



Volume 65 ♦ Number 11 ♦ November 2019 ♦ A monthly newsletter for and by the members of MAGS

When Wood Becomes Stone

David N. Lumsden, University of Memphis November Program



The abundance of silicified wood in the Memphis region testifies to the presence of conditions that must be met for the conversion of wood to stone. Silicified wood is made of chert (quartz with ultrafine grain size). Despite its similar mineral composition to

chert in bedded formations and nodules replacing carbonate fabrics, silicified wood (permineralized or petrified) forms in a distinctly different way. This presentation compares the origin of silicified wood in the Memphis region (39 fossils from *Continued, P. 3*

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GREETINGS ALL MAGS MEMBERS

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. 6*

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.

November DMC Field Trip

WHERE: Johnson Creek Farm, Due West, SC (fee site)

WHEN: Saturday, November 23, 9:00 A. M.-4:00 P. M.

COLLECTING: Epidote, smoky quartz, amethyst, beryl

CONTACT: Jason Ashley, (864) 378-1908, or Donna Mayeur, (864) 723-9042

Links to Federation News

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

MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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When Wood Becomes Stone the Upland Complex gravel, a 3.5-million-year-old river deposit and seven from the Claiborne Group a 35-million-year-old delta deposit) to thirty-one samples from many geologic periods across North America. Conclusions: local examples silicified while in the Claiborne. Thirty million years later the silicified logs were incorporated in the Upland Complex when it eroded into the Claiborne. Recent erosion scattered fossils from the Upland Complex throughout the Memphis region.

President's Message

It was a beautiful day in the neighborhood. About 60 DMC members showed up to search the rock hills on Hogfoot Road in Mississippi. With abundant blue skies and perfect weather, agates, fossils, and petrified wood were found. The agates were exceptional in size and color. Several nice pieces of petrified wood were found, including a piece of palm wood, which is usually not found past middle Mississippi. In addition to rock collecting, a nice picnic lunch was served. Thanks for making it a good day

W. C.

MAGS/DMC Field Trip

Two Snapshots

Snapshot A

The October DMC field trip to a Memphis Stone and Gravel plant in Senatobia, Mississippi, was granted perfect rock hunting weather, some very large piles of



gravel, and a large group of fellow rockhounds.

We met up at 8:30 at one of the entrances to the pit, had our safety talk, and quickly scattered to search for treasures. I had a lot of fun watching the group of 8-10 kids, acting like they knew each other forever, playing and climbing the piles and making their own discoveries.

I didn't find too many agates, unlike a certain someone who seems to be a magnet for agates. Yes, you know who you are 😊. I did find a nice pinkish agate and some very nice corals, and sometimes you just have to keep

those pretty colored rocks, too. Can always find a place for them in my leaverite dry creek.

For me, just being outside in the company of others who understand the rockhound fever is as good as finding them. Almost!

Next month we will be making the trip to Parsons, Tennessee, to the Vulcan Quarry to hunt sea life fossils...a great place to find trilobites.

There will be more information in November. Hope to see you there!

Kim Hill

Get Up, Get Out, Hunt Rocks
Continued, P. 4

MAGS/DMC Field Trip
Continued from P. 3

Snapshot B

The Memphis Archaeological and Geological Society (MAGS) hosted the October 12 DMC field trip to Senatobia, Mississippi. 60 rockhounds (2-legged kind) and two rockhounds (4-legged kind) assembled under a picture-perfect day. Just as nice as the weather were the abundant mounds of gravel and chert available to search. And boy, did those 60 rockhounds search and search. With a break for lunch, the rockhounds returned to the piles, and the last one was carted off in the back of a pickup truck loaded with buckets and buckets of material. One thing for sure: there are a lot of agate magnets. These are the rockhounds that walk up to a gravel pile and agates just line up and jump into their buckets.

A special thanks to the Memphis Stone and Gravel Company for hosting the trip. This was the fourth time they have provided the DMC a trip location.

