



Fossil Footnotes

Central Texas Paleontological Society
August 2004

President's Message

Well, this month will be pretty brief. I missed the field trip, though I hear from Ed that we found some excellent material.

I will, however, bore you with some windings (whining?) through the bureaucratic labyrinths of Canada. I was in Victoria, British Columbia, last week and thought I might try some fossil collecting. Scrupulous observer of the law that I am, I tried to find out what the rules are on exporting fossils. British Columbia is one of the few Canadian provinces that even allow citizens to collect invertebrate specimens.

I uncovered a web site that said to call a number at the Canadian Cultural Property Export Review Board in Quebec "to determine if an export permit is required". Which I did. They gave me two names to talk to in Victoria. Since I was walking by the building that their office was in that day, I went in and asked. Neither was there, but I got the number of one of them. Called. He would not arrive at work until 5:00 pm. (I cleverly left this until Friday, when I wanted to collect on Saturday.) Called. He was running people through customs at the ferry. Called again at 6:30. Finally caught him at 7:00. So, I told him that everyone said he was the expert. He was very surprised to find that out, no one had told him that was the case. He said he would research it. He was a great guy, trying to do a careful job. Called me back in an hour. He had found a rule about cultural property. I said I didn't think fossils were "cultural" (looking back at the original website, that may be wrong). He

agreed, and said he would continue searching. I told him not to bother, it was getting late on Friday. He was interested though, and plugged away. An hour later he called me back and had found the inevitable piece of text that seemed to indicate that it was illegal to export any fossil from Canada. The phrase was something like "a paleontological object of ANY (my emphasis) scientific value". Which seems to directly contradict my starting point, but I guess the Canadian rule-making bodies are subject to the same complexities and inevitable internal contradictions as any large bureaucracy.

The good news is that the site I went to did not contain any material I felt a great need to bring home. I did bring back pictures.

We are re-thinking the field trip this month. The water level in the Brazos is currently way too high, and I doubt it will drop sufficiently for collecting this month.

- Mike

August Meeting Monday August 2

September meeting is September 8th

October meeting is October 13th

**Fossil Fest 2004: Nov 5, 6, & 7
At Old Settlers Park on Hwy 79
Round Rock, Texas**

**Contact our president Mike Smith for
details
Msmith17@austin.rr.com**

Our August Program

**Well, I just don't know. It could be a
guy from Florida talking about sharks or
it could be a professor from UT.**

So Be There and Find Out.

July Field Trip

It was a clear beautiful day for our Waco trip. Even at 8:00 AM, I could tell we would be better off with an overcast, somewhat stormy day. It's July; it's Texas—we get what we get. Even with expectations of heat, there were thirteen members and guests at the Lake Waco Research Area. (Waco Pit) Bill Kidd, David Lindberg, Gary Rylander, Melvin Nobel, Ed Bowden, Guenther Oswald, Hal Hopkins, Corey Gage, Eric Seaberg and his two beautiful children Sophia and Byron and myself were ready to collect.

The gray shale of the Del Rio Formation, Washita Group, have always produced wonderful fossils. This location is known for its dwarf fauna, much of it pyritized. There are always lots of oysters; the most common are the gryphaea types and the ever-present Plicatula incongrua. Five or six different kinds of pyritized gastropods can be found. Many different genera of dwarf pyritized ammonites are present; most common is the heteromorphy Mariella camachoensis. Both Ron Root and myself picked up the echinoid Goniophorus sp. What was unusual about this trip to the pit, were

the fossils found that you wouldn't have expected. Eric and Hal both found exceptional large slabs completely filled with Pinna sp.; large complete shells. And in the same area, Hal's friend Cory found a mammoth tooth! As there are no Pleistocene deposits in the immediate area, it either came out of the old river gravels or from gravels brought in and piled uphill from the wash. The story bears telling. Corey found a mammoth tooth and shortly thereafter, Eric found a mammoth tooth. Eric realized they were both halves of the same tooth and gave his half to Corey. Kudos to Corey for the find and Kudos to Eric—who really wanted a mammoth tooth, and gave it up so that the fossil would remain whole.

Everyone was ready for a change so I led the group to the spillway. During the drive over, Bill Kidd, who was riding with me, and I were talking. Every time Hal brings a guest, the guest makes out like a bandit. The jist of the conversation was that Bill is going to try to be Hal's guest for the Brazos River trip, hoping for a Dire wolf jaw or a mammoth tusk. I am going to try to be Hal's guest for the Brownwood trip. Multiple crinoid crowns on one slab? A full inflated Archaeocidaris? The rest of you get in line.

