

The Paleo Times

Volume 9 Number 2

February 2010

The Official Publication of the Eastern Missouri Society For Paleontology

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 (personal).

Next meeting

Next meeting is **Friday, February 12th** at 7:30 pm in the New Earth and Planetary Sciences building at Washington University (see more details below).

PRESIDENT'S CORNER

Hello all, I was glad to see all that came in January. We had a great meeting with Janis Treworgy giving us an update on her mammoth. Many folks paid their dues, which are due. I hope everyone comes on the 12th to see all the great new stuff we will have to sell; I'm sure Carl and all others that went to Tuscon will have many pictures and stories to tell.
Your Prez, Don Howell III

Thanks / Congratulations

Thanks to Tom, Faye, and my wife Mercedes for helping to put the 31 fossils boards and 11 mini fossil boards together in January. We also want to thank Janis Treworgy from Principia College who gave us a wonderful talk on the Mammoth found on the College property.

We would also like to welcome all of our recent members. Welcome to the club.

Treasurer's Report

Club members may hear the treasurer's report at the monthly meeting.

Addie has informed me that all of her fossil equipment has been sold.

NEXT MEETING

Other items to be discussed during the next meeting

- Start planning for the field trips in the spring.
- Results of Tucson show – What did we get, what was at the show, etc.
- Carl Campbell will be auctioning off a revised addition of the Earth Science Book that he wrote.

Upcoming Events/ Field Trips

Field trip - we will be running a field trip on Saturday Feb. 20th, 2010. We will be visiting the Bollinger County Museum which Mike Fix talked about at the November meeting. Departure site will be the commuter parking lot located at the southwest corner of I-55 and Richardson Road. From there we will carpool down to the museum. It is about a 2 ½ hour drive. People will leave the site at 9:30 so I would suggest you be at the parking lot by 9:15 am. The visit will be lead by Mike Fix who will also show off pieces of the Missouri Dinosaur that he has been working on at the museum. The emergency contact is Mike Fix or contact me for latest info. If weather is bad again like in January, we will postpone again.

Early 2010 – John is checking into the possibility of a trip to Parson's quarry in Tennessee in Spring 2010 to see if it is possible.

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.

Rick has received word that fossil collecting at Lee Creek Mine, Aurora, NC has been suspended for 18 months, beginning in the fall of 2009. The fall 2008 season was cancelled, but there had been hope that collecting would resume this spring. PCS Phosphate is in the process of opening up a new mining area and are moving heavy equipment and tons of overburden through the collecting trip staging area and entrance into the mine. It is hoped that collecting will resume in the spring, 2011. All volunteer hours for 2010 will be counted for the 2011 season

The annual EMSP picnic will be on Sunday, August 15th at the Lion's Pavilion in Kirkwood Park, mark your calendars.

The 2010 Viking show will be held November 19-21. EMSP has the same location as previously with is assigned the same location as last year, including two 8 ft tables with plenty of room for back tables. There are two additional 8 ft. display tables in the lobby area and that are offered to EMSP for display

Notes from the Meeting

Collections are still ongoing for the Joe's Scholarship Fund. His wife has not decided yet how the money will be spent.

As most of you know, Bruce's wife Karoline passed away earlier in the year. Bruce was one of the founders of the club and has been an active member for longer than a number of us have been alive. We will be continuing collect funds for a memorial that will be built in memory of Karoline, probably at the Chronister Dinosaur Site. I will have a coffee can set out where people can put in their contributions.

Current membership stands at approximately 60 e-mail + 17 letters. Last meeting the room was

completely full with no empty seats. We had 6 new members or guests at the meeting.

Janis Treworgy gave an update on the mammoth that was found on the Principia College site. On January 30, the club ran a field trip to the Bollinger County Museum which Mike Fix talked about at our November meeting.

Tucson show as listed below will be starting on January 30, 2010 and running for about 2 weeks. In March will be the MAPS show in Macomb IL. In September will be the Denver Fossils and Gem show.

