



Fossil Footnotes

Central Texas Paleontological Society
July 2004

President's message

Wow! I wanted to be able to say our trip to Ada was OK. But thanks to some terrific organization on the part of our field trip chair it was absolutely excellent. Kudos to Ed. He made a lot of phone calls to get us permission to collect these spots. Also, a thanks to Mr. Holland, Mr. Jennings, the Smiths (who served us iced tea and iced water with lemon!), and Mr. Graham, for kindly giving us permission to collect on their property.

While not every site was superb, at least four of them were. Everyone brought home crinoid bulbs containing pockets of calcite or quartz and, in some cases, both. Since we were collecting in the Silurian in one productive spot, I know everyone added new species to their collection. See the field trip report and pictures.

The Board met Monday, June 21. Major things discussed were:

Fossil Fest. We reviewed the PR schedule. We are well ahead of normal in terms of dealer reservations. All of the large tables and most of the small tables are taken (with deposits paid).

Final plans for field trips for the rest of the year are mostly logistics. One question that arose was whether we want to do Texoma or the Sulphur River this year. We also discussed creating a Field Trip Chair handbook, containing contacts, forms (like those for the Corps at Waco and the permit at Brownwood) maps, GPS coordinates, formation names, recommended meeting places, etc.

Reorder of t-shirts and hats. We will be doing so. If anyone has special requests in shirt sizes, let Danny know, especially non-adult sizes.

We are pursuing mechanisms for making donations to UT per last years vote in regard to the Don O'Neill Educational Fund.

We talked about the possibility of re-doing the Smith's Branch publication by creating new photos and scanning in the text.

We are working on a speaker this month, but their participation depends on whether Greg can set things up with the LCRA (we need an Internet connection).

The Waco trip is on, but we are still trying to set up a side excursion to the mammoth site. Baylor has stopped working actively there and, in an effort to preserve the site, they are pondering whether they are ready for foot traffic from visitors.

See you at the meeting.

Mike

June Meeting Minutes

Matt Colbert from the University of Texas gave us a great talk on the Tapirs, a subject in which he is quite interested. A great BIG thanks to him, he prepared his talk, kind of at the last minute, as our original speaker was unable to talk with us that night.

Our president led the agenda to field trips. On June 12 the CTPS will be going to Oklahoma to collect. The plan is to collect all day Saturday and one half day on Sunday.

Bill Kidd mentioned the fossil remains of Lucy, found in Ethiopia are scheduled to be exhibited in Houston in the near future. More on that later as more details are known.

Door prizes were awarded and we moved on to Show and Tell.

June Program

Our June program speaker was Matt Colbert. Matt talked with us on Tapirs, Perissodactyls a subject which he has spent a great deal of his time researching. The closest living relative is the rhinoceros. This critter, the Tapir, had four toes on his front feet and three toes on his hind feet; he was a vegetarian, and had a proboscis or a trunk. The fossil skeleton actually showed the point of the location of the proboscis.

Matt's efforts are to determine if Species A branched off to become Species B, or if Species A evolved to become a changed Species A.

We truly wish to thank Matt for providing us with this most interesting talk on such short notice.

Conchoraptor, Going Once ...

June 30, 2004 taken from web site *Science Now*
an article provided by Mike Smith

How many living rooms can accommodate a giant duckbill dinosaur skeleton? Not many, it seems, judging from the paltry bidding at an auction of fossils last week in New York. Dozens of potential bidders shied away from some high, starting prices, a far cry from the scene 7 years ago, when Sue the Tyrannosaurus rex was auctioned off for \$7.6 million.

That sale, to Chicago's Field Museum, raised the specter that fossils would become unaffordable to most museums and universities. (The museum used a donation from McDonald's Corp. to purchase Sue.) It also made illicit trading more attractive, says Hans Sues, associate director for research and collections at the National Museum of Natural History in Washington, D.C. Ever since Sue, he says, "people plunder sites" for valuable fossils.

