



Volume 64 ◊ Number 12 ◊ December 2018 ◊ A monthly newsletter for and by the members of MAGS

Party Time!

Join Us at the MAGS Holiday Party



We're looking forward to seeing lots of our Members at our December 14 (our regular meeting date) holiday celebration. Come early to help us set up. And please bring a dish or two to share. It will help if you bring the type of food specified in the invitation

above. Doing so will make sure we have good variety.

We will have presents, games, and prizes. The more people who come, the more fun we'll have. Come help us close out the year right.

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TROUBLING COURT RULING

A recent court decision (only applies to Montana but could spread to other states) reclassified fossils as minerals that now fall under the purview of Mineral Rights, taking their legal ownership from the land or property owner and placing them under the domain of the property's mineral rights holder. This split decision changes the long-held legal opinion that allowed ranchers and other property holders the

right to allow fossil collecting on their property. This ruling applies to all fossils: vertebrates, invertebrates, and plants. The drastic change in established law now puts academic and commercial paleontologists as well as the casual fossil collector and museum collections in great peril. If you don't have the permission of the owner of the mineral rights, you cannot take any fossils from privately owned

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MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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

2017-2018 MAGS BOARD

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Director (Asst. Youth Programs)—Open

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MAGS AND FEDERATION NOTES

Memphis Archaeological and Geological Society, Memphis, Tennessee

The objectives of this society shall be as set out in the Charter of Incorporation issued by the State of Tennessee on September 29, 1958, as follows: for the purpose of promoting an active interest in the geological finds and data by scientific methods; to offer possible assistance to any archaeologist or geologist in the general area covered by the work and purposes of this society; to discourage commercialization of archaeology and work to its elimination and to assist in the younger members of the society; to publicize and create further public interest in the archaeological and geological field in the general area of the Mid-South and conduct means of displaying, publishing and conducting public forums for scientific and educational purposes.

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, Tennessee.

MAGS Website: memphisgeology.org

MAGS Show Website: www.theearthwideopen.com

We aren't kidding when we say this is a newsletter for and by the members of MAGS. An article with a byline was written by a MAGS Member, unless explicitly stated otherwise. If there is no byline, the article was written or compiled by the Editor. Please contribute articles or 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

WHERE: Fernandina Beach, Florida

WHEN: Saturday, December 15, 9:00 A. M.

COLLECTING: Shark teeth and other treasures from the sea

INFORMATION: Stephen Waddill,

JGMSfieldtrips@jaxgemandmineral.org

Links to Federation News

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

Primitive Pottery Workshop



Kathy Baker and Michele Robbins celebrated International Archaeology Day by attending a primitive pottery workshop at Parkin Archaeological State Park in Arkansas. They learned how different types of pottery for drinking and eating were made at ancient Casqui, a Native American polity (an organized society) at the site discovered in 1541 by the Hernando de Soto expedition.

Here's Kathy's description: "We learned a-lot about primitive pottery and most of our pots were successfully fired with a few cracks. The interesting feature was that the clay was found on the riverbank close by and Ryan showed us a video of how to find it and process it. Ground up mussel shells were added for strength. The mussel shells were an newer and innovative approach for them and greatly improved the pots. You can date the pots easier if they were tempered with shells; they were made later."

Save The Date

The Ben E. Clement Mineral Museum's annual gem, mineral, fossil, and jewelry show will be June 1st and 2nd, 2019!!

Tina Walker
Director
Ben E. Clement Mineral Museum
205 N. Walker St.
Marion, KY 42064
(270) 965-4263
www.clementmineralmuseum.org



Next year, when the new MAGS Board gets in full swing, MAGS Notes will again list programs, field trips, and hospitality assignments for the next three months.

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 Mem-

bers 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 rock and mineral show.

