The Paleo Times

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EMSP SOAPBOX

By David Lukens & Don Howell

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

PRESIDENT'S CORNER

Greetings Club members, February flew by for me! Our February meeting had a great presentation by Chris Widga from the Illinois State Museum. We had some sad news also, Bruce's wife Karoline passed away; after Bruce and his daughter decide what is appropriate the club will be planting a wildflower garden or a tree in memorial to her. Anyone that would like to contribute to a fund for that may at the March meeting. Speaking of which, we have a great program planned that will cover fossils that have been incorporated into St. Louis buildings. I can't wait to see the pictures! We will have two or three tables at Fossil Day at Mastodon State Historic Site on June 13th, so we will need volunteers to help us display, answer questions and sell our fossils. See you all at the March meeting, Don III

Next meeting

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

Our March speaker will be our own Marie who will be presented her work from her college honors class on fossils in St. Louis Buildings.

CONDOLENCECES

It is with great sadness that we need to inform you that Karoline Stinchcomb, Bruce Stinchcomb's wife passed away recently. Our deepest sympathies go out to Bruce and his daughter Beth.

Thanks / Congratulations

Thanks to Peggy Cole for the excellent notes from the last meeting since I was not able to be there.

Thanks to Chris Widga for his excellent discussion on the American Bison Evolution. It was interesting and informative and he explained the use of new scientific methods that expand our understanding of the animal.

Thanks also to those whose provided snacks at the last meeting. We also appreciate the effort of everyone who went to the Tucson Show and helped on acquiring all the new items for the club for us to see at future shows. Also thanks to Bruce and Judith Wake for their contribution to the Joe Bolser Fund.

Welcome to several new members including Marissa and Ron (Scottsdale AZ). Also welcome back to Bill who was one of the founding members of the club.

Upcoming Events/ **Field Trips**

March Field Trip – A field trip to Essroc Quarry in Speed Indiana for a field trip to collect Devonian fossils is confirmed. The trip will be on March 28, 2009. We will be limited to ~30 participants. There will be a sign up sheet at the March meeting for those who want to go. Sign up will be first come

first served. If you cannot make the meeting you need to contact one of the club officers by the club meeting date to let them know you are interested. It is likely we will make this a weekend trip with additional stops on Late Saturday and Sunday. Fossils are primarily found in the residuum or thin beds of limestone or cherty, silty limestone and include corals, brachiopods, mollusks, trilobites, bryozoans, trace, with the occasional fish bone / tooth or petrified wood (New Albany Shale residuum). The collecting area includes the Jeffersonville Limestone and North Vernon Formation (Sellersburg & Beechwood). Stand by for more information. Hard hats and steel-toed shoes will not be required. Addition information will be available at the March meeting.

MAPS 2009 – Mid America Paleontology Society show will be held April 3-5, 2009 at Western Illinois University in Macomb IL. This is the largest fossil show in the country and admission is free. For more information see http://www.midamericapaleo.org

Jan 17-May 3, 2009 – Tusks – An exhibit at the Center for History in South Bend Indiana which features displays of over 80 bones, tusks, and skulls from Mammoths and Mastodons. More information at http://www.centerforhistory.org/

We are planning on having a table with items for sale at the Mastodon State Park Fossil Days on June 13th. We will need volunteers to answer questions and staff the tables for sales.

Date is set for the club picnic, it will be August 30,m 2009. Put it on your calendar.

Date has been set for the next Viking show. Location will be the same as last year. Dates will be November 27-29, 2009. The price will be $75/table. We will be getting 2 or 3 tables.

At the next meeting Bruce will have his newest book for sale. This one will cover the Mesozoic time.

Remember that annual dues were due starting in January. If you have not paid, please get your money in. If it is not paid by March 1st, you newsletters will stop.

Notes from the Meeting

Collections are still ongoing for the Joe Bolser Scholarship Fund. Thanks of the recent contributions. If you want to donate please bring your donations to the next meeting or put them in the mail. Apparently the Tucson trip was a success and we obtained some excellent fossils with the funds that the club invested.

