



Volume 66 ♦ Number 04 ♦ April 2020 ♦ A monthly newsletter for and by the members of MAGS

MAGS Show and Other Activities



The 2020 Memphis Mineral, Fossil, and Jewelry Show is cancelled and will not be rescheduled for later in the year. The Agricenter, our Show location, has cancelled all events until mid-May. More details are in the article below.

All scheduled club activities

are cancelled until May. The March 29th DMC Field Trip hosted by the Mobile Rock & Gem Society has been cancelled and will be rescheduled at a future date. So far, the April 18 DMC Field Trip (see P. 2) is still on.

These cancellations are in compliance with *Continued, P. 3*

In this issue	
MAGS Show and Other Activities	P. 1
President's Message	P. 1
MAGS And Federation Notes	P. 2
Field Trip Reports	P. 3
Fabulous Tennessee Fossils	P. 4
2020 SFMS Workshop at William Holland	P. 6
To Life!—Hemolithin	P. 6
MAGS Notes	P. 7
Until Next Year	P. 8
Ready for Next Show	P. 9
Jewelry Bench Tips	P. 9
February Board Minutes	P. 9
February Meeting Minutes	P. 10
75 Million-Year-Old DNA Evidence	P. 11
MAGS At A Glance	P. 12

PRESIDENT'S MESSAGE

Editor's Note: The photo shows W. C. awarding the Grand Prize at the 2019 Show.

Canceling the Show and Now What?

The decision to cancel the 41st annual Memphis Mineral, Fossil, Jewelry Show was made of necessity and a realistic assessment of the issues and consequences



W. C. MCDANIEL

of trying to go forward. I always thought if the Show was cancelled it would be due to a tornado roaring down Walnut Grove Road or the New Madrid fault giving us a good shake, but a virus roaring across the globe was not on the radar. The Show is MAGS's signature and most important

Continued, P. 3

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 or <https://earthwideopen.wixsite.com/rocks>

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.

April DMC Field Trip

WHERE: Johnson Creek Farm, Due West, SC (\$15 fee)

WHEN: Saturday, April 18, 9:00 A. M.-3:00 P. M.

COLLECTING: Epidote, smoky quartz, amethyst, beryl

CONTACT: Jason Ashley, (864) 378-1908; or Mary Fisher, (704) 564-1594

Links to Federation News

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

*MAGS Show and Other Activities
Continued from P. 1*

recommendations and requirements from public health experts and government officials. Access to accurate and up-to-date information is vital to staying informed on the COVID-19 crisis. A few online resources are listed here.

The Johns Hopkins dashboard (Coronavirus COVID-19 Global Cases by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)), updated several times a day, is at <https://coronavirus.jhu.edu/map.html>.

The Southeast Federation of Mineralogical Societies (SFMS) has provided links to several other useful websites. Here are links to

CDC COVID-19 material:

<https://www.cdc.gov/coronavirus/2019-ncov/index.html>

<https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html#foot5>

The WHO (World Health Organization) is a major source of information, along with providing the preferred Hand Washing Techniques.

World Health Organization (WHO):

<https://www.who.int/news-room/q-a-detail/q-a-coronaviruses>

https://www.who.int/health-topics/coronavirus#tab=tab_1

WHO Handwashing technique:

https://www.who.int/gpsc/5may/How_To_HandWash_Poster.pdf?ua=1

ua=1

Coronavirus 2019 is different than (for example) the flu in several ways. This variant of coronavirus is a **novel** coronavirus, a new strain that has not been previously identified in humans. So people don't have natural immunity if they haven't previously been infected. And currently there is no vaccine. People who are infected may not show symptoms immediately, which is the logic behind "social distancing".

Will it ever go away? Here is an article from the senior adviser to the Director-General of the World Health Organization: <https://time.com/5805368/will-coronavirus-go-away-world-health-organization/>.

*President's Message
Continued from P. 1* public event for the year. The cancellation will have a significant impact and I would like to share some of that with you.

Financials

1. The timing of the cancellation occurred prior to some of our major expenses, so that is a good thing, Our primary largest expense prior to the cancelation was a deposit to the Agricenter and that will be credited toward the 2021 Show. Several smaller purchases such as the printing of the notecard will not be recoverable.
2. Dealers will be offered a choice to receive a full refund of their 2020 Show contract or credit for booth fees toward the 2021 Show.