W. C. McDaniel

The Last Woolly Mammoths

Matthew Lybanon, Editor

Four thousand years ago the Great Pyramid of Giza had been standing for over 500 years. The Xia Dynasty in China was 200 years old. The Norte Chico civilization had been in what is now Peru for about 1,500 years. And the last of the woolly mammoths died out on a small island about 86 miles northeast of Chukotka, Siberia.

Mammoths (*Mammuthus primigenius*) dominated the northern hemisphere during Earth's last ice age for nearly 90,000 years, before changing climates and human hunting drove them to extinction. Scientists have uncovered mammoth skeletons and frozen carcasses everywhere from Spain to Siberia, and the understanding was that these creatures had wholly disappeared by about 11,000 years ago. But a handful of mammoth populations survived on two tiny, isolated islands nestled between Russia and Alaska that were cut off from the mainland by rising seas. Researchers think one of these refuges, Wrangel Island, be-

came the last mammoth holdout.

A previous study found that the mammoth inhabitants on the other similarly isolated island of St. Paul, about 1,000 miles south of Wrangel Island in the Bering Sea, perished from environmental factors. By examining fossilized DNA, pollen, and spores, scientists discovered that the St. Paul mammoths had likely run out of fresh water as their tiny island dried up, before finally going extinct 5,600 years ago.

But according to a new study published in *Quaternary Science Reviews*, the Wrangel Island inhabitants didn't die of the same causes as other mammoths. Rather, the study authors argue, the isolated animals started to inbreed, which weakened their genetic diversity. The weakened population was then unable to adapt to extreme weather events, which likely caused their sudden, untimely demise.

This study investigated the ecology of the Wrangel Island mammoth population by means of carbon, nitrogen, and sulfur isotope analyses. They analyzed the



Mammoth tooth found on Wrangel Island

collagen in 4,000-year-old mammoth bones and teeth from the island, and compared those results to bones from mammoths that had died in other parts of the world like Alaska and Siberia as old as 40,000 years ago. The analyses showed that the mammoth population's extinction was "fairly abrupt" without any warning signs. Even just prior to their extinction, the Wrangel Island mammoth's bones showed no signs of dietary or environmental stress.

The evidence indicates that the mammoths didn't face extinction due to a gradual deterioration of forage availability and quality, and supports the idea that this population could

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The Last Woolly Mammoths maintain a typical mammoth ecology despite climate change and decreasing genetic diversity (shown by a previous genetic analysis). The researchers argue that the already weakened population (due to decreased genetic diversity) may have fallen victim to a sudden starvation event, such as an extreme icing event preventing access to food.

In October 2003, a severe rain-on-snow event killed 20,000 musk-oxen on Banks Island in northern Canada, reducing the herd by 25%. Thousands of reindeer on present-day Wrangel Island have perished from similar icing episodes in the past century, according to a 2018 study. Perhaps rain-on-snow killed off the last mammoth.

Ref: L. Arppe et al., Thriving or surviving? The isotopic record of the Wrangel Island woolly mammoth population, *Quaternary Science Reviews* 222 (2019) 105884, <https://doi.org/10.1016/j.quascirev.2019.105884>

2019 Keokuk Geode Festival

Kim Hill

If the 2019 Keokuk, Iowa, Geode Festival was anything it was a testimony to the spirit and dedication of Rockhounds in our feverish search for more rocks. The area had 6-9 inches of rain that weekend, making hunting in creeks, dirt walls, and fields just that much more challenging.

Hubby Richard, and I set out on our adventure Thursday morn-

ing, not leaving as early as he wanted but still leaving in good time. However when we hit West Memphis it took an hour just to get through the town! After that we made good time till we got to St. Louis at rush hour. We took the interstate going around St. Louis thinking traffic wouldn't be as bad. Wrong!

