

Atlanta Geological Society Newsletter

Next meeting of the Atlanta Geological Society is
November 27, 2012
Fernbank Museum of Natural History (Clifton Road)
Social begins at 6:30 pm – Meeting begins at 7:00 pm

November 2012

ODDS AND ENDS

Ben Bentkowski, Newsletter Editor

First, let me thank Allison Cantrell of Pace Analytical Services, Inc., last month's sponsor. The gracious support of such companies aids in continuing to bring to you, the AGS members, our monthly programs. Please see information about Pace Analytical Services on Page 2.

Once again, with Superstorm Sandy we get another reminder of the vast differences in the scale of geologic time v. human time. In 1938 there was another storm that hit the region at the confluence of rain, moon and tide to produce a storm surge of 14'-25', 600 fatalities and flooding 30 miles inland. Could it be that there was not the warning system in place that there is today? Could it be that folks were more concerned with Hitler's invasion of Czechoslovakia? Could it have been that folks didn't have enough disposable income to build second homes along the Jersey shore? Yes is the answer to all three.

With all this comes the call to build it all back. As much as it pulls at the heart strings to lose your beloved spot by the beach, eminent geologists, such as Duke Professor Emeritus Orrin Pilkey, remind us again of the folly of

Continued on Page 3

NOVEMBER MEETING

Join us Tuesday, November 27, 2012 at the Fernbank Museum of Natural History, 760 Clifton Road NE, Atlanta GA. The meeting social starts at 6:30 pm. The speaker will be Shannon S. George of Golder Associates. The title of her talk is:

Sorption of Organic Compounds to Sediments in a Glacial Aquifer – Effects of Lithocomponent Distribution at the Lithofacies Scale.

Shannon S. George has a Master of Science in Geology from the University at Buffalo, and a Bachelor of Science in Geology from Temple University. Ms. George is currently a Staff Hydrogeologist at Golder Associates, where she performs field work and data analysis on a variety of projects, including mining, remediation, and water supply projects. She also conducts sourcewater supply studies, geochemical background studies, regulatory review, and frequently uses ArcGIS for projects. In her spare time, Shannon enjoys attending geology field trips, roadside geology, and being a rock-hound in general.

Please come out for an interesting talk this Tuesday, November 27th.



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ODDS AND ENDS continued

Building on a barrier island. We only have to look as far as Dauphin Island to see examples of man's folly. Just go to the website Zillow (link provided below) to see property lots 2/3 of the way out into the Gulf. A recent story in the NYTimes goes into great detail about this issue. Most dramatic, in my opinion, is that since 1978, the federal government has spent an inflation adjusted \$200 M for the 'reconstruction of homes and infrastructure' with another \$60M in the planning stages for beach replenishment. That's a lot for an island with 1,300 permanent residents. I'm reminded of Siccar Point (see below), the angular unconformity first described by James Hutton. The amount of time necessary to lay down two sandstone units with such an angular relationship was/is astounding. It was this outcrop that started the concept of geological time and set up the conflict with Biblical (human) time. I guess you could get away with doing whatever you wanted to build in human time as long as geologic time didn't catch up to you. So, if you can predict the next 8.0 earthquake, or the next superstorm or the next tsunami, let me know. In the meantime...

Keep on Rockin'
Ben Bentkowski
Newsletter Editor

www.atlantageologicalsociety.org http://www.zillow.com/homes/Dauphin-Island-AL/mobile,land_type/51655_rid/30.250391,-88.176814,30.2478,-88.181111_rect/17_zm/
<http://green.blogs.nytimes.com/2012/11/19/the-rising-sea-and-the-urge-to-fight-it/?ref=science>



Siccar Point
West coast
of Scotland,
south of
Edinburgh
The location
of the first
described
angular
conformity.