December Birthdays

- 3 Diane Pence
- 4 Donna Pause
Ethan Davis
- 6 David McAlister
- 8 Tina Wallace
Alan Schaeffer
- 11 Jared Robbins
- 12 Viva Carnahan
Marc Mueller
- 13 Hongbing Wang
- 14 Barry Gilmore
Denny J. Baker
- 15 Andros Morton
Kathy Baker
Jerry Seamans
- 17 Barbara Champagne
- 19 Paula Gunter
- 23 Glenn Andrews
Jim McNeil
- 24 Allen Grewe
- 29 Bebe Buck
Brandon Mayer
- 30 Michael Parry

Show Committee

Next meeting December 3, in the Agricenter board room.

Greetings, All MAGS Members

As you know, the 2019 MAGS annual (January 1-December 31) membership dues should be paid prior to January 1, 2019. You can accomplish this by *Continued, P. 4*

MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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

Troubling Court Ruling land even if
Continued from P. 1 you have
the land
owner's permission. Even more
importantly, if you have fossils
from Montana in your possession,
you may lose those fossils to the
owners of the mineral rights.

The 9th Circuit has granted a
30-day extension of time for at-
torneys to file a petition for re-
hearing and for the Association of
Applied Paleontological Sciences
(AAPS) to submit an Amicus Brief.
The AAPS created a [Go Fund Me](#)
page to raise funds to have an at-
torney produce and file an Amicus
Brief, the goal being to ask the
court for an *en banc* hearing by a
larger panel of judges and get this
decision overturned. The goal is
to raise \$70,000 for lawyer and
court fees. The extension is only
until December 19, so anyone
wishing to contribute should not
wait long.

The AAPS is a public charity
under IRS section 501(c)(3). As
such it is tax exempt for income
tax purposes and is permitted to
receive tax deductible gifts pur-
suant to the Internal Revenue Ser-
vice. Donations to this Go-
FundMe page are totally tax de-
ductible here in the United States.
100% of all donations will be used
for the purposes stated. Donation
letters will be provided for tax
purposes on request.

Editor's Note: *This information
was provided by Linda McCall, for-
mer President, North Carolina Fossil
Club, and Research Fellow, University
of Texas at Austin.*



2019-2020 MAGS Board

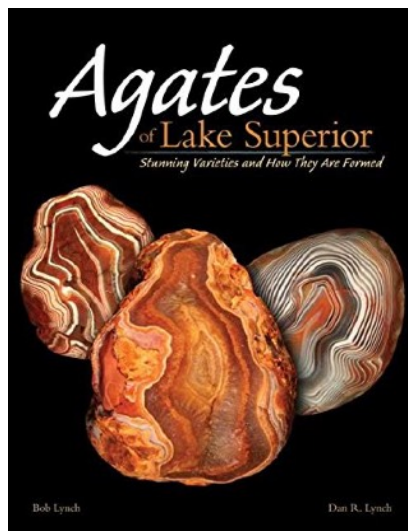
The election for the next MAGS Board of Directors was held at
the November Membership Meeting. Here are the results.

President	W. C. McDaniel
1st Vice President (Field Trips)	Kim Hill
2nd Vice President (Adult Programs)	David Clarke
Secretary	Mike Coulson
Treasurer	Bonnie Cooper
Director (Asst. Field Trips)	Charles Hill
Director (Asst. Adult Programs)	Matthew Lybanon
Director (Youth Programs)	Mike Baldwin
Director (Asst. Youth Programs)	James Butchko
Director (Librarian)	Nannett McDougal-Dykes
Director (Asst. Librarian)	Kay MacLaughlin
Director (Membership Services)	Bob Cooper
Director (Historian/Rock Swaps)	Jane Coop

Greetings, All MAGS Members
Continued from P. 3

paying your renewal dues at any of
the Friday night Membership
Meetings or by mailing your pay-
ment (**payable to MAGS**) to me
at: Bob Cooper, 8695 Baylor Rd.,
Arlington, TN 38002. The dues
for next year are:

\$15 (individual) \$25 (family)



