



Volume 63 ♦ Number 10 ♦ October 2017 ♦ A monthly newsletter for and by the members of MAGS

October Program

“Wait, slow down! What was that we just drove past?!?”

Jennifer N. Gifford, Ph.D., The University of Mississippi



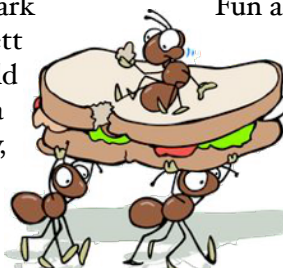
Have you ever been driving and happened to glance out your window and spotted something on a road outcrop that just looked plain interesting? We will be discussing the different types of geologic structures that can be seen as you drive in the southern United States, as well as if you are on a road trip out west or exploring a different country altogether.



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FALL ROCK SWAP AND PICNIC

We will meet at the Freeman Smith Park Pavilion, 4620 N. Brunswick Road, Bartlett (If you look up the address you may be told it's in Arlington or Memphis. But this is a Bartlett city park.), at 12:30 pm on Sunday, October 22. Driving directions are below. Please bring picnic-type food—sandwiches, salads, meats, fruit, and desserts.



Fun activities are planned for adults and kids.

Bring a table if you are going to sell or trade. We will eat in the shade on picnic tables, relax, and enjoy each other's company. See you there.

Driving directions from Memphis:

Take I-40 east (toward Nashville) to Exit 18, US-64 (Stage Road). Exit *Continued, P. 6*

CAROL LYBANON

MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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

2017-2018 MAGS BOARD

President—Charles Hill

1070 Park Swain Road, Grand Junction, TN 38039
♦ (901) 626-4232 ♦ hunter3006@aol.com

1st VP (Field Trips)—James Butchko

4220 Dunn, Memphis, TN 38111 ♦ (901) 743-0058 ♦
butch513j@yahoo.com

2nd VP (Adult Programs)—W. C. McDaniel

2038 Central Avenue, Memphis, TN 38104 ♦ (901)
274-7706 ♦ w.c.mcd@att.net

Secretary—Mike Baldwin

367 North Main Street, Collierville, TN 38017 ♦
(901) 853-3603 ♦ mbaldwin05@gmail.com

Treasurer—Bonnie Cooper

8695 Baylor Road, Arlington, TN 38002 ♦ (901)
444-0967 ♦ rocks4us@hotmail.com

Director (Asst. Field Trips)—Kim Hill

4755 Royal Elm Cove, Memphis, TN 38128 ♦ (901)
388-7572 ♦ earthsis@aol.com

Director (Asst. Adult Programs)—Dave Clarke ♦

456 North White Station Road, Memphis TN 38117
♦ (901) 308-0334 ♦ dclarke@fieldmuseum.org

Director (Youth Programs)—Open

Director (Asst. Youth Programs)—Open

Director (Librarian)—Leah Gloyd

2151 Dogwood Creek Court, Apartment 202,
Collierville, TN 38017 ♦ (270) 847-3170 ♦
leahgloyd@outlook.com

Director (Asst. Librarian)—Jane Brandon

4384 Castle Avenue, Memphis, TN 38122 ♦ (901)
374-0366 ♦ jjbrandon@yahoo.com

Director (Membership Services)—Bob Cooper

8695 Baylor Road, Arlington, TN 38002 ♦ (901)
444-0967 ♦ rocks4us@hotmail.com

Director (Historian)—Carol Lybanon

2019 Littlemore Drive. Memphis, TN 38016 ♦ (901)
757-2144 ♦ sgcarol@earthlink.net

Newsletter Editor—Matthew Lybanon

2019 Littlemore Drive. Memphis, TN 38016 ♦ (901)
757-2144 ♦ lybanon@earthlink.net

Webmaster—Mike Baldwin

367 North Main Street, Collierville, TN 38017 ♦
(901) 853-3603 ♦ mbaldwin05@gmail.com

Show Chairman—James Butchko

4220 Dunn, Memphis, TN 38111 ♦ (901) 743-0058 ♦
butch513j@yahoo.com

Past President—W. C. McDaniel

2038 Central Avenue, Memphis, TN 38104 ♦ (901)
274-7706 ♦ w.c.mcd@att.net

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.