The spillway is the same Del Rio shale, much more outcrop and a longer section is exposed. It's very steep and lots of poison ivy to go through. While lots of things, like shark teeth, were found. Gary Rylander picked up the real find of the day. Slabs containing four Ophcira graysonensis! Four brittle stars, good job!! A very good trip, even if exceedingly hot.

A little postscript; I have a handful of heart urchins and ten Selenia mexicanas that say that Stillhouse Hollow is back in business. No more beaver dam. It looks the same as the last time I collected there. I know that is good news to all who enjoy that lovely spot.

Ed

Cretaceous Park

December 2002 issue of Scientific American

From a bluff-side vantage point some 500 feet above the braids and twists of Alaska's Colville River, we notice that a line of brush along a distant gravel bed is, in fact, moving. "Caribou," someone says, hundreds of them, in fact, surging along the river in an improbably large, swirling mass. For expedition leader, Anthony R. Fiorillo, it is enough to prompt a paleontological daydream: What if, 70 million years ago, a similar grouping of dinosaurs had passed this way? And what if those dinosaurs had met with a sudden, mass death, as caribou sometimes do? That might explain the bonanza of horned dinosaur fossils in the tundra underneath our feet-possibly the densest concentration of saurian fossils in the world.

Fiorillo-curator of earth sciences at the Dallas Museum of Natural History-first brought his team to this remote, road less spot on the edge of the national petroleum Reserve above the Arctic Circle to recover the skull of a type of horned dinosaur known as a pachyrhinosaurus, or "thick-nosed dinosaur," a member of the family Ceratopsidae. It didn't take much digging to realize that fossilized dinosaur bones were nearly as ubiquitous here as the Arctic's summer sun. By expedition's end, the team members, also from the University of Alaska-Fairbanks and Southern Methodist University, had turned up evidence of eight pachyrhinosaurus from a quarry not 50 feet square.

Paleontologists were aware of the dinosaur bone area, named the Kikak-Tegoseak bed, but not its remarkable density. Previously Alaska's horned dinosaurs have been discovered one at a time. "Finding that many skulls (of) ceratopsians stacked one on top of another is a pretty unusual situation," says Roland Gangloff, expedition organizer and curator of earth sciences at the University of Alaska Museum, a sponsor of the expedition. Gangloff and his colleague David W. Norton, operator of Arctic Rim Research in Fairbanks, first found the site in 1994, after

following a trail of bone fragments from the river's edge up a sheer, eroding bluff.

This year's discovery of eight individuals makes the site the largest collection of ceratopsians ever found above the Arctic Circle. "It's probably a huge bone bed," Fiorillo says, "and we're looking at a little, tiny part of it." Gangloff goes further, adding that the entire Colville region "will someday be recognized worldwide as one of the greatest dinosaur fossil accumulations in the world." The full size of the find remains to be seen.

This summer's excavation was limited by time, manpower and the rigors of working on isolated tundra. Reaching the bed required daily climbs up a mud-slicked bluff. Work was also slowed once by a midnight visit from a bear. Such rugged conditions meant in the past that many fossils went uncollected. But this year, heavy-lifting Chinook helicopters and the cooperation of the U.S. Army made the extrications possible.

Fiorillo's team retrieved parts of at least three skulls and other skeletal materials, including leg bones, ribs and vertebrae, much of it so jam-packed that researchers were finally forced to set aside delicate tools for pickaxes and to sacrifice surrounding bone to retrieve a reasonable sample.

Among the assortment were eight bones that looked like boccie balls. These occipital condyles-distinctive, spherical bones characteristic of ceratopsians-were part of the ball joint that supported the horned dinosaur's weighty head. Each condyle discovery represents another skull-and, most likely a skeleton lying below the earth, Fiorillo concludes. His preliminary examination suggests that the Arctic pachyrhinosaurus were close in age and probably died together in a catastrophe, such as a flood. It provides the first evidence that horned dinosaurs north of Alberta, Canada, behaved gregariously.

"We've been waiting for this for some time," says ceratopsian expert Peter Dodson of the

University of Pennsylvania, referring to Fiorillo's find, which has yet to be published in a scientific journal. Although horned dinosaur remains have previously been found in the Arctic, Dodson notes, "we had not really learned very much other than that they were present." Now he remarks, "we're going to learn something definitive."

