



Volume 63 ◊ Number 11 ◊ November 2017 ◊ A monthly newsletter for and by the members of MAGS

The Truth About Radiation

Konrad Armstrong, MAGS Junior Member



The November program will have three segments.

The first segment will be mainly just explaining what radiation is, the different forms, how it can affect humans, and how to protect yourself from it.

The second segment will be giving examples of radioactive

sources, either from around the household or possible mineral sources. I will also bring some radioactive antiques.

The third segment will be a demonstration of a cloud chamber. It will make the particles of ionizing radiation visible to the human eye.

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DINOSAUR EGGS IN BARTLETT

Despite threatening skies, we had mild temperatures and no rain when a large group of MAGSters got together for our October 22 picnic and rock swap. There was plenty of good food, plus door prizes and more. There were several activities—and we didn't leave out the Juniors.

Everybody joined in the dinosaur egg hunt.



Dinosaurs and other surprises hatched from the eggs. Juniors chased dinosaur-size bubbles.

Thank you, Bob and Bonnie Cooper, and Alan and Debbie Schaeffer, for helping with setup and cleanup. Special thanks go to W. C. McDaniel, Lou White, and Park Noyes, for donating some special prizes.

You can see pictures on 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

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: Amos Cunningham Farm, Due West, SC (\$25 fee)

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

COLLECTING: Beryl and quartz crystals

INFORMATION: Bob Green, greentop@bellsouth.net or Bill Wetzl, wwetz14@gmail.com

Links to Federation News

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

October 22 Picnic and Rock Swap Pictures



Show Committee

Show Committee Chair Jim Butchko has reserved the Agricenter board room for the following Mondays:

- ♦ October 30, 2017
- ♦ November 27, 2017
- ♦ January 8, 2018
- ♦ January 29, 2018
- ♦ February 26, 2018
- ♦ April 2, 2018

These dates are the Mondays before Board Meetings except for January 8 (you can still watch those football games). If you are interested in helping to get ready for the best mineral, fossil, and jewelry show in the area, give Jim a call at (901) 743-0058. You can get in on the planning for the big show; it's more fun to be involved.

Help Needed

Longtime MAGS Member Ron Brister needs your help. Here are the details:

Ron Brister is interested in buying a survey collection (one or two examples of each species) of common Devonian Period Birdsong Shale fossils found at the Vulcan Materials Company quarry in Parsons, Tennessee. I am unable to field collect due to joint (no, not that kind) and balance problems. Please email me at bristerr@bellsouth.net.

Roy G. Biv

Matthew Lybanon (Editor)

The title is a mnemonic from Physics class (you remember, don't

you?): Red, Orange, Yellow, Green, Blue, Indigo, Violet—the sequence of hues commonly described as making up a rainbow.

Color. What color were dinosaurs (was *Jurassic Park* realistic?)? It's hard to tell just from bones. Can we get an idea from modern reptiles? Well, no—they're all different colors.

Today, many big animals (elephant, rhinoceros) are a dull gray. They don't need camouflage; their bulk is a sufficient defense against predators. A new fossil analysis reveals that things were different in the Cretaceous period, 110 million years ago. Even massive dinosaurs with thick skin and long spikes needed to avoid predators. They evolved

Continued, P. 4

Roy G. Biv camouflage, according to a study published in the journal *Current Biology*.

The research was based on a lucky find. On the afternoon of March 21, 2011, a heavy-equipment operator named Shawn Funk was carving his way through the earth at the Millennium Mine, a vast pit some 17 miles north of Fort McMurray, Alberta. In 12 years of digging he had stumbled across petrified wood and the occasional petrified tree stump, but never the remains of an animal.

But around 1:30, Funk's bucket clipped something much harder than the surrounding rock. Oddly colored lumps tumbled out of the till, sliding down onto the bank below. Within minutes Funk and his supervisor, Mike Gratton, began puzzling over the walnut brown rocks. Were they strips of petrified wood, or were they ribs? And then they turned over one of the lumps and revealed a bizarre pattern: row after row of sandy brown disks, each ringed in gunmetal gray stone.

"Right away, Mike was like, 'We gotta get this checked out,'" Funk said in a 2011 interview. "It was definitely nothing we had ever seen before."

