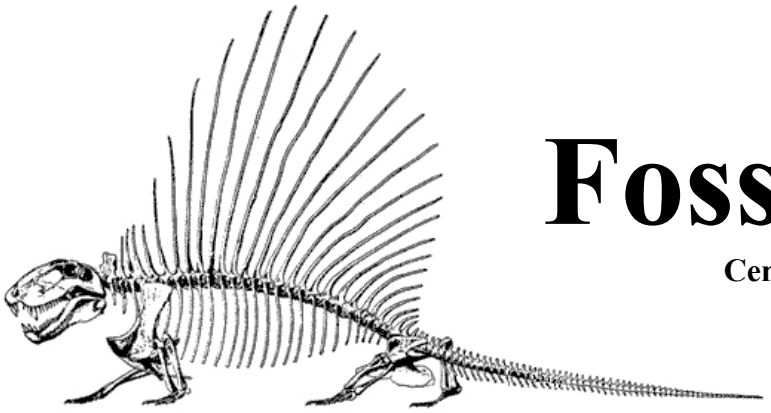

Fossil Footnotes

Central Texas Paleontological Society
March 2005

President's Report

Hi to all. Mercy this weather has been cold and nasty. I have been suffering with a bad cold as a result and am just now getting over it. I hope everyone else has made it through unscathed. The one good thing, with all this rain, hopefully a lot of fossils will weather out for us to collect.

We had a great February meeting with excellent attendance. A lot of new faces and new members attended which we were all very happy to see. Welcome to all of the new members.

On a cool wet Saturday February the 19th four club members volunteered their time to man a table at the Austin Children's Museum grand opening of there Dinosaur Expo. The four were Marcelle Spilker, David Lindberg, Mike Smith and Danny Harlow. There was excellent attendance and we all had a lot of fun showing the kids and parents Fossils of Texas. It will be open every Saturday on into the summer so go by a see it if you get a chance.

See you at the March meeting! **Danny**

March Meeting to be held on Tuesday, March 8, 2005

The March meeting will be at the LCRA building on March 8th.

Hope to see you all there.

FOSSIL of the MONTH

Many of you have seen this before but it is worth showing again. It is a spectacular, perfectly preserved Cidarid sea urchin found by Mike Smith a couple of years ago on a field trip to Lake Travis hosted by Hal Hopkins. These are extremely rare and a once in a lifetime find. Lower Cretaceous - Lower Glen Rose Formation

CTPS Minutes February 8, 2005

The meeting had a great turn out with several new members. The field trip to the Brazos River, Eocene site was planned.

For the speaker, we had a great presentation on corals in the cretaceous and the reasons why they

are hard to find in the fossil record in Texas. In the Jurassic, there were lots of corals, but as we enter the Cretaceous, rudist reefs start to overtake the coral reefs. One theory was that the sea became poor in aragonite; which corals use to build their structures. The rudist formations utilized calcite.

In the literature that was cited, the rudists are characterized in derogatory terms such as sloppy, invasive, weeds, suburban sprawl. The group had fun with the depiction of the rudists and will probably continue as a point of humor. Thanks to Danny Harlow for the presentation.

Afterwards, Hal Hopkins took the podium and related story of the finding of his large ceremonial spear point, its theft, and the results of the legal proceedings in which he retained possession. He then shared the find with the group. It was pretty spectacular, the point and the story.

A Couple of Photos from the February 19th
Austin's Children's Museum

David and Marcelle get a chuckle out of the parents and kids

Danny demonstrating fossil preparation

February Field Trip

By Ed Elliott

I awoke this particular Saturday morning at 5:00 AM with somewhat a sense of impending doom. There was a very distinct possibility that this trip was to be a ride there and back. For a week, rain had been predicted for the entire day. It had rained several days prior and the Brazos River had recently been reported to be in flood. If this site is wet, it is nearly impossible to dig the fossils. If it is extremely wet, it can be dangerous. Sliding into a river in flood can ruin your day.

Bill Kidd and I arrived at 8:00 AM to check it out. By 8:30 AM the rest of the crew had arrived; Paul Hammerschmidt, Mitch Scoggins, Jimmy Hendricks, Eric Seaberg and his daughter Sophia, Rich Geist, Dave Lindberg and his son Mark, and Melvin Noble. The river was high, but the bluff was accessible. There was lots of mud but the glauconite beds weren't too wet. While it was cool and dreary, it never rained. Basically, we punted and got a field goal.

This is a world-class site: the type locality for the Stone City formation, Claiborne Group. This Middle Eocene locality was marine and the fossils are almost totally invertebrate. Despite being from 43-46 million years old, these fossils are pristine and beautiful-as though they were picked up on a beach yesterday. The best identification book (named for the formation and

locality) put out by John and Barbara Emerson, lists four phyla (Annelida, Bryozoa, Coelenterata, and Mollusca), including 72 families, 128 genera and 220 species.