October DMC Field Trip

WHERE: Polk County, GA

WHEN: Saturday, October 28, 10:00 A. M.-2:30 P. M.

COLLECTING: Multi-colored jasper pieces

INFORMATION: Toby or Dion Stewart, (678) 417-1786 or cgcms.fieldtrips@gmail.com, or Ray Borders, (770) 312-5205 or rayborders@charter.net

Links to Federation News

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

Hurricane Irma Reveals History

Matthew Lybanon

Brevard County, Florida, is the "Space Coast," the home of Kennedy Space Center and Cape Canaveral

Air Force Station. But sometimes the county's past is revealed.

Hurricane Irma uncovered a piece of that past: a dugout canoe estimated to weigh 600-700 pounds, at the bottom of the Indian River, north of Cocoa. Randy Lathrop, of Cocoa, shared the news of his discovery on Facebook. "I got to it before it was picked up by the county with all the other storm debris and placed in a landfill. I'll certainly keep everyone updated on this progress, promise." Lathrop spotted the dugout cypress tree canoe when he was bicycling and observing damage from Hurricane Irma. This unlikely archaeologist knew he had to save the canoe, as a front loader was just down the street clearing debris.

The Indian River is a part of the Sovereign Submerged Lands, meaning all objects of intrinsic historical or archaeological value abandoned on state-owned lands are owned by the state with the title vested in the Division of Historical Resources, officials said. A state spokesperson said the canoe is still being evaluated, but they've already noticed square nails, rem-

nants of paint chips, and the fact that it was likely buried and unexposed to the elements in the river.



The 15-foot-long canoe could be anywhere from several decades to several hundred years old, according to Sarah

Revell, a spokeswoman with the department. Carbon dating will help to narrow down the boat's age.

International Archaeology Day

International Archaeology Day is Saturday, October 21 from 10:00 A. M. to 3:00 P. M. at the C. H. Nash Museum at Chucalissa, 1987 Indian Village Drive. The event is FREE for MAGS Members. There will be lots of activities for people of all ages, abilities, and interests including flint knapping.



Big-City Big Croc

Matthew Lybanon, Editor

A team that included University of Tennessee paleontologist Stephanie Drumheller-Horton has identified a new fossil crocodylian, *Deltasuchus motherali*. The team found the bones in a place one

normally doesn't think to look for ancient fossils—in the heart of the Dallas-Fort Worth Metroplex.

The site that produced the new species, the Arlington Archosaur Site (archosaurs are a group of diapsid amniotes that includes all extinct non-avian dinosaurs, extinct crocodylian relatives, and pterosaurs), was discovered in Arlington, Texas, in 2003 by amateur fossil hunters Art and Olivia Sahlstein and UT-Arlington students Bill Walker and Phil Kirchoff. The area is undergoing rapid residential development, and paleontologists have been working with local volunteers and fossil enthusiasts to excavate the site over the past decade. (One Dallas Paleontological Society member says, "The developers are getting close but there may still be some time to find more fossils.")



Deltasuchus motherali is named for one of the site volunteers, Austin Motheral, who first uncovered the fossils of this particular crocodile with a small tractor when he was just 15 years old. *Deltasuchus* is the first of what may prove to be several new species described from this fossil site. The area preserves a complete ancient ecosystem ranging from 95 million to 100 million years old, and its fossils are important in advancing the understanding of ancient North American land and freshwater ecosystems.