Now the one thing you don't know about this trip is the fact I had five 4 week old kittens requiring bottle feeding every 3-4 hours around the clock. I had set things up in the truck so I could feed them easily without having to stop.

We finally hit Keokuk, got to the hotel, unloaded, and sat back to rest a bit and let the kittens out of the crate to play some. Then dinner and back to room and bed.

We got up early Friday morning and headed to the Festival for the early morning hunt. There was a bit of mass confusion as people were trying to leave for a hunt or park to register for one, but we finally got parked, signed in, paid our fee, and figured out which site we wanted to go to. Richard isn't the 'dedicated' hunter I am so we chose an easy site.

This site had a creek you hunted in and there were geodes everywhere, just had to find the right ones to keep. It was raining when we arrived so everyone donned their rain gear and hit the creek. After a while the guide let us know a strong storm was coming our way that should last about 20 minutes. Hit it did! With some serious lightning in it.

Now you would think people

would get out of the creek while the lightning was flashing, but then you are thinking about normal people, not feverish hunting rockhounds. Richard had already gone back to the truck, but he came back to get me to come to the truck. ... I never said I wasn't one of those crazy rock hunters.

The storm moved on through and I finished filling up my bucket so we could leave.

The one good thing about having the kittens for Hubby was the fact I couldn't stay out more than 4 hours. Remember, I am 'a dedicated' rock hunter. Just ask anyone they'll squeal ... tell on me.

We headed back to our room, cleaned up and rested some, went out for dinner, and back to the room. We walked outside later to watch some awesome lightning displays as more storms rolled through town.

Later that evening Richard went out to smoke and saw our hallway was full of people. A tornado warning had been issued and the sirens were going off. There were a number of kids in the hall and Richard said some seemed scared, so I took a couple of the kittens out and let the kids hold them. By the time everyone had their turn the warning was over and everyone went back to their rooms, fright forgotten.

We had decided we were going to go on the afternoon hunt for Saturday. Fellow members Mike Baldwin, his daughter Jen, and son-in-law Adam had made it in late Friday and planned on doing one hunt Saturday. When we arrived at the Festival

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MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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*Greetings All MAGS Members
Continued from P. 1*

prize is a fabulous 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. As an incentive to renew as early as possible, the Members that renew in October or November will receive an extra chance to win the specimen. You have until the end of the January 10, 2020 Membership Meeting to renew your membership 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.

2019 Keokuk Geode Festival site we
Continued from P. 5

that due to the rain they had postponed the morning hunt till Sunday afternoon and they had gone from having six sites to hunt to only three that could be safely used, and that only people already registered could go. They weren't signing up any new people.

This meant Mike and his family couldn't go. Richard and I talked to some of the Festival people and got permission to let two of them use our bracelets and go on one of the hunts, but no one wanted to leave one behind. Richard went back to the tents,

did some talking, and was able to get the three bracelets we needed.

Then we were told only 4 wheel drive vehicles should go. My 'Little Blue' truck is an off road Nissan so all five of us piled in to it for the short drive to the site.

Again, looking for the easy sites we made our choice to go to a site where you dug the geodes out of the dirt walls. There weren't supposed to be any creeks involved ... except 6 inches of rain made every stream or ditch a flowing creek. It was not hard to cross over—for some of us—not saying names ...Hubby ... oops, did I say that out loud?

Once we waded the creek and climbed the hill we got to the wall—the very muddy wall—and tried to find some geodes. I found some very small ones, which seemed to be what most folks were finding, but decided hacking at the wall was a little bit too much like work and soon found myself sitting and watching all the kids.

There were 170 people on this hunt, with a large number of kids. Kids right in the middle of it, banging and chipping at the wall, finding geodes. I did see some younger boys who probably weren't actually looking for geodes but were having a blast banging at that wall with their rock hammer. It was great—kids in the dirt and mud with not a cell phone or video game in sight.

Mike's daughter, Jen, got lucky and found a pocket and was able to pull out some fair sized geodes. Can't wait to see them cracked open.