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.

<http://www.livescience.com/animals/alligator-breathing-dinosaur-100114.html>

A recent study has found similarities between the way that birds and alligators breath and may provide a link to how dinosaurs, which shared ancestors with birds were able to survive in an environment with less oxygen than today. In mammals the air goes in and out the same bath through a series of smaller and smaller airways. In birds, the air flows in one direction and is transferred to the lungs in one direction and then out of the body. It was thought that only birds were like this but recently it was determined that alligators breathe the same way. Studies were done on both live and death gators to measure both the direction and volume of air flow, all pointed to one directional flow. After the mass extinction 251 million years ago, archosaurs became the dominant land dwellers and their descendents split into two groups, crocodilians and the other which became birds eventually. The fact that birds and alligators have one directional lung flow indicate that their common ancestor also had it. This also explains why these animals did better than mammal like reptiles (synapsids) because the oxygen level on Earth was as low as 12% compared to 21% now. The lung design in birds improves oxygen delivery and allows them to function at oxygen levels that would put mammals in comas. This apparently also allowed the archosaurs to get large while the synapsids never got bigger than a house cat.

<http://www.livescience.com/animals/100106-tetrapod-footprints.html>

New footprints found in Poland have pushing the original of land dwelling animals back to 397 million years ago. The prints found in several trackways plus other scattered prints were found in the Holy Cross mountains of southern Poland. The prints appear to be from many different species of animals such as amphibians. The likely had short leg and fin shaped tails can some were as large as 10 feet long. Previously the earliest evidence of land creatures dated to between 359-374 million years ago. The print were found in an area that was once a shallow marine basin hundreds of miles wide which likely dried up every couple of years which may have been one of the pushes for the animals to learn to walk. The area was probably intertidal so the animals were likely both good swimmers and good walkers.

<http://www.sciencecentric.com/news/article.php?q=10011243-use-body-ornamentation-shows-neanderthal-mind-capable-advanced-thought>

Recent findings indicate the Neanderthals were more advanced than previously thought. In two caves in Murcia Spain, shell pendants with remains of pigment have been identified in caves dated to the time of the Neanderthals (about 50K years ago). Body ornamentation has always been thought of as indicators of symbolic thinking and thought to only have occurred in modern humans. This is the first time it was associated with Neanderthals. The pigment included hematite and pyrite which would have produced a black reflective appearance. The Spondylus shell itself is attention grabbing because of its bright reddish or violet colors. In one of the caves, remains or a purse or bag were found that contained natrojarosite, a yellow iron mineral used as a cosmetic in Ancient Egypt. Similar materials have been found at Neanderthal sites before but were thought to be natural or have been copied from modern humans. At site of the Chatelperronian culture of France (40-45,000 years ago) grooved teeth and decorated bone awls were found but it could not be proven if they belonged to Neanderthals or humans.

<http://www.sciencecentric.com/news/article.php?q=09122107-loud-lazy-but-didnt-chew-gum-ancient-koalas>

Fossil of Miocene koalas dated to between 5-24 million years ago indicate that they were similar to modern koalas and shared a lazy lifestyle and were able to produce bellowing calls. But these animals did not share the same diet of eucalyptus leaves, probably caused when Australia moved north and the rainforests disappeared and were replaced with modern forests and woodlands. Eucalyptus leaves are poor in nutrients and are somewhat toxic which required specialized modifications of the chewing and digestive systems of Koalas. The analysis of the extinct species (*Litokoala kutjampensis* and *Nimiokoala greystanesi*) with modern koalas and possums shown similarities in the bones at the rear of the skull but large changes in the teeth and jaws. Koalas are related to wombats and there are 18 known fossil species known. But most of the fossil record of fragmented and scarce and consists of teeth. The similarity of the bony structures in the middle and inner ear indicate that they could produce low frequency noises similar to modern koalas. These noises can be heard as far as 800 meters away (about ½ mile).