While none of us stayed clean, I think I can say we all had fun. I made no attempt to keep track of all that was collected. Careful digging and examination of the unconsolidated glauconite yields too many specimens to itemize the findings of eleven people. I saw Jimmy hold up a Turbinolia pharetra, a very small very pretty solitary coral. These aren't rare, just extraordinarily hard to spot in the matrix. Eric picked up a very nice specimen of a colonial coral called Madracis johnsoni, fairly rare. Rich was excited by a Belosaepia veatchi. This is part of a belemnoid skeleton called rostrum. Belemnites are extinct squid-like creatures. I believe that both Paul and Mitch found shark teeth, also a fairly rare find. My discovery of the day was an unidentified solitary coral growing on an Anomia. There were many Conus sauridens found, some large. Paul also picked up a large, pretty Athleta petrosus. These aren't rare, just one of my favorites.

Considering that I expected the day to be a total washout, it was an excellent trip. Those who hadn't been there before, are now like the rest of us, itching to go back. It is wonderful to have an extraordinary site like this in our backyard.

See you next time.

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Taken from the Friday January 28, 2005 ***Herald Democrat.*** R C Harmon is a long time member of the Central Texas Paleo Society

Harmon to speak at lecture series

The Red River Historical Museum will feature volunteer archaeology steward, R.C. Harmon, as their speaker at February's Lunch Lecture Series on Friday, February 4, 2005, 12 Noon, at the museum.

Harmon, whose subject will be "Paleontology: Mysteries of the Past Where We Live" has long been active in archeological discoveries, having worked with archeologist Barto Arnold in the dig of the LaSalle ship La Belle in Matagorda Bay. He has presented Children's workshops at the museum as well as to area schools and is active in the Texoma Rock Hounds. He and fellow club member, Ed Swaitovy, assembled an exhibit of fossils, which is currently on loan at the museum.

R.C., a native of Sherman, was given the Distinguished Student Award by the Sherman Ex-Students Association in 2001. He attended Austin College and is a 1950 graduate of North Texas State University. From 1945 to 1980, he served in the US Army National Guard, retiring as Colonel of Armor. R.C. was employed for 24 years by IBM as an industrial and facilities engineer in Sherman, until the plant closed and he transferred to Austin where he worked until retiring in 1987. R.C. is married to Bea Harmon and is the father of three sons.

Fossil Fest 2005

Meetings have begun on the plans for Fossil Fest 2005. Contracts have been sent out with a note to return them as soon as possible. We hope to make a better impact on schools this year with a much better participation by several age groups as well as scout groups.

If you have any ideas about how to assure we have better attendance by the schools, contact Ron Root, our Show Chairman.

Visit our web site at:
http://www.texaspaleo.com/ctps/index.html

For meeting times, field trips and fossil fest **news.**

Fossils of Calvert Cliffs

From the internet:

Calvert Cliffs is located in the largest fossil-bearing deposit of Miocene marine sediments

exposed on the East Coast of North America -- the Calvert Cliffs of Maryland. Most of the shells and bones on our beach are fossils Shark teeth and whale vertebrae are prized finds. Rarer specimens include almost complete skeletons of whales and porpoises, bird bones, and remains of land mammals such as mastodon, peccary and small Miocene horses.

These sediments were laid down 10 to 20 million years ago during the Miocene Epoch, when the Atlantic Coast was repeatedly submerged beneath the sea. Studies of fossil animals and plants indicate that in those times, a warm shallow ocean covered this area. Cypress swamps lined the shore. A river wound slowly toward the sea through sand dunes dotted with scrub oak and pine. The climate was somewhat warmer than now. Shells and bones of dead animals sank to the bottom of the sea and were buried in sand and mud, building up over many thousands of years layer upon layer of fossil deposits. Millions of years later, the ocean retreated and what once was sea bottom is now exposed in the cliff face.

Calvert Cliffs extend for more than 30 miles from just north of Chesapeake Beach to Drum Point, rising in places to more than 100 feet in height. Three major intervals of deposition are represented. Sediments deposited during the earliest interval make up the Calvert Formation, which includes the bluish clay the lowest one-fourth of the cliff in the vicinity of Scientists' Cliffs. The Choptank Formation, deposited later, includes the yellow sands and clays in the higher levels of our cliffs. The youngest formation, the St. Mary's, lies farther south; it isn't found at Scientists' Cliffs. The formations dip toward the southeast at an average rate of about 11 feet per mile.