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Remembering Idajean

Idajean had archeological and geological knowledge that can only be found in books on the subject. My collecting was made easier by Idajean saying “drop that—it’s not a good specimen. This is what you’re looking for as she would point out an example.” And if I couldn’t find what we were looking for, Idajean would make sure I had some of hers. I have no idea of how many field trips we made together to Alabama, Arkansas, Illinois, Kentucky, Missouri, Mississippi, and Tennessee during our “hunting” years. This meant we traveled, ate meals and spent nights away from home. The time was a learning experience for me and a teaching experience for Idajean. And in those early years of traveling, my granddaughter Abbey joined us. Nothing can be better than a child’s excitement of finding a “keeper.” We loved walking the fields along the Tennessee River and finding arrowheads and pot shards. Idajean was and will always be one of my best friends. RIP Idajean.

Nancy Folden



I first met Idajean in 2006 at the annual rock show; I was manning an informational booth, we got to talking, and she asked me if I would like to give a presentation for MAGS. I was happy to accept and gave my first talk later that fall. Another connection we had, in addition to living in the same neighborhood for a brief time, was our pronunciation of "lapis lazuli." I remember her pointing out to apparent “vocabulary rivals” that I pronounced “lapis lazuli” the same way she did!

Patricia Podzorski
Curator of Egyptian Art
Institute of Egyptian Art & Archaeology
The University of Memphis

Idajean was the matriarch of our club. Her lifelong contributions of knowledge of geology, artifacts and the history of our club will leave a lasting gap. Her presence will be sadly missed, especially at her beloved annual Gem & Mineral show. Her passing is a sad loss, but she would want the rest of us to nurture and continue to grow our club and its impact on our community.

Cornelia McDaniel

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MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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*Remembering Idajean
Continued from P. 4*

I am really bad about not labeling my specimens, not a serious collector. Except for the ones I got from Idajean. She always told me everything about the rock, how it forms, where it's from, what is really special about it. All of the specimens she gave to me are from places that are no longer accessible. They are all one-of-a-kind rocks from a one-of-a-kind person to be cherished forever.

James Butchko



Idajean Jordan was a very special lady—kind, friendly, and very knowledgeable about MAGS and my "go to" for questions about rocks and minerals. She was always a hard worker and ready to help wherever needed. I will certainly miss her smiling face.

My sympathy to all who knew her.

Jerry Seamans

Oh, I am so very saddened to hear about Ms. Idajean. When I first joined MAGS, I was so excited to find out about some of my finds. She certainly knew her rocks. She would laugh at me, and I most certainly loved her smile and laugh, especially when she would tell me that it was chert. I would say, "No, it just can't be." She got so tickled. I am so heartbroken to hear about her passing. I would always find her at the meetings. She was my idol. I'm going to miss you Ms. Idajean.

Stacy Babin Cowell



Several years ago when I joined MAGS I was just learning about the 'pretty' rocks I had always collected. Even as a child I had 'cracked' open rocks. I was told if you need something identified, ask Idajean. I often had pieces I wanted to learn more about and in our talks we learned we both had a interest in skinning and preserving animal and snake skins. We had many a talk about our interest; she always gave me good ideas or taught me a little bit more 'bout rocks, fossils, skins.

During our April Show I would send youngsters who had won or bought a piece they needed more information on over to Idajean's booth and she would happily help them out. She would often bring me things for my many grandkids: crystal growing kits, books, etc.

While talking about the club with my boss, he wondered if a lady he had known as a teenager was still in the club. He said often when he came over to visit the daughter, her mother would be out skinning and preserving a snake skin. Well, of course I knew right away he was talking about Idajean.

I gave her one of my first coyote skins and had hoped to find and be able to do a otter for her; she loved otters. Best I had been able to do was a drawing on some buckskin I made.

She was a wealth of information and she worked to keep her knowledge alive by sharing with all who asked.