Cards were passed our related to the MAPS show (See information in upcoming events). Also several Tucson Show Guides were passed around.

The raffle for the composite Meg tooth has started. The tooth was on display at the last meeting and will likely be at future ones also (See Tom) we are selling raffle tickets for a 4" Megalodon tooth from Florida. This tooth was originally broken and has been restored, estimated value is $30-$50. Tickets will be $1 each or 6 for $5. The drawing will probably be during the August Picnic meeting. You will not need to be present to win.

Current plan is for the club to try to have a table with items for sale at the Mastodon State Park Fossil Days in June. While not huge, there are usually several hundred people that come so we may be able to make some money at this. Don Howell will be contacting the park to see about arrangements.

Items for the March meeting:

- Continue the Meg tooth raffle
- Possible update on the Mastodon Park Show – Will we have a table and sell there.
- Possible update on Park-a-Palooza – we will be there this summer?
- Do we need to have a get together to make more fossil boards and arrange what we have?

Paleo-shorts

-Original and summary articles provided by members of EMSP. Where possible, I have tried to add in website where you can read more.

I received the following information through my e-mail at the club. It was interesting to be referred to as "Dr." Lukens when theyb sent me the letter.

Dinosaurs Along the Silk Road: The Fossils of Gansu Province, China

Jerry D. Harris, Director of Paleontology, Dixie State College, St. George, UT

As a long-time follower of the various "origin of birds" debates, and the discoveries of feathered theropod dinosaurs in Liaoning Province, China that demonstrate that those origins lie within the Dinosauria, I had long yearned for an opportunity to go to China myself and help contribute to this understanding. Thanks to the entrepreneurial prowess of my friend, colleague, and fellow University of Pennsylvania graduate student Hailu You (of the Chinese Academy of Geological Sciences) and his Sinofossa Institute (www.sinofossa.org), in 2005 I had my chance.

Hailu, myself, and fellow graduate student Matt Lamanna (now Curator of Dinosaurs at the Carnegie Museum of Natural History in Pittsburgh) initiated a project in the Changma Basin of Gansu Province in northwestern China. This idyllic spot was made famous – well, sort of – in the early 1980s by paleoichthyologists from Beijing splitting Early Cretaceous-age lacustrine (lake) shales of the Xiagou Formation in this area seeking fish fossils. Among their other finds, they found a foot – clearly not that of a fish! They took it back with them to the famous Institute of Vertebrate Paleontology and Paleoanthropology (IVPP) in Beijing where it was identified as belonging to a bird. In 1984, IVPP paleornithologists named it *Gansus yumenensis* (meaning "from near Yumen in Gansu"). Keep in mind that, in 1984, our knowledge of birds from the Mesozoic was largely limited to *Archaeopteryx*, from the Late Jurassic of Germany, and *Hesperornis* and *Ichthyornis* (and a few relatives) from the Late Cretaceous of the western U.S., so finding even an isolated bird foot in Early Cretaceous rocks was quite a find! Better yet, the IVPP paleornithologists were able to demonstrate, based on the anatomy of some of the foot bones, that *Gansus* was pretty similar to living birds, certainly much more so than *Archaeopteryx*. Strangely, however, no one followed up on this discovery – no one went back to Changma to seek more bird fossils, and when new, complete fossil bird skeletons began to be discovered in Liaoning Province, in northeastern China, in the 1990s, fragmentary *Gansus* lapsed into obscurity.

In 2002, Hailu and his team were working at a different series of localities in Gansu, a couple hundred kilometers north of Changma but ostensibly in the same formation. These localities have produced some spectacular dinosaur specimens, such as the diminutive, early horned dinosaur *Auroraceratops*, and the huge, lumbering, giant-clawed but herbivorous therizinosauroid *Suzhousaurus*, that have helped revolutionize our understanding of the evolution of many dinosaur groups. Toward the end of one of the seasons, Hailu remembered *Gansus* and decided to spend a few days at Changma poking around to see what else might be found. After only a day or two of splitting shale slabs, the team found remains of plants, insects, fish, invertebrates – and another bird. (Ultimately, this specimen would prove not to pertain to *Gansus*, but a completely different kind of bird!) This was significant: finding bird fossils so quickly was either an incredible stroke of luck, or else bird fossils were pretty common in the area…and that meant that many more were yet to be found! This new fossil was indeed a harbinger – our team has since recovered well over 100 bird fossils from two adjacent quarries alone, and there are dozens of square kilometers of rock as-yet unexplored!

