



Volume 64 ◊ Number 08 ◊ August 2018 ◊ A monthly newsletter for and by the members of MAGS

Join The Fun!

August 10 Indoor Picnic and Rock Swap



June Rock Swap at the home of Cornelia and W. C. McDaniel

Thank you, W. C. and Cornelia, for hosting the first rock swap of the season. All the people you see here had a great time. See more pictures on P. 4.

At our regular meeting on August 10 we will have our annual Indoor Picnic and Rock Swap. This year we have several fun things planned. Wear your best

Hawaiian shirt; you might win a prize. We will—finally—have our Show Volunteers drawing. Remember, you must be present to win. There will be a live auction with our renowned auctioneer, Lou White. Bring lots of cash. Bring food to share (see below). Bring tables if you want to sell or swap.

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AUGUST PICNIC AND INDOOR ROCK SWAP

To make sure we have a variety of food options, please bring a dish corresponding to the letter your last name begins with. Feel free to bring more if you wish!

- A-G** Main Course Dishes
- H-N** Desserts
- O-Z** Appetizers/Side Dishes/Veggies



August 10, 7:00 P. M., at our regular meeting place.

- **Hawaiian shirt contest**
- **Show volunteer prizes**
- **Live auction**

Bring tables for selling and swapping.

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.

August DMC Field Trip

WHERE: Chunky Gal Mountain, North Carolina

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

COLLECTING: Smaragdite, red corundum, blue corundum, almandine garnet chips, quartz, chert

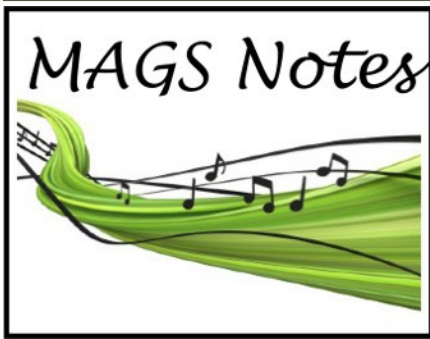
INFORMATION: Marsha Harmon,
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Links to Federation News

- ➔ 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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Field Trips

August 18—We will go to Discovery Park in Union City, Tennessee. Meet time is 10:00.

September 22—We hope to go to Hedger's Mine in Jonesboro, Arkansas. The meet time is 10:00.

October 20—We will go somewhere in or closer to Memphis. Possibilities are: Richardson's Landing, Sugar Creek, or Nonconnah Creek depending on the water levels. Meet time is 10:00.

Adult Programs

August 10—Indoor Rock Swap and Picnic

September 14—Dr. Nina Bahair-Riding, "Lonnie Looper Fossil Collection"

October 12—David Clarke, "Amber"

Hospitality

Thanks to all who signed up to work hospitality at the Membership Meetings. You make that part of the meeting work better.

The duties are simple:

1. Before Meeting: Arrive around 6:30. Help set up and organize tables. All items are located in a rolling cabinet.
2. Monitor snacks, drinks, ice.
3. After Meeting: Clean up, put

- all items back in cabinet.
4. Two Members per meeting.

Here is the schedule for the next three months:

August 10: **Rock Swap**

September 14: Open. Call Mildred Schiff, (901) 683-8446, to volunteer

October 12: **Kathy Baker** and **Jane Brandon**

August Birthdays

- 1 Virginia Williams
- 3 Karlie Box
Mike Coulson
Jeremy Smith
Ann Montgomery
Jane Brandon
- 11 Paul Sides
- 12 Ron Brister
David Murray
- 13 Emelia Blodgett
George Krasle
- 14 Jade Flores
Rommel Childress
- 16 George Loud
Lititia Brister
- 17 Sophia Coulson
Christine Lemons
- 20 Jan Shivley
Dana Armstrong
- 22 Joseph Blodgett
- 23 Stephanie Blandin
- 24 William Childress
- 25 Lenora Murray
- 27 Ricardo Ortiz
Gus Williams
- 28 Beth Day
- 30 Anthony Tribo

New Members

Christian Patton
Andros Morton and children Jada, Kaidence, Aiden, Nikkos, Jericho and Novak

Benjamin and Jessica Gaillard and children Cole and Jace



What did you do this summer? MAGS Member Jane Coop excavated this triceratops rib—her second. She said it took two days to get down to where the bone was and to get it ready for jacketing. The fossil was found in the Lance (Creek) Formation, a division of Late Cretaceous rocks in the western United States, named after Lance Creek, Wyoming. The Tate Geological Museum in Casper has three to four digs a year. Jane said she has been doing this every summer for 15 years.

