Treasure Hunting

Lou White

March Program

Former MAGS President Lou White's March program, “Treasure Hunting In The Local Area.” has been cancelled. Lou has talked before about the things that can be found in the local area: coins, rocks, minerals, fossils, antiques, old bottles, Civil War relics—things a prospector would look for.

This talk is based on quite a few years of collecting. Those who have heard Lou talk about this subject before know that he is a real authority as well as an entertaining speaker. This presentation will be rescheduled.

CLICK TO VOLUNTEER

Look for a message from SignUp Genius. It is time to volunteer to help at the MAGS Show, April 25-26. We can’t do it without you.

Here is a picture of one of the volunteer prizes. Remember, you must sign up with SignUp Genius to be entered in the drawing.
2019-2020 MAGS BOARD

President—W. C. McDaniel
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1st VP (Field Trips)—Kim Hill
(901) 388-7572 ◊ earthsis@aol.com

2nd VP (Adult Programs)—Dave Clarke
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Secretary—Mike Coulison
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Treasurer—Bonnie Cooper
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Assistant Webmaster—Mike Coulison
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Show Chairman—James Butchko
(901) 743-0058 ◊ butch513j@yahoo.com

Past President—Charles Hill
(901) 626-4232 ◊ hunter3006@aol.com

March DMC Field Trip
WHERE: Patty Construction Quarry, Summerville, GA
WHEN: Sunday, March 29, 9:00 A.M.–2:00 P.M.
COLLECTING: Summerville agate, some covered with druzy quartz
CONTACT: Larry Landry, (251) 591-5682

Links to Federation News

➡ AFMS: www.amfed.org/afms_news.htm
➡ SFMS: www.amfed.org/sfms/
➡ DMC: www.amfed.org/sfms/dmc/dmc.htm
“The Last Wooly Mammoths,” in the November 2019 issue, describes research that shows a small number of wooly mammoths survived until 4,000 years ago on Wrangel Island, a small island about 86 miles northeast of Chukotka, Siberia. Previously it was thought that the last mammoths died out 11,000 years ago, after surviving on Earth for nearly 90,000 years. So the Wrangel Island findings are significant.

Further research sheds light on what caused the Wrangel Island mammoths, which made it for thousands of years longer than mammoths anywhere else on Earth, to die out. Scientists from the University at Buffalo, the University of Chicago, and other institutions have resurrected a Wrangel Island mammoth’s mutated genes. The goal of the project was to study whether the genes functioned normally. They did not.

Thanks go to Daryl Wallace for these pictures of petrified wood with a branch or vine wrapped around it. Daryl found the specimen in Panola County, Mississippi.

The research builds on evidence suggesting that in their final days, the animals suffered from a medley of genetic defects that may have hindered their development, reproduction and their ability to smell. The problems may have stemmed from rapid population decline, which can lead to interbreeding among distant relatives and low genetic diversity—trends that may damage a species’ ability to purge or limit harmful genetic mutations. (Continued, P.4)
The researchers compared a Wrangel Island mammoth's DNA to that of two older mammoths as well three Asian elephants, a close relative. They pinpointed a collection of genetic mutations in the Wrangel Island mammoth and synthesized these genes in the laboratory to test their functionality.

About 4,000 years ago Wrangel Island mammoths became extinct. Evidence suggests that in their final days, the animals suffered from mutations that are predicted to cause diverse behavioral and developmental defects. The researchers found problems with genes responsible for sperm production, smell, neurological development, and a function involving the hormone insulin that is responsible for permitting glucose in the blood to enter cells to give them energy. The sperm production-related mutations may have reduced fertility in an already shrinking population. The olfactory mutations may have harmed the ability to forage and to even smell the flowers that made up an important part of their diet.

The research builds on prior work by other scientists, such as a 2017 paper in which a different research team identified potentially detrimental genetic mutations in a Wrangel Island mammoth, estimated to be a part of a population containing only a few hundred members of the species.