File under the category ‘Things That Couldn’t Happen; An Inland Tsunami’

From the New York Times: http://www.nytimes.com/2012/11/20/science/earth/a-tsunami-in-switzerland-lake-evidence-says-yes.html?ref=science&_r=0

“In the sixth century, Gregory of Tours, a chronicler of the Germanic people known as the Franks, told of an extraordinary event in what is now Switzerland, where the Rhone River spills into Lake Geneva. He wrote of a big rockfall in the year 563 near a place called Tauredunum. The debris plunged into the river, and a great mass of water “overwhelmed with a sudden and violent flood all that was on the banks as far as the city of Geneva,” more than 40 miles across the lake.

Historians and scientists have long believed that Gregory and another chronicler, Marius of Avenches, who told a similar tale, were describing a tsunami that raced across the lake, devastating part of Geneva and other communities along the shore. But there has never been direct evidence of it.

Researchers at the [University of Geneva](#) now say they have found that evidence, in the form of a large deposit of sediment in the middle of the lake. In a study published in the journal [Nature Geoscience](#), they also suggest the sequence of events that caused the deadly wave: the rockfall hit the delta at the mouth of the river, causing this pile of accumulated sediment to quickly collapse into the lake and displace a huge amount of water. “

AGS Members... Geology Enthusiasts Needed!!

If you are an AGS member and would like to contribute to the Professional Registration Committee by leading a lecture on one of the subjects listed below, then please contact me either by e-mail or at the monthly AGS meetings. The lecture should be for one hour followed by a Q&A session. We need different speakers for each workshop. Your volunteering to teach on one of these subjects is essential to the success of the Professional Registration Committee – we need more widespread participation by the AGS membership. Speakers can be compensated for expenses and will receive certificates to acknowledge their participation.

The following content domains are covered in the Georgia Professional Geologist exams:

- | | |
|---|---|
| A. General Geology | B. Mineralogy, Petrology, & Petrography |
| C. Sedimentology, Stratigraphy, & Paleontology | D. Economic Geology & Energy Resources |
| E. Structure, Tectonics, & Seismology | F. Hydrology & Environmental Geochemistry |
| G. Engineering Geology | |
| H. Quaternary Geology, Geomorphology, & Surficial Processes | |

We do not "teach the test" our aim is to review fundamental concepts of the earth sciences and acquaint candidates with industry specific information not easily obtainable from the literature. Please inform anyone who might be interested in becoming a professional geologist of our workshop. Please consider joining us even if you are not a P.G. candidate. The workshops are interesting and informative.

Ken Simonton, P.G., Chair
Professional Registration Committee

www.atlantageologicalsociety.org

Killer Cancer in the Cretaceous

by Kathy A. Svitil

published by DISCOVER MAGAZINE online November 3, 2003

“Giant predatory dinosaurs were killers without equal, but they stood at the mercy of at least one foe: their own imperfect bodies. On October 23, a team of paleontologists and pathologists announced that they had discovered a massive, possibly lethal brain tumor in the fossilized skull of a *Gorgosaurus*, a 25-foot-long relative of *Tyrannosaurus rex* that lived 72 million years ago.



Courtesy of the Children's Museum of Indianapolis

The tumor, possibly an unusual type of bone-forming cancer called an extraskeletal osteosarcoma, filled nearly the entire area formerly occupied by the cerebellum and brainstem and probably impaired the cerebrum, the part of the brain that controls thought and memory. “As the tumor grew, the dinosaur—a female perhaps three years old— would have forgotten where she left her last kill, and then she would have forgotten to go to the bathroom,” says paleontologist Peter Larson of the Black Hills Institute in Hill City, South Dakota. The animal’s remains were discovered by Cliff and Sandy Linster in 1997 near the town of Choteau in western Montana, and Larson and his colleagues have spent the past several years cleaning and preparing the bones for study. Larson came across an unusual two-inch-wide mass of dark material while cleaning the *Gorgosaurus*’s brain case. X-ray and electron-microscope analysis confirmed that the mass is a brain tumor—the first ever identified in a fossilized animal.

