Paleo Footnotes

Newsletter of the Paleontological Society of Austin

Austin and Central Texas

Volume 3, Number 7
July 2008

President's Note

We've survived a very hot June and had two field trips that were a lot of fun. If the water level is right, we'll be on the Brazos hunting Pleistocene material this month. If not, Brownwood always has a lot of nice Pennsylvanian fossils. Hopefully the river will cooperate. If you're going to be hot, what better place than on a river.

I've been contacted by the Ladybird Wildflower Center Concerning a "Nature" event they're having on Thursday July 31st. A chance to represent the club and talk to the public for anyone interested and able.

Looking forward to seeing you at the meeting.

Ed

Next Meeting – July 15th

Five Mystery Speakers & Five Favorite Fossils

The program for the July meeting will be a little different, but in a fun way! Five mystery speakers will bring his/her favorite fossil, tell where it was found and if that's still a good site, how it was cleaned or prepared, (if purchased, where and the cost, etc.), and tell how it was identified, classified, etc

Actually, the first 5 people I asked quickly accepted (isn't it funny how we're all proud of our 'babies'?) If there is anyone else who is dying to show off his/her favorite, call me and you might be added, or at least put on another list for another date in the future. Of course, if your talk can last 30-45 minutes, you'll be a whole program! Thanks so much for all your enthusiasm about the programs and educating our newer members. Diann Strout, program chair

Tuesday 7 PM
Austin Gem & Mineral Society Building
6719 Burnet Lane, Austin, TX

June Meeting Minutes

Speaker
Chis Garvie "Micro-Gastropod Changes from the Early Cretaceous to the Recent in the Gulf Coastal Plain of the USA"

Chris presented his latest paper on his analysis of the Gastropods he has collected, describing the population densities during this period.

Business meeting called to order at 7:45 by President Ed Elliot

Treasure's report: Balance June 17th - $5425.13
Minutes as printed in newsletter were accepted

Old business
John Hinte reported that we continue to look for a place at the AGMS Clubhouse to display Quinten's memorial fossil.

Mike Smith announced that the 401-3C application was returned by the IRS as it was sent on an old form. Mike will resubmit it on current form.
David Lindberg reported the Dallas club has more information on its website about donations for the Mineral Wells fossil park. PSA voted to let them know that PSA pledges $500.

New Business
Diann Strout asked for help in finding speakers for the September, October and November meetings.

Kathleen Howard volunteered her house for a barbecue for the October meeting. Her invitation will be discussed at the next meeting.
Joan Crane reported there were 33 tables sold for Fossilmania. The bank account has $8340.50 in it

The July field trip will be a canoe/kayak trip on the Brazos.
Ed reminded us that we will meet Saturday ,June 21st at 8:00 in Ada Okahoma for the field trip.

Ron Root - Secretary

Next Field Trip

Brazos River for Pleistocene Fossils

Saturday July 19th, 8AM

Directions:
Meet at the Stephen F. Austin statue in the S.F.A. State Park in San Felipe.
Travelling east on I-10, just east of Sealy take 1458 north (left) to the park.

Bring food, lots of water and a boat.

Alternative: Brownwood for Pennsylvanian Fossils*

Directions:
Take 183 north to Early.
Follow 183 to the left as it joins with US84.
Meet in the parking lot of the Heartland Mall which is on the right just where 183 veers of to right.

Bring food, lots of water and small containers for fossils.

*The trip should be nailed down by Tuesday's meeting. Look for an e-mail blast with trip info. If you do not make the meeting or get the e-mail contact Ed Elliot (657-7581) to confirm which trip we will take.

A Special Note from Linda McCall

The paper Dr. Sprinkle, Dr. Molineux and myself co-authored, "Spectacularly Preserved, Mollusc-Dominated Fauna from a Cavity Layer in the Lower Cretaceous Edwards Formation, Central Texas" has been accepted for publication and will be presented at the 2008 GSA/GCAGS joint annual meeting in Houston, Texas on Tuesday, October 7, 2008 at 4:45 PM and will be included in the GSA Abstracts with Programs publication.

Austin Earth Science Week
Summer Distinguished Lecture Series

The Austin Earth Science Week Summer Distinguished Lecture Series will be presented by the U.T. Bureau of Economic Geology, City of Austin Parks and Recreation Department, and the Austin Earth Science Week Consortium.