Sunday Richard and I joined another fellow MAGS Member, James, and some folks from the Missouri rock club, and went to a nearby gravel pit where we found, of course, geodes, and some really nice corals.

We were able to get some of our geodes cracked at the festival and I broke open a few at home. We did find some very nice ones and we managed to find maybe five they call snowballs, but we still have couple more buckets' worth to crack. Can't wait to see what else we have.

The Geode Festival in Keokuk, Iowa, was fun, but I would like to go sometime when it's not raining all weekend. I heard that on Friday 20 trucks had to be pulled out of the mud at one farm and 10 at another, and they had to use draft horses!!

Yes. I did. I wished Saturday someone would get stuck so I could watch the horses. No such luck. 😊

Get Up, Get Out, Hunt Rocks



Fabulous Tennessee Fossils

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

FTF 57

Chonetes hudsonicus camdenensis, n. mut.



Over the past several issues, we have been celebrating the centennial of Yale paleontologist Carl Dunbar's Tennessee Division of Geology Bulletin 21—*Devonian Paleontology and Stratigraphy of Tennessee*. There are two groups left in which Dunbar named new taxa: brachiopods and gastropods. Dunbar was prolific with these two groups as he named 25 new brachiopods and nine new gastropods. If I were to devote an essay to each taxon individually, as I have been doing for the centennial series, it would take me until October 2053 to finish this series. Sorry folks, I plan on being retired by that time. Additionally, the brachiopods are one of the groups that often received a lot of attention from paleontologists, so the revisions are much more extensive for them and would take considerably more space to document. Not sure our editor wants me to take over the newsletter for this topic. So I will just be selective and choose a token new species of brachiopod to write about and save a detailed summary of all of the remaining brachiopods for a later series of essays. I will do the same next essay for gastropods.

In going over Dunbar's 1920 *New Species of Devonian Fossils from Western Tennessee* (Transactions of the Connecticut Academy of Sciences) for this series, I was struck by a taxonomic term I had not seen used before with fossils. One

of the brachiopods erected by Dunbar was *Chonetes hudsonicus camdenensis*, n. mut. and is interesting for a couple of reasons. I confess that I have never seen or found one of these specimens in my many years of collecting, so I still can find things to keep me looking! Notice that there are three parts to the name: one genus and two species names. This is another example of the use of the "subspecies" concept, which I addressed in an earlier essay (FTF 57 devoted to the trilobite *Huntonia* (*Huntonia purduei purduei* (Dunbar, 1919)). Dunbar erected the subspecies "*camdenensis*" as a variety of *C. hudsonicus* for specimens he collected near Camden, Tennessee, from the Harriman novaculite. Novaculite is a variety of chert that is finely crystalline and may have clay as an impurity. What interests me is the "n. mut." at the end of the species names. I had not seen that before.

When a paleontologist names a new taxon, whether it be a new genus or a new species, the author must follow the rules established and published in the International Code of Zoological Nomenclature (ICZN), which governs how names are written, word endings, taxonomic levels, rules of priority in naming, and many more topics. If you have ever tried to read a law book, then you can relate to "the Code". It is written in "legalese" with nearly 100 "articles", or rules,

on what to do in the strangest situations. One common set of rules is that when someone names a new species, it is written for the first time in the order of "genus name species name, n. sp." The "n. sp." stands for "new species", which indicates that the author of the article is naming a new species using this name. For example, Dunbar also names *Chonetes fornacula*, n. sp. at the same time on the previous page of the paper. After the publication of the new species in this form, anyone who wishes to write the name of the taxon would then change the pattern a bit and give the author his or her due and record the date the new species was formed. For example, Dunbar's *Chonetes fornacula*, n. sp. becomes *Chonetes fornacula* Dunbar, 1920. *C. fornacula* is no longer a new species once the publication has been made.