Premium for Ancient Poop

Science Outlook/Science Now, May 19, 2004

Helen Fields, reported

Betty Grable's famous legs were insured by Lloyd's of London for \$1 million. Now the Royal Saskatchewan Museum in Regina is trying to figure out the value of a much less sexy treasure: a football-sized, fossilized dinosaur poop.

Weighing in at 7 kilograms, the Tyrannosaurus rex coprolite was the largest known when the museum fossil hunters found it poking out of the Saskatchewan mud in 1995. But the rock's very uniqueness makes it difficult to set a price. So museum officials recently sent a note to an e-mail list for paleontologists, asking for opinions. It is all part of a routine insurance assessment, says earth sciences Curator Harold Bryant.

Michael Sincak, owner or Treasurers of the Earth Ltd. in Hollsopole, Pennsylvania, believes the coprolite would probably sell for \$15,000 or more. But he is not sure, because nothing quite like it has ever been on the market. (You can get a small one for about \$10.00 on eBay.) Scientifically though, "it is priceless," says Mark Goodwin, a vertebrate paleontologist at the University of California, Berkeley, Museum of Paleontology. "You're trying to put a square peg in a round hole when you try to put a value on it."

July 13th CTPS Meeting Minutes

By Eric Seaberg secretary

This month we had a great presentation by the UT Geology librarian, Dennis Trombatore, on the resources present in the UT Library. Dennis went through the organization of the library and how to use the various databases such as ScienceDirect, Utopia, and the WebOfScience, to find and track citations and references. A great way to get access of the various resources in the library is through a TexShare card.

You can obtain a TexShare card for free from your local library where you already have a borrowing card. The TexShare card can then be used to get a

Courtesy Borrower Card at the UT library or others that are convenient to you. Another way to get materials is through inter-library loans.

It was interesting to hear how the Internet and the electronic versions of journals affect the library. For instance, the public access terminals give people the opportunity to access the Internet and its resources.

Because the terminals are anonymous, it has attracted people that misuse the resources and as a result our access to this resource ends up being restricted and monitored. An increasing number of journals are available in electronic version only. As a result, the library no longer buys a physical copy, which it stores, where the public would have access to until the pages wear out, but only a subscription to access the information, renewable on a yearly basis.

The Fossil Fest booths are now all spoken for; Hats and T-Shirts are on order.

We had a good recap of the Oklahoma field trip and looked at the great things found.



Unearthing TRex

Web site address sent to me by Mike Smith. I went to the web site and did a bit of copy/paste to show you just some of the information included. Go check it out!!

<http://www.unearthingtrex.com>

Together we'll meet a 65-million-year-old *Tyrannosaurus rex* specimen, nicknamed "**Wyrex**." It's being excavated in Montana by Black Hills Institute, a fossil company from Hill City, South Dakota—and by you! This web site will introduce you to the excitement of digging a *T. rex*, and show you how accessible working with fossils can be!

Starting **May 10th**, 2004, check in daily to see what's new. The Field Journal will be updated with facts, stories, interviews and semi-live content **directly from the dig as it happens!** Dinosaur digs can be as short as a couple of weeks, so stay tuned. This section includes: a Daily Journal which details each day's progress and events; an interactive Bone Map & Specimen Notes that will grow as the dig progresses; and, an opportunity to Meet the Dig Team of paleontologists. Drop by now to check out what was originally discovered.

T. rex In-depth: When you're not delving into the dig happenings, investigate *T. rex* In-depth, including its Anatomy, Traits, Behavior, Territory, and History. How did this critter's body work? Do we know for sure, or are scientists still developing theories? Where and how did *T. rex* live—and why do we think we know? What was the environment like? Who lived there with *T. rex*—or, most likely, who was listed on its menu?

Paleontology: Bone up on the science of Paleontology, with explorations into the

workings of a unique discipline. Get to know the kinds of People who discover, study, and work with fossils. Research how Fossils are created, found, cleaned, put back together, and studied. Find out how the Science of paleontology is practiced both in the field and in the lab, and which other sciences form its foundation.

Participate!: You can Participate in our dig by sending Questions directly to our dig team, sharing your thoughts and questions on a Discussion Forum that includes visiting experts, checking out cool group or classroom Activities, and exploring our Links to other sites. This is the first time the excitement and science of an actual *T. rex* dig has been shared with the world—Drop by and get involved!