This year, the lecture series theme is Texas Dinosaurs. Both family-friendly events will be held at the Zilker Park Botanical Garden's auditorium at 2220 Barton Springs Road, in view of the Hartmann Prehistoric Garden, and the upcoming DinoLand exhibit this fall. Directions to the Botanical Garden auditorium and parking information can be found at http://www.zilkergarden.org/about/index.html#parking.

There will be 2 lectures that begin at 6:30 p.m. Pre-lecture activities will begin at 6:00 p.m., and a post-

lecture visit to the Hartmann Prehistoric Garden begins at 7:45 p.m. The lectures are free to the public. Seating is limited to 250 people.

Distinguished Lecture 1, Thursday, July 31, 2008
Lone Star Dinosaurs
By Dr. Louis L. Jacobs, Professor of Earth Sciences and President of the Institute for the Study of Earth and Man at Southern Methodist University (http://www.smu.edu/earthsciences/people/faculty/ljacobs.asp).

Abstract
Texas is a land rich in fossils. They tell us about animals and plants that lived on land and in the sea in times long past. Dinosaur bones of many kinds are found, but their footprints are especially common. This talk will present the story of Texas dinosaurs from the earliest finds to the latest discoveries. But we will look at more than just dinosaurs. We will also see the flying reptiles and swimming lizards, and even turtles, that lived during the Cretaceous Period, before the asteroid struck 66 million years ago. Many fossils are found by kids. You could be the next one to make a great discovery!

Distinguished Lecture 2, Thursday, August 14, 2008
Dinosaurs - Not just any Old Reptile!
By Dr. Pamela R. Owen, Senior Paleontology Educator Texas Natural Science Center (formerly Texas Memorial Museum) at The University of Texas at Austin

Abstract
What makes a dinosaur a dinosaur? Are birds dinosaurs? Come learn what makes dinosaurs so special and their place in the reptile family tree. We will explore the anatomy, lifestyles and evolutionary relationships of dinosaurs and some of the other fascinating creatures that lived in Texas during the Mesozoic Era.

Biographical Information

Dr. Louis L. Jacobs
Dr. Jacobs received his Ph.D. in geology from the University of Arizona in 1977. Before joining the SMU faculty, he served as head of the Division of Paleontology at the National Museum of Kenya. He has conducted extensive field research in Pakistan, Mexico, Kenya, Cameroon, Malawi, Yemen, Israel, Mozambique, Angola, Portugal, Mongolia, and Antarctica, as well as Texas, Alaska, and other parts of the United States.

Dr. Jacobs' book Lone Star Dinosaurs was recognized by joint resolution of the Texas Legislature and Quest for the African Dinosaurs received the Dinosaur Society's Edwin H. Colbert Award. In all, he has authored more than 125 publications and has had 6 fossils named after him.

Dr. Pamela R. Owen
Dr. Owen is a native Californian who has been, from an early age, interested in natural history. Her formal education includes a B.A. and M.S. in Biology from California State University, Long Beach (CSULB). In May 2000, Dr. Owen was awarded a Ph.D. in Geological Sciences from The University of Texas at Austin.

Throughout her career, Dr. Owen has been sharing her knowledge of vertebrate anatomy and evolution. She has taught laboratory sections in biology, geology, and paleontology during her studies at CSULB and at UT Austin. Today, Dr. Owen is a participant in docent training and several education programs at the Texas Memorial Museum (TMM), notably Evolution Professional Development, Museum Express, Identification Day, and Family Fossil Fun Day. She is also the manager and staff supervisor for the TMM Paleo Lab.

For more information, please contact Sigrid Clift at sigrid.clift@beg.utexas.edu.

June Field Trip Reports

Clifton Chemical Lime Quarry, Clifton, TX, June 14th

We had a huge turn out for a new quarry for the club. Thirty members and guests, plus a number of folks from the Waco Gem and Mineral Society. Quite a crowd! (too many to list here) The quarry manager couldn't have been nicer. I look forward to a return trip.

The lowest formation that we had access to was the Edwards. While there wasn't that much present in our hunting area – Mike Smith, Paul Hammerschmidt and Gray Rylander all picked up some nice Caprinid rudists, probably *Caprinuloidea* sp.

The next formation up was a grey shale, the Kiamichi. A few sharks teeth, numerous bivalves, lots of heart urchins – *Heteraster texana*, and Linda McCall managed to pick up a lovely regular urchin – *Tetragramma taff.*
The uppermost formation present was the Duck Creek. Most of what I saw were bivalves and a lot of various broken ammonites. Melvin Noble and Guenther Oswald both picked up nice large *Eopachydiscus.* And Linda found a very large *Oxytropidoceras*. Others also found complete anmmonites.