3. The biggest financial loss is our direct show income from admissions, information booth and the Rockzone. That is the money we provide to the club accounts, fund community events, provide show start up funds for the next year and placed money in savings/reserves for an event just like this. So, we are not broke.

Now What?

1. We will not reschedule the 2020 Show to later in year. It is canceled for this year
2. The 2021 Show dates are April 24/25 with move-in April 23. Mark your calendar.
3. Over the next few months, we will look at ways and opportunities to restore some funds to the Show account. Pay attention and be prepared to help out.

So, some Whatnots of cancelling the Show

My back will not be sore or my feet/legs swollen on the Monday morning after the Show. On the flip side, I did not get an additional specimen for my collection, dealer's wallets will be thinner, and missing the experiences of the Show will be noticeable. May the Show be with you.

W. C.

Field Trip Reports

Kim Hill

*Photo Credits: Kim Hill
and Jim Collins*



Continued, P. 5

Fabulous Tennessee Fossils

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

FTF 63

Special Edition: UTM Coon Creek Science Center



I am writing this essay from my desk in the Evergreen Cabin at the Coon Creek Science Center (CCSC). I am here completely alone due to the Covid-19 virus outbreak. It is raining and everything is very gloomy. The students and faculty at UT Martin have been frantically adjusting to the Covid-19 outbreak, orders to move all classes from face-to-face format to online format, and restrictions with personal interactions. Everything is in disarray. I was supposed to be here at CCSC for three days with my Methods in Field Geology 220 class from UT Martin, doing numerous field training exercises. The University closed to face-to-face classes over a week ago and sent everyone home. We are practicing social distancing and limited group gatherings. However, CCSC is so remote with primitive cabins and facilities that we could meet and work without ever having to interact with one another directly. I had received special permission from the University to have the students in this class come to the CCSC in small groups, voluntarily, to finish their field work, because there just is no way to learn field work remotely or online. At that time there were no reported cases in West Tennessee outside of Shelby County. Each student was to have their own cabin, own shower stall, own toilet, and meals were to separately prepared and remotely eaten! We had it all worked out, but as the Covid-19 virus spread, cases popped up more locally and I was forced to cancel the field work indefinitely. I am allowed to work on-site alone, which I have done for two days now; me, one armadillo, a couple of field mice, and one small bird that accidentally got into the Mess Hall while the door was open and couldn't find its way out for a while. So, I decided to "spring clean" some cabins and the kitchen. I also began to some organizing of materials in anticipation of spring, new endeavors, no virus, and seeing people up-close again. No radio, no television, or any contact with the outside world for those couple of days was relaxing...except for the rain...but frustrating too.

April is coming, along with April 1st, which we all know is April Fools Day! So this should be the April Fools edition of Fabulous Tennessee Fossils and I had planned a fun gimmicky fossil report for your enjoyment, but the forced isolation for the indefinite future forces me to use this essay as a platform to make an important announcement that I

Continued, P. 5

Coon Creek Science Center banner containing contact information, program lists (Popular Paleontology Programs, Other Programs), and images of field activities.

Figure 1. UT Martin Coon Creek Science Center banner.

MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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Fabulous Tennessee Fossils think will
Continued from P. 4 make you
happy.

Starting April 1st, April Fools Day, the Coon Creek Science Center will be under a very long-term lease with the University of Tennessee at Martin (20-40 years). It will change operational hands to become the UT Martin Coon Creek Science Center! UT Martin geology has worked the site and helped the Pink Palace Museum, who will still own the property, coordinate research and other activities since the early 1990s, but now the Pink Palace is stepping back and giving UT Martin total autonomy over the site. UTM has taken control of the facilities and we are making lots of changes. We are cleaning-up the 32-year-old facility, adding new buildings, new collections, refurbishing cabins,

etc. We anticipate new programming as well, so watch for advertisements (as soon as the Covid-19 restrictions disappear). Our timetable has been slowed down due to the crisis. I can work on the site alone, and we can still send electrical, plumbing, etc. companies to work as long as no one else is on the site, but it is challenging.