Meghalayan Age

Matthew Lybanon, Editor

Welcome to the Meghalayan Age. Geologists have classified the last 4,200 years as being a distinct age in the story of our planet. They are calling it the Meghalayan Age, the onset *Continued, P. 7*

June Rock Swap Pictures



Bagged Item Swap



Just Taking It Easy



Fabulous Tennessee Fossils

*Dr. Michael A. Gibson,
University of Tennessee at Martin*
FTF 43

Prologue: A Day in a Devonian Sea in West Tennessee

Somewhere on the bottom of the sea, 30 degrees South Latitude, 395 million years B.C.E...

The predator glides effortlessly through the murky water searching for prey. Her tentacles move slowly from side to side and around in tight circles as she swims about a meter above the gray mud of the sea floor. She is hungry today, as she has been for days, and she is not being choosy about her meal. She has been

weakened by her ordeals of the last several days. She has dented and broken places in her shell, as well as abrasions, from the storm that has ravaged the area for over a week. One of the many storms that continuously reach deep and touch the bottom of this shallow epeiric sea. A sea driven by large-scale disturbances to which all of her fellow inhabitants must cope. She is weakened and needs food to help replenish her damaged body.

Something bite-sized and perhaps a little crunchy to exercise her eating apparatus.

She fears nothing, for she is the top predator in this ocean, all twenty-six inches of her. But food is scarce right now. The sea floor is just mud, extending as far as her eyes can see. The water is still murky from the storms and tastes bad, her filtering mechanisms constantly clogging and causing her coughing spasms to

Continued, P. 5



Fabulous Tennessee Fossils expel mud
Continued from P. 4 from her
siphons.

The bottom is not easy to scan because of the turbidity. Nature has designed her to be a sleek attack sub. Her long tapering shell offers little resistance to the currents allowing her to glide slowly against the current with little swimming effort. Millions of years of evolution has fine-tuned the optic system of her lineage so that she has the most sophisticated visual system of any creature yet evolved. Her mouth, which is within this tentacle ring, has a parrot-like horny beak capable of crushing the shells of brachiopods and snails and ripping through flesh of small armored fish. She is stealthy in approach. She is sleek. She is fast. She knows her prey before it can sense her. All of this sophistication is only useful, however, if prey is present. So she stalks, patiently waiting for the inevitable find. There isn't much to choose from today, however, not like there usually is. The area is still reeling from the hurricane that passed through the area a couple of weeks ago. This storm ripped up vast areas of sea floor. Attached organisms were uprooted and sent topsy-turvy onto adjacent sea floor. Volumes of mud were dumped over other areas smothering the organisms by the millions and entombing them forever. The end result was a vast undersea "wasteland" of dead or damaged organisms, most buried by the slurry of mud. It is too soon for new arrivals to set up housekeeping, so she hunts for the survivors. Nature works this way... survivors taking advantage of oth-

er survivors.

Suddenly her chemical senses detect life, long before her eyes capture the image. She veers to the left and slows her swimming to give her senses time to gather information. Scanning. Scanning. There, just ahead. Clumps of wing-shaped brachiopods that have survived the storm and righted themselves are feeding. Their shells are agape as they filter water and food particles through their lophophore system, straining the tiny plankton from the water. The storm, although physically cruel to them, has provided them with a bountiful harvest of plankton. The brachiopods could not eat at first, however, because too much mud was in the water. Mud clogs their feeding and respiratory systems and chokes the life from them if they filter in too much. So they closed their shells and waited for several days while the sea calmed, some of the mud settled and the sea became less turbid. Now it was time to open, to feed. The mud is thick enough to stress them also, because they continually "hick-up" to spit excess mud out of their shells and clean their filtering mechanism. This action creates almost inaudible clicking sounds that the water amplifies. Audible sounds that cephalopod predators can detect.

