

The Paleo Times

Volume 13 Number 6

June 2014

The Official Publication of the Eastern Missouri Society For Paleontology

EMSP SOAPBOX

By Ryan Fairbanks & Faye Whobrey

If you have any articles, comments, or need to communicate with me I can be reached through the following: emsp.sec@mofsossils.com.

Next meeting

Next meeting is **Friday, June 13, 2014** at 7:30 pm in the New Earth and Planetary Sciences building at Washington University (see more details below).

President's Corner

WOW! Summer, end of school, and vacation time are finally here at last! What are your plans? How much exploring of new places do you have included? Check out our website for some suggested sites you might want consider.

The 17th Annual Missouri Mines Rock Swap is June 13-14-15, 2014 at Missouri Mines State Historic Site, Park Hills, MO. Fliers will be available at the June 13th meeting. This is always a great event with lots of really good deals and silent auctions going on throughout the event. They have minerals, rocks and FOSSILS! They are in need of volunteers. So, if you are interested, please contact Boneta Hensley at 573-760-0488. The event is co-sponsored by the Greater St. Louis Association of Earth Science Clubs of which we, EMSP, are a member. If you have not seen the museum there, then this is a must do" for you and family. They also have an incredible addition sitting in front of the building – a very large

(over 5 ft tall) stromatolite "boulder" unearthed locally while digging fill dirt.

The club really appreciates everyone's support for our Committees this year. Please continue to provide your ideas and suggestions as we want to meet everyone's needs and expectations but can only do that through your input and assistance.

Thanks to Tom Lee for volunteering to fill Marie Shoemaker's position as Show Committee representative. Marie has done an excellent job for the club in that position for a few years and we really appreciate her hard work and dedication.

June program will be presented by Professor Carl Campbell. He will do a slide show on "South Dakota School of Mines Geology Museum." You just might want to add this to your summer vacation.

Some of the overburden at the Ardeola, MO, site has been removed and immediate success was evident with the find of an "Ammonite with 12" diameter!" Slides will be shown at the June meeting.

Website:

1. If you don't have your picture posted, please let us know. It is a great way for new members to learn who we are and for us to recognize them. Remember they have a lot more faces to recognize than we do.
2. Please submit pictures of your field trip to Pat for posting on website.

Congratulations!

EMSP has awarded member Grace Allison a \$500 scholarship to attend St. Louis Community College's Geology Field Course this month.

OTHER ITEMS

There was a board meeting May 20th 2014.

In attendance: Rick, Bruce, Tom, Carl, Faye, Chris, and Abby.

There was movement to push board meetings until after rush hour at 7pm in future.

The theme "Mososaurs" was chosen for the EMSP display at the August rock and mineral fossil show.

Dr. Bruce and board discussed means to resume and expedite work at the Cronister site (Missouri dinosaur). A storm damaged the shelter and the site is flooded with rain water.

The Montana trip timeline is July 5-23rd.

Don't forget to turn in your Field Trip Surveys. This will help with planning upcoming events. We want to know what you think.

Paleo-shorts

I would still like to see some old articles that people have written for past newsletters. The club has had a surge of new membership in the last few years and I think there are a lot of people now that would love to read those old stories for the first time.

New Pterosaur Fossil

A new pterodactyloid fossil discovered in alluvial plain deposits of Shishugou Formation at Wucuiwan, Junggar Basin, Xinjiang, China extends the age of the main the fossil record of pterodactyloids by at least five million years to the Middle-Upper Jurassic boundary ~163 million years ago. The animal has been named Kryptodrakon progenitor by professors from George Washington University, University of South Florida, and the Chinese Academy of Sciences. The professors state that most pterosaur fossils are found in marine sediments which supported theories of multiple radiations of marine to terrestrial evolution within the pterosaur group. Their find was of terrestrial origin and the oldest yet of the pterodactyloid group of pterosaurs. Through

phylogenic analysis the team believes Kryptodrakon demonstrates the pterodactyloid group originated on land and gave rise to the pterodactyloid group of pterosaurs which lead to the largest lineage of the flying reptiles. They also believe that pterosaur evolution highly correlated with their environment which lead to the large diversity of the pterosaur group.

