



Volume 66 ♦ Number NN ♦ January 2020 ♦ A monthly newsletter for and by the members of MAGS

The King Mastodon Excavation

January Program



The King Mastodon Site is named after George King, who brought some large bones to the Arkansas State University Museum in April 1999. The bones, identified as Mastodon (*Mammuth americanum*), included several ribs, vertebra, and a partial maxilla (upper

jaw) with one tooth row intact, as well as tusk fragments.

Dr. Julie Morrow, Station Archaeologist at the Arkansas State University-Jonesboro station of the Arkansas Archaeological Survey, visited the site along with Station *Continued, P. 3*

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LAST CHANCE!

As you know, the MAGS 2020 (January 1-December 31) annual membership dues should be paid prior to January 1, 2020. You can accomplish this by paying your renewal dues at any of the Friday night Membership Meetings or by mailing your payment (payable to MAGS)



to me at: Bob Cooper
8695 Baylor Rd.
Arlington, TN 38002

MAGS 2020 membership dues are:
\$15 (Individual)
\$25 (Family)

The 2020 early renewal *Continued, P. 4*

BOB COOPER

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

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.

January 2020 DMC Field Trip

WHERE: Vulcan Limestone Mine, Brooksville, FL

WHEN: Saturday, January 11, 2020, 9:00 A. M.-2:00 P. M.

COLLECTING: Echinoids, druzy calcite crystals, chert

CONTACT: Tampa Bay Mineral and Science Club, (813) 684-2039

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 King Mastodon Excavation
Continued from P. 1*

Assistant John Thomas and long-time Jonesboro avocational archaeologist Tony Marshall. They excavated a cut bank profile several feet into the ditch bottom to explore and document the sedimentary deposits from which the bones were retrieved. Additional bone fragments, nutshells, leaves, and wood were recovered from gray sandy clay at the base of the profile.

The presentation will give details on the excavation, as well as what has been learned from studying the specimen. Researchers are in the process of cleaning, analyzing, photographing, and measuring bones, and preserving them with special chemicals. Based on the degree of wear on his teeth, we know the King was between 20 and 30 years old when he died. We also know that he lost his left tusk at least several years before he died, but there are many things we have yet to discover about this amazing late ice age animal. After the studies are completed, the King Mastodon will be curated in the Arkansas State University Museum.

Presenter Dr. Juliet Morrow is the Arkansas Archaeological Survey's Research Station Archaeologist for ASU/ Jonesboro, and Research Professor of Anthropology, University of Arkansas-Fayetteville.

President's Message

**MAGS Members' 2020
New Year Resolutions**

- I will renew my membership before the end of January.

Memphis Mineral, Fossil and Jewelry Show
THE EARTH WIDE OPEN
 Rocks, Fossils, Minerals, Gems,
 Lapidary Equipment, Jewelry and Beads

Sat. April 25, 9-6 | Sun. April 26, 10-5
 Agricenter International
 7777 Walnut Grove Rd.,
 Memphis, TN

Presented by the
 Memphis Archaeological
 and Geological Society

Adults - \$5, 2 day pass - \$8 12 & under - \$2 Scouts in Uniform - Free
 www.theearthwideopen.com info@theearthwideopen.com 901-692-7518 / 901-490-3575

- I will recruit at least one new Member for 2020.
- I will commit to attend as many membership meetings, rock swaps, and special events as I can.
- I will commit to volunteer to help during MAGS meetings and events.
- I will commit to volunteer, support, and actively engage in helping the Show.

W. C.

Book Sale

*Alan Goldstein
Falls of the Ohio State Park*

I'm organizing a book sale at the Falls of the Ohio on February 1—contents from the personal library of Jim and Barbara Conkin. Jim was a paleontologist/stratigrapher who I had as an instructor at the University of Louisville between 1978 and 1982. His wife taught geology at the local community college. Now that both have passed, the family is looking

to find homes for books in their extensive library—over a thousand books, plus professional journals and some of their self-published research publications. Titles cover paleontology, all aspects of geology, life sciences, history of science, philosophy, religion, and more. It also includes publications in four or five foreign languages.

Many publications will be in a silent auction running every 15 minutes. Some books (like college text books and some esoterica) will be sold at a flat rate of 50 cents for paperbacks and \$1 for hardbacks.

