

Paleo Footnotes

Newsletter of the
Paleontological Society of Austin

Austin and Central Texas



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President's Note

It's been a busy month for me. Even with a couple of seven-day weeks thrown in, I managed to sneak off for a couple of hours of collecting. Hope you were able to do the same.

Our field trip was moved to the 19th due to the conflict with the AGMS show. We have a table at the show and the people who go on field trips are usually the ones who volunteer to work. Sitting at this table is a great way to advertize our upcoming show as well as talk fossils with the public. I hope to see some participation that weekend---it's one way to get in free

As for our trip--- Linda McCall told me about two large construction sites in Ft. Worth and Denton that have produced a lot of really good fossils. These are only there temporarily and sound exciting. Hope it works out. And if you're in Denton---it's only a short drive to Texoma. Hope to see you there and at the next meeting.

Ed

Next Meeting – October 21st

Big Brook: Classic Cretaceous Collecting on the East Coast Erich Rose

Erich will be talking about collecting at one of the best known sites on the east coast. The presentation will include a presentation of the history, geology and paleontology of this classic location.

Tuesday 7 PM

Austin Gem & Mineral Society Building
6719 Burnet Lane, Austin, TX

About our speaker:

Erich Rose is a designer of museum exhibits with a specialty in hands-on-science. His real avocation is paleontology and earth science, although he has dabbled in other areas such as lasers and holography. He started picking up fossils in his home town of Dayton, OH at the age of 10 and has been collecting ever since. The major sections of his collection include material from the Ordovician of south west Ohio, the Devonian of New York, New Jersey and Pennsylvania, and the Cretaceous of Texas and New Jersey. While living in New York he was the Field Guide Editor and part time field trip leader for the New York Paleontological Society and won several national and regional awards for both newsletter articles and field trip guides. One of those awards was the 2001 AFMS 1st place Editor's Award, for Special Publications, given for an extensive field guide on Big Brook.

October Field Trip

The October field trip was moved up to the weekend of the 18th due to the conflict with the AGMS show. Unfortunately the information regarding this announcement did not come in time to be included in this newsletter.

Upcoming Shows

GEM CAPERS - Austin Gem and Mineral Society's Annual Show, Oct. 24-26, Fri. 9-5, Sat. 10-6, Sun. 10-5, Palmer Events Center Austin, TX, for more information contact Susan Postlethwait SusanP@austingemandmineral.org

FOSSILMANIA – Oct. 31, Nov. 1 & 2, Somervell County Expo Center Glen Rose, TX, Fri. 8-6, Sat. 9-6 & Sun. 9-Noon, Presented by the Paleontological Society of Austin and the Dallas Paleontological

Society. for more info contact Bill Morgan (after 8PM) 210-492-9163 or mogan@uthscsa.edu

FOSSIL FEST – Nov. 8 & 9, Sat. 9-5, Sun. 9-4, Old Settler's Association Headquarters, Hwy 79, Round Rock, TX (3 miles east of IH-35), for more information contact Linda McCall Indmccall02@yahoo.com

Please see Linda McCall's request for Volunteers!

September Field Trip Report

Mineral Wells and Vicinity

Six of us showed up at the McDonalds in Mineral Wells for a day of Pennsylvanian hunting: Linda McCall, Paul Hammerschmidt, Gary and Cathy Rylander, Melvin Noble and myself. Our first stop was the road cut on Union Hill Rd., which is of the Strawn Group, Whitt Formation, Salesville Shale. From a previous hunt I had thought that this cut was just about barren. It's simply evolving. Things that were once common are now infrequent and new fossils emerge. It could be that it was just picked over at that time. We all ended up with nice varied collections. Found were conularids, horn and colonial corals (Favosites), fish/shark coprolites, a variety of gastropods, coiled and straight nautiloid pieces, bivalves, and the crinoid *Paragassizocrinus*. Melvin found a complete dorsal cup--the infrabasal that we all find plus a row of basals and a row of radials. We all spent a few minutes hating him. Kudos



The second site was supposed to be the dump. Prior to the meeting time, Melvin and I had met up with Linda to look over a site Scott Kelly (old member) had taken her to. After 10 minutes of looking--- several kinds of coral, nice complete *Neospirifers*, a handful of excellent brachs of different types and Linda finding a lovely cup, we agreed to make it stop #2. This was Strawn Group, Mineral Wells Formation, Keechi Creek Shale below and Palo Pinto LS above. It's a steep outcrop on highway 337- a little tough to hunt. I didn't see everything that was picked up, but judging from my own experience, we had a good time. I have, on paper, five different outcrops on 337, I don't know why I haven't checked them out before. Too many outcrops, not enough time.



