

the SAM NOBLE OKLAHOMA MUSEUM of NATURAL HISTORY



Tracks

Fall 2008 Newsletter, Volume 20, Number 3

SAUROPOSEIDON INSTALLATION

40-foot-long neck of *Sauroposeidon proteles* is
installed in museum's Orientation Gallery

EXPLOROLOGY 2009

Museum education department is now accepting
applications for 2009 summer field camps

TOUCH THE SKY

Upcoming exhibition features prairie photographs by
National Geographic photographer Jim Brandenburg



INFORMATION

*For an event to remember...
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they'll never forget.*



Sam Noble Oklahoma Museum of Natural History

SN MNH

The University of Oklahoma

2401 Chautauqua Ave. Norman, OK | (405) 325-7975

WWW.SNOMNH.OU.EDU/EVENTS | RESERVATIONS@SNOMNH.OU.EDU

Image courtesy Hudson Photography.

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MUSEUM INFORMATION

Address: 2401 Chautauqua Ave.
Norman, OK 73072-7029
Telephone: (405) 325-4712
E-mail: snomnh@ou.edu
Web site: www.snomnh.ou.edu

OUR MISSION

The Sam Noble Oklahoma Museum of Natural History at the University of Oklahoma inspires minds to understand the natural and cultural world through collection-based discovery, interpretation and education.

We do this by:

- Collecting and maintaining specimens, cultural objects and associated data, including linguistic and ethnographic, for current and future research
- Conducting and disseminating research to increase knowledge
- Teaching university students to develop critical-thinking skills
- Educating the public through programs and exhibitions to increase scientific literacy
- Conducting K-12 school programs to enrich classroom experiences.

OUR VISION

As one of the finest museums, we are at the heart of our community, collectively working to inspire understanding, appreciation and stewardship of the earth and its peoples.

Tracks

Editor-in-Chief: Michael A. Mares
Managing Editor: Linda Coldwell
Layout: Krysten Marshall

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CONTENTS

MUSEUM EVENTS AND HIGHLIGHTS



Museum: Page 3



Upcoming Events: Page 4 - 5

Collections: Pages 8 - 9



Field Notes: Page 6 - 7



Education: Page 10

FEATURES & DEPARTMENTS

Letter From the Director ... 2

Museum 3
Sauroposeidon Installation Complete

Upcoming Events 4 - 5
Touch the Sky: Prairie Photographs by Jim Brandenburg
Special Events
Family Nights Out
Workshops and Field Trips

Field Notes 6 - 7
Ice Cream and Coins In Northeastern Brazil

Collections 8 - 9
Paleontologist Recalls Early Discoveries

Education 10
Middle and High School Students: Apply Now for ExplorOlogy Summer Field Programs

News 11
Museum Now Open to Public on Mondays
The Museum Online: E-news and Social Networking
Museum Herpetologists Publish Books
Centennial Exhibit Garners Awards

Kids Page 12
Get Outside! Games and Activities to Have Fun in the Great Outdoors
Putrid Pumpkins
Isopod Investigations
Camo Critters

Membership 13
Thank you to Director's Circle and Curators' Circle Members
Recognition of 2008 Annual Corporate Sponsors
A Special Offer for Museum Members

Touch the Sky

Prairie Photographs by Jim Brandenburg
Feb. 14 through April 12



MUSEUM EXPERIENCED MANY CHANGES IN '08



Dear friends,

As 2009 begins, one is tempted to sit back, reflect on the past year and breathe a collective "Whew!" What a year of change at all levels, from global to local. Currencies quake, economies tumble, savings have disappeared, jobs are imperiled and the future seems particularly murky. Will the economic downturn reach Oklahoma with the force we see in other states? How will Oklahoma fare during the undeniably tough times that are coming?

Oklahomans have a special understanding of recessions and depressions. Some of the toughest economic times ever experienced in the United States were most pronounced in Oklahoma during the Great Depression. Yet the state endured, and even prospered as the nation moved through those economic crises. Oklahoma's natural history museum has also survived great challenges over the decades.

This year will mark the museum's 110th birthday. Oklahoma's museum was established just after the depression of the late 1800s. The collections were lost to fire more than once. The panic of 1907 and 1908, the recession of 1913 and the panic of 1914 all affected the museum, as did World War I, World War II, the oil shock of the 1970s and the energy crisis of the early 1980s. Yet fire, difficult economic times, global conflict and just plain bad luck could not stop Oklahoma's desire to build a significant natural history museum to educate the public, protect the state's heritage and edify the people of Oklahoma.