Most of our new bird fossils actually do belong to *Gansus*. We don't yet have a complete skeleton, but most are much more complete than that original lone foot! They are exquisitely preserved. In the Changma Basin, the Xiagou Formation shales are tilted almost vertically, and they split very easily – one has literally only to walk up to an outcrop and peel back the shale layers one at a time, like a giant stony pad of paper. Fossils show up in relief as you get close to the layers they are in, and blocks containing them can be carved out and removed. When prepared, the fossils are therefore still largely three-dimensional. This is quite different from the bird and feathered-dinosaur fossils from Liaoning: there, the lacustrine shales are still horizontal, so encountering fossils is almost purely governed by chance – and the fossils, forming weak zones in the rock, tend to split right down the middle between slabs, leaving most of the detail obscured in the rock. Moreover, the new specimens not only confirmed that *Gansus* was a very advanced bird for living just a few tens of millions of years after *Archaeopteryx*, but it was very similar to modern birds in dozens of places around its skeleton! The finds were so phenomenal that they were the subject of the 2005 documentary *Rise of the Feathered Dragons*, which

still plays on the Science and Discovery channels, and a 2006 paper in the prestigious journal *Science*.

Other than our team, no Westerners have visited Changma, or other localities in Gansu, or dug for fossils there. But now **YOU** have a rare opportunity to join us! Hailu's Sinofossa Institute is offering for the first time the "Dinosaurs along the Silk Road" trip. On this trip, you will not only have an opportunity to excavate in Changma – and perhaps discover a bird or three of your own! – but also to visit famous Chinese paleontological museums in Beijing, dig for dinosaurs like *Auroraceratops* and *Suzhousaurus*, and see spectacular dinosaur footprints at the Liujiaxia Dinosaur National Geopark. For the anthropologist in you, we will also visit the Mogao Grottoes ("Caves of the Thousand Buddhas") in Gansu, and there are optional trips to the Great Wall of China, the Ming Tombs, the Forbidden City, Tiananmen Square, and the Temple of Heaven. Plus, all the fabulous and exotic Chinese food you can eat! If you have a love of fossils, and if you have never been to China (or even if you have!), this is a unique opportunity to visit places in China that few Westerners have experienced and return with memories you will cherish for a lifetime. For more details on the trip, please visit http://www.sinofossa.org/geotoursview.asp?Id=9, and I am happy to answer any questions you may have. But you must hurry: the registration deadline for the trip is March 30, 2009! Hailu, Matt and I hope to see you there!

http://news.bbc.co.uk/2/hi/science/nature/7871099.stm
Fossil evidence of sponges found in Oman have pushed the existence of animal life back to 635 million years ago. The evidence was found by looking for chemical molecules left behind by the animals. The chemical is known as 24-isopropylcholestane and only comes from sponges. This finding is suprising due to the low oxygen levels on the Earth at the time. In addition, it was previous to a time known as the Marinoan glaciation, a period of time when almost the entire Earth was covered in ice. It is thought that at this time the oceans were covered with as much as 1 mile of ice. These findings might indicate that some areas of the Earth were free of ice.

http://www.sciencenews.org/view/generic/id/40547/title/Earliest_whales_gave_birth_on_land
Fossil finds found in Pakistan in 2000 and 2004 indicate that even though early whales had returned to the sea, they still came back to land to give birth. Among the recently discovered fossils included one of a pregnant female. The ancestors of modern whales and dolphins emerged in south Asia about 55 million years ago and diverged into different lines from wolf sized creatures that lived in streams to small fox sized animals. Many of these groups were dead ends. The recent discoveries date to 47 million years ago and are from an 8 ft long proto-whale named *Maiacetus inuus*. The fossils included a small 13 inch skull within the body of the other. The bones and undamaged condition indicate it was a fetus. The head-first direction indicates that the birth would have to have occurred on land compared to modern whales which are born tale first. Because the molars of the fetus are well developed it also indicates that the baby could eat food in addition to milk from the mother. Another fossil of the same species was found ½ a mile away that was nearly complete. This skeleton indicates that the animals feet were webbed. The second skeleton was male based on the pelvic bones. In addition the skelton was 12% longer and the canine teeth were 20% longer. The bones also show that the take was not fluked like modern whales and probably swam like a dog in the water. The fossils are different from both modern whales and dolphins but also different from other ancestors.