Proceeds of the sale will go to the Falls of the Ohio Foundation for use by the State Park. Preview begins at 9 A. M. EST. The silent auction sale begins at 9:30 and will run until the books are gone. Anything left over will be sold Sunday, February 2, between 1 and 4 P.M.. Sales on Saturday will be cash, check, or charge card. Sunday, cash or check only.

The Falls of the Ohio State Park is *Continued, P. 4*

Book Sale located at 201
Continued from P. 3 W. Riverside
Drive,
Clarksville, IN 47129. Free admis-
sion for sale; regular admission
applies to visit the museum ex-
hibits and movies. \$9 age 12+, 5 to
11 \$7, under 5 free. Parking \$2.

Last Chance! prize is a fabu-
Continued from P. 1 lous specimen
of an amethyst
crystal (see picture on P. 1). The
specimen measures 9 inches across
and 6 inches high as shown. When
you renew your 2020 MAGS
membership, you will be entered
into a drawing for this specimen.
**You have until the end of the
January 10, 2020, Membership
Meeting to renew your mem-
bership 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 win
the drawing, I will mail the prize
to you.

Renew early and good luck.

Thanks to all of you who have
already renewed for 2020.



It isn't too early to think about
signing up to help at the 2020 Show.



Thanks, Marc Mueller, for these pictures from the December MAGS
Holiday Party.

Field Trip Report

Kim Hill

We didn't have a December
field trip. I hope everyone had a
warm, safe, family filled holiday!

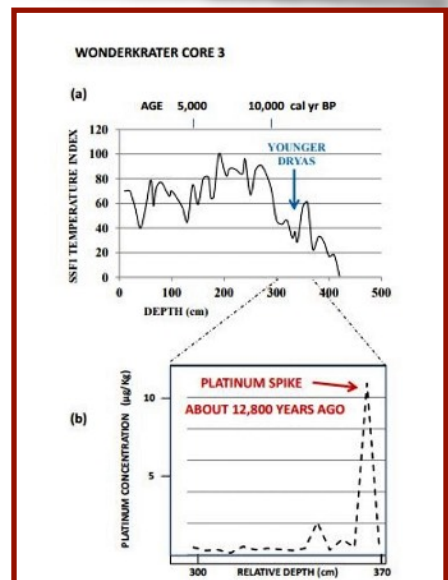
We'll call the January 18 trip
101 Agate Finding . Several of our
best agate finders will be with us
and we will pair up to show you
how to recognize agates and corals

We will hunt at Nonconnah
Creek by Perkins and I-240. There
will be more information at the
January meeting.

Younger Dryas Explained?

Matthew Lybanon, Editor

New evidence supports a hy-
pothesis that may explain the
cause of the Younger Dryas. Ice
cores drilled in Greenland and
elsewhere show that, not quite
13,000 years ago, the climate
cooled for a short while in many
parts of the world, especially in
the northern hemisphere.



Grains of pollen from various
plants can also tell us about this
cooler period, called the Younger
Dryas, which interrupted a warm-
ing trend after the last Ice Age.
The term gets its name from a
wildflower, *Dryas octopetala*. It can
tolerate cold conditions and was
common in parts of Europe 12,800
years ago. At about this time a
number of animals became ex-
tinct. These includ-
ed mammoths in *Continued, P. 7*

Fabulous Tennessee Fossils

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

FTF 60

Permineralization: Petrified Forest, New Mexico



This is a somewhat historic essay for two reasons. First, this essay is my 60th, and it does not have a Christmas theme this year! Sorry, as you will see below, I have been traveling for a couple weeks now, am still traveling as I submit this essay, and will not see my home again until 2020! This means that I am away from my library to do my usual research, so I am choosing to share my current travel experience with you instead. Second, this essay is not about a specific Tennessee fossil, paleontologist from bygone days, or a fossiliferous geologic formation, but rather a mode of preservation that we do find in Tennessee. I write this segment of Fabulous Tennessee Fossils from Albuquerque, New Mexico, having just left Meteor Crater. Me and my students who were part of a planetary geology class that I co-taught with Dr. Lionel Crews, who is a UT Martin astrophysicist, just spend the afternoon at the famous Petrified Forest in New Mexico. We spent yesterday with my U.S.G.S. friend Dr. Greg Vaughan and Lowell Observatory scientist, Dr. Kevin Schindler, re-tracing the steps the Apollo astronauts used for their geology training in the 1970s as a way to commemorate the 50th anniversary of the Moon landing, as well as many other historic events, including seeing the original 1930 material from Lowell's discovery of Pluto! Very exciting! Today, we are traveling to Al-