This year's early renewal prize
is a copy of the book *Agates of Lake
Superior* written by Bob and Dan
R. Lynch. This is a great book in
which you can learn about agate
formation and how Lake Superior
agates are unique. It has hundreds
of great pictures, diagrams, and
tips on how to find and identify
agates. When you renew your
2019 MAGS membership, you will
be entered into a drawing for this
book. You have until the end of
the January 11, 2019, Membership
Meeting to renew your member-
ship in order to be in this drawing.
You do not have to be present to
win. Also if you live out of state or
do not attend the Membership
Meetings and you win the draw-
ing, I will mail the prize to you.
Renew early and good luck.

Bob Cooper
MAGS Membership Director

Walter Paul Sides

August 11, 1957–November 12, 2018

You never know how much a friend means to you until you can't call them with your random stupid questions about a subject they happen to know WAY too much about, until your phone stops ringing with their name popping up in the caller ID, until you meet their family for the first time and truly feel like you're getting to know them more than you ever have over stories and memories shared. You can't measure a life... Now I haven't had many years to get to know Paul, but of the few I have he has truly become a great friend to both my mother and me. We found ourselves talking about the most interesting wacky subjects. Nothing was too weird or off topic of a conversation for the three of us to get into. It's a special thing to find a friend like that, a friend you can all truly be yourselves with. Paul was that friend for us. He was SO intelligent and poised. I loved his wit. We will miss him dearly. It is with great sadness we say goodbye to our friend but only until we meet again. I believed he had his own personal connection with God and I believe I will see him again one day, Lord willing.

Love you, Paul!

Amber Rae Dunn



MAGS has lost a long time and life member, former President and Vice President. Paul—not Walter—as he was known was from the Wynne, Arkansas, area, which is within that geological wonder of Crowley's Ridge. He was the go to guy for that area, having a keen and in-depth knowledge of the rocks and fossils, and he shared it with all. He did this in a folksy and laid back approach that endeared him to many folks, including MAGS Members. Thanks, Paul.

W. C. McDaniel



Met Paul at the Vulcan Quarry on May 31st, 2014, and liked him from the get go...really nice guy, very helpful and informative on many things, truly the kind of guy that was a real asset to MAGS in my opinion. *James Johnson*



Fabulous Tennessee Fossils

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

FTF 47

Mutualism Among Fossils



The Beatles released their Sgt. Pepper's Lonely Hearts Club Band album in 1967 and the movie version was released in 1978. The fiftieth anniversary of which is being celebrated this year with the re-release of the movie. One of the more iconic songs from that album and movies is "With a Little Help From My Friends" by "Billy Shears" (who was actually Ringo Starr). The song talks of virtues of friendship in getting through life. In ecology, there are many terms that express biotic interactions, including cooperation, among organisms, and these concepts extend into the fossil record as well. In paleoecology, the study of interactions among organisms and their environment is termed "paleosynecology", with "-syn-" referring to "together". The terminology is complex and the terms have very precise definitions. For this Fabulous Tennessee Fossils installment, I want to share with you one of these examples from the Lower Devonian Ross Formation of West Tennessee, easily recovered from the shales in the Vulcan Materials quarry near Parsons—many of you probably have this coral in your collections. But first, some more terms.

The general term "symbiosis" (Grk: sym = "with"; biosis = "living"), as originally defined by 1879, Heinrich Anton de Bary (1831-1888), who is sometimes referred to as the Father of Plant

Pathology, to mean "the living together of two unlike organisms". In this connotation, there is no inference of cost or benefit of the association. The only criterion is that that two organisms in the relationship must live together at the same location. As usage of the term caught on, the nature of the association started to be infused with the basic relationship. The term "host" was most often used to represent the primary organism in the relationship that was either being taken advantage of or served as the primary base for the physical attachment of an association. It should be noted that not all symbiotic relationships require physical contact. Those that do are called "conjunctive symbiosis" and those that do not are called "disjunctive symbiosis". Once a relationship is classified as symbiotic, the research must determine they nature of the interaction. Did both benefit from the association (mutualism)? Did one benefit and the other neither benefit or was harmed (commensalism)? Or did one clearly benefit at the obvious detriment to the other (antagonism, parasitism, or parasitoidism)? Sometimes these interactions are symbolized using a plus and minus system designated as (host cost/benefit, symbiont cost/benefit); where mutualism is represented as (+, +), commensalism is represented as (o, +), and parasitism represented as (-, +).