http://www.sciencecentric.com/news/article.php?q=09020260-early-human-skulls-shaped-nut-cracking
New studies of a 2 million year old Australopithecus africanus skull indicate that their skulls were designed to eat large nuts and seeds if needed. The studies indication that the premolars developed to resist the stresses imposed by cracking these hard objects. The scientists used finite element analysis to determine whether the teeth could withstand the stresses imposed on them. This adaptation was likely needed as they lived in times of changing climates that would have required to ability to eat difficult foods in times of droughts.

http://www.livescience.com/animals/090205-mammoth-discovery.html
Remains of a 500,000 year old mammoth have been found in downtown San Diego. Among the parts

found are a intact skull, a tusk, and foot bones. The remains were found at the site of the new law school campus.

http://news.nationalgeographic.com/news/2009/02/090205-great-appendage-picture.html
A 390 million year old arthropod may be the missing link in the development of claws that could grasp. The new species, *Schinderhannes bartelsi*, found in Germany had pairs of large interconnected limbs on their heads. Modern arthropods such as scorpions have grasping claws, but there was a large gap in the fossil record between animals with the appendage and modern ones. A large number of fossils have been found in central California at a landfill site. Due to the large number of fossils found museum will be built at the site near Chowchilla. The fossils date to the mid-Pleistocene and are about 780,000 years old. So far over 5,000 specimens have been found including camels, mammoths, 3 species of ground sloths, 2 species of horses, saber tooth cats, short faced bears, and many smaller animals. The museum is scheduled to open in 2010. Since 1993 over 13,000 fossils have been found.

http://www.latimes.com/news/nationworld/nation/la-sci-fossils18-2009feb18,0,1064849.story
Workers building an underground garage in downtown LA have discovered a amazing new site loaded with fossils dating to 10-40,000 years old. The site is being excavating by paleontologists from the George Page Museum at the La Brea tar pits as the new site has a similar soil, a sandy tarry mix to the La Brea tar pits. The new find is expected to double the size of the current collection. The new finds include nearly complete Columbian mammoth which has been named Zed. Numerous small fossils have been found including tree trunks, snails, clams, insects, fish, gophers and others. The importance if these fossils is that while they were found in the La Brea pits in the early 1900's they were discarded in favor of the larger fossils. The biggest problem is that the site must be excavated rapidly. Therefore large chunks of soil are being removed and will be analyzed at a later date. So far almost 2 dozen crates of soil have been removed. Over 16 separate deposits have been found at the site The largest crate removed so far weighed almost over 60 tons. The paleontologists identify the limits of each deposits, excavate around the edges, and then wrap heavy plastic around it and build a wooden crate so that it can be moved. One of the few exceptions was the mammoth Zed because it was separate from the other deposits, this fossils is almost 80% complete. While mammoth bones were found at the La Brea pits, all were disarticulated bones. In addition, the finding of Zeds tusks is unusual. So far is has been determined that Zed was about 10' tall and between 47-49 years old. He also had 3 broken ribs that had healed before his death. Only one crate has been processed so far (roughly 6'x4'x2 ½') and has yielded fossils of over 700 individual plant or animal fossils including a complete saber tooth cat skeleton, 6 dire-wolf skulls, and bones from others including ground sloths, lions, sabre tooth cats, and other.