<http://www.sciencedaily.com/releases/2014/04/140424124652.htm>

Brian Andres, James Clark, Xing Xu. **The Earliest Pterodactyloid and the Origin of the Group.** *Current Biology*, 2014; DOI: [10.1016/j.cub.2014.03.030](https://doi.org/10.1016/j.cub.2014.03.030)

Cougars' diverse diet helped them survive the mass extinction that wiped out the saber-tooth cat, American lion

During the ice ages six species of large cats inhabited North America. Only the cougar and jaguar survived the Pleistocene extinction where most of the megafauna went extinct. Scientists from Vanderbilt University and the University of Wyoming used a new forensic technique called dental microwear texture analysis (DMTA) to compare modern animals and teeth from cats of the La Brea Tar Pits to discern diet differences between species. DMTA employs a confocal microscope to make a 3D image of tooth surfaces. The analysts compared the wear patterns of modern hyenas, cheetahs, cougars, and lions and determined that the meal eaten within a few weeks of an animal's death leave notable marks. For example eating red meat with bones adds large deep pits.

The team compared 50 bit cat fossil and modern cougar samples in all. Previous work showed similar dental wear patterns between extinct American lions and modern cheetahs which prefer tender meat and do not chomp on bones. They found saber-tooth cat teeth resembled African lions which eat meat and bones. The La Brea cougar fossils contained larger wear pattern variations which the researchers interpret ice age cougars had a "more generalized" dietary behavior. This finding is in line with modern cougars which are predators and scavengers of a variety of prey size. The researchers believe ancient cougars had a similar diet which may be the reason they survived the mass Pleistocene extinction.

<http://www.sciencedaily.com/releases/2014/04/140422202047.htm>

Vanderbilt University. "Cougars' diverse diet helped them survive the mass extinction that wiped out the saber-tooth cat, American lion." ScienceDaily. ScienceDaily, 22 April 2014.

Krypton used to accurately date ancient Antarctic ice

Krypton dating is much like the more-heralded carbon-14 dating technique that measures the decay of a radioactive isotope -- which has constant and well-known decay rates -- and compares it to a stable isotope. Unlike carbon-14, however, krypton is a noble gas that does not interact chemically and is much more stable with a half-life of around 230,000 years. Carbon dating doesn't work well on ice because carbon-14 is produced in the ice itself by cosmic rays and only goes back some 50,000 years.

Krypton is produced by cosmic rays bombarding Earth and then stored in air bubbles trapped within Antarctic ice. It has a radioactive isotope (krypton-81) that decays very slowly, and a stable isotope (krypton-83) that does not decay. Comparing the proportion of stable-to-radioactive isotopes provides the age of the ice.

Though scientists have been interested in radio-krypton dating for more than four decades, krypton-81 atoms are so limited and difficult to count that it wasn't until a 2011 breakthrough in detector technology that krypton-81 dating became feasible for this kind of research. The new atom counter, named Atom Trap Trace Analysis, or ATTA, was developed by a team of nuclear physicists led by Zheng-Tian Lu at Argonne National Laboratory near Chicago.

<http://oregonstate.edu/ua/ncs/archives/2014/apr/scientists-successfully-use-krypton-accurately-date-ancient-antarctic-ice>

Impact glass from asteroids and comets stores biodata for millions of years

When a meteorite hits the earth, the impact heat tons of earth and organic material to very high temperatures. Large amounts of glass is formed during these episodes. Scientists examining this

impact glass from Argentina have found several small plant specimens lodged in the glass. About 1 centimeter pieces of leaves were found with intact papillae, or small bumps on the leaves surface.

Scientists think that water on the outside of the leaf insulated it during the impact. The molten glass would have formed and cooled around the leaves essentially "deep frying" and preserving them. Other samples that were analyzed had organic hydrocarbons in them, the chemical signatures of living matter. Which leads to the thought of looking for past life on Mars or other planets.