Melvin's cup from Union Hill



Paul's cup with stem from 337 site.

Our third stop was the Palo Pinto spillway. This is Strawn Group, Mingus Formation. The fossils are plant material and wood, lots of wood. The fossil-covered boulders are the result of a flood event and are fun to look at even if you're not collecting. The spillway area is a very pretty spot set in green covered rolling hills. We collected various pieces of wood, ferns, calamites and I picked up a small but pretty piece of *Lepidodendron*. The trip ended with everyone hot, tired and happy. Wonderful people, fun conversation, more fossils than a person could pick up and all taking place in lovely country side; what more could a person want on a day off?

Ed

Photos by Linda McCall.

Show Update from Linda McCall

1. The final show meeting for the 2008 Fossil Fest show will be Tuesday, October 28, 2008 at 7:00 PM at Linda McCall's house, 7221 Covered Bridge Dr. Austin, TX 78736 - just west of the "Y" off Hwy 71.

Everyone who can, please attend. This is the final meeting before the show and we have a lot to do!! Snacks and drinks will be served. Plan to come, and have a good time!!

2. Please bring your spinning wheel and dig pit donations to the October meeting also so we can get some idea of what we have and what we still need. We will be giving away fossils at the AGMS show as well, so we need lots!

3. In an effort to hold show costs down, we are again asking for donations to the kitchen like we did last year. Items needed are: canned soft drinks, small bags of chips, hot dogs, buns, microwave popcorn, cookies and candy.

Please bring whatever you can donate to the meeting on October 21, 2008. Ron and Janet are in charge of the kitchen, if you have any questions on what is still needed.

Donations can also be brought to the show. Just let Ron or Janet know so they won't go buy what you are bringing! Thanks!!

4. We are still needing volunteers for both the AGMS show (October 24, 25 & 26) and for Fossil Fest (November 7 [set-up], 8 & 9). Please, Please, PLEASE donate your time.

AGMS: There is still no one scheduled for Thursday set-up (anytime after 3:00PM) We don't have anyone signed up for Saturday or Sunday afternoon, and only one person the rest of the time. We really need at least 2 all the time.

5. FOSSIL FEST is still nearly empty on volunteers on everything. The sign-up sheets will be at the meeting, or you can email me and let me know when and what you would like to work. This is OUR club show and only works if we are all willing to donate a little of our time.

Linda McCall
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Paleontological Society of Austin
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Congratulations!

The paper on the Georgetown Edwards outcrop that was written by Linda McCall, Dr. Sprinkle and Dr. Molineux was presented in Houston on Oct 7, was well received and published in the 2008 GCAGS / GCSSEPM Transactions. It was chosen to receive the *Second Place GCSSEPM / GCAGS E. Murray Best Published Paper Award* as a most outstanding paper published in this year's Transactions. (WOW!) The authors are invited to attend the 2009 meeting to receive a plaque and certificates. Reprints of the paper will be available at the October meeting for those who want one.

Educational Outreach

For all of you who talk about wanting to make a difference in the lives of kids, here is your chance! We have an opportunity to do some outreach in an underserved part of town, October 27-30 at the UT Elementary Science Exposition

27th: 5 presentations, 30-40 min. each - Pre-K, Kinder and First
28th: 3 presentations, 45-50 min. each - 3rd, 4th, 5th grade
29th: 3 presentations, 45-50 min. each - 3rd, 4th, 5th grade
29th: 4 presentations, 30-40 min. each - First and 2nd grade
30th: 4 presentations, 30 min each - variety of grades 8:00am - 11:00am

There will be a sign-up sheet at the meeting, or email me at lndmccall02@yahoo.com with what day you would like to do.

Rotten Petrified Wood

By David Lindberg

The pieces of petrified wood we find often have strange textures and shapes. We'll talk here a little about rotten petrified wood: Not rotten in the sense where you wonder why you picked up that particular piece of wood in the first place, but rotten in the sense that the original wood had undergone some degree of rotting before it was petrified. Wood can rot in different ways, either before or after the tree died, leaving behind different textures. Learning a little about how wood decays can give you a better appreciation of a piece of petrified wood.