The spiriferid brachiopods, cannot run from predators, cannot fight back with tentacles, teeth, or claws. They are defenseless against attack. They can only survive. For this they have evolved as strong a defense as possible. Brachiopods have a thick shell made of a mineral called calcite. The

calcium is extracted from the seawater. This gives them a shell too hard for most predators to get through. The organisms merely clamp shut during attack or during bad water conditions. A closed shell locks a little seawater in with it; rations to survive short periods of isolation. The brachiopod waits out the bad time or until a predator will move on for an easier meal. Hopefully the predator will not have shell-crushing capabilities. For brachiopods of these Devonian seas, this is a safe bet. Only a few invertebrates and a handful of primitive fish have such invasive offensive weaponry and fish are scarce in these waters.

Brachiopods don't know fear; no lower invertebrate has such emotions. But if it could, the shadow passing over it would cause it to go into shudders. The cephalopod has located the brachiopod clump and is interested. A dance of death begins to play out as it has for countless eons.

The brachiopod detects the presence of an enemy. Its photoreceptors registered a change of light level as the cephalopod blocked out some of the faint light rays reaching this depth of ocean. Motion receptors feel vibrations of water consistent with directional swimming...something is coming this way. Finally the chemistry of the water changes as the cephalopod swims close to check out its prey. The brachiopod immediately senses the possibility of danger and the shell slams shut, presumably safe. All that is needed is to wait it out.

The cephalopod tests the prey first. She crawls

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Fabulous Tennessee Fossils over the surface looking for easy access, but the prey will not give in so easily. The shells are closed. No problem. She wraps her tentacles around a large brachiopod and maneuvers it so that the thinnest part faces her mouth, which contains her beak. She draws the shell into her beak and snaps her beak shut with a crunch. Shell pieces scatter in the water column and fall to the ocean floor, adding to the sand. Disappointment. The bite does not reach deep enough to get any flesh. The shell has a chevron-shaped divot in it now, but there does not appear to be much to eat. She drops this shell and searches for something else. Nearby she finds a soft-bodied sea worm that looks enticing, and perhaps easier to kill. She moves off to try another appetizer.

After a few minutes of remaining motionless on the sea floor, the brachiopod slowly opens its shell and begins to analyze the water for clues. The report is encouraging; the cephalopod is gone. The attacker has damaged the shell of the brachiopod, but the attack was sub-lethal. With a little time and energy, and assuming no infection sets in, the mantle cells of the brachiopod will begin to repair the shell by secreting more layers of calcite. The divot-shaped hole will be repaired and life will resume. One more victory for the brachiopod.

There are other organisms present in the sea. Microscopic larvae of thousands of species of organisms float as part of the plankton. This plankton continu-

ally rains down onto the sea floor as the plankton settle onto the bottom and onto hard surfaces to begin their metamorphosing into adults. All plankton shares one characteristic. They need a hard substrate (relative to their size) to settle onto and begin the process of metamorphosis into adulthood. If they settle in soft mud, they sink or become covered and die. The chemical microenvironment of this mud can be toxic to most plankton.

The storm passing in this area has changed the sea floor from a grainy or firm bottom to a sea of soupy mud. Larvae settle and quickly perish. Some larvae do find the isolated shell debris left by the passing storm and use it as an island to begin growth. Others land on the shell of a living organism. As long as the living "host" does not remove the larva, it has a chance to grow. It must grow in congruence with the "host" and is at the mercy of the host. Islands of shell are sparse in this area now, so interactions among these invading squatters increase and competition for living space becomes fierce.