Ref: Erin Fry et al., Functional architecture of deleterious genetic variants in the genome of a Wrangel Island mammoth, Genome Biology and Evolution, evz279, https://doi.org/10.1093/gbe/evz279

Remnants Of America’s Southeast Aboriginals

Archaeology buffs may be interested in Remnants Of America’s Southeast Aboriginals–Paleo to Mississippian, a new book by Maury Miller of Dickson, Tennessee. It is being promoted and included in The University of Tennessee Press catalogs beginning with their 2019 Spring-Summer Catalog. More information:
http://www.millerangles.com/remnantsbook

February Meeting Scenes
Photo Credits: Marc Mueller
In the middle 19th century, there was a considerable emphasis on exploration of all aspects of the American west. Missouri and Kansas were still considered “territories” to be explored, tamed, and claimed. It was deemed prudent to study nearly everything, which for us, includes fossils. In 1858, just before the outbreak of the Civil War (or War of Aggression, etc....depending upon your familial take), an expedition to the midwest territories of Missouri (our neighbor) and Kansas (not a distant drive), was undertaken by two intrepid explorer paleontologists: B. F. Shumard and G. C. Swallow.

Benjamin Franklin Shumard (1820-1869) was instrumental in naming a species of brachiopod that is common is certain strata of Tennessee (and correlative strata of Kentucky, Alabama, and any other state that harbor the right stratigraphy), and which I am focusing on this essay. First, let’s just deal with his name, Benjamin Franklin Shumard—we all can guess where his name came from, and we would be right. His parents were well-educated “second-generation” Americans who immortalized their founding fathers. It is fair to say he began his career with a “golden spoon” and pedigree. But, that does not ensure success. In the Shumard family case....it basically did as a dynasty was made. B. F. Shumard trained in the medical profession, as did many of those who became instrumental in early geology of America, and received his M. D. from Louisville, Kentucky, in 1843. He set-up practice as a surgeon in Kentucky, which lasted for only a couple of years. Shumard began collecting fossils soon after finishing his medical degree (as an interesting aside from this essay, I offer the observation that it was a common pastime for the well-educated, especially doctors who also knew organismal anatomy, to become avid “fossickers” in the region due to the incredible abundance of Paleozoic fossils in the area). By 1847, Shumard had been thoroughly bitten by the “fossil bug”, having already published several papers on fossils, so he quit his medical profession career to become a paleontologist. His background and willingness to “do the field work” eventually led to numerous posts with various “surveys” exploring and cataloging the “west”. Shumard eventually rises through the ranks to not only become the State Geologist of Texas, but to actually organize the original Texas Geological Survey itself, even though he was not a native Texan. His removal in 1860 as State Geologist is a story of intrigue related to the Civil War...and a story for another day. Among his geologist’s accomplishments, besides his Texas contributions, he was a section head in the Iowa Geological Survey, as well as serving the geological surveys of Wisconsin and Minnesota during the years of 1848 to 1849. More importantly for this essay, he is a founder of the St. Louis Academy of Sciences in 1858, which is important for the obscure fossil that I am discussing in this essay. Before going further with B. F. Shumard, we need to note that he had a brother, George Getz Shumard (1823-1867), who was also a geologist and trained surgeon. The “Shumard” history and legacy is too extensive to recount in this short article, but makes for fascinating reading...but as I wrote, that is a story for another essay...

And now, I need to introduce the other player in the “Lingula carbonaria” saga: George C. Swallow (1817-1899). Swallow was educated at the Bowdoin College in Brunswick, Maine, and had become a professor of chemistry, as well as natural history, at the University of Missouri in 1852. He became the Missouri State Geologist from 1853 to 1861, and also Kansas Geologic Survey.

**Fabulous Tennessee Fossils**

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

**FTF 62**

*Lingula carbonaria*

Kingdom Animalia
Phylum Brachiopoda Cuvier, 1805
Class Lingulata Gorjansky and Popov 1985
Order Lingulida W aagen 1885
Family Lingulidae Gray 1840
Genus Lingula (Bruguière, 1797)
Species carbonaria Shumard and Swallow 1858

In the middle 19th century, there was a considerable emphasis on exploration of all aspects of the American west. Missouri and Kansas were still considered “territories” to be explored, tamed, and claimed. It was deemed prudent to study nearly everything, which for us, includes fossils. In 1858, just before the outbreak of the Civil War (or War of Aggression, etc....depending upon your familial take), an expedition to the midwest territories of Missouri (our neighbor) and Kansas (not a distant drive), was undertaken by two intrepid explorer paleontologists: B. F. Shumard and G. C. Swallow.