This past year, Ellen Censky, who replaced me as director five years ago, moved on to a new position at the Milwaukee Public Museum. It now falls to me to lead the museum into the troubled waters that lie ahead. We have been through them before and with your help we will get through them again. The Sam Noble Oklahoma Museum of Natural History will endure, protecting the state's heritage, educating the next generation of museum researchers, displaying Oklahoma's unique story to visitors from throughout the world, serving young people by making them more aware of the natural world and its history and serving the people of Oklahoma with opportunities for lifelong learning, entertainment and quality family time.

In 2008, we opened a magnificent new gallery telling the story of Oklahoma's Paleozoic period, the most ancient period of state history. We opened blockbuster exhibits such as *SuperCroc*, bringing spectacular animals that could otherwise only have been seen in the largest museums in the nation. We had outstanding films, lectures, programs of discovery and special events that were fun-filled, exciting and educational. We had more than 140,000 visitors, including 64,000 children. Our ExplorOlogy program is one of the finest educational outreach programs in the nation. Our curators have traveled the globe to continue their outstanding research, providing new knowledge to better understand how our world developed, how it functions and where this complex planet may be heading in the future.

We look forward with hope to the coming year — a year that will see outstanding new exhibits opening at the museum, superb public programs and many community events that will serve the public, from children to retirees. Many events will be free of charge so that the people of Oklahoma and the museum can work together to move into the safer waters that surely lie ahead.

We wish you and your family a happy and peaceful New Year.

M. Mavor



SAUROPOSEIDON INSTALLATION COMPLETE

What's forty feet long and watches you as you enter the museum's Great Hall?

The neck and head of *Sauroposeidon proteles*.

This amazing reconstruction is the latest of the museum's new permanent installations. It is one of the centerpieces of the new Orientation Gallery, which will open in the spring of 2009. The impressive neck reaches down from the gallery's ceiling and stretches into the Great Hall, appearing to peer down at visitors as they arrive in the museum.

Sauroposeidon is a one-of-a-kind dinosaur. In 1994, vertebrate paleontology curator Richard Cifelli and his team found four vertebrae of a single specimen in southeastern Oklahoma. Each vertebra measures four feet or more in length. The bones were so enormous that Cifelli himself was unsure what he had uncovered at first.

"I thought we had a petrified tree trunk," Cifelli said. "I just could not get my mind around the size of these bones."

Once a closer look confirmed that the find was, indeed, fossilized bones, Cifelli knew he had something special. No neck bones of this size had ever been found. In addition, the find included several "cervical ribs" — long slender bones found in long-necked dinosaurs that extend from the base of each vertebra down the length of the neck, overlapping one another to help lend support and flexibility to the neck's structure. These ribs are delicate, and are rarely found intact, yet the

Sauroposeidon bones included cervical ribs up to 12 feet in length.

Once in the lab, the bones revealed more surprises. After running one of the vertebra through a CT scanner, then-graduate student Matt Wedel found that, despite their size, the fossils are extremely delicate. In some places the bone is no thicker than a fingernail, and the vertebrae are full of holes — air pockets surrounded by thin membranes of bone. The structure is similar to that found in the bones of birds, and would have served the same purpose in both species: to reduce the bones' weight without compromising their strength.

The new dinosaur appears to be a relative of *Brachiosaurus*, and like *Brachiosaurus*, likely held its neck upright like a giraffe, rather than out in front of it like the *Apatosaurus*. Basing their estimates on *Brachiosaurus*, Cifelli's team believes *Sauroposeidon* would have been nearly 100 feet long and stood some 60 feet tall: the tallest dinosaur ever found. It could have stood flat-footed and looked into a sixth-story window. *Sauroposeidon* is recognized by the Guinness Book of World Records as the world's tallest dinosaur.

The name *Sauroposeidon* refers to the Greek god of earthquakes. "*Proteles*" (also Greek) means "perfected before the end," which alludes to the fact that this enormous dinosaur was one of the last and most specialized of its kind. It lived during the Cretaceous Period, around 110 million years ago. Though



Frank Wick, left, Tom Luczycki, back right and Mike Thom of RCI, front right, prepare to attach a vertebra in the *Sauroposeidon* neck reconstruction. Photo by Krysten Marshall

long-necked sauropods were abundant in North America during the earlier Jurassic Period, their numbers waned in the Cretaceous, finally dying out around 100 million years ago. *Sauroposeidon* was among the last of a dying breed.

Despite several return trips to the site of the initial find to search, no additional fossils of *Sauroposeidon* have been uncovered.

"The chances of finding more are remote," Cifelli admitted. Compared to the delicate neck bones, most of the creature's other bones would have been very large and robust. If the skeleton had still been all together when it was fossilized, the team would have found other bones nearby. It is likely that the neck bones were moved — by water or predators, for example — from the rest of the carcass. There is no way of knowing where to look.

Nevertheless, visitors to the museum need now look no further than the Great Hall to get a glimpse of this record-setting dinosaur. Though the head and part of the neck is visible now, the full reconstruction of the neck will not be on view until the opening of the new gallery, targeted for spring 2009.