Dunbar used "n. gen." (for new genus) three times, "n. sp." (for new species) 31 times, "n. var." (for new variety) three times, and two listings of "n. mut.", both for brachiopods (*C. fornacula camdenensis* and *Delthyris octacostata tennesseensis*). While "n. var." is commonly used, I had never come across "n. mut." before. So, what does the "n. mut." signify? First, I need to explain the "n. var." a bit more. "New variety" is used to indicate a slight variation in some characteristic of a fossil species that can be conspicuous, occurs

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Fabulous Tennessee Fossils over some limited geographic and stratigraphic range, but that the author does not deem important enough to elevate these specimens to a new species or even a subspecies. The concept was developed long before we discovered how genetics can interact with environmental factors to create minor variants, or mutations, within a population. So the term was erected as a convenient way to acknowledge local variations. So if we have a term for a new variety, then why “n. mut.”, which I assumed stood for “new mutation”? Why would this term be used at all considering that the term is pre-genetics? Before answering this, I also need to point out that, according to the ICZN, usage of “n. var.” prior to 1960 means that those specimens now have the rank of a subspecies, not just a variety of a species, but if the term was used after 1960, then it essentially means infrasubspecific. Uh oh, a new term all of a sudden; yep, it gets more complicated. “Infrasubspecific” (“lower than below specific”) is used when the author publishes the name after 1960 designates a “trinomen” (third name) and did not clearly designate a subspecific rank. If that was not bad enough, the ICZN ruling also made a distinction between a “variety” and a “form”, but I digress. Did we clear this issue up with regards to Dunbar’s usage of “n. var.” in some places and “n. mut.” in others? In the Dunbar case, no...not even close. All we did is introduce yet another new term to classify organisms where a later worker is having trouble following

the first author’s publication pathway.

Now, back to “n. mut.”. That terms probably means “new mutation”. So, why use this term if we already have a term for variety and a term for form? What did Dunbar see as the difference between a new variation of an existing species and a new mutation of an existing species? Why not use “form”? More importantly, how did he decide this was a “mutation”, which implies a genetic “mistake” or change? Remember that this is the early 1900s and the genetic structure of DNA will not be discovered until the 1950’s. Even Gregor Mendel’s genetics work was still lying in obscurity at this time. The usage of “mutation” in biology does imply a difference, or change, but it is usually considered deleterious, and most mutations are considered “mistakes” occurring during genetic recombination. Dunbar was very specific in his use of the term “mutation” in his discussion of both brachiopod species, but nowhere does he say why this is a mutation and not just a variety. And, nowhere does he define these terms in any of his publications before or after: I have looked!

I have now spent close to 20 hours scouring Dunbar’s writing, the Internet, and my library to find anything on “n. mut.” and can only find one ruling that even mentions the word mutation, and that ruling has absolutely nothing to relate it to this situation. Interestingly, in that ruling, the ICZN nowhere actually defines the term either! Since I could not find “n. mut.” explicitly defined anywhere in any of the pertinent and semi-

nal literature, I went back to the basics and consulted my personal copy of *Composition of Scientific Words* (by R. W. Brown), which is the “bible” for how to name new taxa in science, and a reference that Dunbar would have been very familiar with. More than just a dictionary of Latin and Greek terms and syntax, it also lists the rules of nomenclature that scientists must follow, and even has a history of the nature of the English language. The “mut” portion of the term could be from “mutabilis”, which is Latin for changeable, or “mutatis”, which is Latin for changed, or “muto”, which is change. I then found another term that is sometime listed in compiled lists of prefixes and suffixes that can be used in naming taxa, but does not show in Brown’s book, namely “mutilo”, which is Latin for mutilate. Did Dunbar want to indicate that these were not mutations, but mutilations that recurred in many shells of these species and was recognizable enough to note taxonomically? I do not think this is the case. Most paleontologists would have noted mutilations as a paleoecological occurrence or as a taphonomic occurrence, not a taxonomic occurrence.