But based on the fossil auction at Guernsey's, one of the largest to date, the thirst for expensive fossils may be cooling. The duckbill dinosaur's starting price of \$300,000 failed to impress the audience; jaws from an ancient shark, a megadolon, didn't spark interest at \$400,000, nor did a conchoraptor skeleton from China, starting at \$25,000. "The dinosaur craze has waned," says Stephen Godfrey, curator of paleontology at the Calvert Marine Museum in Solomons, Maryland, who attended the auction and considered some starting prices "astronomical" and "well beyond the grasp" of museums and universities. The top seller was an 1844 humpback whale skeleton, which sailed off the auction block at \$160,000.

The auction reinforced fears that fossils are being exported illegally. Although China forbids exporting fossils except for certain temporary exhibits, says Sues, several of

Guernsey's fossils were Chinese. It is not illegal to import them into the United States, nor is it illegal to sell them. A Guernsey's spokesperson says none of the fossils had been illegally taken from their country of origin for the auction.

Article written by Jennifer Couzin

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Taken from the website *History for Kids* and supplied to us by Greg Thompson

Medicine: Bubonic Plague

Bubonic plague was one of the most feared diseases of the ancient and medieval worlds. Nobody could tell what caused it, and most people who got it died within a few days, screaming in pain. And, when one or two people in a village got it, usually it spread to everyone else, and many of them died. Plague caused a fever, and black spots on your chest sometimes, and sometimes, great big black swellings on your armpits and at the top of your legs. That's why they called it the Black Death. These swellings got hard like rocks and hurt, and then in a day or two people usually died. There was no effective treatment, though of course people tried all kinds of things, from magic to surgery. Sometimes people did get better on their own, if they had good nursing care and were very healthy to begin with.

Today we do know what causes bubonic plague. Fleas carry it in the blood they suck; if a flea bites an infected person or animal (usually its rats) and then bites you, you'll get it too. People do still get bubonic plague, even today. But today we can cure it with antibiotics, and so most people who get it live.

The first time we know of people getting bubonic plague was in Constantinople about 570 AD. Many people died. Later the plague spread to Europe. There was a very serious outbreak of plague in the 1300's in France, England, Germany and Italy, which killed about one out of every three people in Europe.

In almost all cases, plague epidemics strike areas with poor and cramped living conditions, much like the "Workmen's Village" section of Amarna where Panagiotakopulu, a paleoentomologist at Sheffield University in England, carried out her research. Amarna, the site of excavations by Barry Kemp (a renowned Egyptologist from the University of Cambridge), is a good place to study ancient life in Egypt, Panagiotakopulu says, because the site is well preserved in the dry desert sands. Archaeologists have flocked to the site for more than 100 years to learn why the city was capital for only 20 years (around 1350 to 1330 B.C.) and then abandoned. However, Panagiotakopulu is the first to look at fossilized insect remains in the ancient city.

The Workmen's Village was the section near the ancient capital reserved for the artisans who toiled on the nearby stone tombs for the pharaohs Akhenaten and Tutankhamun. There, Panagiotakopulu found a very high frequency of fossilized human fleas, bedbugs and other insects and parasites that "present a picture of squalid living conditions" in and around the workers' houses, she says. Because pandemic plague throughout history often first showed itself by a large number of black rat deaths, scientists have long thought that plague originated in India and Central Asia, where black rats were endemic. They thought the plague then spread throughout the Mediterranean and Europe by fleas on black rats that entered the Mediterranean region via shipboard trading. But the identification of fossilized plague bacteria in the fossilized fleas in Egypt led Panagiotakopulu to hypothesize that plague instead originated in Africa, in fleas that fed on the endemic Nile rat.