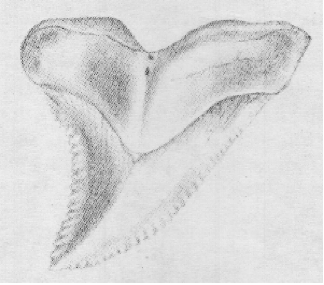
The cliffs are continually eroded by wave action, which undercuts the base, by landslides and by storms and frost. Fossils falling into the surf are tossed around, cleaned, and then cast back on shore. Virtually all the shark teeth and the fossil bones and shells found on the beach wash or weather out of the cliffs.

Marine Mammals. The Calvert Cliffs deposits are among the world's richest in fossil whales and porpoises. About two-dozen kinds have been identified including sperm whale, shark-toothed porpoise, both long and short beaked porpoises, river dolphin and several kinds of whalebone whale. Seal and sea cow bones also are found. Most of the whale and many of the porpoise skeletons are of immature animals, which suggests that this area was a calving ground.

Porpoise and whale vertebrae are fairly common. Ear bones wash up occasionally but porpoise teeth are scarce, considering the abundance of skulls and that the jaws of some long-beaked porpoises contained over 300 teeth.

Land Mammals. Remains of land mammals occasionally erode out. The deposits were marine so most of the shells and bones in the cliffs are those of animals that lived in the sea. Bodies of land mammals floated down rivers from time to time, however, and became buried in the sea floor. Peccary teeth and bones, although quite unusual, turn up more often than those of other land mammals. Four species are known from the cliffs. In addition to the peccaries, mastodon, deer, tapir, rhinoceros, camel and horse have been reported, as have wolf, bear, dog, and cat. Some of these Miocene species, all now extinct, are known from the cliffs by a single tooth or two. The mastodon teeth represent the first known appearance of mastodon in North America.

Birds. Most of the fossil birds found in the vicinity of Scientists' Cliffs were pelagic, spending much of their lives at sea. Bones of gannet, auk, loon, shearwater, jaeger, and tropicbird have been reported. Recently, wing bones, vertebrae, ribs and the beak of an extremely large pelican-like birth that stood about six feet tall and had a wingspread of 15 to 20 feet have shown up. A one-half size scale model of this bird, named Pelagornis but better known as the false-toothed bird, is displayed in the paleontology exhibit of the Calvert Marine Museum in Solomons Island.



Sharks, Rays, and Bony Fish. Shark teeth are the favorite fossils of local beachcombers. They vary in size from barely visible to teeth of the Great White shark measuring five inches or more. There are so many that you can almost always find a few by the water's edge.

Teeth commonly found on our beach include sand shark, Mako shark, silky shark, snaggletooth shark and white shark. The shark in the story "Jaws" was a white shark but less than half the size of the Miocene monsters with five-inch teeth, which are estimated to have reached more than 40 feet in length. Shark teeth are found throughout the deposits.

Many kinds of fish in the Bay today frequented the area millions of years ago. Bluefish, weakfish, ocean catfish, sturgeon and black drum were present, as were cod, sailfish, ocean sunfish and other types. Fish remains are plentiful but usually consist of isolated vertebrae, scales and an occasional tooth

Reptiles. Crocodiles, fresh and saltwater turtles, and a land dwelling tortoise have been reported from the cliffs. Crocodile teeth show up fairly often but complete skulls and other parts of the skeleton are rarely found. Fragments of sea turtle shell are among the most common vertebrate fossils in the Calvert Formation.

Mollusks. The Calvert Cliffs are notable for their densely packed beds of mollusk shells - clams, oysters, scallops, and snails among others. Our local shell beds can be seen from all along the beach, with the best view that from about halfway between South Beach and Governor Run.

Mollusks (and diatoms and foraminifera) are especially useful in determining the age of a formation. Geologists use the percentage of fossil species that have survived until today as one measure of age. As shells usually are numerous, percentage distributions of the various species can be correlated with those from other deposits. Some 400 species of mollusk have been identified from the cliffs, of which about 11 percent are still living.

One of the first illustrations of a fossil from America, a snail now called *Ecphora gardnerae*, was published in a 1770 edition of one of Martin Lister's works. This shell may have been collected by Hugh Jones, rector of Christ Church in Port Republic from 1696 to 1701. An active naturalist, he collected and sent back to England many local plants, animals, and fossils. In 1984 the Maryland State Legislature designated this graceful shell the official State fossil.

Miscellaneous Fauna and Flora. Other fossils found on the beach include sea urchins, sand dollars, crab claws, barnacles, coral and a brachiopod. Sea urchins were considered rather rare until 1938, when a pocket containing hundreds of individuals was found at Scientists' Cliffs in a sandy bed near the base of the Choptank Formation. Paleontologists of the U.S. National Museum placed a large block from this pocket on exhibit there, and another in the Chestnut Cabin Museum where it remains our prime exhibit. Similar colonies at the same level are exposed infrequently. Clean, well-preserved sand dollars are found with these sea urchins but not in such profusion. Sand dollars also appear in other beds but these usually are broken and encrusted with barnacles and mollusks.