Kim Hill

*Continued
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MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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Remembering Idajean Continued from P. 5



Idajean introduced me to fluorescent minerals. Almost twenty years ago, while on a family vacation in the western states, I found a smooth, white, bubbly-looking rock and brought it home. My family and I were fairly new MAGS members and at the next membership meeting I asked someone to help me identify my white rock. Immediately they referred me to Idajean. "Take it to Miss Idajean. She knows everything." I did and Idajean proceeded to give me a geology lesson about my rock. "Well, first of all, it's mineral, not a rock. A rock is two or more minerals together. This is one mineral. It's chalcedony, pronounced "cal-SID-knee". It was formed from volcanic action in Arizona that melted the sand. That's why it's so smooth. One more thing. It will fluoresce bright green under ultraviolet light." I was hooked right there. As soon as I found a member with a UV light, we checked it out and Idajean was right. She knew her geology. She knew a lot about a lot. I will miss her very much. She was a great friend and educator.

Mike Baldwin

Fall Rock Swap and Picnic Continued from P. 1

left onto Stage Road. Go under the overpass and take the first right turn onto New Brunswick Road. Travel 3.4 miles (the road will change to Brunswick Road; just keep going) and turn right into the park. There's plenty of parking.

Alternate route #1: About half a mile before the park, Brunswick Road crosses US-70 (Summer Avenue). So you could take Summer Avenue east (curving to northeast) to Brunswick Road, turn left onto Brunswick Road, and go half a mile to the park.

Alternate route #2: Take Germantown Road/Germantown Parkway north, crossing Stage Road, until you reach Summer Avenue (US-70). Turn right onto Summer Avenue, then left onto

Brunswick Road, then right into the park.

Questions? Contact me (sgcarol@earthlink.net or (901) 757-2144).

Big-City Big Croc Continued from P. 3

The new species grew up to 20 feet in length, and its strong jaws could take down everything from turtles to dinosaurs. "We simply don't have that many North American fossils from the middle of the Cretaceous, the last period of the age of dinosaurs, and the eastern half of the continent is particularly poorly understood," Drumheller-Horton said. "Fossils from the Arlington Archosaur Site are helping fill in this gap, and *Deltasuchus* is only the first of several new species to be reported from the locality."

Ref: Adams, T. L., C. R. Noto, and S. Drumheller. 2017. A large neosuchian crocodyliform from the Upper Cretaceous (Cenomanian) Woodbine Formation of North Texas. *Journal of Vertebrate Paleontology*. DOI: 10.1080/02724634.2017.1349776.

Welcome, New Member

Diane Pence

Field Trip Report

Jim Butchko

Twenty-five people braved the heat and searched Nonconnah Creek on September 16. There were probably over a hundred agates found and possibly an equal number of fossils. Leo donated a nice piece of petrified wood to the club which I will bring to the October meeting. The day after the meeting,

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Field Trip Report October 14, we
Continued from P. 6 will meet at the
Popeyes
Chicken in front of Walmart in
Millington to caravan to Richard-
son's Landing. The Big Muddy is
dry at this writing and let's hope it
stays that way. In November we'll
go to middle Tennessee for geodes.

October Birthdays

1 Wyatt Gitter
Dave Shiffman

3 Sophie Tully
4 Patsy Black
Katherine Kitzmann
5 Michala Demo
Matthew Lybanon
7 Alan Jacobs
Jacob Blodgett
Chris Vaughn
8 TaTyana Williams
9 David Hodge
Charles Hill
10 Fulton Ledbetter

11 John Ericson
12 Gwen Tully
13 Michael Baldwin
19 Cynthia Alford
Virginia Pierce
Aaliyah Thomas
20 Beto Ortiz
23 Tommy Walls
24 Keith Riding
Ann Austin
27 Arlene Oleartchick

Area Shows

45th ANNUAL GREATER LITTLE ROCK AREA GEM, JEWELRY & MINERAL SHOW

OCTOBER 7 & 8 2017
9 AM TO 5 PM

JACKSONVILLE COMMUNITY CENTER
5 MUNICIPAL DRIVE
JACKSONVILLE ARKANSAS

FREE ADMISSION

25 Dealers
Demonstrations, Hourly Door Prizes,
Kids Dig
Sponsored By
CENTRAL ARKANSAS GEM, MINERAL &
GEOLOGY SOCIETY
CAGMAGS – www.centralarrockhound.org
Show Chairman John Schoeneman
501-679-4531 or schoeneman@hughes.net