Mystery solved?

Cifelli believes that *Sauroposeidon* is the likely maker of gigantic dinosaur tracks in the Paluxy River bed near Glen Rose, Texas. These stone footprints are enormous — some more than three feet across. "We may never know for certain," Cifelli said, "but so far *Sauroposeidon* is the only Early Cretaceous sauropod known from the entire North American continent large enough to have made the Paluxy tracks."



UPCOMING EVENTS

Touch the Sky:

Prairie Photographs by Jim Brandenburg

Feb. 14 through April 12

This exhibit features the breathtaking prairie photographs of *National Geographic* photographer Jim Brandenburg. The photos capture the beauty and drama of the prairie ecosystem – its landscape, plants, animals and weather.

Brandenburg traveled the globe as a photographer with *National Geographic* for several decades. He has done assignment work and has been published in numerous national and international publications. Brandenburg's photos have won a multitude of national and international awards. He was also the recipient of the World Achievement Award from the United National Environmental Programme in Stockholm, Sweden in recognition of his using nature photography to raise public awareness for the environment.

Brandenburg and his wife, Judy, have established the Brandenburg Prairie Foundation, whose mission is to preserve and protect Northern Tallgrass Prairie ecosystems in the upper Midwest.

Eagle Cloud, Touch the Sky National Wildlife Refuge
Luverne, Minnesota © Jim Brandenburg



Special Events

Monday, Feb. 9, through Sunday, Feb. 15
First Responders Week
Free admission for police, fire department and EMT personnel and their immediate family.

Sunday, Feb. 15, 1 to 5 p.m.
Science in Action
Exciting experiments, super scientists, live animals and science challenges will be set up throughout the museum for this free family science day.

Monday, Feb. 16, through Sunday, Feb. 22
OU Faculty/Staff Week
Free museum admission for OU faculty and staff and their immediate family with I.D.

Monday, March 16, through
Friday, March 20, 10 a.m. to 4:30 p.m.
Spring Break Escape
Daily activities include art workshops, nature

hikes, storytelling, a scavenger hunt and more! All programs are free with museum admission, but space will be limited for some activities. Check the museum Web site, www.snomnh.ou.edu, for a full schedule of activities.

Late March / Early April (date TBA)
Opening of the Noble Corporation and Noble Energy Orientation Gallery
A new permanent gallery on the museum's ground floor with hundreds of spectacular specimens and artifacts from museum collections, including the 40-foot reconstructed neck and head of *Sauroposeidon proteles*, the world's tallest dinosaur.

Monday, April 6 and Tuesday, April 7
Oklahoma Native American Youth Language Fair
A statewide Native language competition. For

registration information, contact the museum's Native American languages department at (405) 325-7588. Generously sponsored by an anonymous donor and Robin Flint Ballenger.

Wednesday, April 8, 4 to 7 p.m.
Eggstravaganza
An outdoor egg hunt plus games and activities sponsored by the University of Oklahoma JCPenney Leadership Center. All activities, plus museum admission, are free from 4 to 7 p.m. Egg hunt begins promptly at 6:30 p.m.

Saturday, April 25, 7 to 10 p.m.
Muse-a-Palooza: Out of the Vault A Museum Fundraiser
Enjoy live music, auction and delicious food and drink at this unique event benefiting the programs and exhibits at the museum. For information and tickets, call (405) 325-5020.

UPCOMING EVENTS



WORKSHOPS AND FIELD TRIPS

Adult Workshops

Space is limited for all adult workshops and pre-registration is required. To register, call the museum education department: (405) 325-4712.

Fins, Feathers and Furs: Why Curate the Life Sciences?

Saturday, March 7, 9 a.m. to 1 p.m.
Explore the fundamentals of ichthyology, ornithology and mammalogy. Each of the topics will be presented by the scientist who curates that collection utilizing specimens from the museum's treasure chest.
Cost: Members \$20, Non-members \$30

Plant Lore of the Plains Apache

Tuesday, March 24, 7 to 8:30 p.m.
Judy Jordan, ethnobotanist and author, has documented more than 110 plant species valued by the Plains Apache. Her fieldwork, conducted with elders of the Apache Tribe of Oklahoma, preserves a wealth of detail concerning traditional collection, preparation and use of these plant species for food, medicine, ritual and material culture.
Cost: Members \$15, Non-members \$25

Sketching Oklahoma's Natural Wonders

Thursday, April 23, 7 to 8:30 p.m.
Nature artist/illustrator Debby Kaspari will work with participants on techniques of sketching Oklahoma wildlife, drawing such creatures as bison, coyote and red-tailed hawk. Come join Debby in the Natural Wonders Gallery for a hands-on learning experience. Limited to 10 participants.
Cost: Members \$30, Non-members \$40

Children's Workshops

The museum is offering a series of children's workshops for kids in grades one through eight. Space is limited, and pre-registration is

required. To enroll, please call the education department at (405) 325-4712. Cost per workshop: Members \$15, Non-members \$20

Prairie Time Traveler

Saturday, Feb. 21, 9 a.m. to noon
For students in grades 1 and 2
Enter our time traveler to investigate the changing prairie! We will travel back in time to experience the plants, animals and people found in the Oklahoma prairie.