The plague only grew to epidemic proportions when the Asian black rats - new hosts - were introduced to Egypt, Panagiotakopulu wrote in the February Journal of Biogeography. Because fleas, Nile rats and plague coevolved simultaneously in Africa, Panagiotakopulu says, Nile rats did not die of the disease but passed it on. When plague-ridden fleas bit black rats, which had no immunity to plague, they easily contracted and spread the disease around the Mediterranean on the ships of traders who also spread the disease.

Furthermore, Panagiotakopulu says, the annual flood of the Nile helped bring into contact the primary host (the Nile rat) and its parasite with a new host (the black rat), in early urban areas. But, she cautions, further detailed paleoecologic and pathologic research will be needed to substantiate her findings. Paul Buckland, an environmental archaeologist and paleoentomologist at Bournemouth University in England, says that fossil insects are important to the study of daily human lives from thousands of years ago, including what diseases humans may have faced and their quality of life. "A more regional picture of climate and environment is also available from the insect record, including evidence for crops, weeds and pest infestation of stored products, including mummies," he says. Panagiotakopulu's research and findings are "tremendously original," he says, and provides new dimensions to the study of the past.

Mystery of Missing Megamammals

A short article from June 2004 Discover Magazine
Contributed by Ed Elliott

Most of Africa's signature species hail from Europe: The ancestors of lions, giraffes, and hippos made their way onto the savannas when the Afro-Arabian continent bumped into Eurasia 24 millions years ago. So what happened to the native mammals they displaced? Paleontologists John Kappelman of the University of

Texas at Austin is finding the answers in northern Ethiopia, where he recently excavated the remains of five new elephant relatives, huge rodent like hyraxes, and a late *Arsinoitherium*, a seven-foot-tall rhino-shaped beast that sported a pair of enormous conical horns on its snout. The fossils indicate that Africa was home to a diverse mix of mega mammals. "Until now it was thought that the European immigrants were so successful because they moved into a virtual ecological vacuum, emptied out by changing climate," Kappelman says. More likely, he argues, the European mammals arrived with specialized adaptations that allowed them to out-compete the natives. The efficient ruminant stomachs of gazelle, antelope, and impala ancestors, for instance, probably gave them an advantage over hyraxes, with their simpler stomachs.

The most diversified species, such as the predecessors of mastodons and elephants, thrived after European invasion. But those that were more specialized, such as the fearsome *Arsinoitherium*, continued to evolve for only a short time before dying out. "It's a shame," Kappelman says, "It was a strange-looking animal that would have been a main attraction at any zoo."



The Group

June Field Trip Report

By Ed Elliott

I grew up hating Oklahoma. At seven, I was removed from Ft. Worth and dropped in the sticks of Western Oklahoma. My memories were of an area that was hot most of the time and freezing the rest, with bad water, red dirt, red mud and lots of red dust. It was flat and seemed to have tornados every other week. For fifty years, I don't think I've said anything nice about it. After two trips to the lovely rolling hills of southeast Oklahoma, I'm changing my tune. It has pretty countryside, interesting geology, and some of the nicest people I've met. And rare in Texas, it has landowners who readily allow access to their property. Oklahoma, I apologize.

At 8:00 AM on Saturday, seventeen members met at the Callixylon tree on the University campus in Ada. After I gave a tour of the city, we headed out to the Devonian quarry (Haragan Formation, Hunton Group) to dig crinoid bulbs. In addition to over 170 bulbs, we also found a few corals, brachiopods, trilobites and nautiloids. Hot, dirty and smiling, we drove a short distance to Fittstown and a leaf-fern deposit (Boggy Formation-Middle Pennsylvanian). The exposure was small but I think everyone took home something nice. Mike Smith wins the trophy for the largest slab carried off. It was smaller than the kitchen table.



After a late lunch, we drove to a road-cut of Silurian age (Henryhouse Formation, Hunton Group). There were lots of corals and brachiopods, trilobites and crinoids, stramatoporids and a few things we couldn't identify.