50th Annual Gem, Jewelry, and Mineral Show

Presented by the Huntsville Gem and Mineral Society



Fine Gold and Silver Jewelry, Gems of All Types, Fossils, Minerals,
Beads, Displays, Jewelry Making Demonstrations, Mining Flume,
Gem Dig, Rock and Mineral Talks for Kids, Hourly Door Prize
Drawings, Raffle Items

Show Location and Hours:

Huntsville Jaycees Community Building
2200 Jaycees Way, Off of Airport Road SW, Huntsville, Alabama 35801
Friday, Oct. 13: 10:00am – 6:00pm
Saturday, Oct. 14: 10:00am – 6:00pm
Sunday, Oct. 15: Noon – 5:00pm

Admission (Donation):

Adults: \$3.00
Students: \$1.00
Children Under 5: Free
Weekend Pass (3 Days): \$5.00
Free Parking

For Additional Information: Call Tony Smith @ 256-603-3095



MAGS Rock Swap and Picnic
Sunday, October 22, 12:30 P.M.
Freeman Smith Park
Bartlett, Tennessee
Don't miss it!



Fabulous Tennessee Fossils

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

FTF 33

Ophiomorpha nodosa



West Tennessee is famous for its invertebrate and vertebrate fossils from the Cretaceous Coon Creek Formation and other units. Mosasaurs, plesiosaurs, sharks, clams, snails, crabs, shrimp, etc. abound and are the preferred trophy for most West Tennessee amateur fossil collectors. Often overlooked by fossil enthusiasts are the trace fossils left by organisms. Trace fossils are not direct fossil evidence of an organism (e. g., bone, shell, teeth), but indirect evidence of the presence of an organism. Traces are, however, direct evidence of behaviors of organisms (e. g., moving, eating, biting, fighting, sleeping, pooping, etc.). Trace fossils can be thought of as a type of “biologically-produced sedimentary structure” (biogenic structure), and as such, can provide clues to environments. On my drive to the Coon Creek Science Center from UT Martin, I often take the students to a small red-weathering sand pit just south of Lexington, Tennessee, visible from Hwy. 22. This pit (Figure 1A) contains beautiful cross-bedded layers of iron-cemented sand (ferricrete) and extensive *Ophiomorpha* “ghost shrimp” burrows...some of the best specimens I have ever seen (Figure 1B). These burrows are the only fossils in the pit. Each year the quarry is scraped by the operators to get sand to use and this exposes new burrows to weathering. The rain washes away the

sand a little easier than the clay lining, so the burrows stand out on outcrop in high relief, making them obvious to see and to track.

It is here in this setting I ask the students to then postulate paleoenvironments that could produce the sand now found in this pit south of Lexington. Keep in mind that sand can accumulate in many different settings from ocean beach, to barrier island sand bars, to river channels and banks, to desert dunes. I then ask them to find additional evidence to narrow down their paleoenvironmental choice to be as specific as they can. Students quickly zero-in on the fossil occurrence, correctly realizing that organisms live in an environment and their fossils can thus be a clue to reconstructing that environment. The problem is that in this case, only this trace is preserved. So it required the students to find out about the behavior of the organism, which in this case includes its preferences for where to live, to deduce the nature of the deposit. At the outcrop I help the students come to an identity of the trace fossil, which they promptly look-up using the magic of Google to get immediate information. They soon know exactly how *Ophiomorpha* is formed, specifically who forms it, and in what environmental setting. As this information was determined by direct

Incertae sedis (Trace Fossil)

Form Genus *Ophiomorpha* Lundgren, 1891

Form Species *nodosa* Lundgren, 1891

observation of the trace-maker in modern settings (a process called “actualistic paleontology”), they now can reasonably deduce more specifics about this particular outcrop’s paleoenvironment. In this case, the sand was a shallow barrier beach deposit during the Cretaceous. Not the same clay-rich, open ocean, deeper water, seafloor of the typical and famous Coon Creek Formation they will see later on the trip, but a more shoreward, higher energy, shallower, near beach setting.