ARTICLES FROM CLARENCE ZACHER

http://news.bbc.co.uk/2/hi/science/nature/7868588.stm
Remains of what is believed to have been the worldest largest snake have been found in Columbia. The 58-60 million year old vertebrae are from a snake now named *Titanoboa cerrejonensis* The calculated length based on the vertebrae is over 40 feet with a weight of approximately 1 ton. The largest living snakes only reach 500 pounds and 32 feet. The remains of the snake, along with fossils of their prey were found in a huge open-pit coal mine. It is suspected that the snake lived like an anaconda spending much of its time in the water and feeding on alligators, large fish, and other animals. The paleontologists have also been able to use the snake's size to calculate the temperature of the Earth at the time it existed. Based on this the average temperature in Columbia would have been 2-6 degrees C (3-10 F) hotter than now.

http://www.thefreelibrary.com/Flying+deaf%3F+Earliest+bats+probably+didn't+echolocate.-a0175526000
Fossils of a 50-54 million year old bat fossil from the Green River formation in Wyoming indicate that bats may have been able to fly before they developed sonar. The species known as Onychonycteris finneyi, was 30 cm long and has claws on all 5 digits where most other species of bats only have then on two digits. The bats wings are also short and broad compared with others. On this bat, the cochlea was small, indicating that the creature couldn't echolocate. This likely indicates that its ancestors could also not echolocate. There are other bats

species know from the same time period that apparently had sonar ability. Therefore it is unknown if this is something unique to this fossil or species or not.

http://www.smithsonianmag.com/science-nature/wild-things-200808.html
Analysis of a giant pterosaur (azhdarchid) fossils and tracks indicate that it did not feed like sea gulls, by capturing and eating on the wing. Instead it may have walked and pursued small animals and eaten them on the ground.

http://www.livescience.com/animals/080211-mini-pterodactyl.html
Fossils of a small toothless pterodactyl have been found in China. The species, named *Nemicolopterus crypticus*, was only 10 inches long and dates to 120 million years ago. It is believed that it glided through forests and likely ate insects. Unlike other species which lived near the water, this one appears to be adapted to forests and has curved claws on its feet, probably for grasping branches. Its size would have allowed it to leap between trees and capture insects. It also appears to be an ancestor to large species which reached up to 30 ft of wingspan.

http://www.sciencedaily.com/releases/2006/06/060614090123.htm
Another living fossil has been found, this one in Laos. It is part of a family of animals believed to have gone extinct 11 million years ago. The Laotian rock rat, is a squirrel sized animal with wiskers and eyes like a rat, with a long tail but it walks like a duck. (To see photos visit www.rinr.fsu.edu/rockrat.). The animal was first described in 2005 but no live specimens were found to this year.

http://findarticles.com/p/articles/mi_m1200/is_3_174/ai_n27982567/pg_1
Fossils of flatfish (which have both eyes on one side of their head), point to the fact that both eyes originally started on opposite sides of the head but later moved. Studies of 45 million year old examples of the fish found some which were in transition. One eye had changed located but have not crossed the center of the body. This indicates that the fish went through small changes rather than a sudden change.

Around Town

Sue is coming to the St. Louis Science Center, at least a cast. From Jan. 17 to April 12, 2009 Sue will be on display. See the web site www.slsc.org for more details.

Reports

If you have suggestions for field trip locations, please e-mail them to me and I will begin putting together a list.

NEEDED

We are always looking for more donations of small fossils (quarter size or smaller) for the fossil boards. We are especially in need of small trilobites (the Utah ones are best) were also looking for horn corals, other corals, gastropods, bryozoans, and other donations. Please bring to the next meeting so we can meet later and work on putting more fossil boards together for the upcoming show.

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 – Don Howell (donhowelliii@sbcglobal.net)
Vice-President: Bruce Stinchcomb
Treasurer: Pete Smith
Secretaries: David Lukens (dmslukens@yahoo.com) and Peggy Cole

DUES ARE DUE

Our treasurer, Pete Smith 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 Pete 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 (once we pick some…) E-mail requests to dmslukens@yahoo.com, **motirek@gmail.com or abfactor@gmail.com**

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 Earth & Planetary Sciences building is on the southwest corner of Hoyt Drive and Forest Park Pkwy. There is a large parking lot just across the street.

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 Buildingon 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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