Back in the 1980's when I was working on my dissertation about the biotic interactions preserved in the Ross Formation, I came across an unusual association between two different invertebrate taxa that profoundly affected the growth patterns of both participants and opened up a new lifestyle for resulting collaboration. With the help of one of the southeast's leading bryozoan paleontologists, the late Ken McKinney (1943 - 2011) from Appalachian State University, and my advisor at UTK, Tom Broadhead, we published a quick article in 1990 (*Science*, 248:466-468) explaining the coral-bryozoan mutualism, which I will summarize below.

Two very common invertebrate fossils from the Ross include the coral *Aulopora schobariae* and the bryozoan *Leioclema* sp. When living individually, each is a colony that grows on relatively flat hard substrates in the ancient muds of the Ross with little or no apparent relationship to one another. Usually the hard substrate is some type of brachiopod shell or crinoid stem as these were the most common other organisms on the same seafloor. *Aulopora* grows as a series of teardrop-shaped corallites with rounded "calyx" aperture opening through which the coral's tentacles would protrude to feed; each opening between 1-2 mm in diameter. Each corallite attached to the next corallite

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Fabulous Tennessee Fossils end-to-end to make a long chain that could branch. This way the colony could expand to take over a substrate, but the entire colony was never more than 2mm above the actual substrate. One of the greatest dangers to this “guild” life style was that it was easy for a layer of mud to blanket the colony and smother it entirely. Being attached the substrate, the coral had no way to extricate itself. Now you might immediately be thinking that the association I am referring to is between the host brachiopod and the encrusting *Aulopora* coral? While that is one possible symbiotic relationship, that is not the one I am discussing in this essay. Usually the host brachiopods are actually already dead shell individuals, so there was no actual “living together”.

A second independent encrusting colony is the bryozoan (more properly called an ectoproct), *Leioclema*. *Leioclema* occurs as small round, tightly packed colonies where each zooid is in direct contact to several others in all directions. The colonies grow outward from a central ancestral individual. Individuals within the colony are much smaller than the *Aulopora* individuals. As many as ten *Leioclema* zooids can occur in one millimeter and the colony is usually less than one millimeter high. Both *Leioclema* and *Aulopora* belong to completely different phyla of organism (Ectoprocta and Cnidaria). Normally they can be found together on the same substrates at the same time with little direct interaction, although they could be inferred to have compet-

ed for food and space resources indirectly.

Figure 1 shows the mutualism between the *Aulopora* coral and the *Leioclema* ectoproct. The coral makes-up the larger stick-like framework and the ectoproct grows on that surface in between the coral’s aperture openings. When we measured the important features that control current flow over the ectoproct, we realized that when the coral and ectoproct grow symbiotically this way, the ectoproct does not have to divide labor among the individual zooids to have some create a current flow over the colony. The larger tentacles of the coral accomplish this task instead. Consequently, the ectoproct can convert to have all of its zooids devoted to feeding, thus providing more food for the entire colony. Even more impressive, both partners in the symbiosis were able to completely change their respective guilds (flat encrusters)! Rather than both be flat low colonies growing on small hard brachiopod surfaces subject to smothering, the two intergrown skeletons could create a structural upright, arborescent (to the point of branching), “super-colony” that allowed both members to escape the seafloor and exploit a new food resource (suspended food) at a higher tier level and earlier than the lower tiers, occupy new resource space not available before that was off of the substrate, and create a baffle (like a bush) that could slow-down the speed of food-laden waters to make it easier for both organisms to feed. The combined skeletons made for a stronger structural support, much like steel girders

provide for skyscrapers. This relationship among these two phyla has not been recognized anywhere else at any other time in geologic history! Unique to our West Tennessee is one of nature’s best examples of mutualistic symbiosis.