Ophiomorpha is a worthy collectable fossil even if it is only a behavior. *Ophiomorpha nodosa* (Figure 1B, C) is a trace fossil, or ichnotaxon, and as such represents behavior of some organism rather than being an actualized fossil part of an organism. *Ophiomorpha* burrows are generally vertical, straight to slightly curved shafts found in sandy sediments. They are thickly lined (up to a quarter of an inch thick) with white clay or sandy-clay that is distinct from the sands around and inside the burrow. Often the outer surface of the burrows are covered with bumpy nodes (hence the species epithet “nodosa”; Figure 1C). The nodes (sometimes this texture is referred to as being “mammalated”) are due to the burrower *Continued, P. 9*

Fabulous Tennessee Fossils
Continued from P. 8

(a crustacean) packing the clay wall of the burrow with its fecal pellets, yes poop, (fecal pellet lining characteristics are important criteria for identifying *Ophiomorpha* burrows). In modern burrows, the burrow extends above the seafloor up to a couple inches and may be surrounded by accumulated fecal pellets spit from the burrow by its inhabitant. *Ophiomorpha* burrows can branch and can be several feet in length.

But who made the *Ophiomorpha* burrows and how did we learn so much about this ubiquitous trace? The genus, or more properly ichnogenus as we are talking about a burrow, not an actual animal, was originally described in 1891 by Swedish paleontologist Bernhard Lundgren (1843-1897) for fossil burrows he discovered in rocks in southern Sweden. This trace has been identified in rocks as old as Permian, but is most common in Mesozoic and Cenozoic sediments. It has a near global geographic distribution. In 1964, *Ophiomorpha* burrows were shown by Colorado School of Mines petroleum geologist Robert J. Weimer (1948-) and Georgia Skidaway Institute of Oceanography's John H. Hoyt (1928-1970) to be very similar to the burrows constructed by modern *Callianassa major* Say. The famous taxonomist Thomas Say (1787-1834) had described this shrimp back in 1818 for specimens collected near Jacksonville, Florida. *Callianassa major* is the common "ghost shrimp" found in great abundance on shores of the Atlantic and Gulf

coasts. Observations of the burrowing behavior of this crustacean in modern settings ("actualistic paleontology") provided us with a modern analog (and probably the actual taxon) for the burrow, even though the shrimp itself may not fossilize. Because the direct observations can be made so easily and repetitively, paleontologists now almost universally attribute the fossil *Ophiomorpha* to the burrowing action of ghost shrimp. Additionally these authors proposed that the occurrence of *Ophiomorpha* indicated marine environments for the sand that was either "littoral" or "shallow neritic", meaning close to shore in higher energy. As a matter of fact, studies of this burrow and burrow maker have become routine field studies for students to conduct. To be historically complete however, the first recorded description of this trace was by Swiss paleobotanist Leo Lesquereux (1806-1889), in 1873 from Cretaceous sediments in the Rocky Mountains. Lesquereux believed the tubes to have be a form of fossilized algae. Why didn't Lesquereux make the connection of the burrow to ghost shrimp? He lacked the experience of seeing the structure in a modern setting (trace-make and trace together).

Trace fossils are often less spectacular looking than fossil bone, teeth or shell, and they are often harder to collect. But they are an important and worthy object of our interest and open-up a new world of meaning for fossils.



Figure 1A. Lexington sand pit showing cross-bedded sand deposits formed by current flow (yellow sand) and iron-cemented sandstone (ferricrete).

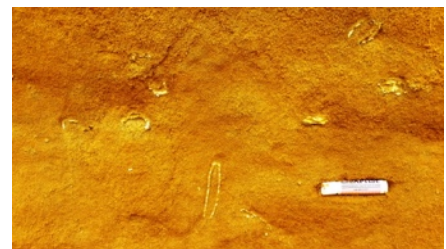


Figure 1B is a close-up of the quarry wall showing several cuts through *Ophiomorpha* white clay burrows. These burrows are attributed to the burrowing activity of the ghost shrimp *Callianassa*.



