will be the second meeting. James will send out requests for committee members.

Old Business: (01) We are scheduled to do Archaeology Day on October 17. (02) Campus School geology presentations deferred to spring. (03) SFMS board meeting will be in conjunction

with the show. Carol can help make arrangements. Motion carried to host this event. W. C. will appoint a contact person. They will need 12 rooms. We will help locate the hotel. (04) Projector screen for the fellowship hall—Mike will research mechanical screen [or pull-down]. Contact Tim Guy about details.

New Business: None. Adjourned at 7:11 pm.

October Meeting Minutes

Bonnie Cooper for Mike Baldwin

Meeting was called to order by 1st VP Charles Hill at 7:15 pm.

Membership: Bob reported no visitors, 23 members present and one new family membership. To encourage members to renew their memberships, we will have a drawing for a nice specimen at the January meeting. All members who have renewed by the January meeting will be included in this drawing.

Field Trips: Charles advised that the October 24 Vulcan Quarry trip is already full and we have a waiting list. After the quarry visit, we have been given a rare opportunity to hunt for vertebrate fossils on Melba Cole's property in that area. The November 17 field trip will be to Richardson's Landing. Trip leader will be Kim Hill. Charles mentioned that this will be during deer hunting season so it might be a good idea to wear something bright. December 11 will be a field trip to the Coleman Mine in Arkansas. Again Charles mentioned that this trip is during deer season so it might be a good idea to wear something bright. January 16-17 will be a field trip to the Ledbetter Farm and Dale Hollow Lake. In February we are trying to set up a trip to Jonesboro. March 12 will be a trip to Reelfoot Lake. Charles ended by saying we will have a short trip to Pickwick around *Continued, P. 10*

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October Meeting Minutes Continued from P. 9

December/January.

Programs: Carol introduced the October speaker, Dr. Jimmy Hardin. His program was on MSU's excavation at Khirbet Summeily on the Philistine border. The November program will be on fluorescent minerals which will be presented by Mike Baldwin, Alan Schaeffer, and Bob Cooper.

Show: James invited anyone interested in working on the Show Committee to come to the first meeting on Monday, October 12 at 6:30 at the Agricenter.

Meeting adjourned at 8:30 pm.

November Meeting Presentation



The November program was on fluorescent minerals: how fluorescence works, the minerals, and some good places to find them. Above you see Alan setting up the display for Members to examine.



Bob Cooper, Mike Baldwin, and Alan Schaeffer were the presenters. Their presentation was very well received by the Members. Here you see them holding the awards they earned for doing a good job.

Upcoming Programs

- ✓ January: Geology of Reelfoot Lake, Alan Parks
- ✓ February: Egyptology, Dr. Patricia Podzorski, University of Memphis
- ✓ March: Archaeology of Reelfoot Lake, Bill Lawrence, Tennessee Division of Archaeology
- ✓ April: MAGS Show

Floods and Archaeology in Tennessee

Five years ago the Cumberland River crested after over a foot of rain, inundating Nashville as well as parts of Kentucky and Mississippi. Dozens of counties were declared disaster areas, and the human and property tolls are well-known and heartbreaking. The flooding also had a hidden, ongoing casualty: archaeological sites.

When the water receded, archaeologists Tanya Peres (then at Middle Tennessee State University [MTSU], now at

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Richardson Landing Field Trip

On Saturday, November 14, Kim Hill led MAGS and the North Mississippi Gem and Mineral Society on a field trip to Richardson Landing, near Drummonds, Tennessee. The great weather brought out a good crowd. At least a dozen vehicles caravanned to the site. We hope you were there, but if you weren't the pictures give some idea of what you missed.



Floods and Archaeology in Tennessee *Continued from P. 10*

Florida State University) and Aaron Deter-Wolf of the Tennessee Division of Archaeology assessed the damage to shell midden sites (shell middens are locations where an ancient culture processed aquatic resources, leaving shells) near downtown Nashville. They found that numerous archaeological deposits had been washed away and there was widespread looting by people looking to dig up prehistoric grave goods.