<http://www.paleontologynews.com/link.asp?ID=555765&Title=Did%20the>

The marsupial lion known as the *Thylacoleo* roamed Australia between 45,000 and 2 million years ago. But the more that is found about it, the stranger it gets. While its had long legs and retractable claws, its skull resembled a koala with curved incisors in from of knife like teeth designed for shearing. How is hunted is unsure. Ideas include acting like a leopard killing and dragging its prey into trees though another theory points to it acting like a lion. The question is were the claws capable if climbing a tree? Up to now, fossils of the hind feet were missing. But in 2005, owners of a cave found the partial remains of several *Thylacoleo carnifex*, that included the tail and hind feet. When assembled, the left foot is very different from a cats. The *Thylacoleo* walked flat footed unlike cats which walk on tip toes. In addition, the foot curves around the ankles and the toes would have been good at grasping and digging inot surfaces. The curvature indicates that they were likely designed to grab tree trunks or possible to bodies of their prey.

<http://www.paleontologynews.com/link.asp?ID=553307&Title=Did%20We%20Mate%20Or%20Murder%20Neanderthals?>

Did modern humans murder Neanderthals? This has been a debate since the discovery in the 1950's of a 50,000 year old body in the Shanidar Cave in northeastern Iraq. The 40 year old Neanderthal was killed by a spear through the rib cage, but was it another Neanderthal or a human that did it. Originally Neanderthals were thought of as stupid and brutish but fossil evidence indicates that they were smarter than previously thought, were capable of speech, and probably had red hair and were pale skinned. But the evidence still does not indicate why they vanished. But the study of Shanidar 3 and another one indicating that humans cannibalized Neanderthals may be giving clues. To determine how the 40 year old from Iraq died, scientists are studying what damage was left by stone tools when used on bodies. Neanderthals were muscular and killed using thrusts, so if Shanidar 3 died from a thrust, it was likely another Neanderthal. But if the injury was from a lighter spear thrown from a distance, the killer was probably human. The scientists did studies using various thrust or thrown weapons on pig bodies (similar to humans) and then analyzed them. The evidence indicates that the wound was made from a thrown light weight weapon (probably from humans). While this indicates only one incident, evidence from France indicates something else. Studies of human and Neanderthal bones from the Les Rois cave in France appear more sinister intentions. The 30,000 year old bones included a Neanderthal child and a modern human (finding both in the same cave is unusual). The cut marks on the Neanderthal jawbone show that it was butchered and indicates that the tongue was cut out by the humans. Previously, indications of Neanderthal on Neanderthal cannibalism has been found in other caves in France. It is unsure how often humans and Neanderthals interacted, but obviously sometimes the meetings were violent and the losers became dinner. Another argument is whether humans and Neanderthals interbred. Some scientists argue that they likely did not and viewed them as "other" or a different group, some scientists argue that they intermixed with humans and were bred out of existence. But studies of the Neanderthal Genome in Germany indicate that there was minimal interbreeding. The most popular theory is that the Neanderthals were driven to extinction by climatic changes that started between 25-65,000 years ago. These changes, included major volcanic eruptions and rapid shifts in climate and temperatures and

growth and retreats of glaciers in Eurasia. It is also likely that Neanderthals were never very populous. In addition, their social structure put them at risk. While all early humans were hunter gatherers, Neanderthals concentrated on hunting big game. As humans became more common, this became a major competitor. In addition, while evidence indicates that early humans developed technology for crushing and grinding plant foods, no evidence of this exists at Neanderthal sites. While humans may have not been the sole cause of the Neanderthal extinction, it is likely they contributed to it. In the case of Shanidar 3, healing on the ribs indicate he survived for at least two weeks with the spearhead stuck in him. He was found buried under a collapsed ceiling in the cave. He may have been tough, but he also had bad luck.