Science, Vol. 304,
Issue 5672, 803, 7 May 2004

Article provided by Mike Smith

Curious about what creatures wandered Texas during the Permian period?

Looking for advice on paleontology careers or a good online paleobotany lab?

Step into the Paleontology Portal, a new collection of links, photos, teaching materials, and more aimed at everyone from fossil enthusiasts to professional scientists.

The site from the University of California Museum of Paleontology, the Paleontological Society, and other organizations is still under construction, but it already offers some nice features. You can read up on nine famous fossil locales, such as the 500-million-year-old Burgess Shale of British Columbia, which boasts one of the richest assortments of early animals. Browse the "Exploring Time and Space" section to see representative finds for different U.S. states and time periods. A 12-centimeter-long shark's tooth, for example, comes from Tertiary rock (65 million to 1.8 million years old) in California. You can also get info on careers, laws regulating

fossil collection, and upcoming conferences. Or help build the collection by submitting materials. www.paleoportal.org

Man of Apes Resets Clock of Evolution

From July 2004 issue Discover Magazine
Anthropologist Robert Martin
As interviewed by Jocelyne Selim

Anthropologist Robert Martin is Provost of Academic Affairs and curator of Biological Anthropology at the Field Museum in Chicago. He has devoted his life to studying the biology and evolution of primates as a basis for understanding human origins. His textbook, *Primates Origins and Evolution*, established standard thinking in the discipline. But his latest thinking is that humans, as well as other mammals and birds, evolved far earlier than previously thought.

Why even bother to study evolution?

Martin: A lot of people say, “Well, what’s the point, you know?” You reconstruct the evolutionary tree for primates and humans, but so what?” And my justification for that is, it’s like history. In the same way that we are interested in our cultural history, looking at our biological history is a valuable thing to do. It helps us understand human society today by giving us parameters to evaluate our biological and cultural selves. For example, it can tell us that race and gender difference in brain size are unrelated to intelligence.

So when did human life begin? Martin: A better question is: When did the line leading to all modern primates diverge from other mammals? The classic story is that all modern mammal groups started to develop no more than 65 million years ago, after the end of the Cretaceous Period, when a probable meteorite impact led to a major extinction in which all the dinosaurs died. The standard explanation is that the evolution of the modern groups of mammals and birds didn’t get under way until after that. If you go to a paleontologist and ask, “When do you think the primates started?” the

paleontologist will say, “Well, the earliest fossil we can find that’s definitely a primate is 55 millions years old. So if we add a few million years as a safety margin, we can assume that primates evolved about 60 million years ago.”

But you say that’s wrong? Martin: I was looking at bats, and it occurred to me that when you first find bats, 55 millions years ago, they look just like modern bats. All their key characteristics are developed. And so I suspected that things must go back further than that, unless you just believe they somehow popped into existence. So I got together with a mathematician and two graduate students, and we developed a model where we take the number of living species of primates along with all the fossil forms in time slices, and then repeatedly fit randomly branching trees following certain basic rules to estimate when the common ancestor emerged. And the answer is that the common ancestor of primates probably appeared about 20 million years earlier than people thought. So it’s closer to 85, not 65 million years ago.

Anthropologists are fond of pointing out that, despite what we see in the movies, dinosaurs and humans did not exist at the same time. But you’re saying primates were running around in the age of the dinosaurs? Martin:

I’m not sure whether they were actually running around alongside the dinosaurs. All we can say is that they existed at the same time. But they may not necessarily have occurred in the same areas. There have been suggestions that modern mammals and birds evolved in upland areas, cooler areas, and that’s why birds and mammals developed control of their body temperatures. So it is possible that these early relatives of modern mammals evolved in cooler, upland areas, and that the dinosaurs were in hotter, lowland areas. So they probably were around the same time, but they didn’t necessarily see each other.

What did that first primate look like? Martin:

Our suggestion is that 85 million years ago, you had a creature weighing about two pounds that was tree living, with grasping hands and feet,

large forward-facing eyes, and probably a relatively big brain. In short, it looked like a modern primate. In recent years, molecular biologists have produced evidence that primates diverged from other mammals 90 millions years ago and began to diversify at least 80 million years ago, so both of us are saying the same thing: You have a recognizable primate well back in the Cretaceous Period.