The work of these archaeologists led to the creation of the Middle Cumberland Archaeology Project (MCAP). Through a National Science Foundation Rapid Response Research grant, Peres and Deter-Wolf were able to archaeologically survey 128 prehistoric sites along 67 miles of the Cumberland River. MTSU Bioarchaeologist Shannon Hodge joined Peres and Deter-Wolf, and over the past five years MCAP evolved.

Unfortunately, the flooding led to loss of information about the prehistoric cultures that lived there. The researchers found that only 14 of the 128 sites surveyed still had intact midden deposits, and 27 more had scatters of arti-

facts on the surface. Some sites that had been documented recently were completely destroyed, and others were threatened by massive erosion. Looting stopped quickly, because concerned citizens and law enforcement agencies became aware of MCAP and attempts to mitigate damage to the sites. The hardest-hit archaeological sites are some of the oldest in that part of Tennessee, which has evidence of human settlement 14,000 years ago.

Peres and Deter-Wolf explain (see reference) that the origins of shell middens in the Late Archaic Period are unclear. One interpretation is that these massive piles of shells reflect seasonal occupation of sites or even sedentary living. Another is that people deliberately piled up the shells to create massive mounds, which may have marked territories or been used as celebratory locations. Carbon-14 dating of shell middens showed that they were used for over 1000 years, between 3900 and 2600 BC. Over the generations, people built these middens out of a plentiful food resource. Early occupants of the Middle Cumberland River Valley were eating sustainably gathered freshwater shellfish.

Ref:

https://www.academia.edu/1876539/_ZOOARCHAEOLOGICAL_ANALYSIS_OF_A_MULTICOMPONENT_SHELL-BEARING_SITE_IN_DAVIDS_ON_COUNTY_TENNESSEE

Giraffe Neck Evolution

For years, there has been scant fossil evidence showing how the giraffe evolved to have such a long neck. But now, the remains of a 7-

million-year-old creature with a shorter neck provides proof that the giraffe's iconic feature evolved in stages, lengthening over time.

The researchers are calling the remains of this ancient beast true "transitional" fossils. Transitional fossils show how one kind of animal evolved from another.

The creature, *Samotherium major*, lived during the Late Miocene in the forested areas of Eurasia, ranging from Italy to China. Researchers first discovered *S. major* fossils in 1888, but the creature's importance wasn't realized until much later, said lead researcher Nikos Solounias.

The neck bones of *S. major* were shorter than those of a modern giraffe, but longer than those of the short-necked okapi, the giraffe's only living relative. Solounias didn't have the time or money to study the bones at the time, but he and his colleagues returned to them this year.

They analyzed the neck bones of four *S. major* individuals, three giraffes (*Giraffa camelopardalis*) and three okapis (*O. johnstoni*). On average, giraffes had 2 m-long necks. In comparison, *S. major* necks were about 1 m long, and the okapi necks extended about 60 cm.

The researchers also found that *S. major* held its neck vertically, as a giraffe does, instead of horizontally, as a cow does.

Ref: Danowitz M, Domalski R, Solounias N. 2015 The cervical anatomy of *Samotherium*, an intermediate-necked giraffid. *R. Soc. open sci.* 2: 150521. <http://dx.doi.org/10.1098/rsos.150521>

MAGS At A Glance

December 2015

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30	1	2	3	4	5
				Board Meeting, 6:30 pm, St. Francis Hospital		MAGS/DMC Field Trip, Durham Mines, Walker County, GA
6	7	8	9	10	11	12
	Show Committee Meeting, 6:30 pm, Agricenter				Membership Meeting, 7:00 pm, Holiday Party	MTGMS Show, 9:00 am-6:00 pm, Franklin, TN
13	14	15	16	17	18	19
MTGMS Show, 10:00 am-5:00 pm, Franklin, TN						
20	21	22	23	24	25	26
27	28	29	30	31	1	2
						

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