Carbonized wood is plentiful in the Chesapeake Miocene. Most of the wood in the Scientists' Cliffs area is believed to be cypress. However, investigations of these deposits here and near Washington and Richmond have yielded leaves and pollen of several other species including oak, hickory, pine, elm, and basswood.

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Some months ago, Mike Smith talked with us about Mary Anning, so I thought it might be of interest to those of you who had not heard about her…from
http://www.sdsc.edu/ScienceWomen/anning.html

Mary Anning, Finder of Fossils

Mary Anning lived through a life of privation and hardship to become what one source called "the greatest fossilist the world ever knew." Anning is credited with finding the first specimen of *Ichthyosaurus* acknowledged by the Geological Society in London. She also discovered the first nearly complete example of the *Plesiosaurus*; the first British *Pterodactylus macronyx*, a fossil flying reptile; the *Squaloraja* fossil fish, a transitional link between sharks and rays; and finally the *Plesiosaurus macrocephalus*.

Her history is incomplete and contradictory. Some accounts of her life have been fictionalized, and her childhood discoveries have been mythologized. She was a curiosity in her own time, bringing tourism to her hometown of Lyme Regis. Only her personal qualities and her long experience brought her any recognition at all, since she was a woman, of a lower social class, and from a provincial area at a time when upper-class London men, gentlemanly scholars, received the bulk of the credit for geological discoveries.

Anning learned to collect fossils from her father, Richard, a cabinetmaker by trade and a fossil collector by avocation. But he died in 1810 at the age of 44, leaving his family destitute. They relied on charity to survive.

Fossil collecting was a dangerous business in the seaside town. Anning walked and waded under unstable cliffs at low tide, looking for specimens dislodged from the rocks. During her teenage years, the family built both a reputation and a business as fossil hunters. In 1817 they met Lieutenant-Colonel Thomas Birch, a well-to-do fossil collector who became a supporter of the family. He attributed major discoveries in the area to them, and he arranged to sell his personal collection of fossils for the family's benefit. Most of Anning's fossils were sold to institutions and private collectors, but museums tended to credit only people who donated the fossils to the institution. Therefore, it has been difficult for historians to trace many fossils that Mary Anning located; the best known are a small *Ichthyosaurus* discovered in 1821 and the first *Plesiosaurus*, unearthed in 1823.

Mary had some recognition for her intellectual mastery of the anatomy of her subjects, from Lady Harriet Silvester, who visited Anning in 1824 and recorded in her diary:

> the extraordinary thing in this young woman is that she had made herself so thoroughly acquainted with the science that the moment she finds any bones she knows to what tribe they belong. . . . by reading and application she has arrived to that greater degree of knowledge as to be in the habit of writing and talking with professors and other clever men on the subject, and they all acknowledge that she understands more of the science than anyone else in this kingdom.

Visitors to Lyme increased as Anning won the respect of contemporary scientists. In the last decade of her life she received an annuity from the British Association for the Advancement of Science (1838). The Geological Society of London collected a stipend for her and she was named the first Honorary Member of the new Dorset County Museum, one year before her death from breast cancer. Her obituary was published in the Quarterly Journal of the Geological Society--an organization that would not admit women until 1904.

Central Club Contacts, 2005

President	Vice President Show Chair	Secretary
Danny Harlow 1140 Elder Circle Austin, TX 78746 (512) 327-4535 dharlow@austin.rr.com	Ron Root 6801 Rustling Oaks Trail Austin, TX 78759 (512) 345-6718 ron_root@bnc.com	Eric Seaberg 9283 Scenic Bluff Drive Austin, Texas 78733 512-402-0433 eseaberg@austin.rr.com
Field Trip Chair,	**Treasurer**	**Program Chair Board Member**
Ed Elliott 5502 Roosevelt Austin, TX 78756 (512) 453-5390	David Lindberg 9413 Sherbrooke Street Austin, TX 78729 (512) 401-0812 DLINDBERG@austin.rr.com	Mike Smith 8324 La Plata Loop Austin, TX 78737 (512) 288-6582 **msmith17@austin.rr.com** michael.smith@eds.com
Newsletter Editor	**Board Member**	**Club Founder**
Hollis Thompson 207 Adelfa Drive Round Rock, Texas 78664 (512) 341-0212 dopsticks@juno.com	Gene and Sheri Siste 5329 Hanging Cliff Cove Austin, TX 78759 (512) 794-0880	Don O'Neill 2600 CR 241 Hondo, TX 78861 (830) 741-3557

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.

Central Texas Paleontological Society
P.O. Box 90791
Austin TX 78709-0791

Web page: http://texaspaleo.com/ctps

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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P.O. Box 90791
Austin TX 78709-0791