Growth causes a problem now. The larvae increase size quickly, trying to avoid the pitfalls of being too small. As they grow their shells become thicker, heavier, and begin to sink into the still soft mud sea floor. Hitchhiking epibionts outgrow their hosts in some cases or become free-living adults. Only those species that have genetic programming for developing a shell that can resist sinking have a chance of surviving soft mud substrate conditions.

Natural selection has favored thin lightweight shells with plenty of surface area for this.

The brachiopod has been receiving hitchhikers for sometime now. Small colonies of bryozoans, chain-like colonies of corals, sponges, rapidly get a foothold on the shell and begin to vie for living space. Overgrowth of competing species takes place as war is waged on a nearly microscopic scale. The ecosystem is trying to recover. Life trying to regain a foothold and claim control, once again, of the sea floor. The sea floor begins to look like small islands of life, like little apartment complexes, separated by stretches of lifeless sea floor.

On the surface, the storm has not ended, only calmed for a short time. While the dramas below were unfolding, the storm has gathered strength and is once again reaching toward the sea floor with submarine tornadoes of energy and ripping up areas of sea floor in its wake. Once again a massive influx of sediment is pushed into the area by the storm. The water temperature changes drastically making living conditions difficult. The weakened cephalopod can stand no more. This time she falls victim to the ravages of nature. She is too weak to leave the area; rather she clings to the bottom in a futile attempt to hide. She, too, is smothered as a vast cloud of sediment begins to blanket the sea floor. She chokes and dies and is quickly buried. The brachiopods don't escape this time either. The clump is buried. With it are the numerous hitchhikers that had

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Fabulous Tennessee Fossils settled the shell. All dead, all buried, all beginning another drama. One that will unfold 395 million years into the future...

Meghalayan Age of which was marked by a mega-drought that crushed a number of civilizations worldwide.

The Meghalayan was first raised as an idea in a scholarly paper just six years ago, and some researchers think there has been insufficient discussion on the matter. Nonetheless, the International Commission on Stratigraphy (ICS) made it official in July 2018.

We currently live in what is called the Holocene Epoch, which reflects everything that has happened over the past 11,700 years—since a dramatic warming kicked us out of the last ice age. But the Holocene itself can be subdivided. The ICS proposed three stages be introduced to denote the epoch's upper, middle, and lower phases.

These all record major climate events. The *Meghalayan*, the youngest stage, began with a destructive drought, whose effects lasted two centuries and severely disrupted civilizations in the Middle East, the Indus Valley, and the Yangtze River Valley. It was likely triggered by shifts in ocean and atmospheric circulation.

The middle phase of the Holocene will be referred to as the *Northgrippian*, and runs from 8,300 years ago up to the start of the Meghalayan. The onset for this age was an abrupt cooling, at-

tributed to vast volumes of freshwater from melting glaciers in Canada running into the North Atlantic and disrupting ocean currents. The oldest phase of the Holocene—the exit from the ice age—will be known as the *Greenlandian*.

To win a classification, a slice of geological time generally has to reflect something whose effects were global in extent, and be associated with a rock or sediment type that is clear and unambiguous. The decision to discriminate ages within the Holocene has drawn fire from some scientists who believe the move is premature. They question whether some of the climate shifts used as anchors for the new ages were truly global in their impact.

They are also concerned that the divisions have been approved when there is still an active debate about assigning a new geologic slice of time to reflect specifically the influence of humans on the planet. Tentatively referred to as the *Anthropocene*, its precise definition—its beginning point and the spike used to denote its initiation—is the subject of ongoing research.