No, this is not an April Fools gag! Yes, UT Martin assumes control of the CCSC site April 1st. We are finalizing the paperwork, working with the UT System folks on signage, staffing, contracting, etc. Once we are past the Covid-19 crisis, we hope to open-up the site for the public on a limited basis with lectures, tours, and collecting, and will be looking for volunteers to train and help us collect fossils, educate the public, and enhance the site's aesthetics. We

plan to expand programming to include many more topics, such as meteorology, physical geology, field biology, astronomy, agriculture, and more. Anyone interested in volunteering to help us with work at the site, wanting to make donations to support our work and programs, become a corporate sponsor for the site and site projects, wants to arrange visits, or wants more information, can contact us at the UT Martin Selmer/McNairy County Center in Selmer, ((731) 646-1636), which will serve as the primary contact for information and reservations for groups. The CCSC is closed for now until the Covid-19 crisis passes, but watch for more announcements for the opening of the UT Martin Coon Creek Science Center. For now, clean your collections and get them in order. Stay safe.

Field Trip Reports The weather we
Continued from P. 3 ordered for the
Pickwick Lake
Field Trip was almost perfect—No
Rain! The sun was out, there were
very few clouds, the wind was a bit
chilly at times but all in all perfect
fossil hunting weather.



Charles Hill was our trip leader and he planned a great time! He had checked the lake a few days before the trip and found out they were actually releasing water, so the good areas along the lake's edge were exposed. A couple of

these sites we haven't been able to reach for a few years. Out of the five places he had picked out we were able to hunt three of them.



We had a really nice size group join in for the fun. We found trilobites, corals, sponges, various other sea life fossils. I know I saw one great sample of coral, not to mention names, Jane...and the rest of

you, I saw you there!



What if no one brought displays? The meetings would be missing out on a lot of fun and knowledge.

I want to Thank Charles for a great trip and am looking forward to the next trip he is leading in April. It will be a tour of rock hunting sites around Memphis.

I want to apologize for not getting my February Field Trip report in *Continued, P. 6*

Field Trip Reports the newsletter *Continued from P. 5* but life jumped up and kicked me in the pants and I got a little behind.

The trip for February, 101 Agate finding, was a lot of fun, also had a great crowd of folks show up and had another great day of weather...also no rain. I want to Thank Leo, Jan, and Darryl for helping me out and showing folks how to find agates, corals, and other rocky treasures.

Editor's Note: All official field trips are cancelled till further notice. The modified schedule below has details.

The March trip to the Hedger gravel pit in Jonesboro was a big favorite of everyone's, so I will definitely see if we can reschedule, maybe for the Fall.

April's trip was going to be a tour of hunting sites in and around Memphis. It should be easy to reschedule.

The biggest trip is the May Gainesville, Florida, trip for shark teeth and other fossils. That one I don't know about. Hopefully things will calm down and we can get back to a more normal world.

2020 SFMS Workshop at William Holland

June 7th-12th, 2020.

Workshop titles

- Cabochons with Paul Roberts
- Casting with Bill Harr
- Faceting with Linda Searcy
- Flame Painting with Janet Pace
- Metal Mania with Cindy Moore

- Fly Tying with Jeff Heer
- Intarsia with Bill Boggs
- Loop-in-Loop with Chuck Bruce
- Seed Beading with Jerri Heer
- Silver I with Pattie Appleby
- Silver II with Dale Koebnick
- Silver II-Hydraulic Press. with Vickie Prilliman
- Silver-Wear I and II with Jan and Keith Stephens
- Wire II with Gene Sheridan

More details are at the SFMS 2020 Federation Week Workshops website, <https://www.sfmshkshops.org/william-holland-classes>.

To Life!—Hemolithin

Matthew Lybanon, Editor

We have no proof of the existence of life on other planets. What would it take? A living alien being would be nice—or the fossil remains of creatures that lived a long time ago. Buildings or other artifacts would do, also. But we haven't made first contact, and we haven't found cities on other worlds. The "canals" that astronomer Giovanni Virginio Schiaparelli thought he saw on Mars may have been artifacts due to pushing his observing instrument past its limits (and the Italian word "canali" which he used actually means "channels").