Why does 20 million years matter? Martin: It suggests that primates could have originated in the landmass composed of India and Madagascar, not in Africa. At least 130 million years ago, Indo-Madagascar separated from Africa. More than 40 million years later, Madagascar broke off from India, which continued on its merry way until it collided with Asia about 60 million years ago. A few million years after that, fossil primates abruptly appeared in Asia, Europe and North America. There's an emerging theory called the Indian ark hypothesis that says India carried with it a whole bunch of plants and animals. Primates could not have been part of this if they evolved as late as is believed. I am looking for Cretaceous primate fossils in India to test my hypothesis.

When did we split from apes? Martin: The time of divergence between humans and our African great ape cousins, the chimp and the gorilla, has been calculated using the known fossil record. The date of 5 million years ago has almost become set in stone. I reckon that we diverged at least 8 million years ago.

Why is that important? Martin: There has been a huge controversy over whether the Neanderthals were part of the European origins of humans or whether the Neanderthals were a separate lineage and, indeed, a separate species. I think that's been resolved now partly because of work I carried out on the Neanderthal skull with colleagues at the University of Zurich. I am convinced that Neanderthals were totally separate lineage. But even people who accept that Neanderthals belonged to a separate lineage believe that they diverged about 600,000 years ago. If Neanderthals branched away a million

years ago, a lot of their characteristics evolved independently from ours.

What characteristics? Martin: Most notably, their larger brains. It seems unbelievable, but on average, Neanderthals actually had larger brains than modern humans. In fact, at that time our own direct relatives also had larger brains. This is because both they and the Neanderthals had bigger bodies. Our brains have actually been decreasing in size for over 30,000 years. More important, early divergence would mean that a significant part of brain expansion in Neanderthals took place completely separately from that in our own lineage. Parallel expansion of the brain has happened elsewhere. For example, you would think that the primate with the next biggest brain relative to body would be a close relative-chimp or a gorilla. But it's not. It's the capuchin monkey. They are the little fellows that organ grinders carried around because they were good at doing tricks...because they are very, very smart.

So how did capuchins, and for that matter, humans, become so smart? Martin: Brains are unusual organs in that most of their growth occurs early on. Most human brain development happens in the womb and during suckling. By the age of 5 or so, that's pretty well it. So most of the resources for brain growth are provided during pregnancy and nursing. Our ancestors very likely suckled for about four years. So we are what we eat. It's a cliché, but brain size has everything to do with diet. Capuchins must have at some point adopted a very high-energy diet because their digestive systems looks a lot like ours.

What else can you tell from looking at the behavior of other modern primates? Martin: Comparative studies let us establish the rules of the game. For example, we can observe that when males are significantly bigger than females in modern primates, males are likely to live in groups with breeding access to several females. On the other hand, in groups with monogamous

relationships, males and females are typically very similar in size.

But human males are typically larger than females. Does that mean they're not likely to be monogamous? **Martin:** That is right, although it gets complicated because the bigger a species is, the more likely you will get some degree of size difference between males and females. I nevertheless think there is a greater degree of sexual dimorphism than you would expect if humans were biologically adapted for a monogamous system. I would expect men and women to be much more similar in body size if we were biologically adapted for monogamy.

Are there other markers for monogamy? **Martin:** There are markers that indicate whether the mating system involves several males or just one male, which includes monogamy. If you look at the size of the testes relative to body size, species in which the males have particularly large testes are found to have a multi-male system accompanied by sperm competition. If you look at the human male, our testes actually fit into the single-male category, which includes both monogamy and polygynous harem systems. The same result emerges when you look at the size of the mid-piece in primate sperm.

What about the idea that there is a missing link between humans and other apes? **Martin:** If you accept the 5-million-year divergence date, then you might believe that we have discovered practically everything. We have *Australopithecus* species, such as Lucy, and some fossil members of that lineage go back over 4 million years. So you might conclude that *Australopithecus* is the missing link. But if you believe the divergence occurred around 8 million years ago, we have got a lot of fossils yet to find.

So the missing link is still missing? **Martin:** There are a lot of missing links. But finding the divergence between apes and us is getting more promising. One of the most spectacular recent discoveries was made in Chad by a French team that turned up a 6-to-7 million-year-old skull. It's surprisingly small skull, but it shows some

intriguing similarities to humans. If you buy into the 5-million-year date, then it can't possibly be a hominid because we didn't split from the chimpanzees until after that. But if you go with our revised 8-million-year estimate, it could well be the missing link. At least the possibility is left open that this could be a very early member of the lineage that led to us.