Ref: *Coben, K. M.; Finney, S. C.; Gibbard, P. L.; Fan, J.-X. (2013; updated) The ICS International Chronostratigraphic Chart. Episodes 36: 199-204*

GEM, MINERAL, & FOSSIL SHOW

Aug. 25-26 2018

**Sat. 9am-6pm Sun. 9am-4pm
BAXTER COUNTY FAIRGROUNDS**

**1507 Fairgrounds Drive
Mountain Home, AR. 72653**

Vendors selling beautiful gems, minerals, jewelry, fossils, & much more. Games, geode cracking, speakers, demonstrations, displays, presentations, free hourly door prizes, grand prize drawing. Concession will be provided by the Clarkridge Fire Department



**Admission: \$2. Kids 12 yrs. & under FREE!
Sponsored by: Ozark Earth Science Club**

**For more information call:
417-274-8712, 870-736-5804, or 870-421-4340**

June Board Minutes

Bonnie Cooper for Mike Baldwin

Called to order 6:30. Present: Charles Hill, Dave Clark, Jim Butchko, Kim Hill, Thomas Jones, Carol Lybanon, Matthew Lybanon, Bob Cooper, Bonnie Cooper, W. C. McDaniel.

Treasurer: May checking and summary reports were sent via email to Board Members. Paper copies were sent around along with the April bank statement. Reports accepted.

Membership: One new membership since the last meeting.

Secretary: Mike was unable to attend tonight's meeting, however he sent the May Board Meeting notes and Membership Meeting notes to all Board Members via email. Paper copies were sent around at the Board Meeting. Reports accepted.

Adult Programs: The June speaker, Keith Riding, will talk about Mt. Kilimanjaro. July—Jimmy McNeil, minerals of *Continued, P. 8*

June Board Minutes South Africa.
Continued from P. 7 August–Indoor Rock Swap.
 September–Dr. Nina Baghai-Riding, the Lonnie Looper Collection. October–Amber. November’s program TBD. December–the Holiday Party.
Rock Swaps: We will have three rock swaps this year. The first will be at W. C.’s house on Saturday, June 16, 10:30–2:30. Carol asks everyone to bring a rock, mineral, or fossil in a paper sack to swap. The second will be at our regular Membership Meeting on Friday, August 10. The last will be in October at the Freeman-Smith Park in Bartlett on Brunswick Road. Date and time TBD.

Field Trips: Jim and Kim listed the field trips for the year.

- June 9–Magnet Cove in Malvern, Arkansas, with the Arkansas Club. We will meet at 10:00 at the McDonald’s.
- June 23–20 Mile Creek in Mississippi. Meet time is 10:00.
- July 21–Matilda Pfeiffer Museum in Piggott, Arkansas. No fee but the club must make an appointment. Meet time is 11:00.
- August 18–Discovery Park in Union City. The best rates are if we have a group of 20+ and buy the tickets in advance. The club will pay part of the entrance fee. Meet time is 10:00.
- September 21–Hedger Quarry in Jonesboro, Arkansas. Meet time is 10:00. Not confirmed yet.
- October 20–somewhere local such as Richardson’s Landing, Sugar Creek, etc. The water level will determine where we will go. Meet time is 10:00.
- November 17–a quarry in Batesville, Arkansas. Meet time is 9:30.
- December 22–Pickwick Lake, since the water level should be lower. Meet time is 10:00.

Show: Most of the big items have

been paid. Ticket money is still coming in. The Memphis Stone & Gravel check has been received.

Old Business: None.

New Business: We need to start thinking about a nominating committee for club elections, which are this year. Charles will work on getting the committee together. If we need to make any by-law changes we need to work on it now, since it takes several months to complete the process.

Adjourned 7:36.

June Meeting Minutes

Secretary Mike Baldwin was not in attendance. No minutes were taken.

Jewelry Bench Tips by Brad Smith

SAWING SMALL TUBING

When making a hinged bracelet, I needed to cut 16 pieces of small diameter silver tubing. These were to be just approximate lengths and trimmed to final size after soldering. Not having a tube cutter, I had trouble holding the tubing on the bench pin while trying to saw through it.



So here's what I did. I drilled a hole in the side of the bench pin just large enough for the tubing to slide into and almost as deep as the length of cut tubing I wanted. Sawing became quick and easy. With my free hand, I inserted the

tubing and held it from rotating while sawing off each length.

SECRET INGREDIENT

Those of us who use paste solders sometimes find an old tube has dried out. There should be some way to recondition it, but what to use? Calling tech support at the suppliers didn't work for me. Either they don't know what the ingredient is or won't tell you the secret.