We will have to rely on other clues. The SETI (Search for Extraterrestrial Intelligence) program monitors electromagnetic radiation for signs of transmissions from civilizations on other planets. The Mars Rover has instrumentation to detect chemicals on

the Martian surface that are linked to the existence of life (the Sample Analysis at Mars (SAM) instrument has found organic molecules in several samples drilled from Mount Sharp and the surrounding plains). And now there is some intriguing new evidence.

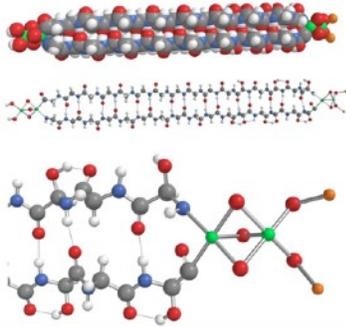
A team of researchers from Plex Corporation, Bruker Scientific LLC, and Harvard University has found evidence of a protein inside of a meteorite. Amino acid polymers previously observed in two meteorites have been further characterized in one of them via high precision MALDI (Matrix-Assisted Laser Desorption/Ionization) mass spectrometry to reveal a principal unified structure of molecular weight 2320 Daltons (a unit of mass defined as 1/12 of the mass of an unbound neutral atom of carbon-12 in its nuclear and electronic ground state and at rest) that involves chains of glycine and hydroxy-glycine residues terminated by iron atoms, with additional oxygen and lithium atoms.

In prior research, scientists have found organic materials, sugars, and some other molecules considered to be precursors to amino acids in both meteorites and comets—and fully formed amino acids have been found in comets and meteorites, as well. But until now, no proteins had been found inside of an extraterrestrial object. In this new effort, the researchers have discovered a protein called **hemolithin** inside of a meteorite that was found in Algeria back in 1990.

The hemolithin protein found by the researchers was a small one, and was made up

Continued, P. 7

To Life!—Hemolithin
Continued from P. 6



Model of the 2320 hemolithin molecule after MMFF energy minimization. Top: in space-filling mode; Center: ball and stick; Bottom: enlarged view of iron, oxygen and lithium termination. White = H; orange = Li; grey = C; blue = N; red = O and green = Fe. Hydrogen bonds are shown by dotted lines. Credit: arXiv: 2002.11688 [astro-ph.EP]

mostly of glycine and amino acids. It also had oxygen, lithium, and iron atoms at its ends—an arrangement never seen before. Proteins are considered by chemists to be quite complex, which means a lot of things would have to happen by chance for protein formation. For hemolithin to have formed naturally in the configuration found would require glycine to form first, perhaps on the surface of grains of space dust. After that, heat by way of molecular clouds might have induced units of glycine to begin linking into polymer chains, which at some point, could evolve into fully formed proteins. The researchers note that the atom groupings on the tips of the protein form an iron oxide that has been seen in prior research to absorb photons—a means of splitting water

into oxygen and hydrogen, thereby producing an energy source that would also be necessary for the development of life.

By no means is this proof that there is life on other planets. But this is some of the best evidence to date.

Ref: Malcolm. W. McGeoch, Sergei Dikler, Julie E. M. McGeoch, Hemolithin: a Meteoritic Protein containing Iron and Lithium, arXiv:2002.11688 [astro-ph.EP] arxiv.org/abs/2002.11688 (preprint)



Editor's Note: All scheduled MAGS activities are cancelled until May, and that date may be extended. The information shown in MAGS Notes should be interpreted to take this into account.

Adult Programs

April: "Show Biz"—Cancelled

May: Activities, Demonstrations

Junior Programs

April: "Show Biz"—Cancelled

May: Mike Baldwin, "Making Paint from Minerals"

June: Mike Baldwin, "How Caves Form"

Field Trips

April: Local day trip—Cancelled

May 16-18: Gainesville, FL

June 20: Local day trip

April Birthdays

- 3 Donna Neal
- 11 Ryan Ledbetter
Pam Papich
- 12 Finn Collins
- 21 Ian Ashurst
- 23 Marilyn Shiffman
- 27 Lori Carter
Luken Ledbetter
Tamie Dunn
Kathy Bullard
- 30 David Waddell
Bella Wilson

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.