Regardless of which “mut” we attribute to Dunbar, he clearly meant to indicate specifically that there was a change occurring in the shells of these two subspecies that was important enough he wanted to indicate the difference as a taxonomic feature, but unfortunately, at least for me, I still do not know why he chose the “n. mut.” pathway to the naming of these *Continued, P. 9*

MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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

Fabulous Tennessee Fossils particular
Continued from P. 8 subspecies
over new
variety or new form. Sorry folks,
this mystery remains a mystery.



Library Donations

Lost Worlds in Alabama Rocks, by Jim
Lacefield—purchased by club

Understanding Earth, by John
Grotzinger and Tom Jordan—do-
nated by Marc Mueller

Adult Programs

November: Dr. Dave Lumsden,
“When Wood Becomes Stone”

December: Holiday Party

January 2020: TBD

Junior Programs

November: Mike Baldwin, “Who
Are the Native Americans and
Where Did They Come From?”

December: Holiday Party

January 2020: Mike Baldwin, “The
Art of Collecting”

Field Trips

November 16: Vulcan Quarry
(Parsons)

December: No field trip

January 2020: Local day trip

November Birthdays

- 1 W. C. McDaniel
- Jeffrey Soucia
- 3 Oliver Carnahan
- 13 Matthew Lambert
- 15 Douglas Maki
- Phillip Goossens
- 16 Chris Scott
- 18 Cathie Jacobs
- 19 Landon Carnahan
- Nina Riding
- 20 Will Kitkowski
- 21 Tabitha Lambert
- 22 Melba Cole
- 23 Brittani Lambert
- Shirley Ruth Chrisman
- 24 Charles Carter
- 27 Dylan George
- Karen Joseph
- 28 Alan Parks
- 29 Eve Webster
- Nedra Baum
- 30 Robert Neill

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 Di-
rector 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 Member-
ship 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.

Jewelry Bench Tips by Brad Smith

WINDING JUMP RINGS

If you need a few jump rings
the same size, it's easy to grab a
round rod and wind as many as
you need. But when you need a lot
of them, some form of winder
saves a lot of time. A variable
speed screw gun makes quick work
of winding the coils. Screw guns
are quite inexpensive at discount
stores and are remarkably handy
for odd jobs in the shop and
around the house.

To wind a coil, just bend a
right angle on the end of the wire
about a half inch long and insert
this into the screw gun chuck.
Then wind slowly, keeping a tight
coil. I like to rest the end of the
mandrel on the edge of the table
or bench pin. Finally, one note of
caution. If you are winding an en-
tire length of wire, be careful as
you get near the end of the wire. If
the end passes under your thumb,
it can cause a nasty scratch or cut.

And for a nice set of mandrels,
look for a set of Transfer Punches.
The set has 28 sizes, from 3/32 inch
to 1/2 inch, and is only about \$12.
In the U. S. it is available from
Harbor Freight as item number
#3577, and in Europe it's available
from MZS in the

Continued, P. 10

Jewelry Bench Tips *Continued from P. 9*

Netherlands as item number
250575.



TOUCHING UP A BEZEL

Pumice wheels are good for touching up a bezel after you've set the stone. The hardness is about 6 on the Moh's scale, less hard than quartz, so it shouldn't scratch any of your agates or jaspers. However, I'd avoid or be real careful of using pumice near the softer stones like turquoise, amber, howelite, etc.

If you're unsure about the hardness of your wheels, test them on a piece of glass. Glass is about 5½ on the Mohs scale, softer than quartz. So if the wheel doesn't harm glass, it's safe for use on the quartzes and harder stones.

My preference is the one inch diameter ones such as those shown at riogrande.com/Product/AdvantEdge-Pumice-Wheels-Medium/332722?pos=2.

Work Smarter & Be More Productive With Brad's "How To" Jewelry Books

amazon.com/author/bradfordsmith.