There are several agents that can cause wood decay. In this article we will concentrate on rotting, which normally refers to decay caused by fungi. Rotting fungi are classified broadly as brown rots or white rots. The colors refer to the staining left by the fungi, which of course is of no help in identification of rot in petrified wood. Each tends to leave distinguishing characteristics that some pieces of petrified wood exhibit.

You can not identify what kind of tree a piece of petrified wood comes from, just by knowing the type of wood rot. However, different fungi tend to attack different kinds of trees. Brown rot tends to attack softwoods, and white rot tends to attack hardwoods. So, identifying the type of wood rot may give you a clue as to the type of wood you have. However, wood rot at times makes it more difficult to identify the piece of wood in question.

Wood is primarily composed of two substances, cellulose and lignin. Both of these substances provide structural strength to wood, and are indigestible by most organisms with the exception of some bacteria and fungi. When fungi degrade these substances, it weakens the wood. Depending on the type of fungus, the ratio of cellulose to lignin rot will vary, which leaves different physical characteristics.

One form of rot, prized by petrified wood collectors, is pocket rot. Pocket rot, as the name implies, rots out pockets of wood. These pockets can be large or small, and the cavity is sometimes lined with crystals on the petrified wood. Note that it is also possible to mistakenly identify wood with pocket rot as palm wood.

Note that to really verify that wood rot is due to one type of fungi or another requires the examination of thin wood slices at high magnification. With magnification of about 300x, the fungi hyphae (cells)

become identifiable. The illustrations of petrified wood below are examples of decay that are consistent with rotting patterns, but these should not be taken as positive identifications (In other words, I could be wrong).

Brown rot

Brown rot happens when fungi degrade the cellulose in the cell walls, which causes the wood to shrink. The result is that the wood appears "blocky", and has been described as "cubic", almost like the piece of wood is made of loosely attached cubes. This decay pattern gives wood a charred-like appearance. The fungi fruiting body look like a pancake, as in the picture below.

The darker flat object just to the left of the center of figure 1 is one of the fruiting bodies in the picture. In the lower center of the picture you can see some of the shrinkage of the wood. This is from a stump, in my back yard, of a hackberry tree cut down a couple of years ago.

An example of a piece of petrified wood that has a decay pattern consistent with brown rot is shown in figure 2.

The spaces left by the shrinkage of the wood are sometimes filled with thin mineral deposits, which can enhance the beauty of the petrified wood.

White Rot

White rot fungi attack primarily the lignin portions of wood, leaving some of the cellulose behind. This weakens the wood in a different way than brown rot, and leaves the wood with a "fibrous", "flaky", or "spongy" texture. See figure 3 (Illustration taken from Cornell (University) Fungi's page on www.flickr.com.)

Finally an example of petrified wood that exhibits similar decay patterns is shown in figure 4.

Conclusion

Even though it is difficult to positively identify the exact type of rotting patterns in petrified wood, a collector can make estimations of rotting patterns. While rotting patterns do not positively identify the kind of petrified wood, recognizing decay patterns can enhance your appreciation of petrified wood. Rotting petrified wood has a place in any fossil

collection, ranking right up there with coprolite!



Figure 1 – Brown Rot



Figure 2 – Brown Rot



Figure 3 – White Rot



Figure 4 – Petrified Example

Interpreting Fossils

By Wally Downs

Fossils have been found throughout history. Until comparatively recently no one had a valid clue as to their origin, so they were usually attributed to supernatural forces and their interpretation was left up to the religious sector, which has never been at a loss for answers to mysterious things.

Aristotle (384 - 322 B. C.) was aware of fossils but believed them to have come from seeds or eggs that had germinated after having been buried in accumulating sediments. This was recorded by his student, Theophrastus.

St. Augustine viewed an enormous tooth discovered on the shores of the Mediterranean Sea in 413 A.D. and wrote: "If it were cut down into teeth such as we have, I fancy a hundred could have been made out of

it. For though the bodies of ordinary men were larger than ours, the giants surpassed all in stature."

In an account of a mastodon tooth discovered in a peat bog in New York in 1706. Governor Dudley of Massachusetts, described it in a letter to Cotton Mather as follows:

"...I am perfectly of the opinion that it was a human tooth. I measured it, and as it stood upright it was six inches high lacking one eighth, and round 13 inches, lacking one eighth, and its weight in the scale was two pounds and four ounces, Troy weight.