Figure 1C is a close-up of a portion of a fragment of *Ophiomorpha* burrow showing the prominent clay lining with nodes produced by packed fecal pellets. (Scale bar in centimeters; all photos by MAG).

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Adult Programs *W. C. McDaniel*

November 10	Konrad Armstrong, MAGS Youth Member "The Truth About Radiation"
December 8	Holiday Party Food, gifts, and games
January 12	Globe Trotting MAGS Members Iceland, South America, South Africa
Planning/Working titles	Mt. Kilimanjaro Amber The machines and tools of Lapidary

August Board Minutes

Mike Baldwin

Called to order 6:35. Present: Charles Hill, Mike Baldwin, Bonnie Cooper, Bob Cooper, Carol Lybanon, Matthew Lybanon, Leah Gloyd, W. C. McDaniel, David Clarke.

Secretary: July minutes distributed via email and hardcopies. Minutes approved with minor revisions.

Treasurer: Checking summary and bank statement for July circulated for review. As soon as Show money is deposited, a few minor changes need to be made. W. C. recommended that Board Members prepared to offer suggestions at the September meeting for how to help the community financially. Motion carried.

Membership: W. C. submitted a new member application and payment to Bob. No additional new Members. A local school teacher requested information and assistance in starting a geology club at her school. Discussion followed about resources for teachers to tap into, such as the BP website, the Pink Palace, and others.

Programs: Set for the year. W. C. has ideas for 2018.

Library: No new developments this month. We have no magazines left in the library. Leah will check library inventory to see if we have duplicates

or volumes that have not been checked out in a long time.

Historian: MAGS scrapbook is currently at 33 pages, covering shows. The finished book will probably be around 50 pages. Carol needs some help setting up for the August rock swap. She asked that those coming to help arrive around 6:00. Carol has all the art supplies that will be used with an activity. W. C. noted that we need to restock 2-liter bottles of drinks for the rock swap and regular Membership Meetings.

Newsletter: The August newsletter came out a few days early this month.

Web: Website will be updated as soon as the newsletter is available. Photos from the June Rock Swap have been uploaded to the MAGS Flickr site.

Show: Matthew said that it is time to close the books on the Show. One person still owes for "member tickets". A presentation will be made at the August rock swap. Carol will try to have part of the MAGS history available to view then.

Business:

- David Clarke has the projector and laptop, checking them for compatibility issues.
- W. C. reminded Charles that a Show chairman needs to be appointed in September.

- Mike will design and print a Big Check for the show to present to the club at the August meeting.
- Carol mentioned that we need new club shirts. To be discussed at the September Board Meeting.

Adjourned 7:07.

August Meeting Minutes

Mike Baldwin

Called to order 7:05. At least 75 people, including 7 visitors, attending. Carol Lybanon announced that there would be a trip to Wegner Quartz Mine, Mt. Ida, Arkansas, in October. Two dates are listed on the sign-up sheets. If you are interested in going on this trip, sign up for the date(s) you are available. Matthew presented MAGS with a check from the 2017 Show proceeds. The check's value is the equivalent of 400 memberships! James announced tomorrow's field trip to Jonesboro, Arkansas, to collect agates, fossils and petrified wood. The sign-up sheet for this trip is on the membership table.

The meeting adjourned at 7:30 so members could participate in the annual MAGS Indoor Rock Swap and Picnic. Members brought food to share and rocks to sell or trade. Door prizes were awarded. The table centerpieces were given away after the festivities finished. Young members [and young-at-heart members] were given an opportunity to paint rocks and create dioramas.

Show Report

Jim Butchko

The 39th annual Memphis Mineral Jewelry and Fossil Show will be held April 28-29, 2018, at the Agricenter. The 38th Show was the most successful in raising revenue for MAGS to promote the Earth arts and sciences. We had a great volunteer turnout and I'd

like to say thank you in a way better than an ice cream cone at the June meeting. In 2018 we will give every volunteer a commemorative shirt if they work at the Show. And a popsicle if you're lucky. Seriously, if you'd like to be on the planning committee, contact me now.