<http://www.paleontologynews.com/link.asp?ID=553242&Title=Digging%20up%20dirt%20in%20Kamloops>

Kamloops in Canada is becoming famous for its diversity of fossils dated to between 14-350 million years ago. The finds include a variety of species including birds and fish. By members of the Thompson-Nicola Palaeontology Society. The membership in the Society is \$15 and for \$33 you can also be a member of the .C. Paleontology Alliance. One favorite dig site is the 50.2-million-year-old McAbee Fossil Beds near Cache Creek (dillfossils.com/Index.asp) which are open to the public from 9 am – 4 pm in July and August though the site is open from May to October. Over 50 types of plants have been found in addition to insects, cones, fish, and feathers. The staff makes sure all visitors go home with at least one fossil, Tours need to be booked in advance with Dave Langevin at 250-374-7164.

<http://www.paleontologynews.com/link.asp?ID=552574&Title=Fossil%20Leaves%20Depict%20Warm,%20High%20Sierra%20Nevada%20Mountains%20in%20Ancient%20Past>

Studies of the Sierra Nevada mountains and study of fossil bacteria and leaves indicate that they are at least 50 instead of 20 million years old and that they were warmer in the past. The scientists look at hydrogen isotopes in the waxes of the leaves. The composition of the isotopes in rain varies depending on height of the clouds, this implies the heights of the mountains. They also studied temperature sensitive bacterial

residue in the fossil soils. They also determined that 50 million years ago the CO₂ levels were 4 times today providing an insight into rising levels today and their effects.

<http://www.foxnews.com/scitech/2009/12/05/prehistoric-mammoth-site-waco-opens-public/>

A site just opening in Waco Texas with display for the first time since its discovery in 1978 the remains of dozens of mammoths. The site was found by two snakes hunters and has been protected by the city since then until a building could be built.

<http://www.foxnews.com/scitech/2009/10/05/wooly-mammoth-world-tour-stop-america/>

A 40,000 year old baby mammoth is now touring the world. Lyuba, whose remains were found in Siberia is on a 10 city tour with the first stop being the Field Museum in Chicago. The remains of the 1 month old mammoth were found 3 years ago with trace's of her mother's milk still in her stomach. She apparently drown in mud along the edge of a river but the body was very well preserved and DNA was able to be extracted and has provided a lot of new information. The hump acted like a heater to keep the animals warm indicating that they were born in early Spring.

<http://www.foxnews.com/scitech/2009/12/10/newly-dinosaur-sheds-light-dino-origins/>

Remains were recently found of one of the first dinosaurs at the famous Ghost Ranch in New Mexico. The dog sized dino named Tawa Hallae was well preserved and helps to fill out the family tree for dinosaurs. It shows that the earliest dinosaurs came from South America more than 220 million years ago when all the continents were part of Pangea. The 213 million year old skeleton was a primitive form of theropod equipped with claws and serrated teeth. It likely had something similar to feathers and had a muzzle covered with scales. A few bone fragments were spotted by hikers in 2004 but further excavations revealed 5-7 partial skeletons of Tawa in a pocket with tens of thousands of other fossils. Tawa was between 6-13 feet long and 3-5 feet high at the hip. Normally in animals are separated, those in one area will be similar. But in the case of Ghost Ranch at least 3 different carnivorous dinosaurs were found they were not closely related which points to the fact they came from 3 different lines. This means that the dinosaurs were able to travel easily between the north and

south American continents. Study of reptile fossils from the same deposits show the same tendency. This indicates that there were few barriers such as mountains to travel. But no fossils from sauropods or ornithischian dinosaurs were found, which is likely an indication of the climate.

<http://www.livescience.com/environment/091209-mediterranean-sea-flood.html>

Recent geologic studies indicate that the Mediterranean Sea was formed when the wall blocking the Atlantic ocean broke through at the Straits of Gibraltar. About 5.6 million years ago the sea was cut off from the ocean due to plate movements and eventually dried up. But seismic data and drilling cores indicate that 5.3 million years ago the movement of the plates opened it up and over thousands of years a 124 mile long channel was cut through allowing the water to flood in. While it may have taken thousands of years for it to fill completely, about 90% of the water to fill the Mediterranean Sea entered in a period of months to 2 years with the water levels rising over 30 feet per day. The fracture likely produced a giant ramp of water miles wide with a flow 3 times the size of the Amazon.