Brown University. "Impact glass from asteroids and comets stores biodata for millions of years." ScienceDaily. ScienceDaily, 18 April 2014. www.sciencedaily.com/releases/2014/04/140418141115.htm

New "Largest Dinosaur Ever" discovered

Argentina has given up another giant Titanosaur. This one now rivals the previous record holder *Argentinosaurus* as the largest dinosaur to ever walk the earth. Estimated at 77 tons, this huge animal would have been 20 meters tall, with its neck up, and 40 meters long. It's believed that about seven individuals, between about 150 bones, were found in a desert near La Flecha.

<http://www.bbc.com/news/science-environment-27441156>

Smithsonian Almost had Sue

When the famous *T-rex* Sue went on the auction block at Sotheby's back in 1997, there were several people itching to get their hands on her; the Smithsonian museum being one of them. But when the hammer fell that day, another suitor claimed the prize. So they had to "settle" for a life sized replica of Stan for their great hall. But now they have finally found a real *T-rex* skeleton to replace Stan. The new smaller specimen is from the Army Corps of Engineers on a 50 year loan. It will eventually be the centerpiece of a new Nation Fossil Hall opening in 2019.

<http://www.washingtonpost.com/local/the-t-rex-that-got-away-smithsonians-quest-for-sue-ends-with->

different-dinosaur/2014/04/05/7da9a73c-b9a6-11e3-9a05-c739f29ccb08_story.html

Upcoming Events

June 13-15: Missouri Mines Rock Swap

This is a great show for mineral specimens but there are always some fossils to be found too. Located on the south side of Highway 32, 1.5 miles west of US Highway 67.

June 27-29: Bedford, IN Rock Swap

Lawrence County Fair Grounds

August 3, 2014: Fossil Club Picnic

EMSP Meetings

Meetings are held the 2nd Friday of every month (except July, August, and December) in room 203 of the new Earth & Planetary Sciences Building on the campus of Washington University. The building is on the southwest corner of Hoyt Dr. and Forest Park Pkwy. There is a large parking lot just across the street.

CONTACTS

Do you need to find out something about the next meeting or have questions on the next field trip? If so, please talk to or contact one of the EMSP officers.

President: Fay Whobrey - emsp.pres@mofossils.com

Vice Pres: Abigail Fairbanks -

emsp.vp@mofossils.com

Treasurer: Rick Poropat - emsp.tr@mofossils.com

Secretary: Ryan Fairbanks -

emsp.sec@mofossils.com

DUES

Our treasurer, Rick will accept dues payment for a full year. **Dues are \$20.00 per household per year-payable in January if receiving the newsletter by e-mail. The dues are \$25 for those receiving the newsletter by regular mail.** See Rick at the next meeting or mail a check (payable to Eastern Missouri Society for Paleontology) to:

EMSP

P.O. Box 220273

St. Louis, MO. 63122

Distribution of the Newsletter by email

Can't find your newsletter, just when you need it for a trip? Then sign up for the e-mail version. This also saves the club money so we can bring in speakers. E-mail requests to: Ryan Fairbanks emsp.sec@mofossils.com



What is EMSP?

The Eastern Missouri Society for Paleontology (EMSP) is a not-for-profit organization Dedicated to promoting the enjoyment of fossil collecting. It is open to all individuals interested in learning about the history of life on earth. The club membership includes professional paleontologists as well as amateur hobbyists. The EMSP provides an open forum for the exchange of information and access to expertise on collecting, identifying, preparing and displaying fossils.

EMSP meetings are held on the second Friday of every month (except July, August and December) at 7:30pm in the Earth and Planetary Sciences Building on the campus of Washington University. Each meeting includes an informal exchange of information and speakers on a variety of fossil-related topics.

Weather permitting, field trips to fossil collection localities around the St. Louis area are held each month. Led by experienced collectors, these trips are a fun way to augment discussions at the monthly meetings. The club participates in joint field trips with other paleo clubs, visiting fossil sites throughout the United States. EMSP is also a proud to be involved in partnerships with the St. Louis Science Center and the Greater St. Louis Association of Earth Science Clubs, Inc.

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