None of us likes to waste an expensive material, especially at \$16-20 a tube, so I've often experimented with ways to rejuvenate it. Mixing in a liquid flux doesn't work. When the liquid starts to boil off, it spatters the solder in all directions.

But after several failed experiments I finally found a way that does work. My secret ingredient is Vaseline™. Mix in just enough to restore the consistency to something that's usable. If you use too much, the lump of solder will flow over a wide area as soon as the torch starts heating it.



If your solder is in a syringe, it can be a little difficult to get the plunger out. I find the easiest way is to poke a hole through the solder from the tip to the rubber plunger (a bur shaft was the right size for my tube). The hole allows air

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MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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Jewelry Bench Tips to enter between the solder and the plunger, allowing the plunger to be slowly withdrawn. Once the solder is out of tube, you can easily add the Vaseline™, mix it up, and spoon it back into the syringe.

Pick Up a Few New Jewelry Skills With Brad's "How To Do It" Books, <http://amazon.com/author/bradfordsmith>

Wildacres Workshop

August 20-26, 2018

<http://sfmsworkshops.com/>

Tuition \$395

Full descriptions of class and instructors on website

Casting—Bill Harr

This class will teach silver casting for beginner and intermediate silversmithing. The emphasis will be on production centrifugal casting, meaning techniques for high reliability. The class will teach centrifugal and vacuum casting, wax modeling, spruing, investing, burnout, casting, finishing and polishing, rubber mold making and wax injection. Steam casting will be covered if there is interest.

Lab Fee: US\$100 Estimated Materials Cost: US\$100-wow

Beginning Chain-Maillé Jewelry—Roy Deere

This class is an introduction to one of the popular and fastest growing areas of jewelry making. Students will learn the proper way to open/close jump rings, basic patterns of linking the rings to form intricate chains, and finishing techniques to make the chains into wearable jewelry. The class will consist of a couple of pre-selected projects to

teach the basic techniques followed by other projects which each student can individually select. Class Fee: \$50 to \$150

Intermediate Chain-Maillé Jewelry—Roy Deere

The class will introduce the student to such advanced techniques as non-round jump ring shapes, jump rings made from different wire shapes, beaded enhancements, mixed metals, dangles, drapes, and many other enhancement techniques that can be applied to traditional designs to make them very unique. We will also examine some more complicated patterns and learn approaches to doing them which make the process much easier. Class Fee: \$75 to \$250

Fused Chain-Maille Jewelry—Roy Deere

In the Fused Chain-Maillé class we will explore the construction of necklaces, bracelets, and earrings which have all of their ends "soldered" together. Work will be done with Argentium wire. Argentium is a special class of Sterling Silver that has Germanium added to replace a small amount of the Copper in the Sterling. This changes some of the properties of the silver. Specifically it allows the silver to be fused. Class Fee: \$100 to \$300

Introduction to Gem ID—Teresa Polly

The course will be an Introduction to Gem ID. We will cover how to use a microscope, loupe, refractometer, polariscope, dichroscope, spectroscope and specific gravity set up to help identify stones. We will start with basic mineral identification. We will cover typical stone inclusions and how to tell natural stones from lab created stones. If

you have stones you would like to ID we can work on those for show and tell. The class fee is \$10.00.

Metal Clay—Judi Talley

Judi will introduce you to the fascinating medium of metal clay and demonstrate how every day moments in nature can be captured permanently in metal. While all levels of metal clay interest is welcome, I will be concentrating on capturing natural forms. Using gathered plant materials, we will make one fine-silver pendant, then expand into the alloy clays of bronze and brass, to experience the differences between working with different alloys. Class Fee \$75

Metalwork Special Projects—Jeff Sheer

After taking one of the excellent beginning classes the Federation offers most people want to learn more but might not be sure what direction to go in. Most have a few unfinished projects in their tool box that need a technique or two in order to finish them. Finishing these pieces or starting something from scratch is where this class comes in. Jeff will not tell you what to make. He prefers you to tell him what you want to make and where you are stumped. Class Fee: \$55