They had found a remarkably well-preserved fossil of a giant armored dinosaur called a nodosaur. Nearly six years later, researchers at the Royal Tyrrell Museum in Alberta published some remarkable results. In an interview, Caleb Brown, a post-doctoral researcher at the museum, said, "We don't just have a skeleton. We have a dinosaur as

it would have been."



For paleontologists the dinosaur's amazing level of fossilization—caused by its rapid undersea burial—is as rare as winning the lottery. Usually just the bones and teeth are preserved, and only rarely do minerals replace soft tissues before they rot away. This specimen was different. The fossil was still covered with fossilized skin and with the remnants of its last meal in its stomach.



The researchers discovered chemical traces of pheomelanin, the same pigment that gives redheads their hair color, within the dinosaur's fossilized hide. The nodosaur was darker red and brown on top than on the bottom. This pattern, one seen today with deer and antelope, obscures a creature's silhouette.

After the miner found the nodosaur, a fossil preparer named Mark Mitchell worked for more than five years to expose the creature within the rock. The animal's scientific name, *Borealopelta markmitchelli*, honors

his over 7,000 hours of labor. "Borealopelta" comes from the Latin and Greek and Greek for "Northern shield," a reference to its home range and fierce armor; "markmitchelli" comes from the name of the professional fossil preparator at the museum for more than two decades.

Ref: *Current Biology*, Brown et al.: "An Exceptionally Preserved Three-Dimensional Armored Dinosaur Reveals Insights into Coloration and Cretaceous Predator-Prey Dynamics" [http://www.cell.com/current-biology/fulltext/S0960-9822\(17\)30808-4](http://www.cell.com/current-biology/fulltext/S0960-9822(17)30808-4), DOI: 10.1016/j.cub.2017.06.071

November Birthdays

- 1 W. C. McDaniel
- 5 Keagan McMann
- 13 Matthew Lambert
- 14 Robin Brown
- 15 Philip Goossens
- 16 Melody Smith
Chris Scott
- 17 Jon Flores
- 18 Cathie Jacobs
- 19 Nina Riding
Clyde Chrisman
- 21 Tabitha Lambert
- 22 Angela Hill
Melba Cole
- 23 Shirley Ruth Chrisman
James Brown
Brittani Lambert
- 24 Charles Carter
- 25 Amy Smith
Noel Clark
- 27 Karen Joseph
Dr. Ronné Adkins
Dylan George
- 28 Diane Donohue
Alan Parks

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November Birthdays

Continued from P. 4

- 29 McLain Walls
Nedra Baum
Ashley Von Boeckman
Mike Pause
- 30 Marlowe Blodgett
Helen Kastner
Robert Neill

Upcoming Programs

The annual holiday party will take the place of the December program. The programs in January and February will be a little different. Several MAGSters will tell you what happens when rockhounds travel to interesting foreign countries.

New Members

Aaron and Sherri Jones
Debra York



Fabulous Tennessee Fossils

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

FTF 34

Fossil Bats of Tennessee

Did Tennessee Have Halloween Vampire Bats?



Being that this is the Halloween season, it would be appropriate for a Halloween-themed Fabulous Tennessee Fossils article. Surely there are some good scary “monsters” in Tennessee’s fossil record (after all there was a time when dinosaurs were considered monsters, at least to Hollywood and 1960s “monster kids”). How about vampire bats in Tennessee? As it turns out, there have been no Tennessee fossils found of human vampires, werewolves, wolfmen, or stitched together Frankenstein’s monsters...at least not yet. However, Tennessee does have a pretty good record of bat fossils and bats surely are good Halloween fare.

Bats are of course mammals (as they have hair and mammary

glands). Tennessee’s modern bat fauna is abundant, diverse, and includes at least 15 species, such as the Eastern Pipistrelle (*Pipistrellus subflavus*), Little Brown Bat (*Myotis lucifugus*), Southeastern Bat (*M. austroriparius*), Gray Bat (*M. grisescens*), Northern Long-eared Bat (*M. septentrionalis*), Indiana Bat (*M. sodalists*), Eastern Small-footed Bat (*M. leibii*), Tri-colored Bat (*Perimyotis subflavus*), Big Brown Bat (*Eptesicus fuscus*), Rafinesque’s Big-eared Bat (*Corynorhinus rafinesquii*), Townsend’s Big-eared Bat (*C. townsendii*), Eastern Red Bat (*Lasiurus borealis*), Hoary Bat (*L. cinereus*), Silver-haired Bat (*Lasiorycteris noctivagans*), Evening Bat (*Nycticeius humeralis*), and very rare occurrences of the rare occurrences of the Seminole Bat (*Lasiurus seminolus*), and the Brazilian Free-tailed Bat (*Tadarida brasiliensis*).