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Fabulous Tennessee Fossils  chief at Continued from P. 5 the end of the Civil War, from 1865-1866. G. C. Swallow’s history is a tepid one that is involved with numerous “characters” of the region and of the day (especially a Benjamin Franklin Mudge (note the trend here in naming children), who was given charge of the Kansas expedition in 1865). As the basic historical interpretation goes, Mudge was not up to the task of running the survey himself, but Swallow had the necessary academic training, so he was “appointed” to do the basic field work, but Mudge claimed most of the credit as the “survey leader”. The story of Mudge, Shumard, and the Kansas Geological Survey is fascinating history related to 19th century America, almost as good as the entire Cope and Marsh dinosaur wars. For us in Tennessee, Swallow, along with Shumard, will name a very common lingulid brachiopod as a result of their studies of Carboniferous coal-bearing rocks of the mid-continent. In 1858, B. F. Shumard and G. C. Swallow described new fossils from the coal-bearing rocks of Missouri and Kansas in Shumard’s newly organized Academy of Science of St. Louis Transactions. Their article was published in the first “inaugural” volume (pages 198-227). They named the brachiopod species Lingula carbonaria in that paper.

I first became aware of the Lingula carbonaria, and Shumard and Swallow, while a graduate student at Auburn University, working on my Master of Science degree in geology. I had collected numerous specimens of this species from the Upper Cliff Coal interval in the Plateau Coal field of northern Alabama. I recall that it took me, in those days of pre-internet and “snail-mail” postal service, months to track down the 1858 paper. It took me even longer to identify that I had this species of Lingula, which was preserved in iron-carbonate “siderite” nodules from the shales and siltstones associated with the coal deposits. I, and my student colleagues working under Dr. Robert Gastaldo in the early 1980s, had different areas to study, and it soon became apparent that this genus could be traced northward into Tennessee along Lookout Mountain. Later work in other coal areas of the Cumberland Plateau region would reveal more L. carbonaria fossil occurrences over the ensuing forty years of study.

Lingula, as a genus, is often described as being a “living fossil”. This is a misnomer in that the fossil is not actually still living, but that the taxonomic genus, Lingula, is still living, and can be traced back to the Cambrian period (so the genus has a long 500 million year history). In fact, you can catch your own living Lingula specimens in numerous mudflat environments on nearly every temperate coast. Charles Darwin recognized that this genus of brachiopod was unusually long-lived in a geological sense, so he is the one who coined the term “living fossil”. It should be pointed out that the status of “living fossil” is now being questioned (yet another story for later). As a genus, modern Lingula construct vertical U-shaped burrows in soft, muddy sediments in mostly estuarine or intertidal settings. The anterior (wide, gape-side) of the shell faces upward near the surface of the seafloor. The long narrow “pedicle” extends into the sediment as an anchor. Cilia on the internal lophophore respiratory structure in the shell creates a current that brings a water supply with food particles and oxygen. Lingula is unusual in that it is a burrowing brachiopod and not epifaunal (living on the seafloor surface) like most other brachiopods.

The genus Lingula is also found in many of the Carboniferous-age (especially Pennsylvanian) sediments and rocks exposed on the Cumberland Plateau, the so-called “coal measures”. Specimens of L. carbonaria have been described northward into Elk Valley and even further north into Ohio and up to Pennsylvania. The genus Lingula was erected in 1791 by Jean Guillaume Bruguère. The genus name Lingula is thought to have its etymological origins from the Latin word for “small tongue” (“lingua”), but there is some discussion that the genus gets its name from another Latin term, also “lingua”, which refers to a “spoon”. Regardless, the visual image works as the specimens are generally “tongue-shaped”, nearly smooth shells with very fine growth lines suitable for burrowing, very unlike most brachiopods. As a matter of fact, lingulids are classified as “inarticulate brachiopods”, meaning they do not show well-developed hinge lines with teeth, sockets, and support structures, usually typical brachiopod features, and they are composed of calcium phosphate, rather Continued, P. 7
than calcite to make a hard shell.

Figure 1. Siderite nodule with a poorly preserved shell of *Lingula carbonaria* (UT Martin Collection, Photo by MAG).