Sourcing Sapiens

August 2003

Scientific American

For more than a century, paleoanthropologists have been at loggerheads over the origin of modern humans. Two factions occupy the forefront of the debate: those who subscribe to the Out of Africa theory who holds that *Homo sapiens* arose in Africa alone between 200,000 and 150,000 years ago and subsequently across the globe, replacing archaic hominids; and those who espouse the multi-regional evolution theory, which proposes that modern humans emerged from archaic populations across the Old World.

The Out of Africa model has come out as the clear favorite, bolstered by numerous genetic studies. Critics, however, have charged that fossil support for the theory is flimsy. If Africa was the fountainhead of modern human morphology, then the first modern looking fossils should come from that continent. But a hole in the African fossil record between 300,000 and 100,000 years ago, when the transition to morphological modernity is believed to have occurred, has prevented scientists from testing that prediction. New finds from a site called Herto in Ethiopia's Middle Awash region bridge that gap. In the June 12 nature, Tim D. White of the University of California at Berkeley and his colleagues describe three skulls reliably dated at nearly 160,000 years old that they say represent the earliest near-modern humans on record. The fossils, assigned to a new subspecies, *H. sapiens idaltu*, exhibit such modern traits as a globular braincase, but they also retain some ancient features, a heavy browridge, for example. Their

anatomy and antiquity, the researchers observe, link earlier archaic African forms to later fully modern ones, thereby providing strong evidence that Africa was the birthplace of our kind.

The Herto hominids also bear on another related question: Namely, were Neanderthals among the forebears of living peoples? Whereas Out of Africa theorists contend that such archaic hominids did not contribute significantly to the modern human gene pool, some multi-regionalist have argued that the Neanderthals independently evolved into modern Europeans. The presence of near moderns in Africa while the Neanderthals were still developing their distinctive characteristics in Europe makes it highly unlikely that Neanderthals were ancestral to modern humans, White's team asserts.

Scientists working on ancient DNA have reached similar conclusions. In May, Giorgio Bertorelle of the University of Ferrara in Italy and his colleagues reported that mitochondrial DNA (mtDNA) sequences from two early modern European fossils differ markedly from the mtDNA sequences previously recovered from four Neanderthal specimens. They fall within the range of genetic variation seen in Europeans today, however.

Not everyone is convinced by the case against Neanderthal ancestry, Fred H. Smith of Loyola University of Chicago counters that although the Herto finds add weight to the idea that modern humans originated in Africa, they do not address the question of whether those moderns mingled with the archaic hominids they encountered on leaving their homeland. Smith has argued that a number of early modern European fossils possess Neanderthal traits, suggesting that the two groups interbred. Neither is Smith persuaded by the DNA data. "Two individuals do not tell us what the genetic makeup of early modern human populations was," he remarks. "We need a good deal more data to determine whether Neanderthals contributed genetically to that population. "

Although disagreement over the origin of modern humans and the fate of the Neanderthals and other ancient hominids persists, the dispute itself has evolved. "Continuity versus replacement is dead," declares Erik Trinkaus of Washington University. The debate is over "trivial amounts of admixture versus major amounts of admixture." For his part, Trinkaus suspects that early modern humans and Neanderthals paid little attention to the physical differences between them. "They saw each other as people," he surmises, and did what people do.

Upcoming Shows

August 14-15, 2004 Arlington Gem & Mineral Show to be held at University of Texas at Arlington , Hereford Hall, Bluebonnet Room

August 20-22, 2004 Bossier City, La Ark-La-Tex Gem & Min Society at Bossier Civic Center

September 4-5, 2004 Pleasant Oaks Gem & Mineral Club of Dallas, Ellison Miles Geotechnology Institute, 3939 Valley View Lane, Farmers Branch, Texas

September 24-26, 2004 Houston Gem & Mineral Society's Gem, Jewelry, Mineral & Fossil Show, Humble Convention Center, Humble, Texas

October 2-3, 2004 Texoma Rockhounds Denison Senior Center, 531 Chestnut Street, Denison, Texas

October 9-10, 2004 Tri-City Gem & Mineral Society show to be held at Mayborn Center, Temple, Texas

October 29-31, 2004 Fossilmania, Somerville Expo Center, Glen Rose, Texas sponsored by the Austin Paleontological Society and the Dallas Paleontological Society

November 5-6-7, 2004 Fossil Fest, sponsored By the Central Texas Paleontological Society, Old Settler's Park, (indoors) Round Rock, Texas

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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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