Creature Creators

Thursdays, March 5 and 12, 4 to 5:30 p.m.
For students in grades 3, 4 and 5
What if jellyfish had wings or frogs had fur? Get ready to break the rules and use your imagination! In this two-class workshop, we'll explore the endless possibilities as we create our own 3-D creatures.

Dinosaur Science

Saturday, April 25, 9 a.m. to noon
For students in grades 6, 7 and 8
Could you outrun a T-Rex? How much did an *Apatosaurus* weigh? Just how hard could an *Allosaurus* bite? Join us for Dinosaur Science as we tackle these questions! Explore the science behind dinosaurs and learn how paleontologists determine facts like their speed, bite force and weight.

Family Fossil Field Trip

Friday, April 17, from 7 to 8:30 p.m. and Saturday, April 18, 9 a.m. to 4:30 p.m.
Join us as we travel to one of the premier invertebrate dig sites in Oklahoma in search of marine fossils. This field trip is open to children ages 8 and up with an adult.

This field trip fills quickly, so register early! To register, call the museum education department: (405) 325-4712. Cost: One adult and one child: Members \$80, Non-members \$95. Each additional person: Members \$40, Non-members \$50

Family Nights Out

Enjoy a fun night out with the family at the museum. Don't worry about dinner and entertainment – it's all here! We'll introduce a topic (see options below), enjoy pizza and drinks for dinner, and complete a project to take home. Family Night Out projects are designed for children ages 5 years and older, but younger siblings are welcome. One adult for every two children is requested.

Space is limited, and pre-registration is required. To enroll, please call the education department at (405) 325-4712. Cost: Members \$10 per person, Non-members \$12 per person (cost includes craft project and dinner)

Friday, Feb. 27, 6 to 8:30 p.m. Building for the Birds

Who are those feathered guests in your yard? Come learn about the birds in your neighborhood this spring and what they need to live there. We'll build a bird house to make your yard more inviting for spring's songsters.

Friday, March 27, 6 to 8:30 p.m. Wild in the Garden

Whether you live in the city, suburbs or country, there are many things you can do to invite wildlife into your yard. We'll learn about the wild animals who may already be living near you, and what you can do to encourage wildlife to call your backyard home. Each family will take home some goodies for the wild critters in your yard.

Friday, April 24, 6 to 8:30 p.m. Telling Time with Trees

Did you know trees can tell time? Join botanist Phil Gibson as we learn about the daily rhythms of plants and animals and how living things change through the seasons. Each family will make their own tree clock to take home!

A full schedule of upcoming events can be found online at www.snomnh.ou.edu/calendar.



ICE CREAM AND COINS IN NORTHEASTERN BRAZIL

This story is based on notes made by museum director and curator of mammals Michael Mares when he began a field project with his graduate students in the semiarid tropical Caatinga in northeastern Brazil in the 1970s. The mammals of the area had never before been studied, and over a period of two years, Mares and his students would discover many interesting things about the mammals of this vast region, including how the fauna had evolved and adapted to aridity within the tropics.

In 1975 I proposed a research project that would require my three students to live in northeastern Brazil for two years. My job was to find a research site that would provide the necessary amenities for the needs of my students over a long period in the field away from home.

The previous year, I had spent a night in *Serra Talhada* and thought it might be an ideal base for our research project. It offered easy access to many habitats, and was a nice small town in a region noted for its lack of sophistication and many primitive villages. I noted then that *Serra Talhada* even had two ice cream parlors (which would be a welcome luxury during the hot tropical dry season).

Now, I again found myself in *Serra Talhada*. Hoping to take advantage of the rare ice cream parlors, and deciding to forego the usual heavy dinner fare of salted beef, beans, rice and manioc, we decided that dinner would be ice cream. The evening



The Caatinga is a semiarid tropical area located just south of the equator in Brazil. It is hot and wet in winter and very hot and dry in summer. Periodic droughts can last for years. Much of the vegetation is scrubland and cactus forest. Photo by Michael Mares

became more complicated than ordering a simple ice cream cone might suggest, however.

It was early evening and the *flocos* (chocolate chip flavor) was great. Like most isolated Latin American towns (which in those days lacked television), most residents, including teenagers and children, walked around the plaza each evening, visiting with friends. We decided it would be nice to walk a bit before we had more ice cream at the second ice cream parlor.