Editor’s Note: Space limitations prevented including the December 2019 minutes in the February issue, so both the December 2019 and January 2020 minutes are included in this issue.

December 2019 Board Minutes
Mike Baldwin for Mike Coulson

Called to order 6:30. Present: W. C. McDaniel, Mike Baldwin, Kim Hill, Bonnie Cooper, Bob Cooper, James Butchko, Nannett McDougal-Dykes, Jane Coop.

Secretary: No report.

Treasurer: Not much financial activity this month. Check written for January-June 2020 Fellowship Hall rent. Received SFMS application for membership renewal. Form was updated with current Board Member information, and will be submitted during the first week of January. November treasury report and summaries reviewed and approved by Board.

Membership: Have received a lot of membership renewals plus seven new Member families. A discussion followed based on the question, “How do people find out about MAGS and decide to join?”

Field Trips: Field trip to Vulcan Quarry, Parsons, TN was great! Discussion followed based on the question, “Should we send Vulcan a thank-you gift for their hospitality?” Result: Kim will purchase an appropriate gift, perhaps something from a local business near Parsons. No field trip in December. The January field trip will be an “Agates 101” local trip.


Library: Fourteen previously missing books were replaced. Library won’t be open during December meeting.

Show: 2020 note cards printed. Photos of grand door prize taken; we are beginning to use them in promotions. Bonnie has developed a new show website through Wix. Discussion followed about transitioning from our current “Earth Wide Open” site to new one.

Rock Swaps: Search for locations to host 2020 rock swaps is under way. Bonnie will help research potential sites. Jane asked the Board to consider breaking this Board position into two separate positions [Rock Swaps and Historian]. Discussion postponed until a future meeting.

Editor: No report. December newsletter distributed. Matthew has some information for 2020 newsletters but needs more. Editor and assistant editor won’t be here for December meeting, but will continue to do the newsletter on location.

Web: December newsletter has been added. These pages have been updated: homepage, calendar, newsletter archives, current newsletter. Discussion followed about possible changes: add downloadable MAGS information sheets (such as Mohs hardness scale, geologic terms, a list of upcoming events and programs in which MAGS or MAGS Members will be present)
December 2019 Board Minutes
Continued from P.7

involved and applications. W. C. will be sending a sample information sheet out to Board Members.

**New Business:** The club is planning another program at the Memphis College of Art in the near future.

**Old Business:** Holiday Party: turkeys have been assigned. Jim will get the poinsettias. Gifts are in town and bagged. W. C. would like to send out a note for Members to come early to help set up for the party. If Members bring food in addition to their category assignment, that would be very helpful. W. C. suggested that we get a tree and ask Members to bring small ornaments to decorate it, and then give it away at the party. Board members will bring drinks.

Adjourned 7:30.

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December 2019 Meeting Minutes
Mike Coulson

Called to order 7:05. The entire meeting was the Holiday Party.

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January 2020 Board Minutes
Mike Coulson

Called to order 6:38. Present: W. C. McDaniel, Charles Hill, Mike Baldwin, Kim Hill, Carol Lybanon, Matthew Lybanon, Bonnie Cooper, Bob Cooper, James Butchko, Nannett McDougal-Dykes, Mike Coulson, Jane Coop.

**Secretary:** Copies of the December minutes were distributed and approved by the Board.

**Treasurer:** Treasury report reviewed and approved by the Board. Receipts for outstanding bills were given to Bonnie for reimbursement. Checks for church rent and SFMS have been cut. Show insurance will come out in a few months.

**Membership:** Three new members since last Board Meeting. We have had low 60s in renewals. Folks not renewed will receive an email. Drawing for the early membership renewal prize will be at the end of the Membership Meeting.


**Adult Programs:** January—Juliette Morrow on the King Mastodon excavation site. February—Mike Gibson on the Vulcan quarry (rescheduled from November’s meeting).


**Upcoming club promotion opportunities:**
- Feb 01, 2020: Chickasaw Council's University of Scouting/Cub Scout Pow Wow, Saturday, February 1, 7:00am-4:00pm, at Getwell Church, 7875 Getwell Road, Southhaven, MS.
- Mar 28, 2020: 14th Annual Scouts Rock at Graceland, Saturday, March 28, 10:00am-3:00pm, at Graceland’s new event facility.