Ready for Next Show



Thanks, Danny Baker, for this picture of MAGster David McAlister showing off some treasures he's prepared for the Show. As they say in baseball, wait till next year.

Jewelry Bench Tips by Brad Smith

PROBLEMS WITH SMALL DRILLS

Drilling small holes can be a problem. With drills that are less than 1 mm (18 gauge or .040 inches), some chucks will not tighten down well enough to hold the drill securely.

The problem is easily solved in either of two ways - with a chuck adapter or by buying your small drills with a 3/32 inch shank size. Either way you have a large shank to be gripped in your drill press, Foredom or Dremel, so changing bits is fast and easy.



PRE-MADE BEZEL CUPS

As a general rule of thumb I assume it's going to take me 15-20 minutes to make a bezel for an ordinary cabochon, so for some projects buying pre-made cups can save a lot of time. But if you go this route, keep in mind three things.

First, try to get cups made from fine silver, not sterling. Fine silver is softer and burnishes over the stone more easily.

Second, you may have trouble matching the shape and size of the stone with the shape and size of the bezel cup. Purchased cups can only be found in a limited number of standard sizes. You may have to adjust your choice of gemstone to match the cup. The other consideration is that pre-made cups often have fairly low side walls. While these are fine for low-dome stones, they're not dependable for stones with steep side walls.

Lastly before setting, check the fit of your gemstone in the cup, particularly around the bottom. The bottom corners of a stamped cup are much more rounded than a bezel you would fabricate yourself. This causes a problem with stones that have a sharp edge around the bottom. Burnishing the bezel over one of these stones will place a lot of stress on the stone and may cause it to crack. To avoid this, I round off the bottom edge of the stone with a diamond file (or use sandpaper on soft stones).



Discover New Jewelry Tricks in Brad's "How To" Books

amazon.com/author/bradfordsmith

Stay safe, stay healthy, and if possible stay home.

Best to all, Brad

February Board Minutes

Mike Coulson

Called to order 6:34. Present: W. C. McDaniel, Mike Baldwin, Carol Lybanon, Matthew Lybanon, Bonnie Cooper, Bob Cooper, Dave Clarke, James Butchko, Mike Coulson, Jane Coop.

Secretary: January minutes were distributed and approved by the Board.

Treasurer: Treasury report was reviewed and approved by the Board. Bonnie has done liability and Show insurance, SFMS, and end of month will send off for certificate. She will do taxes in the next couple of weeks.

Membership: 5 new Members, some individual and some family since last Board Meeting. Matthew was awarded the geode he won for early membership drawing.

Field Trips: January trip went well. Upcoming: February 22, 2020, Pickwick. March 14, 2020: Hedger in Jonesboro, Ark. March 21, 2020, Mozarkite. April, Local day trip. May 16-18, Gainesville, Florida. June 20, Lo- Continued, P. 19

MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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

February Board Minutes cal day trip.
Continued from P. 9 July 18,

Malvern & Magnet Cove. August 22, Flora, Mississippi, Petrified Forest. September 19, Arkansas Diamond Mine. October 17, Local day trip. November 21, Hot Springs Phantom Mine. December, No outing.

Adult Programs: February, Mike Gibson on the Vulcan quarry (rescheduled from November's meeting). March, Lou White. April, Show Meeting. May, Activities, Demonstrations. Will try to get rest of the presentations scheduled soon.

Junior Programs: Feb 14, Lunar Geology w/Mike Baldwin. Mar 13, Geology Along I-40 w/Mike Baldwin. Apr 10, Preparations for the Rock Show w/adults. May 8, Making Paint from Minerals w/Mike Baldwin. Jun 12, How Caves Form w/Mike Baldwin. Jul 10, Finding Precious Stones and Gold w/Charles Hill. Aug 14, Indoor Rock Swap w/adults. Sep 11, Making Crystals w/Mike Baldwin. Oct 9, Fluorescent Minerals w/Mike B. Nov 13, Native Peoples of North America w/Mike Baldwin. Dec 11, Holiday Party w/adults. Jan 08, 2021, first youth program with the next director.