I had forgotten the effect that the presence of two such obvious foreigners (especially my student, Mike Willig, who is blond and 6'3"),

would have on the locals in a place that saw few foreigners. Gradually, we began to pick up a following of kids – perhaps 10 – and soon this swelled to 20. The tall, blond gringo was a child magnet.

By the time we circled the plaza, I thought it best to stop and have another ice cream. Maybe the children would leave. No way. Twenty children gathered tightly around us to watch us eat ice cream. We were the only show in *Serra Talhada* that night. Because of the noisy crowd, we decided to get the ice cream later and got up to circle the plaza once again – perhaps we would lose them. Nope. We walked with 20 kids in

tow. Seeing there was a tall gringo, one young man brought his girlfriend over to us and explained that his hobby was collecting foreign money. Could he buy a dollar bill from us?

"We'll have to get one," I said. We went to our hotel (the crowd following) and Mike got a buck for the kid. Mike also had some dimes and I found a penny. When we got back to the plaza, the crowd was even larger than before.

By now a small army of people gathered around us talking and laughing. I could see a cop coming toward us to investigate the ruckus. Mike was trying to sell his dollar (there were many potential buyers), while being hemmed in by dozens of children and teenagers. He looked like the Pied Piper. Apparently there were many coin collectors in this little town and very few coins. He was backed against a wall, surrounded by 30 people while he tried to make his few coins reach as far as possible. I asked him if he had gotten to the loaves and fishes yet? I suggested we vamoose.

Away we went followed by the crowd. Cars were

circling the plaza and slowing as they passed us. People were getting out to see what was going on. I could see the policeman coming back to find out what was up with the two foreigners and their traveling coin market.

We had become the absolute center of attention in *Serra Talhada*. Every time we tried to leave, it made the crowd more

"We had become the absolute center of attention in Serra Talhada. Every time we tried to leave, it made the crowd more excitable."

excitable. We looked like a traveling revival group.

We gradually escaped to the tranquility of the hotel. My goodness! We were a sensation. We stayed there for almost an hour. Unfortunately, we had neglected to get our second ice cream cone, so we walked back to the second ice cream parlor. Mercifully, the crowds had dispersed.

We entered the small shop. The owner smiled as we walked in.

"Two *flocos*," I said.

As he served us, he sat down uninvited at our small table. We smiled and acted like it was normal for the proprietor to join us.

He didn't say much at first, and kept glancing around furtively. Finally he looked at me and said, almost in a whisper, "I'm a coin collector."

This town was crawling with coin collectors!

that I was saving for my boys. I gave it to him. He was ecstatic! He ran into the back of his store and returned with his entire money collection, which consisted of two bills each from Uruguay and Paraguay, a couple of coins from Paraguay, and the star of his collection, a Chinese coin with a hole in the center!

We finished the ice cream and tried to pay, but he wouldn't hear of it. The Panamanian coin had made him the leading coin collector of *Serra Talhada*!

We left. We had actually been paid a dime to eat ice cream! If you ever go to *Serra Talhada* take a pocketful of money. It's the surest way to buy friends and combat loneliness. And the next time you complain about pennies and nickels, think about how much fun you could have with them in northeastern Brazil, where everyone seems to be a coin collector.

*By Michael A. Mares,
Director*





PALEONTOLOGIST RECALLS EARLY DISCOVERIES

With his bandana and battered cowboy hat, Wann Langston has the weathered look of a venerable rancher. His sun-bleached appearance does come from years spent in the outdoors, but not from herding cattle or breaking sod: Langston is a paleontologist at the University of Texas at Austin, a specialist in pterosaurs and ancient crocodiles. He has made many amazing fossil finds, and in 2007 was the recipient of the Society of Vertebrate Paleontology's highest honor: the A. S. Romer-G. G. Simpson Medal. Langston is also one of the remaining students of J. Willis Stovall – the SNOMNH's first director and collector of almost all the major dinosaur specimens on display in the Hall of Ancient Life.

The museum has Stovall to thank for many of the most spectacular specimens in its vertebrate paleontology collection. But it is Wann Langston who is primarily responsible for the preservation of the history of that collection. His memories of Stovall and the early days of the vertebrate paleontology program have proven invaluable over the years. Many of the early collection's catalogs and field records were sketchy or missing altogether. In many of these cases, it was the astonishing depth and clarity of Langston's memory that provided the missing pieces of history for each specimen.

In the late 1980s, Langston spent months working with the newly hired curator of vertebrate paleontology, Richard Cifelli – painstakingly researching what remained of the collection's field notes and catalog information, tracking down missing pieces that had been loaned to other institutions and recording what history he could remember or



Wann Langston, right, describes the discovery of *Pentaceratops* to a museum visitor. Photo by Krysten Marshall

piece together about the provenance of each specimen. In 1989, he penned *A History of Vertebrate Paleontology at the University of Oklahoma* which provides a narrative about the collection and the backgrounds of certain key specimens.