<http://www.livescience.com/culture/091217-stone-age-homemakers.html>

Study of an 800,000 year old hominid cave site indicate that even primitive humans were organized. Evidence from the site include stone tools, fish bones, plant material, and crab shells. The remains indicate that they were living not just on land animals but on animals from the water such as fish, turtles, and others. But the intriguing information is that when the living area was examined, the area appeared to be divided into different areas based on use. The food remains were all located in one area along with the fire but the tool making was concentrated in another area. Previous to this the oldest organized areas only dated to 100,000 years ago. This not only indicates that use of space was formalized much earlier but also implies social organization and interaction.

<http://www.livescience.com/animals/091215-mammoth-extinction.html>

DNA extracted from dirt in the Arctic indicate the large ice age mammals such as mammoths and horses survived to as recently as 7,600 years ago and did not go extinct 12,000 years ago as previously thought. While the fossil records may indicate a

quick die out of animals, the real case may be different with the species slowly shrinking in population over time. The bone fossils indicate that the animals died out between 13-15,000 years ago, but it is difficult to fix a precise date. The scientists collected core samples from permafrost in Alaska and then dated the DNA (from urine and feces) based on plant remains and mineral grains at the same layers. While the older samples (11K) contained evidence of bison, moose, and arctic hare; samples from 7,600 years ago were from mammoth and horses. Though statistical analysis indicated that the population was probably only a couple of hundred. So the DNA was probably from some of the last remaining members of the species.

<http://www.sciencecentric.com/news/article.php?q=09121538-u-students-reaffirm-the-work-1920s-palaeontologist>

A recent study by several Canadian graduate students has proven that original ideas about a dinosaur found 85 years ago were correct. The 76 million year old animal was found in Alberta in 1924 and was identified as a type of ankylosaur, *Dyoplosaurus*. But in the 1970s another paleontologist determined that it was another species *Euoplocephalus*. But the recent analysis proved that the 1924 identification was the correct one.

http://www.sciencenews.org/view/generic/id/50691/title/Dinosaurs_broiled%2C_not_grilled

When the dinosaurs were wiped out by the asteroid impact 65 million years ago, it was caused by hot temperatures, but not hot enough to start worldwide forest fires as previously proposed. Studies in the early 1990's indicated that the rain of impact debris was hot enough to cause wood to ignite. This was based on theories that about 1/3 of the heat generated by impact reached the Earth (the other 2/3 was lost to space or other areas). But the new studies indicate this figure is too high. The different trajectories of the debris falling back resulted in fast falls for some and slow for others. The faster falling particles actually resulted in a layer of dirt 35 miles up that shielded the ground from a lot of the heat generated later. While the temperature on the earth may have reached 300-350 degrees, it probably only lasted for about 8 minutes. While this may have killed many of the large land animals it allowed the small mammals and water based animals such as crocodiles to survive. Some forest fires likely resulted but probably not on a worldwide scale

Upcoming Gem & Fossil shows- Arizona Mineral & Fossil Show, January 30- February 13, 2010, Tucson, AZ

MAPS 2010 – Western ILL University, Macomb IL
March 26-28, 2010.

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

[\(donhowelliii@sbcglobal.net\)](mailto:donhowelliii@sbcglobal.net)

Vice-President: Bruce Stinchcomb

Treasurer: Pete Smith

Secretaries: David Lukens

[\(dmslukens@yahoo.com\)](mailto: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 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 proud to be involved in partnerships with the St. Louis Science Center and the Greater St. Louis Association of Earth Science Clubs, Inc.

**Eastern Missouri Society For Paleontology
(EMSP)
P.O. Box 220273
St. Louis, MO. 63122**

FIRST CLASS MAIL