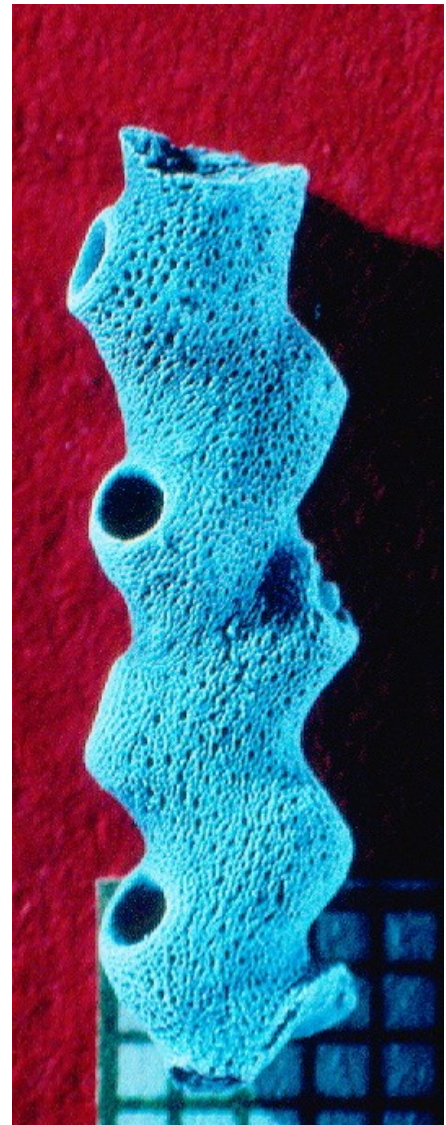


Figure 1. Scanning electron microscope image of the mutualistic symbiosis between the encrusting coral *Aulopora* and the encrusting bryozoan *Leioclema* to form an arborescent up-right combined colony within a new guild (Photo by Michael A. Gibson).

October Board Minutes

Mike Baldwin

Called to order 6:60. Attending: Charles Hill, W. C. McDaniel, Mike Baldwin, Carol Lybanon, Matthew Lybanon, Bonnie Cooper, Bob Cooper, David Clarke.

Secretary: Some members are not receiving USPS newsletter copies. Mike sent duplicates of the August and September newsletter to two Members. There will be an announcement to Members at the October and November meetings that we are concerned about printing costs for USPS copies. Minutes accepted.

Show: The first show meeting was last Monday night. We have begun the initial planning for 2019. Mike will start attending committee meetings in January.

Field Trips: The Nonconnaah trip was cancelled. Chucalissa Volunteer Day will be the activity for October. Charles and Kim have been making plans for 2019 and should have a full slate of trips on the calendar in January. A trip to Batesville will be in November. Pickwick will be the destination in December.

Historian/Rock Swaps: Carol will announce the outdoor picnic at the meeting and send out a reminder, and may distribute flyers at the meeting. There will be special activities around a Halloween theme. As chair of the nominating committee, the new slate of officers are in the newsletter. Carol will not be at the November meeting. Charles will call nominees and ask for nominations from the floor.

Junior Programs: One suggestion is to have the children paint rocks for the Show.

Treasurer: MAGS received a thank you letter from Chucalissa. Checking summary was distributed for review. Report approved.

Membership: One new Member since the last Board Meeting.

Programs: October, David Clarke, amber. Every Member present will receive a piece of amber and materials to clean it before they take them home. November, School of Rock. Mike will do geode cracking and fluorescents. December, Holiday Party. W. C. will bring bags to be decorated at Friday night's meeting. Bonnie and Bob have table decorations under way. Bonnie has small trees. Cutlery, plates, napkins, and tablecloths have been taken care of. Bonnie will get the ham and Carol will take care of turkey. The Board discussed table setup and breakdowns.