Silver I – Morning Sherrod

In this class the students will be taught the fundamental skills needed for them to advance in the wonderful world of silver jewelry making. You will learn proper sawing technique, torch soldering, flex shaft usage. Projects will be rings, pendants, and bracelets. Lab fees cover the cost of instructor provided tools, expendables and materials included in the 3 project kits. Addi-

Continued, P. 10

Wildacres Workshop tional materials
Continued from P. 9 and silver will
be available for
purchase. Lab Fee: \$125.00 Materi-
als Cost: \$50-\$200

Wire—Rowan Rose-Morgan
Students will enjoy a fun-filled
week while learning the techniques
and skills necessary to make their
own wire wrapped jewelry. All that
will be necessary to become a good
wire artist after the class is over
will be practice, practice, practice.
Students will be making bracelets,
pendants, rings, earrings, and other
project as time allows using mostly
square half-hard wire. Tools kits will
be available for use in class. Lab Fee:
\$30 Estimated Materials Cost:
US\$100-\$200

Gem Trees—Jerri Heer
This class will start with the basic
skills of gem tree making, and grad-
uate to an exploration of multiple
styles and advanced design of truly
beautiful and species specific trees.
We will discuss and study a variety
of construction methods, as well as
how to plan and create our own
patterns. Lab fee includes wire, leaf
stones, bases and materials to make
at least one small basic tree, one
medium tree and one large tree. All
instructions, patterns and tools will
be included.
Lab Fee: US \$80 Estimated Materi-
als Cost: US \$0-150

**Legless Creatures In
The News**

Matthew Lybanon, Editor

A group of Russian scientists
reported on feeding some nema-
todes—roundworms—in a recent
issue of *Doklady Biological Sciences*.

A Few Goodies

Thanks to MAGSter Jenn Flores for these photos of specimens she’s
found around and about.

Agate from a nearby construction site



Lake Erie find

Flint from a corn field
in Perry County, Ohio



The worms were not very different
from the kind you might dig up in
your back yard, so what’s the big
deal?

The worms had been frozen in
permafrost for up to 42,000 years.
That makes it a very big deal.
They had been cryogenically pre-
served, then awakened.

The Russian scientists success-
fully revived two species of tiny
worms that they discovered sus-
pended in an icy chunk of Siberian
permafrost. The researchers
brought the worms back to a lab,
where they slowly thawed them
over several weeks. They put the
worms in petri dishes with food,
stored at 20°C (68°F). As they
warmed, the worms started show-
ing signs of life, moving and eat-
ing. That marks the first docu-
mented time multi-cellular organ-
isms returned to functioning after

being frozen in permafrost.

In the journal article, the au-
thors acknowledge that certain
types of bacteria, algae, yeasts,
seeds, and spores have been found
to remain viable even after being
frozen in permafrost for thou-
sands or even millions of years.
But an organism as complex as the
nematode has never been shown
to be capable of this. Until now,
the longest nematodes had been
dormant then revived was 39 years.

The permafrost samples came
from the remote Yakutia region in
Siberia. The researchers analyzed
over 300 samples, and selected
two that contained well-preserved
nematodes. One sample was 100
feet deep and estimated to have
frozen 32,000 years ago, while the
other was just over 11 feet deep
and froze 42,000 years ago.

Continued, P. 11

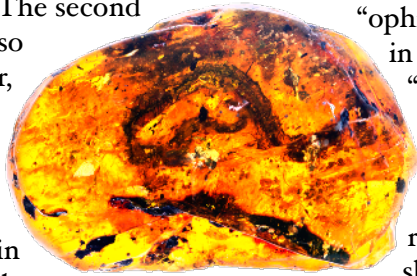
Legless Creatures In The News
Continued from P. 10

Despite their age these worms may not qualify as fossils, since they came back to life. But another specimen described in another recent journal article clearly qualifies.