"I first met Dr. Langston in the summer of 1986 at the Museum of Northern Arizona, after accepting the position here but before joining the staff that then included about 10 people other than me," said Cifelli. "He told me that the museum's collection was important but that it was 'one helluva mess.' He also mentioned, in an offhand and modest way, that he'd had a hand in the making of the collection, and pledged his help in restoring it. At the time, of course, I had no idea how serious the problems with the collection were, or

how much I would need to rely on Dr. Langston's encyclopedic memory in order to breathe life back into it."

Cifelli continues to have the highest praise for Langston and his work. "Langston's contributions to the building, restoration and study of the vertebrate fossil collection at the SNOMNH extend over more than seven decades," he said, "and thus are unparalleled in the annals of American paleontology."

Langston began his career in paleontology as a boy of 12, hanging around the vertebrate paleontology lab watching Stovall at work. The first specimen he prepared was the fossil mosasaur now on display in the marine Cretaceous exhibit in the Hall of Ancient Life. Over the next decade, Langston continued to work with Stovall, as volunteer, student

and assistant. "I had a hand in about every specimen here," Langston says.

When he was old enough to attend college, Langston chose paleontology as his major and continued his studies with Stovall in a more official capacity. During the Depression, Langston supervised the Works Progress Administration crew who prepared fossils in the VP lab on White Street, until World War II ended the project. This was Stovall's most prolific period of collection. Stovall and one of his WPA crews collected hundreds of fossils, including the centerpiece specimens now in the museum's exhibits – the *Apatosaurus* and *Saurophaganax* found in the Oklahoma panhandle. Also during this time period, with the help of student teams, Stovall collected the adult *Tenontosaurus* and babies *Pentaceratops* from New Mexico. Langston was there for every find.

It was Wann Langston who found the record-breaking *Pentaceratops* on a prospecting trip to New Mexico. Stovall took groups of students to the western states on collecting expeditions every summer, and in July of 1941, Langston was with them, prospecting along the edge of an old dry creek in the badlands of San Juan

County when he saw a patch of bone.

"I brushed off the dirt," Langston said, "and it just kept going and going. It turned out to be the horn."

The crew collected all the scattered pieces of the skeleton they could find. Enough of the skull was exposed to reveal the distinctive jaw spikes that identified it as a *Pentaceratops*, but though the crew prepared most of the skeleton, they did not even open the huge

The museum has Stovall to thank for many of the most spectacular specimens in its vertebrate paleontology collection. But it is Wann Langston who is primarily responsible for the preservation of the history of that collection.

field jacket that contained the skull. "It was just so big and such a challenge," Langston remembers. In his *"History of Vertebrate Paleontology at the University of Oklahoma,"* Langston wrote, "The skull would be spectacular, however, with a reconstructed length of perhaps seven feet and a brow horn that is over two feet long." It was more than 50 years before the actual reconstruction was done, with final measure-

ments coming in well above Langston's estimates. The completed skull is 10 and a half feet in length, with brow horns closer to three feet long – a world record.

Langston's memories of the *Tenontosaurus* dig in Montana reveal some unique circumstances of the find. The specimen on display was found on the Crow Indian Reservation in southern Montana. Stovall and his students had gone there specifically to look for

tenontosaurus because parts of similar animals had been found in southeastern Oklahoma. Stovall wanted a more complete specimen to prepare for future exhibition.

The team struck the jackpot, finding a well-preserved and nearly complete specimen, missing only the tail, which had weathered away. But their find was even more significant than they realized at first. Nestled under the skeleton of the adult was

the small articulated skeleton of a *Tenontosaurus* baby. Other small skeletons were also collected from the site, as well as many pieces of other juvenile tenontosaurus.

"One might speculate on the possible relationship between this occurrence and the possibility of live birth or parental behavior in *Tenontosaurus*," Langston wrote in his 1989 *History*. Stovall's team had discovered this remarkable evidence of parental behavior 38 years before Jack Horner's discovery of *Maiaasaurus* – "The Good Mother Dinosaur" – changed scientific ideas about dinosaur parenting techniques.

Langston is now retired from teaching, but continues his paleontology research from his office at the VP lab at UT Austin. For the past year, he has been working on the reconstruction of the skull of a giant crocodile, "*Deinosuchus*," found in Big Bend. It was one of Langston's students who first discovered *Quetzalcoatlus*, one of the largest of the pterosaurs. Langston has also found parts of another similar new species that they are currently working on describing.

"I keep thinking if I just wait one more season," said Langston, "I'll find the rest."