buquerque, visiting the iconic fossil site along the way. What does a New Mexico fossil forest have to do with planetary geology? Nothing, but you know you can't stop a paleontologist from fossicking, regardless of what he is supposed to be doing. So, we visited the Petrified Forest and Painted Desert while driving to our next planetary geology site.

In 1851, explorer Lorenzo Sitgreaves documented finding "petrified wood" in the area. Two years later, Lt. Amiel Whipple more fully described the fossil wood occurrences. Whipple was scouting a route for the proposed railroad that was to run along the 35th Parallel. His illustrator, Balduin Möllhausen, published the first illustrations of the petrified wood. The area was recognized as important for preservation at that time, but Congress turns down a bill to create a national park at Petrified Forest in 1895. Dr. Lester F. Ward, U. S. Department of the Interior paleobotanist, publishes his Report on the Petrified Forests of Arizona in 1900 with recommendations to protect the area. Shortly afterwards (1905-06), the famous conservationist John Muir visits the Petrified Forest. A close friend of President Theodore Roosevelt, who was an avid frontiersman himself, erected the Petrified Forest National Monument in 1906, noting that "...the mineralized remains of Mesozoic forests...are

of the greatest scientific interest and value and it appears that the public good would be promoted by reserving these deposits of fossilized wood as a National monument with as much land as may be necessary for the proper protection thereof."

You will note that I placed "petrified forest" in parentheses. *Petros* is Greek for rock, from which we get the term *petrology* for the general study of rocks, but it is also the foundation of the word "petrified" in English. One of the meanings of "petrified" is to condition of being too scared to move or scared to death. Some of my paleobotanist friends take exception to the image of scaring a plant to death or scaring a plant into non-mobility, so they see the term as less scientific. So the more technical term for the changing of living plant tissue into fossilized plants is *permineraliation* (etymology: *per*—"add to"; *mineralization*—"growth of minerals") and constitutes one of several modes of preservation for fossil plants, especially the woody tissue of plants.

Usually the minerals involved are some variety of quartz (similar to silicification), but other minerals can be added to the tissue and wood as well, including pyrite and several carbonate minerals. The minerals permeated the cell structure of the waterlogged plants and preserved the delicate internal structures of the

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Fabulous Tennessee Fossils wood
Continued from P. 5 (rays, growth rings, etc.) and cell structures, especially cell walls, of the plants. The source of the minerals is related to the nearby volcanic geology of the area. Volcanic regions are active reservoirs of geochemical compounds, and along with the heat source, can send mineral-charged waters percolating through the sediments containing buried logs, thus adding the minerals to the logs and permineralizing them. Later erosion exposes the fossils, which are now much more resistant to weathering and erosion. Petrified Forest is famous for the variety of colors, which come from a combination of impurities within the percolating groundwater and the state of oxidation of some of the iron. The microcrystalline quartz, often chalcedony quartz, is generally clear, white, or gray in color, but

carbon-rich regions in the wood tend to be black like coal, red is the most common color, due to ferric iron. Other colors can exist too, including green or blue (chromium, cobalt, and copper impurities), brown and yellow (oxidizing iron), pink to orange, (manganese impurity).

Permineralization is the solvent action of ground water with simultaneous or later deposition of minerals in voids within the fossil. Permineralization is sometimes described as being a replacement phenomenon, but this is not entirely accurate. True replacement as a mode of preservation usually requires an original mineral, such as a calcite seashell, that has the calcite removed by dissolution and a new and different mineral, say quartz or chert, crystallizes in the void to take the form of the fossil (i. e., the original fossil mineral is replaced by a new mineral). Permineralization is the addition of

minerals to existing structure. The result is a soft or porous fossil becomes more dense and hard, but preserves the original structures.