We finished off the day at the Ada brick pit (Frances Formation, Middle Pennsylvanian). This is an old site and doesn't seem to have that much material left. Still there were corals and brachiopods and nice bi-valves. Gary Rylander and I both picked up a trace fossil called a *Conostichus*.

After meeting again on Sunday morning at 8:00 AM at the Callixylon tree, we drove to a farm out past Union Valley. It took a little while to find the outcrop (lower Boggy Formation, Pennsylvanian), but we were glad we did. Rostroconchs, diverse brachiopods, corals and bi-valves were found in abundance. Melvin Noble found a dermal (under the skin) ossicle, something I hadn't seen before. A piece of shark "skin" is almost as good as a tooth.

From there we went back toward Ada, near Homer, to the Smith's house. We did find a few corals and crinoid stems. I picked up a rather large gastropod. John Hinte picked up something he believes is a swim bladder (fish? shark?). There wasn't much there. I have to mention the kindness and courtesy of Tom and Ruthann Smith. How often are you met on the back porch with tea and lemonade by the landowners? They are very nice people. For those of you who found something...it is the Wewoka Formation, Middle Pennsylvanian.

The last site was never found. We followed directions as best we could.

Even though the last two efforts weren't productive, the trip was a good one. Every person I spoke with had a good time. Lessons were learned in setting up the trip and next year (hopefully) there should be another Devonian site as well as an Ordovician site. I think that everyone who went is looking forward to it.

Gary Rylander



One Small Step for Fish

July 2004 issue Discover Magazine
Jocelyn Selim

An article contributed by Ed Elliott

How did creatures climb out of the sea? A 370 million year old arm bone found in an ancient streambed in Pennsylvanian is helping to answer one of evolution's great questions. The three-inch humerus dates to when scientists believe lobe-finned fish gave rise to the earliest four-limbed creatures capable of crawling on land.

"Fish have upper-arm bones, but it was thought that these early arms were used only as paddles," says Meil Shubin, the University of Chicago paleontologist analyzing the find. Although the humerus of the unnamed Pennsylvania fossil resembles those of many types of contemporary fish, it seems adapted to a distinctly different, push-up motion. A series of ridges along the bone most likely provided attachments points for a set of powerful pectoral muscles. Flexing those muscles would have allowed the animal to brace itself against the current in a stream and to lift its head above the water in order to grab a breath of air.

Shubin deduces that the creature would have looked a bit like a two-foot-long salamander with massive limbs; probably lived in shallow, plant choked waters. Its similarity to its fully aquatic relative implies that the push-up motion originally evolved among fish. Later fossils show a wide variety of shoulder structures, some of them more similar to those of today's land animals, so the Pennsylvania creature is most likely not our direct ancestor. "It suggests there was an immense amount of diversity in the intermediary land and aquatic animals," Shubin says, "which tells us evolution was less a stepwise progression than a lot of false starts."

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Club Information

The Central Texas Paleontological Society is a scientific, non-profit, community-based organization devoted to the study of fossils, advancing the state of the science, educating the public, and collecting fossil specimens. Most of us are amateurs, fascinated by fossils, who love to collect.

Meetings are held on the second Tuesday of each month at the LCRA building, 3700 Lake Austin Blvd. (between Redbud Trail and Enfield Ave.) at 7:00 PM in the LCRA Offices Board Room of the Hancock Bldg. **The public is cordially invited** to attend these meetings as well as our field trips held throughout the year.

Annual dues are: \$15 per person or \$18 per family, which includes a subscription to this newsletter, membership in the South Central Federation of Mineral Societies, and liability insurance coverage for club activities. Associate membership is \$10 per year and includes a subscription to this newsletter.

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About the Newsletter

Fossil Footnotes is distributed once a month prior to each meeting. Contact the Membership Chair to subscribe or obtain a sample-issue. If your mailing-label has a date marked with a colored pen, it means your membership has or is about to expire. Please send your check to the club Membership officer or bring it to a meeting.

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