Bats have a weak fossil record in general for fairly obvious

Kingdom Animalia
Phylum Chordata
Class Mammalia
Order Chiroptera Blumenbach, 1779–1780
Family Vespertilionidae Gray, 1821
Subfamily Vespertilioninae Gray, 1821
Tribe Eptesicini Volleth & Heller, 1994
Genus *Eptesicus* Rafinesque, 1820
Eptesicus cf. *E. fuscus* Palisot de Beauvois, 1796

reasons. Most fossil occurrences of bats in Tennessee are from Pleistocene to Holocene sediments within caves. Bats have very small, very delicate and thin bones, necessary for flight, but a taphonomic disadvantage for preservation. Bat bones and teeth are “microvertebrate fossils” that are easily overlooked unless the sediment is screened and picked. However, bats live in large numbers in close confines of the cave systems, so there is high likelihood of preservation bone and teeth preservation in localized pockets. They do have a tendency to dwell in karst and cool cave systems, which provides some probability of *Continued, P. 6*

Fabulous Tennessee Fossils *Continued from P. 5*

preservation within cave sediments that are protected from erosion. Then again their likelihood of being found is lower than surface vertebrates because bats are hidden below ground where few excavations occur and excavation conditions are difficult to conduct or be permitted to conduct (caves are often protected sites). Additionally, cave systems often cycle through periods of flushing by water due to modern climate change that can remove once buried remains as many caves are now entering periods of renewed erosion.

But do not despair, Halloween bat lovers!. Tennessee does have a fossil record of our favorite flying Halloween mammal cousin. For example, in the 1960's several bat fossils belonging to the genus *Plecotus* were found in Robinson Cave in Overton County by John Guilday and Allen D. McCrady from the Carnegie Museum in Pittsburgh, Pennsylvania. In the late 1990s more than 10,000 bones and teeth belonging to nearly all of the extant bats listed for modern Tennessee in the paragraph above were represented by bone, teeth, and cranial elements in cave systems in Hamilton County, near Lookout Mountain, Chattanooga, by Timothy J. Gaudin and Jeremy Bramblett from the University of Tennessee at Chattanooga. In a 2011 follow-up study, the same authors noted that the *Eptesicus* bat faunas was overlain by *Myotis* the bat fauna within sediments of the same caves system which they concluded repre-

sented a shift in species due to climate warming during the Holocene Epoch (last 10,000 years).

The most recent bat finds are associated with the Gray Fossil Site in Washington County, Tennessee. In April of this year, Nicholas J. Czaplewski of the Oklahoma Museum of Natural History published a paper describing the first bats recovered from the Miocene-Pliocene sinkhole deposit. Czaplewski identified eight different species, most of which could not be assigned to known taxa, but he was able to confer one species to *Eptesicus fuscus*, the modern Big Brown Bat, that seems to be the most common fossil bat found in Tennessee (see box inset for taxonomy of this species). Other work at the Gray Site indicates that Tennessee was a warm, subtropical, oak-hickory-conifer forest during the Mio-Pliocene. Interesting, Czaplewski also suggests that the Gray Site had little season temperature variation indicating little need for the bats at the site to hibernate during cool months, unlike modern bats inhabiting Tennessee.

So what about that iconic bat of Halloween lore, the famous (or infamous) vampire bat (there are actually three species of vampire bat within three genera: *Desmodus rotundus*, *Diphylla ecaudata*, and *Diaemus youngi*)? Any living in Tennessee, or any fossils from Tennessee? Alas, I am sad to report that there are no wild free-living vampire bats in Tennessee (except perhaps in captivity) as their geographic range is Mexico, Central and South America. Unfortunately, even though

Tennessee has an excellent fossil record of bats, none of the fossils belong to the vampire bat. Not to worry though, there are still plenty of *bat-tastic* creepy fossils to enjoy from Tennessee (sorry about the 1960's Batman pop culture reference)! Happy Halloween.