The permineralization is only part of the story in Petrified Forest. In Figure 1, you will notice that the permineralized wood is eroding out of a sediment (lower part of photo) that ranges from fine silt to gravel in size, displays distinct “graded bedding” (gravels on the bottom grading upwards to silt-sized grains) in repeating layers that are inclined to horizontal (cross-bedding). These are classic indicators of flowing river or stream waters—the environment of deposition for the original trees. Permineralization of the wood came much later, after the wood was buried. After the trees died, they were flotsam down the river systems that were common in the area, subsequently buried, and later permineralized as part of the volcanism asso-

Continued, P. 7



Figure 1. “Petrified” log from the visitor center hike in the Petrified Forest showing typical iron-rich silica permineralization. The lower part of the photograph shows the graded-bedded and cross-bedded silty-gravel sediments of the ancient river system that entombed the original fossil wood. The cross-beds are inclined downward to the right, indicating that flow in that layer was from left to right (Photo by MAG).



Figure 2. Permineralized woods on display at the Tennessee River Museum in Savannah, Tennessee. Two different species are represented from two different geologic time periods (Photo by MAG).

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Fabulous Tennessee Fossils *Continued from P. 6*

ciated with the shift of volcanism from the eastern part of North America, to the west and the beginning of the formation of the Rocky Mountains. The original trees of the forest were deposited and permineralized during the Triassic Period (228–208 million years ago).

So, what does this have to do with Tennessee fossils? West Tennessee is particularly rich in “petrified wood” and many of you avidly

collect the wood and convert it into jewelry and bookends. The Tennessee River Museum (Figure 2) has on display two very large permineralized logs collected locally. Each log represents a different geologic time period. The smaller was found in Cretaceous “Dinosaur Time” deposits (-75 million years old”), while the larger was reworked into younger gravel deposits from an earlier Tennessee River (-2 million years old). Both are permineralized and the wood grain is easily visible in each specimen. Notice the wood grains dif-

fer, hence these are different tree species. The smaller tree has a regular lined wood grain, but the larger has a more contorted growth pattern.

So, over the Christmas holidays, take a break and visit the Tennessee River Museum. Check-out the permineralized wood on display. Then find a local gravel river in the area and hunt for some permineralized wood. Don’t let anything “petrify” you while you search! Merry Christmas all! See you next year.

Younger Dryas Explained? *Continued from P. 4*

Europe, large bison in North America, and giant sloths in South America.

The cause of this cooling event has been debated a great deal. In 2007 Richard Firestone and other American scientists presented a new hypothesis: that the cause was a cosmic impact like an asteroid or comet, which could have injected a lot of dust into the air, reducing the amount of sunlight getting through the earth’s atmosphere. This might have affected plant growth and animals in the food chain.

Very recently a large meteorite crater with a diameter of 31 km was discovered in northern Greenland, beneath the ice of the Hiawatha glacier. It is not certain that it dates to the time of the Younger Dryas, but the crater rim is fresh, and ice older than 12,800 years is missing.

Platinum is known to be concentrated in meteorites, so when a lot of it is found in one place at

one time, it could be a sign of a cosmic impact. Platinum spikes have been discovered in an ice core in Greenland, in areas as far apart as Europe, Western Asia, North America, and even Patagonia in South America. These spikes all date to the same period.

Francis Thackeray of the University of the Witwatersrand in South Africa and colleagues found new information from Wonderkrater, an archaeological site with peat deposits at a spring situated outside a small town north of Pretoria. In a sample of peat they identified a platinum spike (see figure) that could at least potentially be related to dust associated with a meteorite impact somewhere on earth 12,800 years ago.

The platinum spike at Wonderkrater is in marked contrast to almost constantly low (near-zero) concentrations of this element in adjacent levels. Subsequent to that platinum spike, pollen grains indicate a drop in temperature. These discoveries are entirely consistent with the Younger Dryas Impact Hypothesis. Wonderkrater is the

first site in Africa where a Younger Dryas platinum spike has been detected, supplementing evidence from southern Chile, in addition to platinum spikes at 28 sites in the northern hemisphere.

At least three species went extinct in the African subcontinent. These included a giant buffalo (*Syncerus antiquus*), a large zebra (*Equus capensis*) and a large wildebeest (*Megalotragus priscus*). Of course there is more than one possible cause of these extinctions.