Recent club promotional opportunities (Mike Baldwin):

• **Feb 1: Chickasaw Council's University of Scouting/Cub Scout Pow Wow**, Saturday, February 1, 7:00am-4:00pm, at Getwell Church, 7875 Getwell Road, Southhaven, MS. This is an annual event for Boy Scout, Cub Scout, and Venturing leaders. I had two tables set up. One was a display of rocks, minerals, fossils and Native American relics. The other was a MAGS information table. There were approximately 100 leaders and 150 Scouts that came by the tables. I handed out information sheets and Rock Show post cards. I gave one of the Boy Scout district executives about 500 post cards to

take to the scout office for distribution to all scouts and leaders that visit the scout office between now and the Show.

Upcoming events and club promotional opportunities:

• **Feb 19-21: 5th Grade Classes at three elementary schools in Hendersonville, NC.** My brother lives in Hendersonville and he has spread the word about the Rock Talks that I do in the local schools around this area. As a result I have received several calls from Hendersonville teachers and we have coordinated efforts for me to speak to the students at one school on Feb 19, another on Feb 20 and the third on Feb 21. I plan to print about 500 of the "Information About Rocks and Minerals" sheets to give to the students, and encourage them and their families to join the Hendersonville Rock Club.

• **Mar 4: Bluff City Canoe Club.** Wednesday, March 4 at the main public library, 3030 Poplar. Meeting time is 6:00-8:00 with set-up at 5:00. I will be presenting basically the same program that I do for the schools, plus a few more bigger display items, like petrified wood, fossil starfish, trilobites, coral, and quartz crystals. This will be a great opportunity to promote MAGS and the Rock Show.

• **Mar 6-8: SFMS Executive Meeting and Rockhound Roundup.** 10 x 20 spaces are available for \$25 for the three days plus park entrance fee. Clubs are encouraged to bring items to swap, items to sell, and information about their next Rock Show. Attendees not selling only need to pay park entrance fee. This would be a good opportunity to promote MAGS, our programs, and the Show. I have Rock Show post cards to take with me.

• **Mar 18: Lichterman Nature Center STEM Camp Talk.**

Wednesday, March 18, 1:00-2:00. I did this event last year and about 80 children attended. Last year I did my standard Rock Talk. I think I will do the fluorescent display this year, and distribute Rock Show post cards and "Information About Rocks and Minerals" sheets.

• **Mar 28: 14th Annual Scouts Rock at Graceland.** Saturday, March 28, 10:00am-3:00pm, at Graceland's new event facility. About 1,000 Boy and Girl Scouts and their families are expected to be in attendance. James Butchko traditionally mans this booth. James, will you be manning the booth again this year? I am available to help.

Library: Library is doing fine.

Show: Meeting tonight following board meeting. March 2 next meeting.

Rock Swaps: No swap in January or February. Next swap will be on Saturday, June 13, hosted by W. C.

Editor: Things going along well. Have info on Adult and Youth programs as well as field trips.

Web: Newsletter not posted yet due to family death.

Old Business: Talked with Melissa and option for donation. Had hi-res photos made of some of the collection and would like to have some of them printed for display around Chucalissa. W. C. has purchased some door prizes for display drawings.

New Business: W. C. Purchased a lot of stuff in Tuscon.

Adjourned 7:05.

February Meeting Minutes *Mike Coulson*

Called to order at 7:07. Welcome to all in attendance. Be sure to vote for displays, prizes displayed. Four new visitors.

Show: Jim Butchko: Would like to collect some donations for Rock Zone *Continued, P. 11*

February Meeting Minutes gifts.
Continued from P. 10 Carol:
SignUp

Genius is ready to go and will go live in March. When available, please sign up for as many 2 hour slots as possible. In the upcoming months, more and more information will come out.

Field Trips: Kim Hill: January trip to Nonconnah was successful. February 29: Pickwick. March : Jonesboro Quarry.

Keep in mind May for Gainesville, Florida, trip hunting for Megalodon teeth and other shark teeth.

Junior Program: Lunar Geology by Mike Baldwin.

Library: Four new books in the library.