September Board Minutes *Mike Coulson*

Called to order 6:33. W. C. passed around a piece of petrified wood and a Native American artifact found at

Sugar Creek that was donated to the club with the stipulation that it would not be sold. Present: W. C. McDaniel, Charles Hill, Kim Hill, Bonnie Cooper, Bob Cooper, Nannett McDougal-Dykes, Kay MacLaughlin, Mike Coulson, Jane Coop.

Secretary: The August minutes were distributed, reviewed, and approved.

Treasurer: CD has been set up for for the club in the amount of \$8,000. Current bank statements and treasury report were reviewed and approved by the Board.

Membership: One new Member added since last meeting.

Field Trips: Upcoming field trips: Sept. 27, 28, 29, Geode Fest in Illinois. October 12, DMC trip, Memphis Stone and Gravel, Perry Plant, Senatobia, Mississippi. November 2019, Parsons. December 2019, No outing. January 18, 2020, local day trip (petrified forest?). February 22, Pickwick. March 21, Mozarkite. April, local day trip. May 16-18, Gainesville, Florida. June 20, local day trip. July 18, Malvern, Magnet Cove. August 22, Flora, Mississippi, Petrified Forest or museum. September 19, Arkansas Diamond Mine. October 17, local day trip. November 30, Hot Springs.

Adult Programs: September 13, Dr. Elizabeth Rhenberg (University of Memphis), crinoid fossils. October 11, Bill Prior (Arkansas Geological Survey), sinkholes. November 8, Michael Gibson, Vulcan quarry. December 13, Holiday Party.

Junior Programs: September, "Native American Artifacts and Lore," Kim Hill. October, "Everyday Uses of Minerals," W. C. McDaniel. Nov. 8, "Ancient Civilizations of North America," Mike Baldwin. Dec. 13, Holiday Party w/adults. Jan. 10, 2020, "The Art of Collecting," Mike Baldwin. Feb. 14, "Lunar Geology," Mike Baldwin. Mar. 13, "Geology Along I-40," Mike Baldwin. Apr. 10, "Preparations for the Rock Show w/adults. May 8, "Making

Paint from Minerals," Mike Baldwin. Jun. 12, "How Caves Form," Mike Baldwin. Jul. 10, "MOHS Hardness Scale," Mike Baldwin. Aug. 14, "Indoor Rock Swap," w/adults. Sep. 11, "Making Crystals," Mike Baldwin. Oct. 9, "Fluorescent Minerals," Mike Baldwin. Nov. 13, "Native Peoples of North America," Mike Baldwin. Dec. 11, Holiday Party w/adults. Jan 8, 2021: 1st youth program with next director.

Library: About 20 books added.

Show: W. C. and Jim met and started planning, 4 or 5 dealer contracts have come in, planning a meeting sometime in October. Bonnie says the top navigation has disappeared on the Show site. Page is built on ATT site builder.

Rock Swaps: Saturday, October 19: Rock Swap at Freeman Smith Park in Bartlett. Food will be potluck.

Editor: Get articles and schedules to Matthew. Any info on the rock swap or DMC should be sent to him by the 20th.

Web: The September newsletter has been added to the website.; also the home page, calendar page, newsletter, and newsletter index pages.

Old Business: Class at College of Art. 10 or 12 people attended and created enameling on copper with a torch.

New Business: Check with Ron to explore options about a joint field trip with Nonconnah Conservancy.

October 3 Board Meeting at 6:30 at Jane Coop's house.

Adjourned 7:03

September Meeting Minutes, *Mike Coulson*

Called to order 7:10. Four visitors.

Web: Website is up to date.

Field Trips: Sign up sheet for Geode Fest and directions at front table.

Pick up form and fill out before arriving. MAGS is hosting the DMC trip to *Continued, P. 11*

MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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

September Meeting Minutes Memphis
Continued from P. 10 Stone
and

Gravel in Senatobia on October 12.
Asking for help with food and drinks.
May 2020 for Gainesville Florida, trip
to hunt for Megalodon and other
shark teeth.