A cosmic impact could have indirectly affected people as a result of local changes in environment and the availability of food resources, associated with sudden climate change. Stone tools relate to the cultural identity of people who lived in the past. Around 12,800 years ago in at least some parts of South Africa there is evidence of an apparently abrupt termination of the “Robberg” technology represented by stone tools found for example at Boomplaas Cave. Coincidentally, North American archaeological sites indicate *Continued, P. 8*

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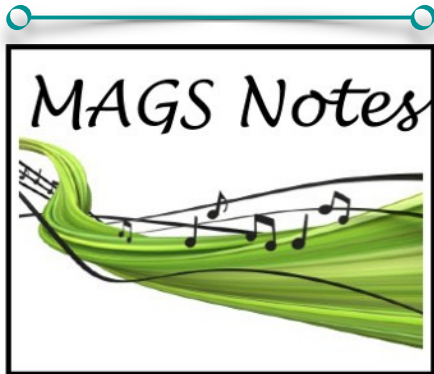
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Younger Dryas Explained? the sudden end of a stone tool technology called Clovis.

But it is too early to say whether these cultural changes relate to a common causal factor.

The Younger Dryas Impact Hypothesis is highly controversial. But the evidence suggests it is not improbable that a large meteorite struck the earth as recently as 12,800 years ago, with widespread consequences.

Ref: Thackeray, J. Francis; Scott, Louis; Pieterse, P. *The Younger Dryas interval at Wonderkrater (South Africa) in the context of a platinum anomaly. Palaeontologia Africana, 2019*



Adult Programs

January 2020: Julie Morrow, "The King Mastodon Excavation"

February: Michael Gibson, "Vulcan Quarry"

Junior Programs

January 2020: James Butchko, "The Art of Collecting"

February: Mike Baldwin, "Lunar Geology"

March: Mike Baldwin, "Geology Along I-40"

Field Trips

January 18, 2020: Nonconnah Creek

February 22: Pickwick

March 21: Mozarkite

January Birthdays

- Jason Bolton
- 1 Jasmin Sloan
- 2 Justin Coulson
- 3 Mary Kratz
- 6 Dylan Lefebvre
- Dan Crowder
- 7 Rosie Crawford
- 9 Nick Soucia
- Leigh Bartram
- Heidi Browning
- 10 Noa Parks
- 12 Greg Bartram
- 13 Khloe Webster
- 14 Joe McIntire
- 16 Jack Cupps
- Francis 'Mitch' Mitchell
- Brandon Hubble
- 18 Ricky Waters
- 21 Brooke Ledbetter
- Richard Gunter
- 22 Cheri Whisnant
- 24 Dr. Jon Stanford
- 31 Teresa Noyes

New Members

Wingfield Bouchard and daughter Jonte

Christine McManus and father Bill McManus

Patricia (Patty) Herman, spouse Colby Wrasse, and daughter Gabriella Wrasse

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.

Going on the January 11 DMC Field Trip to Brooksville, Florida?

Pinellas Geological Society, Inc.

Presents the:

44th Annual Gem, Mineral and Jewelry Show & Sale

Join Us at the
Central Park Performing Arts Center

105 Central Park Drive, Largo, FL

Jan. 10—12, 2020

Fri. & Sat. ~ 10 a.m. –to– 5 p.m.

Sunday ~ 12 Noon –to– 5 p.m.

\$2.00 ADMISSION

AGES 12 AND UP

Fun for All Ages

Make it a twofer.

November Board Minutes

Mike Baldwin for Mike Coulson

Called to order 6:38. Present: W. C. McDaniel, Charles Hill, Mike Baldwin, Carol Lybanon, Matthew Lybanon, Bonnie Cooper, Bob Cooper, Dave Clarke, James Butchko, Kay MacLaughlin, Jane Coop.

Secretary: Copies of the October minutes were distributed via email and approved by the Board.

Treasurer: Treasury report was reviewed and approved by the Board. Everything is paid up to date.

Membership: 2 new Members. 23-24 renewals received thus far.