The tumor would also have put pressure on the dinosaur’s cerebellum and brain stem, which regulate motor function and other autonomic functions such as heart rate. “The tumor would have impaired mobility and affected the animal’s balance. She would have fallen down a lot,” says veterinary pathologist Rachel Reams of Eli Lilly & Company, who studied the fossil. Larson and his colleagues found ample evidence confirming that conclusion. Throughout the *Gorgosaurus*’s skeleton, the researchers saw signs of debilitating injuries: a smashed shoulder blade, a bad infection in the lower jaw, broken ribs, and a torn tendon in the left leg. “The leg eventually healed and became useful again, but for a while she would have been dragging that leg around,” Larson says. The creature never recovered from a badly broken right fibula, the small bone of the lower leg. The fracture had healed for barely two weeks at the time of the animal’s death. That was probably the last injury she suffered, although scientists do not know exactly what killed her. “She was a very sad dinosaur,” says Larson.”

<http://discovermagazine.com/2003/nov/killer-cancer1102>

A BIT MORE ON DINOSAUR CANCER

B. M. Rothschild · D. H. Tanke · M. Helbling · L. D. Martin**Epidemiologic study of tumors in dinosaurs**

Received: 16 June 2003 / Accepted: 29 August 2003 / Published online: 14 October 2003 © Springer-Verlag 2003

Abstract

“Occasional reports in isolated fragments of dinosaur bones have suggested that tumors might represent a population phenomenon. Previous study of humans has demonstrated that vertebral radiology is a powerful diagnostic tool for population screening. The epidemiology of tumors in dinosaurs was here investigated by fluoroscopically screening dinosaur vertebrae for evidence of tumors. Computerized tomography (CT) and cross-sections were obtained where appropriate. Among more than 10,000 specimens x-rayed, tumors were only found in Cretaceous hadrosaurs (duck-billed dinosaurs). These included hemangiomas and metastatic cancer (previously identified in dinosaurs), desmoplastic fibroma, and osteoblastoma. The epidemiology of tumors in dinosaurs seems to reflect a familial pattern. A genetic propensity or environmental mutagens are suspected.”

“Given the size, geographic origins, and stratigraphic range of the sample examined, the predilection of hadrosaurs to tumors is unprecedented and unique. As only the caudal vertebrae were affected in susceptible species, C-arm-related size limitations would not limit the ability to confirm the presence of tumors in all but the very largest sauropods (e.g., *Seismosaurus*). Limitation of tumors to the caudal vertebrae of Late Cretaceous hadrosaurs warrants an explanation.”

For more detailed information, including a large table of all the dinosaur skeletons examined for cancer, please follow the link:

http://www.academia.edu/227680/Epidemiologic_study_of_tumors_in_dinosaurs

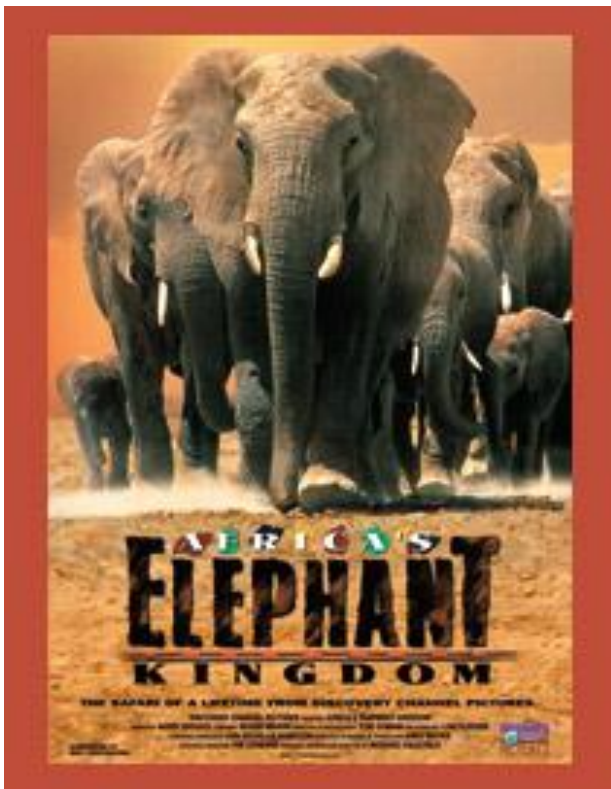


Fernbank Museum of Natural History

Upcoming Public Programs and Events

(All programs require reservations, including free programs)

Now Showing in the Fernbank IMAX movie theater:



Journey into Africa for a glimpse of the elephant world during an unforgettable safari over waterfalls, rivers, plains and forests. *Africa's Elephant Kingdom* follows in the footsteps of one special elephant family as they survive and flourish on the immense plains of Kenya.