September Board Minutes

Mike Baldwin

Called to order 6:10 P. M. Attending: Charles Hill, Kim Hill, David Clarke, Matthew Lybanon, Carol Lybanon, Bonnie Cooper, Bob Cooper, W. C. McDaniel, and Mike Baldwin.

First order of business by Charles was the nomination of James Butchko as chairman for 2018 Show. Motion passed unanimously.

Membership: One new Member since last meeting. Bob is considering changing the membership application to make the membership dues section easier to understand.

Historian: Sunday, October 22, 12:00 -3:00 is the date for the outdoor picnic at Freeman Smith Park in Bartlett. A number of fun things are planned.

Treasurer: Bonnie distributed the bank summary. Rent has been paid through December. Bonnie just received a report on MAGS CDs. Only a few expenses from now to the end of the year.

Secretary: August minutes were distributed via email to Board Members. Mike also distributed hard copies prior to the opening of tonight's meeting. September newsletters have been printed and mailed to Members without email. The MAGS website has been updated with September information on the home page, newsletter pages, and calendar page.

Programs: Barry Gilmore will bring his own computer and projector for the September meeting. He will do a *Continued, P. 7*

MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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September Board Minutes program on opals. Dr. Jennifer

Gifford (University of Mississippi) will do a program on roadcuts and outcrops in October. The December meeting will be the annual holiday party. The January program will be journeys around the world.

Show: The next expenditure will be the down payment on the 2018 show. Matthew will pay the fee next week.

Newsletter: There will be a tribute section to Idajeon in the next issue. Matthew needs testimonials and pictures from Members. W. C. will let us know if he finds out anything about arrangements for Idajeon.

Field Trips: The Nonconnah Creek field trip will be on September 16. There will be a sign-up sheet at the September meeting.

New Business: The Board briefly discussed the possibility of having new club t-shirts designed and printed with the new logo on them. We need a catchy slogan or artwork for the back of the shirts.

September Meeting Minutes

Mike Baldwin

Called to order 7:06 P. M.

We have one visitor tonight [Sandy Ward--former Member and MAGS President]. The outdoor rock swap and picnic at Freeman Smith Park in Bartlett will be on October 22, 12:30-3:00. The Nonconnah Creek field trip will be on September 16. Matthew Lybanon mentioned to Members that Idajeon Jordan passed away recently. The next newsletter will have a tribute to her. Please send your thoughts, words, and pictures. If you have a suggestion for new library book purchases or book reviews, please send them to Librarian Leah Gloyd.

Displays:

- David Clarke: fossils from Crowley's

Ridge, including a 110-lb piece of petrified wood, fossils from Jonesboro, agatized wood

- Kim Hill, Jonesboro finds
- Leo and Jan, Jonesboro and Nonconnah finds, including bottles, agates and hubcap

Juniors were dismissed to attend their program. W. C. McDaniel introduced Barry Gilmore, who gave an interesting program on opal collecting and preparing opal for jewelry making.

Adjourned 8:10 P. M.

Jewelry Bench Tips by Brad Smith

MANDRELS

Straight rod mandrels have a multitude of uses in helping to bend sheet and wire, and frequently we need a round rod for winding jump rings. Common sources for different sized rods are knitting needles, wooden dowels and clothes hangers. Metal rods can also be found in hardware stores and hobby shops.



But to get the right "look" in chain mail designs, you must have exactly the right size mandrel, and often those are not easy to find. Jewelry catalogs sell selections of straight rod mandrels for \$50 or more, but my choice is a set of transfer punches used in wood-

working. The set has 28 sizes, from 3/32 inch to 1/2 inch, and is only about \$12. In the US it is available from Harbor Freight as item number #3577, and in Europe it's available from MZS in the Netherlands as item number 250575.



JUST SAY NO TO OPTIVISORS

I was having my annual vision-check and the light-bulb went on: why not have my reading glasses made with bifocals that would magnify the same as the Optivisors? So I asked the ophthalmologist if he could add around +2.00 diopters into bifocals.