Field Trips: W. C. recommended that we renew DMC for 2022. Recommendation approved by the Board. Schedule: November 16, 2019-Parsons, Vulcan Quarry. December 13, 2019-No trip, Holiday Party. January 18, 2020-Nonconnah Creek. February 22, 2020-Pickwick. March 21, 2020-Mozarkite. April, 2020-Local day trip. May 16-18, 2020-Gainesville, Florida. June 20, 2020-Local day trip. July 18, 2020-Malvern, Magnet Cove. August 22, 2020-Flora, Mississippi, Petrified Forest (Jan 2020) (museum?). September 19, 2020-Arkansas Diamond Mine. October 17, 2020-Local day trip. November 31, 2020-Hot Springs Phantom Mine. December 2020-No outing.

Adult Programs: Nov 8: Dave Lumsden-"When wood becomes stone." Dec 13-Holiday Party. Jan 2020-Julie Morrow. Feb 2020-Michael Gibson.

Junior Programs: Nov 08, 2019-Who Are the Native Americans and Where Did They Originate? w/Mike Baldwin and Fulton Ledbetter. Dec 13, 2019-Holiday Party w/adults. Jan 10, 2020-The Art of Collecting w/Mike Baldwin. Feb 14, 2020-Lunar Geology w/Mike Baldwin. Mar 13, 2020-Geology Along I-40 w/Mike Baldwin. Apr 10, 2020-Preparations for the Rock

Show w/adults. May 08, 2020-Making Paint from Minerals w/Mike Baldwin. Jun 12, 2020-How Caves Form w/Mike Baldwin. Jul 10, 2020-MOHS Hardness Scale w/Mike Baldwin. Aug 14, 2020-Indoor Rock Swap w/adults. Sep 11, 2020-Making Crystals w/Mike Baldwin. Oct 09, 2020-Fluorescent Minerals w/Mike Baldwin. Nov 13, 2020-Native Peoples of North America w/Mike Baldwin. Dec 11, 2020-Holiday Party w/adults. Jan 08, 2021-first youth program with the next director.

Library, Show: No reports.

Rock Swaps: October swap in Bartlett. Approximately 10-15 attended. Carol asked if we would want to consider not having a swap at a park, because it is traditionally poorly attended. Board postponed discussion until next year.

Editor: November newsletter distributed today. Matthew has some schedule information for 2020 newsletters but needs more. He suggested we try to get the people who discovered dinosaur tracks in Arkansas to do a program. Editor and assistant editor won't be here for November and December meetings, but will continue to do the newsletter on location.

Web: Homepage updated and an article by David Hanes on Invertebrate fossils of Florida has been posted on our website with permission of the author. November newsletter will be published this weekend.

Old Business: Waiting to hear from Chucalissa concerning our annual donation.

New Business:

1. Paul Sides Estate Sale will be November 2, 9:00-2:00. Petrified wood, agates, geodes, and other rocks and minerals are available. No artifacts are included in the sale.
2. Mike Baldwin will take the 2020 Show Grand Prize home and photograph it before meeting night.

3. Holiday Party: December Party Invitation will be designed by Mike Baldwin for email distribution, hand-out hard copies for the November meeting, and a JPG copy for the December newsletter. Bonnie will take care of the purchase and preparation of ham and turkey. Mildred might have a plan for tabletop decorations. Discussion followed about suggestions for tabletop decorations if Mildred does not have a plan. Jim will pick up 14 poinsettias to be used as decoration and giveaways. Bonnie will take care of getting the doors open early. Bonnie mentioned that half of the electrical outlet near the library wall was not working last year.

Adjourned 7:23.

November Meeting Minutes, Mike Coulson

Called to order 7:01. Five visitors.

Membership early renewal was available for those wanting to renew and be eligible to have their name in a drawing for an amethyst geode. November newsletter uploaded to website. Estate sale in Wynne, Arkansas, of Paul Sides; good place to pick up petrified wood, some agatized. More info to come.

Field Trips: Memphis Stone and Gravel trip went well. November-Vulcan Quarry, Parsons, Tennessee. Last field trip of the year. December 13-annual holiday party, come early and help set up and bring gifts, games and prizes and gifts for all. Keep in mind May 2020 for Gainesville, Florida, trip hunting for Megalodon teeth and other shark teeth.