Scientists working in Myanmar have uncovered a nearly 100-million-year-old baby snake encased in amber. Dating back to the Late Cretaceous, it's the oldest known baby snake in the fossil record, and the first snake known to have lived in a forested environment.

This remarkable fossil, along with a second fossilized snake specimen, was discovered at the Angbamo site in Myanmar's Kachin Province. The second fossilized snake, also preserved in amber, only consisted of bits of scales and skin, but these remnants were clearly snake-like in appearance. Together, the fossils are offering fresh insights into the evolution of snakes and their global reach by the time of the Late Cretaceous.

Using uranium-lead dating, a research team led by Lida Xing from the China University of Geosciences and Michael Caldwell from the University of Alberta dated the fossils to about 99 million years old. A technique called synchrotron x-ray micro-computed tomography allowed the researchers to get a close look at the tiny specimens inside the amber without having to break them apart.



The snakes' vertebrae show similarities to those of fossil Gondwanan snakes, suggesting a dispersal route of Gondwanan faunas to Laurasia. The new species is the first Mesozoic snake to be found in a forested environment, indicating greater ecological diversity among early snakes than previously thought.

The baby snake, which was just a hatchling when it died, measured 47.55 mm in length, but it's missing its head. The researchers were able to document nearly 100 vertebrae, along with bits of rib and other anatomy. It's similar to other Cretaceous snakes, yet unique enough to warrant the designation of a new species, *Xiaophis myanmarensis*, where "Xiao" is the Chinese word for "dawn,"

"ophis" means "snake" in Greek, and "myanmarensis" for Myanmar.

Xiaophis myanmarensis is comparable in size and shape to some baby snakes observed today, like the Asian pipe snake. This fossil provides the earliest direct evidence showing that the growth patterns of snakes have remained unchanged for the past 100 million years. These two snakes are also the first Mesozoic snakes known to have lived in a forest environment.

Refs:

Sbatilovich, A.V., Tchesunov, A.V., Neretina, T.V. et al., Viable Nematodes from Late Pleistocene Permafrost of the Kolyma River Lowland, Dokl Biol Sci (2018) 480: 100. <https://doi.org/10.1134/S0012496618030079>

Xing et al., A mid-Cretaceous embryonic-to-neonate snake in amber from Myanmar, Sci. Adv. 2018; 4 (7) : eaat5042 18 July 2018

Cascadia Fault Update

Matthew Lybanon, Editor

An article in the November 2016 *MAGS Rockhound News* discussed the likely consequences of, a magnitude 8.7 or greater earthquake in the Cascadia Subduction Zone (in the Pacific Northwest, where the Juan de Fuca Plate is sliding under the North American Plate). New seismic data provide structural basis for strong earthquakes that strike at both ends of the Pacific Northwest fault zone.

With four years of data from 268 seismometers on the ocean floor and several hundred on land, researchers have found anomalies in the upper mantle below both ends of the Cascadia Subduction Zone, which point to pieces of the Earth's upper mantle that are rising and buoyant because of melting rock and possibly elevated temperatures.

The data suggest that in localized areas the plates are stuck together tightly, so they are building up stress.

This situation could lead to earthquakes that are strong but below that of the massive event projected should all of Cascadia rupture at once.

Ref: *M Bodmer et al.t, Buoyant Asthenosphere Beneath Cascadia Influences Megathrust Segmentation, Geophys. Res. Lett., 2018; <https://doi.org/10.1029/2018GL078700>*

MAGS At A Glance

August 2018

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30	31	1	2 Board Meeting, 6:30 pm, St. Francis Hospital	3	4 DMC Field Trip, Chunky Gal Mountain, North Carolina, 9:00-4:00
5	6	7	8	9	10 Membership Meeting, 7:00 pm, Indoor Rock Swap/Picnic	11
12	13	14	15	16	17	18 MAGS Field Trip, Discovery Park, Union City, Tennessee, 10:00
19	20	21	22	23	24	25 Ozark Earth Sciences Club Show, Mountain Home, Arkansas
26 Ozark Earth Sciences Club Show, Mountain Home, Arkansas	27	28	29	30	31	1

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