He checked with his supervisor and came back all excited. They all agreed that was a great idea and even gave him a special device to measure how far I hold a jewelry piece from my eye, so they could get the focal distance exactly right. So if all goes well, no more sweaty bulky Optivisors! (Thanks to Gary Strickland)

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

BOLO (be on the lookout):
New MAGS t-shirts are on the way. Let us know what size(s) you want so we can order enough.



Thank you, Jenifer Flores, for this great picture of a great find at Richardson Landing.

50 Really Big Ones

Matthew Lybanon (Editor)

Along a 700-800 mile stretch off the coast of the Pacific Northwest, the Juan de Fuca Plate is sliding under the North American Plate. This is the Cascadia Subduction Zone, named for the Cascade mountain range, approximately parallel around 100 miles inland. In 1700 this motion unleashed a 9.0 earthquake.

One of the worst nightmares for many Pacific Northwest residents is a huge earthquake along the Cascadia Subduction Zone, which would unleash damaging and likely deadly shaking in coastal Washington, Oregon, British Columbia, and northern California. Oregon State University scientists estimate that the Cascadia fault has a 37% chance to produce a major earthquake in the next 50 years, and a 10% chance that it will be a “full-margin rupture” (an event in which the entire Cascadia Subduction Zone gives way at once).

If this looks familiar, it may be because you recall an article, “The Big(ger) One,” which appeared in *MAGS Rockhound News*, November 2016 issue. That article reported a FEMA estimate that a tsunami

resulting from such an event would inundate 140,000 square miles—Seattle, Tacoma, Portland, Eugene, Salem (Oregon’s capital), Olympia (Washington’s capital)—and seven million people. In addition, the estimate is that 13,000 people would die, 27,000 would be injured, that a million displaced people would need shelter, and food and water would be needed for another 2.5 million. Quoting Kenneth Murphy, who directs FEMA’s Region X (responsible for Oregon, Washington, Idaho, and Alaska), “Our operating assumption is that everything west of Interstate 5 will be toast.”

Not surprisingly, this is of great concern in that part of the United States. The University of Washington established the M9 Project:

“The M9 Project’s goal is to reduce the catastrophic impact of Cascadia subduction zone earthquakes on the social, built, and natural environments through research advancements in methods, early warnings, and community planning.

THE M9 PROJECT’S APPROACH

- Bring together a broad team of UW researchers from physical sciences, mathematics, engineering, urban planning, and social sciences
- Better define the range of possibilities and the limits of our understanding of the effects of a subduction zone earthquake (strong focus on probabilistic methods)
- Apply this increased understanding to improving technological and social

aspects of predictive and warning systems

- Work with local, state, and federal partners to apply results, improve community planning and resilience”

They presented some research results on October 24 in Seattle, at the annual meeting of the Geological Society of America. The team presented both best- and worst-case scenarios of a potential 9.0 earthquake on the Cascadia subduction zone. Their 50 simulations use different factor combinations, such as where the epicenter may be, how far inland the earthquake would travel, and where along the fault the shaking would be the strongest.

“There had been just a handful of detailed simulations of a magnitude-9 Cascadia earthquake, and it was hard to know if they were showing the full range,” said Erin Wirth, who led the project as a UW postdoctoral researcher in Earth and space sciences. “With just a few simulations you don’t know if you were seeing a best-case, a worst-case, or an average scenario. This project has really allowed us to be more confident in saying that we’re seeing the full range of possibilities.”

The research effort began by establishing which factors most influence the pattern of ground shaking during a Cascadia earthquake. One, of course, is the epicenter, or more specifically the “hypocenter,” which locates the earthquake’s starting point in three-dimensional space.

Another factor they found to be important is how far inland the fault *Continued, P. 9*

50 Really Big Ones slips. A
Continued from P. 8 magnitude-9.0
earthquake
would likely give way along the
whole north-south extent of the
subduction zone, but it's not well
known how far east the shake-
producing area would extend,
approaching the area beneath
major cities such as Seattle and
Portland.