TO THE ARCTIC Swim alongside a polar bear and her cubs and discover a world beneath the ice where corals and odd creatures thrive. Fly above a thundering herd of caribou making their way to their calving ground then gaze across hundreds of miles of snow-bound peaks and floating ice in the Arctic Ocean.

Fernbank Museum of Natural History

767 Clifton Rd, NE, Atlanta, GA 404-929-6400

Special Exhibits On View: <http://www.fernbankmuseum.org/explore-exhibits/special-exhibitions>



Genghis Khan On view October 5, 2012 - January 21, 2013

Immerse yourself in his world of conquest, diplomacy, innovation and destruction. *Genghis Khan* features one of the largest collections of 13th-century artifacts from the Mongol Empire ever gathered in a single showing, many which have never been on display to the public. Explore a *ger* (or yurt)—the traditional house of Mongol nomads. Walk through a battlefield and face the thundering sight and sound of mounted warriors and Mongol siege engines. Ruthless warrior? Or revered statesman? Experience the NEW special exhibition *Genghis Khan* and decide for yourself.

For tickets and details on exhibits, films, and events, please visit the website at www.fernbankmuseum.org Follow us on Facebook or Twitter for the latest news and updates! Please see the website for details about Martinis and IMAX on Friday nights.

The mysterious announcement set for November 16 was the launch of the new Fernbank Meridian app. Based upon the Apple OS, this app works in conjunction with the free in the building wi-fi to provide more detailed information about the permanent exhibits, the new exhibits and IMAX schedules. Also it utilizes an indoor-location awareness technology to provide turn-by-turn directions to visitors. A quick and easy way to find an exhibit, restroom or vending machine. All aimed at making your visit to the Fernbank more informative and enjoyable.

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Listed below are the planned meeting dates for 2012/2013. Please mark your calendar and make plans to attend.

November 27 AGS Meeting Shannon S. George of Golder Associates;
Sorption of Organic Compounds to Sediments in a Glacial Aquifer – Effects of Lithocomponent Distribution at the Lithofacies Scale.

December No meeting, enjoy the holidays 2013

January 29

February 26

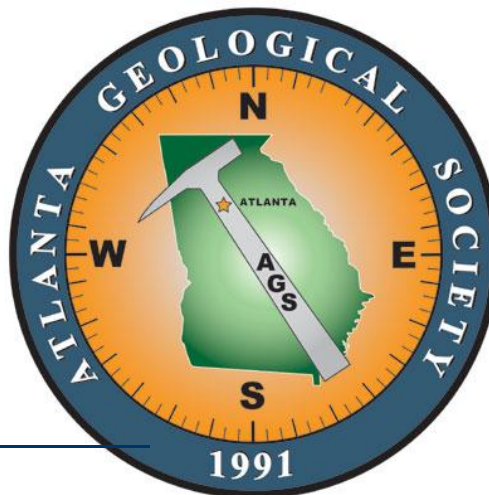
March 26

April 30

May 28

ATLANTA GEOLOGICAL SOCIETY

www.atlantageologicalsociety.org



ANNUAL MEMBERSHIP FORM

Please print the required details and check the appropriate membership box.

DATE: _____

NAME: _____

ORGANIZATION: _____

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STUDENT \$10

PROFESSIONAL MEMBERSHIP \$25

CORPORATE MEMBERSHIP \$100

(Includes 4 professional members, please list names and emails below)

NAME: _____ EMAIL: _____

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NAME: _____ EMAIL: _____

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For further details, contact the AGS Treasurer: stacy.durden@gmail.com.

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