Junior Program: Native American
Lore/Artifacts w/Kim Hill.

Adult Program: Elizabeth Rhen-
berg, University of Memphis,
Crinoids. *Scyphocrinites loboliths*, Horse
Creek Wildlife Sanctuary, Savannah,
Tennessee.

Displays: Jan and Leo, Nonconnah
Creek Petrified Wood. Gwen Koontz,
Polished Rocks. Sara Carter, Polished
Rocks. Dan Baker, Marcasite, free to
take.

Adjourned 8:20.

Digital Dinosaur Documentation

Matthew Lybanon, Editor

Thanks to digital imaging,
University of Arkansas scientists
have verified that giant carnivorous
dinosaurs once lived in what
is now Arkansas. In 2011, gypsum
miners uncovered perfectly pre-
served dino tracks in a working
quarry near Nashville, Arkansas.
The tracks have since been de-
stroyed, but high-resolution digital
scans taken over a period of two
weeks in 2011 allowed a team of
researchers to study the tracks and
determine that they were made by
Acrocantbosaurus, a large, carnivorous
dinosaur.

The muddy prints were pre-
served in limestone and hidden
under the hilly forests for millions
of years. Mining exposed the
prints. Since this was an active
mine, scientists had little time to



October Rock Swap Pictures

preserve the prints. Fortunately,
modern technology helped the
excavation go quickly. Scientists
used LiDAR (Light Detection And
Ranging) to digitally preserve the
prints. The resulting map can be
viewed at [http://trackways.-
cast.uark.edu/
index.html#bbox=34,55,45,62](http://trackways.-cast.uark.edu/index.html#bbox=34,55,45,62).

After the tracks were discover-
ed, researchers received a
\$10,000 Rapid Grant from the
National Science Foundation to
quickly document the site. The U
of A's vice provost for research and
economic development and the J.
William Fulbright College of Arts
and Sciences provided matching
grants, for a total of \$30,000. The
mining company moved its opera-
tions to allow researchers a short
window of time to document the
find. Researchers used LiDAR be-
cause traditional methods would
have taken too long.

The site had two different
sized *Acrocantbosaurus* tracks, sug-
gesting both adult and younger
animals walked the ancient tidal

flat about 100 million years ago,
during the Cretaceous Period. It
also contained tracks made by
sauropods, long-necked plant-eat-
ing dinosaurs.

LiDAR uses a pulsed laser to
measure distances to the earth in
tiny increments, generating a data
“point cloud” that is used to digi-
tally recreate a physical space. In
this case, the equipment was
mounted on a lift over the site. By
analyzing carbon and oxygen iso-
topes of the rock at the track sur-
face, researchers determined that
the track surface was indeed the
surface that the animals stepped
on, rather than an underlying layer
that remained when the original
surface eroded.

A YouTube video that shows
many of the details is at [https://
youtu.be/fFbZ7_n9-Gw](https://youtu.be/fFbZ7_n9-Gw). The Uni-
versity of Arkansas news article on
this research is at [https://
news.uark.edu/articles/40630/u-of-
a-digitally-preserves-important-di-
nosaur-tracks-found-in-arkansas](https://news.uark.edu/articles/40630/u-of-a-digitally-preserves-important-dinosaur-tracks-found-in-arkansas).

MAGS At A Glance

November 2019

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28	29	30	31	1	2
				Board Meeting, St. Francis Hospital, 6:30 pm		Paul Sides Estate Sale, Wynne, AR, 9:00-2:00
3	4	5	6	7	8	9
Daylight Saving Time ends					Membership Meeting, 7:00 pm, "When Wood Becomes Stone"	
10	11	12	13	14	15	16
						MAGS Field Trip, Vulcan Quarry, Parsons, TN
17	18	19	20	21	22	23
						DMC Field Trip, Johnson Creek Farm, Due West, SC
24	25	26	27	28	29	30
						

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