The third factor is a new idea
relating to a subduction zone's
stickiness. Earthquake research-
ers have become aware of the
importance of "sticky points," or
areas between the plates that can
catch and generate more shaking.
This is still an area of current
research, but comparisons of
different seismic stations during
the 2010 Chile earthquake and the
2011 Tohoku earthquake show that
some parts of the fault released
more strong shaking than others.

Overall, the results confirm
that coastal areas would be hardest
hit, and locations in sediment-
filled basins like downtown Seattle
would shake more than hard,
rocky mountaintops. But within
that general framework, the
picture can vary a lot; depending
on the scenario, the intensity of
shaking can vary by a factor of 10.
None of the pictures is rosy.

Ref: Wirth, E., et al, 3-D
SIMULATIONS OF M₉
EARTHQUAKES ON THE
CASCADIA MEGATHRUST:
KEY PARAMETERS AND
CONSTRAINTS FROM
PALEOSEISMIC EVIDENCE,
Final Paper Number 210-5, Geological
Society of America Abstracts with
Programs. Vol. 49, No. 6, doi: 10.1130/
abs/2017AM-300968

November Field Trip

The next field trip will travel
to middle Tennessee on November
18, for Livingston geodes and Dale
Hollow Lake fossils. Contact field
trip leader Jim Butchko for more
details.

Very Old Hominin Footprints

Matthew Lybanon (Editor)

Newly discovered human-like
footprints from Crete may put the
established narrative of early
human evolution to the test. The
footprints are approximately 5.7
million years old and were made at
a time when previous research
puts our ancestors in Africa—with
ape-like feet.

Ever since the discovery of
fossils of *Australopithecus* in
South and East Africa during the
middle years of the 20th century,
the origin of the human lineage
has been thought to lie in Africa.
More recent fossil discoveries in
the same region, including the
iconic 3.7 million year old Laetoli
footprints from Tanzania which
show human-like feet and upright
locomotion, have cemented the
idea that hominins (early members
of the human lineage) not only
originated in Africa but remained
isolated there for several million
years before dispersing to Europe
and Asia. The discovery of
approximately 5.7 million year old
human-like footprints from Crete,
published online by an inter-
national team of researchers,
overthrows this simple picture and
suggests a more complex reality.

The new footprints, from
Trachilos in western Crete, have


an unmistakably human-like form.
This is especially true of the toes.
The big toe is similar to our own
in shape, size and position; it is
also associated with a distinct
'ball' on the sole, which is never
present in apes. The sole of the
foot is proportionately shorter
than in the Laetoli prints, but it
has the same general form. In
short, the shape of the Trachilos
prints indicates unambiguously
that they belong to an early homi-
nin, somewhat more primitive
than the Laetoli trackmaker. They
were made on a sandy seashore,
possibly a small river delta,
whereas the Laetoli tracks were
made in volcanic ash.

At approximately 5.7 million
years, the footprints are younger
than the oldest known fossil
hominin, *Sahelanthropus* from
Chad, and contemporary with
Orrorin from Kenya, but more
than a million years older than
Ardipithecus ramidus with its ape-
like feet. The Trachilos footprints
are securely dated using a combi-
nation of foraminifera (marine
microfossils) from over- and
underlying beds, plus the fact that
they lie just below a very distinct-
ive sedimentary rock formed when
the Mediterranean sea briefly
dried out, 5.6 million years ago. By
curious coincidence, earlier this
year, another group of researchers
reinterpreted the fragmentary 7.2
million year old primate *Graecop-
ithecus* from Greece and Bulgaria
as a hominin.

Ref: Gierlinski, G. D. et al. 2017.
*Possible hominin footprints from the
late Miocene (c. 5.7 Ma) of Crete?*
*Proceedings of the Geologists'
Association, advance online.*

MAGS At A Glance

November 2017

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30	31	1	2 Board Meeting, 6:30 pm, St. Francis Hospital	3	4
5	6	7	8	9	10 Membership Meeting, 7:00 pm, "The Truth About Radiation"	11 
12	13	14	15	16	17	18 MAGS Field Trip, Middle Tennessee/ DMC Field Trip, Polk County, Georgia
19	20	21	22	23 	24	25
26 Show Committee Meeting, Agricenter, 6:30 pm	27	28	29	30 Board Meeting, 6:30 pm, St. Francis Hospital	1	2

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