Wisconsin corn maze, after farmer was approached by geologists at the University of Wisconsin's Geology Museum in Madison. More information at http://www.sciencemag.org/news/2017/09/giant-trilobite-crashes-wisconsin-corn-field?utm_source=newsfromscience&utm_medium=facebook-text&utm_campaign=gianttrilobite-15312

New Tectonic Plate

Matthew Lybanon (Editor)

Geologists have thought that there were 56 tectonic plates. Now there appear to be 57, and possibly more. Physics—geophysics—provided the clue.

A team of researchers from Rice University have discovered a new tectonic plate off the coast of Ecuador. Scientists discovered the microplate, which they've dubbed "Malpelo" (after Malepo Island, the only portion of the plate above the surface), while analyzing the movements of what they believed to be the convergence of a trio of

plates (research published in *Geophysical Research Letters*).

The edges of the Pacific lithospheric plate roughly form the Ring of Fire, a region of volcanic activity. Filling in the gaps between larger plates are smaller plates. Just west of the Galapagos Islands, the Pacific plate is met by Cocos and Nazca.

The central tenet of plate tectonics is that the tectonic plates are rigid. In sharp conflict with this assumption is the prior result that the relative motions between the Cocos, Nazca, and Pacific tectonic plates, which lie in the Pacific Ocean basin, don't sum to zero as expected if the plates are indeed rigid. The scientists surmised a plate was missing from the equation.

By measuring the rates of seafloor spreading and the angles at which the plates slip by each other, researchers can estimate the speeds at which plates spin. From an analysis of plate motion data, they concluded that part of the traditionally defined Nazca plate, which lies off the west coast of South America, is really a separate tectonic plate—the Malpelo plate.

Recognition of this new tectonic plate reduces the inconsistency in the plate motion circuit, but a large and significant inconsistency remains. This remaining inconsistency suggests that there may be one or more plate boundaries still remaining to be discovered within these three plates.

Ref: Zhang, Tuo, R. G. Gordon, J. K. Mishra, C. Wang, "The Malpelo Plate Hypothesis and Implications for Non-closure of the Cocos-Nazca-Pacific

Plate Motion Circuit." Geophysical Research Letters 44. 1–6, 2017. DOI: 10.1002/2017GL073704

Jewelry Bench Tips by Brad Smith

LAYOUT TOOLS

Dimensions on some features of a design can be fluid while others must be accurate for the design to work. When precision on a piece is important, good layout techniques are essential.

These are the tools that I rely upon to get holes in the right place, to achieve correct angles, and to cut pieces the correct length.

I like crisp sharp lines to follow, so I often coat surfaces with a dark marker and scribe my layout lines onto the metal. A square makes quick work of checking right angles or marking where to cut, and the thin center punch helps me mark a place to drill holes exactly where I want them.

Finally, a good set of dividers is probably my favorite layout tool. They let me quickly mark a strip for cutting, swing an arc, and divide a line or curve into as many equal segments as I need. I keep at least one set of dividers in every toolbox.



See all Brad's jewelry books at [Amazon.com/author/bradfordsmith](https://www.amazon.com/author/bradfordsmith).

MAGS At A Glance

October 2017

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4	5 Board Meeting, 6:30 pm, St. Francis Hospital	6	7
8	9	10	11	12	13 Membership Meeting, 7:00 pm, "Geology of Roadcuts and Outcrops"	14 MAGS Field Trip, Richardson Landing
15	16	17	18	19	20	21 International Archaeology Day, Chucalissa, 10:00-3:00
22 MAGS Rock Swap and Picnic, Freeman Smith Park, 12:30	23	24	25	26	27	28 DMC Field Trip, Polk County, GA, 10:00-2:30
29	30	31	1	2	3	4

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