Adult Programs: Program presented by Dr. Michael Gibson, UT Martin, on Parson's Vulcan Quarry and the work he has done there over the years. March, Lou White with some stories to tell and display some of his collection. May probably a demonstration night.

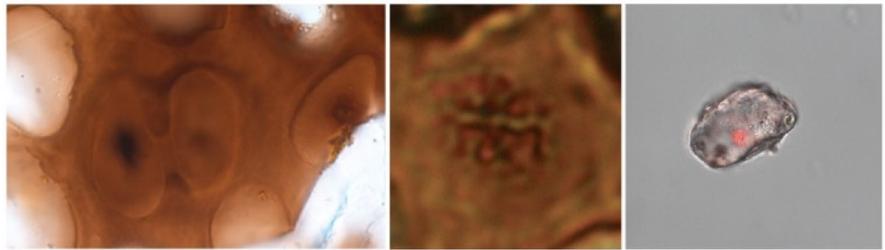
Displays: Jim Butchko, found Coral; Kim Hill, Jan and Leo, Nonconnah finds; Carol, Parsons; Dan, Lace Agates (Dixie Mineral trip) and Wood.

Adjourned 7:48.

75 Million-Year-Old DNA Evidence

Matthew Lybanon, Editor

Researchers from the Chinese Academy of Sciences and North Carolina State University have found evidence of preserved fragments of proteins and apparent chromosomes within isolated cell-like microstructures in cartilage from a baby duckbilled dinosaur. Microscopic analyses of skulls from a clutch of eggs, embryos, hatchlings and nestlings belonging



Photographs of cartilage cells from skull of *Hypacrosaurus* nestlings. On the left, two cells at the end of cell division are seen, with material consistent with condensed nuclei. In the center, a higher magnification image of another cell shows chromosomes. On the right is an isolated dinosaur cartilage cell that reacts with the DNA stain Propidium iodide (red dot, inside the cell). This stain suggests there is still endogenous dinosaur DNA in this 75 million-year-old cartilage cell. Photo credit: Alida Bailleul and Wenxia Zheng

to *Hypacrosaurus stebingeri*—a type of duckbilled dinosaur that lived in what is now Montana during the late Cretaceous period—were conducted by Alida Bailleul, a paleontologist from the Chinese Academy of Sciences and corresponding author of a paper describing the work. She noticed structures within certain tissues that were consistent with chondrocytes, or cartilage cells, and within these were internal structures resembling nuclei and chromosomes. The findings further support the idea that these original molecules can persist for tens of millions of years.

The team performed immunological and histochemical analyses of tissues from the 75-million-year-old hatchling skull, comparing the results to those from an emu skull at a similar stage of development. The cartilaginous tissues and chondrocytes from the dinosaur skull reacted with antibodies to collagen II, but the surrounding bone did not react with collagen II antibodies. This is significant because collagen II is found only in cartilage, while collagen I dominates in bone. Comparing the re-

sults to the emu confirmed the findings.

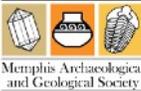
The researchers also tested the microstructures for the presence of chemical markers consistent with DNA using two complementary histochemical stains that bind to DNA fragments within cells. These chemical markers reacted with isolated cartilaginous cells, supporting the idea that some fragmentary DNA may remain within the cells.

From the abstract: “Specific DNA staining is only observed inside the isolated cells, suggesting endogenous nuclear material survived fossilization. Our data support the hypothesis that calcified cartilage is preserved at the molecular level in this Mesozoic material, and suggest that remnants of once-living chondrocytes, including their DNA, may preserve for millions of years.”

Ref: Alida M Bailleul, Wenxia Zheng, John R Horner, Brian K Hall, Casey M Holliday, Mary H Schweitzer, *Evidence of proteins, chromosomes and chemical markers of DNA in exceptionally preserved dinosaur cartilage, National Science Review, nwz206, https://doi.org/10.1093/nsr/nwz206*

MAGS At A Glance

April 2020

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30	31	1	2	3	4
5	6	7	8 ★ HAPPY PASSOVER	9	10	11
12 	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	 Memphis Archaeological and Geological Society	1
						2

All scheduled MAGS activities are cancelled until May.

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