Newsletter: Get articles and photos in before October 20. October issue was packed full of material. Bob will send a renewal announcement.

Web: October update will be done tonight or Friday.

Librarian: No report on how the book cart repairs are going. Charles will check with Nannett.

New Business:

- Memphis Bicentennial exhibit suggestion—Chucalissa, Mastodon, Memphis bottles, and Nonconnaah agates
- Motion made and carried to spend up to \$200 for a wireless lapel microphone. Matthew and Carol will research. We could use the wired mic for display speakers as well as for the program speaker.

Adjourned 7:40.

October Meeting Minutes

Mike Baldwin

Called to order at 7:07 by W. C. McDaniel.

Membership: Two visitors: Janel Coats and Patricia Allen. We are kicking off early renewal for 2019. The renewal prize will be *Agates*. There will be a drawing in January for all renewals between now and December 31. When you renew please make sure the information is correct. If you have

children who have graduated from your home, please remove them. Please include your email address..

Historian: The Sunday, October 21 rock swap will be at Freeman Smith Park in Bartlett, 12:30-3:30.. There's a nice pavilion and restrooms. Bring food to share. Carol has maps to the park.

Web: The club website is all up to date.

Newsletter: 2017 newsletter contest awards handed out. Junior article winner Konrad Armstrong won 2nd in SFMS and 5th nationally. Debbie Schaeffer won 3rd place in SFMS and Honorable Mention nationally. Bob Cooper won 2nd in SFMS for Special Publications. Newsletter won 2nd in SFMS and Honorable Mention nationally. David Day won Honorable Mention in SFMS. W. C. talked about ideas on how to take care of USPS newsletter. Carol asked if any Member might have a business that would donate the copying of the newsletter. Postage is going up to 55¢.

Field Trips: October 20 is National Archaeology Day. A visit to Chucalissa will be the field trip for October. The original excavation area will be open that day. There will be special children's programming. MAGS members get in free with membership card. November, field trip to Batesville. December, Pickwick for fossil collecting.

Nominating Committee: Carol Lybanon announced the 2019-2020 nominees. Nannett McDougal-Dykes, W. C. McDaniel, Dave Clark, and Carol Lybanon make up the Nominating Committee.

Displays:

- Leo and Jan: Nonconnaah Creek, Crow Creek and Jonesboro treasures.
- Kim Hill: Summer vacation, 20-Mile Creek, Richardson's Landing finds, including an ice age fossil.

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MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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

October Meeting Minutes Continued from P. 8

- Carol Lybanon: amber with bug inclusions, including a large grasshopper.

Program: David Clarke: Amber. Each person present will get a piece of rough amber after tonight's program.

Adjourned 8:10.

Member Finds

Photos and Captions by Danny Baker

MAGS Member Danny Baker found these specimens.



David McAlister believes this to be a bulb from a crinoid and with the crinoid stems mixed in the matrix. I agree. There are nice crystals in the center. Found off the Tennessee River 100+ miles from Memphis.

A 203 pound piece of petrified wood found in Nonconnah Creek, Memphis, dragged out by hand and small cart.



November Meeting Pictures

Photos by Marc Mueller



MAGS At A Glance

December 2018

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
25	26	27	28	29	30	1
 Happy Hanukkah	Show Committee Meeting, 6:30 pm, Agricenter	4	5	Board Meeting, 6:30 pm, St. Francis Hospital	7	8
9	10	11	12	13	Membership Meeting, 7:00 pm, MAGS Holiday Party	DMC Field Trip, Fernandina Beach, FL
16	17	18	19	20	21	22
23	24	 Merry Christmas	26	27	28	29
30		31	1	2	3	4
						5

Memphis Archaeological and Geological Society
 2019 Littlemore Drive
 Memphis, TN 38016