MIDDLE- AND HIGH-SCHOOL STUDENTS: Apply Now for ExplorOlogy Summer Field Programs

Applications are now available for two unique summer programs offered by the museum for middle- and high-school students. These one- to two-week residential programs give students hands-on experience working with museum scientists and "doing science" in real field settings. "Oklahoma Science Adventure," scheduled for July 12 through 18, is a one-week program for middle-school students that debuted last summer. "Paleo Expedition" is a new two-week program for high school students that will include research at a field site in Utah, June 11 through 27. Both programs are part of ExplorOlogy, funded by the Whitten-Newman Foundation. There are no costs to participants. Students will be chosen through a competitive application process.

Applications for Oklahoma Science Adventure are being accepted now through March 2 for Oklahoma students currently enrolled in grades six through eight. Twelve students will be chosen to participate. Applications for Paleo Expedition are being accepted through Feb. 23 for Oklahoma students currently enrolled in grades nine through 11. Eight students will be chosen to participate. Applicants for both programs must submit an application form, parts of which are to be completed by a parent or guardian and a teacher. Applications are available online at <http://explorology.snomnh.ou.edu>.

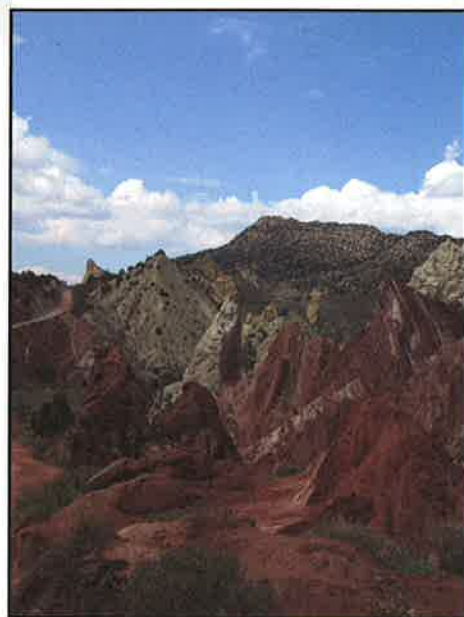
Students participating in "Oklahoma Science Adventure" will spend the week exploring a variety of "ologies" in Oklahoma forests, streams, ponds and fields with scientists from the museum. They will be housed in hotels or dormitories at night, with daytime activities including outdoor field work, indoor laboratory work and a variety of recreational activities includ-

ing canoeing, swimming and hiking. The week will culminate on the OU campus where students will work in the museum's research labs to further study the fossils and specimens that they encountered in the field.

Students accepted to "Paleo Expedition" will begin their two-week residential adventure with an initial two-day introductory session with scientists at the museum. Students will then travel to a rugged, remote field site in Utah. There, they will explore the high desert with paleontologists while learning basics such as mapping, GPS navigation and desert survival.

Paleontological work will include discovery and identification of many types of fossils from the late Cretaceous Period, and will feature excavation of 75-million-year-old dinosaurs. Students will spend most of their time outdoors residing in tents. During the camping portion of this expedition, students will be in an unpopulated area of the high desert, supervised by and under the care of highly experienced staff. Working alongside scientists from OU, students will have the unique opportunity to combine a wilderness experience with hands-on participation in field-based science, where the laboratory is the great outdoors.

Both programs encourage students to study science by giving them the chance to experience the world of working scientists first-hand. Throughout both programs, the students will document their experiences through written and digital journals, giving them an opportunity to use a variety of technologies as a tool to share their experiences and research projects. On the final day of each program, students will give an oral presentation to share their research with others.



Eight students in grades 9 through 11 will travel to this field site in Utah as part of ExplorOlogy's 2009 Paleo Expedition. Photo by Holli Langlieb

In addition to "Oklahoma Science Adventure" and "Paleo Expedition," ExplorOlogy includes "Summer Explorers," a series of classes for children ages four to 14 (and some for families, as well) that run from June through early August. These open-enrollment classes feature a variety of natural history topics, and all incorporate some hands-on outdoor experiences. A full listing of Summer Explorers programs will be available online at <http://explorology.snomnh.ou.edu/explorers> beginning in January.

Additional information about these and other programs at the museum is available online at www.snomnh.ou.edu, or by calling the museum education department at (405) 325-4712.

Museum Now Open to Public on Mondays

As of Oct. 6, 2008, the museum is once again open from 10 a.m. to 5 p.m. on Mondays, with free admission on the first Monday of every month. As an added bonus, the museum store, "Excavations," will offer a 10 percent discount on all purchases on free admission Mondays.

"We recognize that times are tough right now," said museum director Michael Mares. "The family budget doesn't go as far as it did a year ago, and as a consequence, many families may have to cut back on educational entertainment. This museum was established to serve the people of Okla-

homa, and we wanted to make some small contribution to members of our community to ensure that it is still possible for everyone to visit and enjoy their museum."