Programs

- **Junior:** Who Are the Native Americans and Where Did They Originate w/Mike Baldwin and Fulton Ledbetter.
- **Adult:** Petrified Wood by Dave

Continued, P. 10

November Meeting Minutes
Continued from P. 9

Lumsden, University of Memphis.
Displays: Kim Hill, Dan Baker, Jan and Leo.
Adjourned 7:48.

Jewelry Bench Tips by
Brad Smith

DEPTH GAUGE
FOR DRILLING

Sometimes you need to drill a number of holes all to the same depth. One quick and easy way to do this is to wind some tape around the drill bit so that the tape just touches the part surface when the hole is deep enough.

You can set the depth either by measuring from the tip of the drill to the tape or by drilling to the correct depth, leaving the bit in the hole, and wrapping tape around the bit at the surface level.

Note that a little extra tape left free on the end will blow away debris from the drilling.



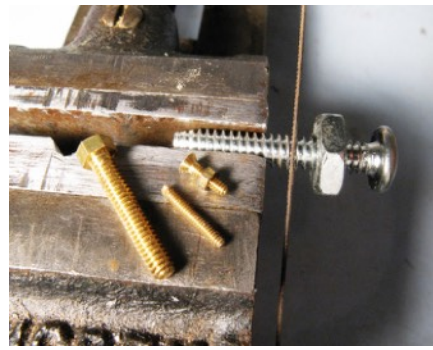
CUTTING A BOLT

Whenever you have to cut a threaded bolt shorter, it's often difficult to get the nut to thread back onto it. And the smaller the bolt, the more difficult it is to restore any distorted threads. The problem is easily solved with the

use of a nut. Here's how I do it.

First, screw a nut onto the bolt before cutting it. Grip the bolt by the threaded section that is to be sawed off. Then saw the bolt to the desired length, taper the end with sandpaper or file, and unscrew the nut from the bolt.

Unscrewing the nut over the freshly cut end of the bolt will straighten out any damage that sawing and filing did to the threads. Gripping the bolt by the piece to be sawed off localizes any crushing damage to the piece that will be thrown away.



Solve Your Jewelry Making Problems With Brad's "How To" Books, [amazon.com/author/bradfordsmith](https://www.amazon.com/author/bradfordsmith).

MAGS Programs

Matthew Lybanon, Editor

If you come to a MAGS Membership Meeting you can count on a good program, whether you're an adult or a junior. The programs (usually 30-45 minutes) are given by people who know what they're talking about, and cover a variety of topics that interest MAGSters and visitors.

Here are some numbers that illustrate this. During 2019, there was a nice balance of topics in the adult programs. There were three

programs in each of the topics that define our club: archaeology, geology, and paleontology. One was given by a MAGS Member and eight by outside experts—university professors, state archaeological and geological survey scientists, museum directors, and a retired state geologist who is a recognized authority. The April program was a preview of that month's Memphis Mineral, Fossil, and Jewelry Show—the biggest show of its kind in this part of the country. And it wasn't all serious. In August and December we had parties.

The wide range of topics in the junior program series is equally outstanding. Some 2019 junior program titles give the idea: "The Colors of Mars", "Mountain Building and Contour Map Reading", "The Last Ice Age", "Viewing Micro-Minerals with a Binocular Microscope", "Native Americans: Who Are They and Where Did They Come From?".

2020 looks like another good year. The 2020 adult program series isn't completely set yet, but one of the early programs will be given by the paleontologist who had a lot to do with choosing the Tennessee state fossil. And the junior program series will cover topics like "The Art of Collecting", "Lunar Geology", "Geology Along I-40", "Making Crystals", and "Native Peoples of North America".

Whatever your age and wherever your interests lie, you'll find interesting—and enjoyable—programs at the monthly MAGS Membership Meetings. We hope to see you there.

MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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

A Look Back At 2019



MAGS At A Glance

January 2020

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30	31	1	2 Board Meeting, St. Francis Hospital, 6:30 pm	3	4
5	6 Show Committee Meeting, Agricenter. 6:30 pm	7	8	9	10 Membership Meeting, 7:00 pm, "The King Mastodon Excavation"	11 DMC Field Trip, Vulcan Quarry, Brooksville, FL, 9:00 am-2:00 pm
12	13	14	15	16	17	18 MAGS Field Trip, Nonconnah Creek
19	20	21	22	23	24	25
26	27	28	29	30	31	1

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