I am perfectly of the opinion that the tooth will agree only to a human body, for whom the flood only could prepare a funeral; and without doubt he waded as long as he could keep his head above the clouds, but

must at length be confounded with all other creatures and the new sediment after the flood gave him the depth we now find.”

Johann Scheuchzer described a fossil which he interpreted to be from a human who had drowned in the Flood. He named it *Homo diluvii testis* since it offered proof of the great deluge. Later, the same fossil was correctly identified as a giant Oligocene salamander and was renamed *Andrias scheuchzeri*.

The Great Flood offered endless explanations for fossilization, and unfortunately, still does for fundamentalists including a few “young earth” geologists with advanced academic degrees. To them, all geology and paleontology had to have occurred within the six thousand year period since the Creation, eliminating any possibility of evolution or uniformitarianism. Even the Grand Canyon is attributed to the subsiding waters of the flood. It would be interesting to have some of the young earth geologists direct a fire-hose on a limestone cliff at full force for forty days and forty nights to see how much material could be eroded in such a short time.

The mantra of the young-earth geologists (creationists) is: “Here’s what the Bible says. Now let’s go to the rocks and see if we find the evidence for it.” One problem they have with this is the order of sequence of the fossils found in the Grand Canyon. Dr. Kurt Wise (a former student of Stephen Jay Gould) observed that the sequence was “a pain in the neck” since it fits the evolutionary prediction quite well. He came up with the idea that the progressive order reflects how far the animals had lived from the shore, so those living farthest from the water showed up last in the record. In other words, he started with the answers and worked backward.

Early reconstructions were no better than early interpretations. They usually involved deciding what they wanted the animal to look like and then assembled the bones accordingly. Mammoth bones, which were relatively abundant, have been assembled to look like everything from a giant turtle with a huge ivory mustache, to a large unicorn.

There have been several examples of paleontological fraud perpetrated for a variety of reasons. The worst and hardest to explain was the “discovery” of the Piltdown Man in England which was reconstructed from crudely stained orangutan teeth and a piece of a human cranium. The perpetrator went to his grave without disclosing the fraud. (My first Historical Geology Book, published in 1933, has a photograph of Piltdown along with a detailed description,

although it admitted that there was a problem including him in the sequence of human evolution.)

Johannes Beringer, a teacher in Würzburg frequently took his students to a soft shale outcrop where fossils weathered out. Some of the students, with the help of some not-too-friendly colleagues, carved an image of an animal on a stone and planted it to be discovered by Beringer. The “fossil” was accepted with such enthusiasm that more were carved and planted until a large collection was assembled, including images of insects, flowers, frogs and even astronomical objects! These were assembled and described in a volume titled *Lithographia würceburgensis* in 1726. A short time later, Beringer found Hebrew letters and even his own name inscribed in the stones. He then realized that he had been the victim of a mockery and attempted to buy and destroy the entire edition of his book. He spent all of the money he had, and died in poverty and embarrassment. Ironically, to add insult to injury, his family republished this volume after his death to sell as a curiosity in an attempt to recoup the loss of the family fortune.

There is a thriving business in Morocco turning out fake fossils to be sold along with the abundant real fossils found in the area of Marrakech. There is an account of this by Stephen Jay Gould, who visited the area and was pestered by street vendors attempting to sell fake fossils to Gould, one of the world’s preeminent paleontologists. Gould knew little French, but enough to keep repeating “Faux, absolument et sans doute!”

A little closer to home, there is a cottage industry among creationists in the Glen Rose, Texas area making crudely fashioned “fossils” which show dinosaur foot prints beside human foot prints and artifacts. They sell their wares to the more gullible visitors to the Dinosaur Valley State Park.

So far, the scientific method has consistently shown fossils to have progressed logically in accordance with the observations of Darwin and his successors. When the British naturalist J. B. S. Haldane was asked what it would take to falsify evolution. He replied, “Fossil rabbits in the Precambrian.”

References

- Richard Dawkins **The Blind Watchmaker** W. W. Norton & Company
 Dunbar & Schuchert **A Textbook of Geology Vol II** John Wiley & Sons 1933
 Stephen Jay Gould **The Lying Stones of Marrakech** Three Rivers Press
 Lauren Porcaro **New Yorker Magazine** August 5, 2002

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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DATED MATERIAL – MEETING NOTICE

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