Most of the crowd was fried by 2:00 and went home. Seven of us went to the cut on RT 107 near Mother Neff State Park where we were all soon fried as well. It was a really hot day but a lot of fun. I promise that Clifton will reappear on our calendar.

The Crowd at Clifton, photo by Linda McCall

Paleozoic of Oklahoma June 21st & 22nd

I'm going to start off with the trip before the trip. Mike Smith, Paul Hammerschmidt, Melvin Noble, Ron and Janet Root and I, stopped off at White Mound on Friday. This is Haragan Formation, Hunton Group (Lower Devonian). It's a lovely spot, very quiet. There are lots of brachiopods, a few gastropods, and trilobites. Everyone got at least three except Melvin. He picked up more than a dozen. It may have been better in the past but its certainly worth going to now.

Saturday morning we met at the Callixylon tree and were joined by Gary and Cathy Rylander, Linda and Bruce McCall, Dr. Jim Sprinkle and Tom and Marilyn Bowers. We headed straight for Wewoka and Tucker's Hill. This is Nellie Bly Formation (Middle Pennsylvanian). This new site (for us) contained gastropods of several species, small brachiopods, numerous bivalves, crinoid cups of at least three species, straight nautiloids and a few horn

corals. Mike picked up a small slab with very nice scallops on it. And Gary picked up a strange tooth that we couldn't identify. A type of crusher shark? Mr. Tucker is a really nice gentleman with a wonderful spread. I really liked his "back yard."

After lunch back in Ada we went to the Silurian road cut (Ansolen's P-7.) This is the Henryhouse Formation, Hunton Group. Mike and I picked up colonial corals – *Favosites*. He and Gary both picked up trilobites. A few small crinoid cups were found – *Pisocrinus*. Also a variety of horn corals and lots of brachs. Most of us got together for dinner afterward and had a lot of fun talking about the day.

Sunday morning we met again at the tree and headed straight for Yellow Bluff. There was, as usual, lots of brachs, quite a few Pisocrinus cups, a few trilobites, horn corals and bryozoans. Paul and Janet both found a camerate crinoid cup. And then Gary found a cup of a kind I've never seen before. Certainly the "find of the trip." Kudos to all three.

A few of us accompanied Dr. Sprinkle over to Wrigley Quarry. This is Ordovician, McLish and Bromide Formations. Jim, Melvin and Linda looked for echinoderms in the Bromide and seemingly came up empty this time. I picked up a variety of gastropods and nautiloid pieces from the McLish. We all melted.

It was a hot weekend and a long drive, and I'm ready to go right back. South-eastern Oklahoma is a fossil hunter's paradise. If you missed it, do your best to be there next year. --Ed

The Group in Oklahoma at the Callixylon Tree, photo by Linda McCall

Places to Be…Things to Do

August 23-24--JASPER, TEXAS: **14th annual show; Pine Country Gem & Mineral Society**; VFW Bldg., FM 2799 and FM 1747, 7 miles west of Jasper; Sat. 9-5, Sun. 10-5; adults $2, students and children free; rocks, fossils, minerals, gemstones, jewels; contact Lonnie Stalsby, (409) 382-5314; e-mail: rducote@cmaacess.com

August 30-31--ARLINGTON, TEXAS: Show, **"Nature's Kaleidoscope"**; Arlington Gem & Mineral Club; Arlington Convention Center, 1200 Ballpark Way; Sat. 10-6, Sun. 10-5; adults $6, children $3; jewelry, beads, gems, minerals, fossils, rock food table, demonstrations, Kids' Korner, silent auction, door prizes; contact Karen Cessna(817) 903-5980; e-mail: cessnak@ont.com; Web site: www.agemclub.org

September 24–28 - HOUSTON, TX : **Show & Convention**, American Federation of Mineralogical Societies, South Central Federation of Mineral Societies, Inc., Houston National Gem, Jewelry, Mineral and Fossil Show, Humble Civic Center, 8233 Will Clayton Parkway, Humble, TX.

In Regards to our very own Places to Be…

Linda McCall, Show Chair, would like to schedule a Show Committee meeting for Wednesday, July 23, 2008 at her house at 7:00 PM, all interested club members are invited.
(see Linda's address in the masthead of the newsletter)

Fossil Shark Teeth – A Brief Introduction

By David Lindberg

Shark teeth are one of the most widely collected fossils, and are a favorite of many collectors. Sharks have been around for about 400 million years, and there have been many species of sharks. In this article we will concentrate on the most common and familiar sharp (prehensile) tooth type from sharks in the Cretaceous. There are many types of prehistoric sharks that have different teeth characteristics than the ones described below.