**New Information About Rocks and Minerals:** 2-sided 8.5 x 11 sheet has been updated and is ready for use. I plan to distribute this sheet at all of the events that I participate in this year, including the two listed above. Last year I did 38 Rock Talks, including Chucalissa, Lichteran Nature Center, Memphis Botanic Gardens, Collierville Burch Library, Science Camp at the University of Memphis, Faith Baptist Heritage Girls Meeting, Cub Scout and Webelos Encampments, Pow Wows and Beast Feast, Schilling Farms YMCA, and a number of elementary and middle schools. Other events where I will be distributing this form include: The Earth Wide Open, Tupelo Fossil Road Show, New Albany Fossil Road Show, Collierville Fair on the Square, and Pink Palace Arts and Crafts Fair.

**Library:** Two more replacement books added. Add library section, about new books and replacement books, to newsletter so Members are aware. Charles has been talking to a club closing down and he will donate their books to library.

**Show:** Meeting Monday at Agricenter at 6:30. Bonnie is working on getting reduced postage for club. Working on document for all current and future activities.

**Rock Swaps:** No swap in January or February.

**Editor:** Newsletter has been distributed.

**Web:** Mike has received the January issue of MAGS Rockhound News and will post to website tonight or tomorrow.

**Old Business:** Hickory Farms gift sent to folks at Parsons. The club is planning another program at the Memphis College of Art in the near future.

**New Business:** W. C. will preorder some rocks for prizes at the show. Kim says pretty, colorful, sparkly rocks.

Adjourned 7:25.
January 2020 Meeting Minutes
Mike Coulson
Called to order 7:01. 5 visitors tonight. Tonight is the drawing for early renewal prize. Still time to renew membership so you can have your name in the drawing. Matthew Lybanon won the geode.
Junior Program: How to Build Your Collection presented by James Butchko.
Library: 14 new books have been added to the library. Let Nanett know if there is anything you would like to see in the library. She has a bookstore looking for books. 14 books were checked out tonight.
Show: Postcards on the table. Still collecting rocks for grab bags so will accept donations. Sold out of dealer space. We’ll be asking for volunteers. Redoing website and will send everyone a link to the new Show website to review.
Displays: Kim Hill, Parsons; Jan and Leo, Nonconnah; Aaron, Fluorescent Rocks; Deborah and Dan Crowder, Estate Sale Finds.
Adjourned 7:48.

Adult Programs
March: Lou White, “Collect Memphis”
April: “Show Biz”

Junior Programs
March: Mike Baldwin, “Geology Along I-40”
April: “Show Biz”
May: Mike Baldwin, “Making Paint from Minerals”

Field Trips
March 21: Hedger, Jonesboro, AR
April: Local day trip
May 16-18: Gainesville, FL

March Birthdays
3 Debi Stanford
5 Walter Davis
7 Payne Wilson
11 Nancy Folen
13 Deborah McGraw
14 Danny Baker
15 Kay MacLaughlin
17 Bob Cooper
18 Laura Brem
23 Aubrey Smith
30 Jim Collins
31 Hisami McNeil

New Members
Gail Karr
Kevin and Robyn Lasater
Renee Leffler
Paislee Lyles and children
Sarah and Adam Wilson and children

Want to Be a Member?
To become a MAGS Member,
just go to our website at www.memphisgeology.org and print out an application form. There is a prorated fee schedule for new Members only. Mail the completed application along with the dues payment to the Membership Director shown on the form. If you are unable to print the application, you can pick one up at the sign-in desk at any of our Friday night Membership Meetings, or simply join at the meeting. Visitors are always welcome at our Membership Meetings but membership is required to attend our field trips.

The most important benefit of being a MAGS Member is getting to know and make friends with other Members who have similar interest in rocks, minerals, fossils, and archaeology. All new Members will receive a New Member Packet, a MAGS ID card, and a monthly newsletter via email. Members are entitled to go on our monthly field trips and get free admission to our annual Show.

55 Days To The Show
Please volunteer to help at the Show when you get an email from SignUp Genius. There will be signup spots for Ticket Booth, Greeters, Rock Zone, and Help Where Needed. SignUp Genius will tell you what each of these requires. MAGS needs you.
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