Shark teeth are the most abundant vertebrate fossil found by fossil hunters. Because shark skeletons are made of cartilage rather than bone, their teeth are the most commonly preserved part of sharks. For some sharks, we only have teeth to characterize the species. Depending on the species, sharks can have between 5 and 15 rows of teeth. Sharks have many columns of teeth, and constantly create a new set of teeth (existing species) from five days to three weeks. A single shark can generate thousands of teeth during its lifetime, which explains why fossilized shark teeth are relatively abundant.

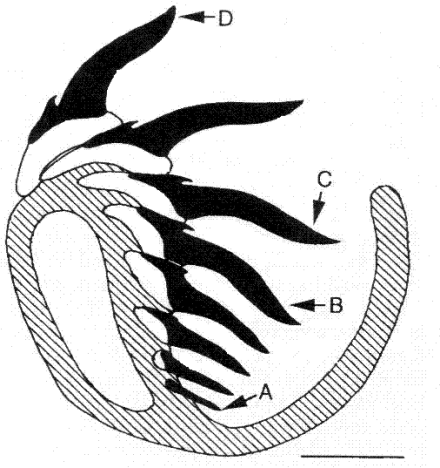
Shark teeth form a conveyor belt system with their jaws. Each row of teeth start out small and immature, and as time goes by, the teeth rotate up the jaw. Below is a cross section of a shark's jaw, illustrating one column of shark teeth. In this illustration, there are eight rows of teeth. Immature teeth first come in at the bottom inside of the jaw, as illustrated below as "A". As time passes, the teeth move up the jaw, growing larger, and developing a root (below shown using the color white. Teeth are fully mature in position "D", and are ready for the shark to use. Just because you find a tooth that has a poorly formed root does not necessarily mean the tooth is broken – it could be an immature tooth.

Sharks loose their teeth for a variety of reasons. Since the teeth are not anchored in bone material (shark jaws are made of cartilage), teeth are lost when sharks feed. Shark teeth come loose when the shark dies. In addition, modern sharks (and therefore possibly prehistoric sharks) have breeding areas, and male sharks, as part of the mating ritual, bite the female's fins. Since the female sharks surely don't like this and struggle to get away, male sharks can lose teeth while attempting to hang on. There can therefore be accumulations of teeth in breeding areas.

The species a shark tooth belongs to can sometimes be difficult to determine. Shark teeth appearance

varies depending on the age and gender of the individual, and the placement in the jaw. Teeth near the center line of the jaw look different than teeth at the edge of the jaw, and look different from teeth in the opposing jaw. Teeth of a baby shark can look markedly different than the adult teeth, and immature teeth (like tooth "A" in the illustration above) look different that mature teeth (as in "D"). Some species also have marked differences in teeth between the two genders. Species identification is also made harder if the tooth is broken, worn down, or is a pathological tooth.

Non-fossilized shark teeth are made of the mineral fluorapatite $Ca_2(PO_4)_3F$, which occurs in two calcified types, enameloid and dentine. The outside of the tooth is coated in enameloid (analogous to enamel in mammals). Inside the enameloid is dentine, which surrounds the central part of the tooth. Depending on the shark species and sometimes which part of the jaw, the interior of the tooth is filled either with more dentine (tooth type osteodont), or the tooth has a pulp cavity (tooth type orthodont). Using a hand lens, it is sometimes possible to determine the presence or absence of a pulp cavity from a broken tooth. For comparisons sake, we have orthodont type teeth, and the pulp cavity is commonly referred to as "the nerve" of a tooth.



The purpose of the **Paleontological Society of Austin** is the scientific education of the public, the study and preservation of fossils and the fossil record and assistance to individual, groups and institutions interested in various aspects of paleontology.

Meetings of the **Paleontological Society of Austin** are held the third Tuesday of each month, 7:00 p.m. at the Austin Gem and Mineral Society building, 6719 Burnet lane, Austin, TX. The public is cordially invited to attend.

Annual Dues: $15/individual, $20/family and $10/associate (non-voting, receiving newsletter)

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The Paleontological Society of Austin is a member of and affiliated with:

South Central Federation of Mineral Societies & **American Federation of Mineralogical Societies**

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DATED MATERIAL – MEETING NOTICE

FIRST CLASS MAIL