Monday hours have been well-received, with an average of 320 visitors on Mondays throughout October.

The Museum Online: E-news and Social Networking

Have you signed up yet for the SNOMNH monthly e-newsletter? It's a quick and easy way to keep up with all the events and programs offered by the museum, delivered right to your inbox each month! More than 1,500 people are already receiving e-news, and you can, too. Visit the museum's Web site at www.snomnh.ou.edu/subscribe and sign up today!

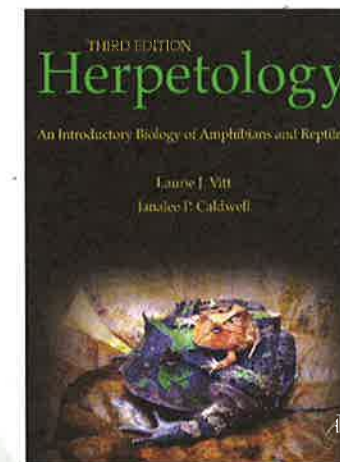
Maybe Facebook or Myspace are more your style? The SNOMNH has a presence on both of these social networking sites. Get online today and sign up as a friend or a fan!

<http://www.myspace.com/samnoblemuseum>.

Museum Herpetologists Publish Books

Laurie Vitt and Janalee Caldwell, museum curators of herpetology, recently released the third edition of their textbook, *Herpetology: An Introductory Biology of Amphibians and Reptiles*, published by Academic Press. The textbook is used by universities throughout the world and is the most up-to-date textbook on herpetology available. In addition to containing 21 chapters filled with information on the evolution, ecology, physiology, behavior and biogeography of these fascinating animals, it contains hundreds of beautiful photographs of amphibians and reptiles in their natural habitats, mostly taken by the authors.

Vitt and several of his Brazilian colleagues also recently published a book entitled *Guide to the Lizards of Reserva Adolpho Ducke*. This 175-page field guide contains a detailed description of the Ducke biological reserve situated near Manaus, Brazil, in the central



Amazon rainforest, followed by species accounts of all lizards known from the region. The book was printed in spectacular color and contains side-by-side text in English and Portuguese. After introducing lizards of the world in a general way, each species found on the reserve is discussed based on data collected over many years by the authors. This is the first authoritative book on Amazon rainforest lizards to be published.

Centennial Exhibit Garners Awards

The SNOMNH received two honors at the 2008 Redbud Awards banquet, held in conjunction with the Governor's Conference on Tourism in October. The museum's special Centennial

Exhibition "Collecting Oklahoma," which was on view June 16, 2007 through Jan. 21, 2008, received a Merit Award in the Temporary Exhibitions category and shared a Redbud Award with the Guthrie Centennial Committee in the Centennial Projects category.

The "Collecting Oklahoma" exhibit featured objects and specimens from the museum's collections that highlighted the museum's more-than-100-year history of collecting and preserving the natural history of Oklahoma.

Lt. Gov. Jari Askins and Oklahoma Tourism and Recreation Department Executive Director Hardy Watkins were on hand to announce the winners during a special gala held on Oct. 13, 2008, at the Cox Convention Center in Oklahoma City.

"RedBud Awards represent the highest honor given in the Oklahoma tourism industry," said Watkins. "This year, we received 70 entries on behalf of tourism efforts from all across our state."

Entries are evaluated by out-of-state judges based on criteria including customer service, marketing effectiveness, media relations, variety of audiences reached, value and overall creativity.





KIDS TRACKS

GET OUTSIDE!

Games and activities to have fun in the great outdoors

PUTRID PUMPKINS

In this activity you will learn about decomposition. This is an important part of nature for several reasons. First, this is how nutrients are returned to the soil for plants to use. Second, if waste material did not decompose, the world would be covered with a layer of dead organisms miles thick, which would be very inconvenient.

You will need at least two pumpkins for this. One small, whole pumpkin and one that has been cut into four equal parts.

Inspect your pumpkins and weigh them. Set aside the whole pumpkin.

Take the cut pumpkin and wrap one part in a paper bag, one part in a plastic sack or plastic wrap and leave two parts unwrapped.

Place the whole pumpkin, the wrapped pumpkins and one unwrapped cut pumpkin in a sheltered spot in your backyard where they won't be bothered. Bury one unwrapped pumpkin piece and mark the spot.



Think about what decomposers need to work. Which pieces would you predict will decompose first? Why? Check on your pumpkins every four days.

- Keep a record of the air temperature.
- Keep a record of how often it rained
- Keep a record of any insect or animal visitors.
- Keep a record of any changes in color, texture, size and smell.
- Make a note of any other interesting observations (photos are good).

After a month, check on your pumpkins every two weeks. At the end of four months, dig up the buried pumpkin. Which pumpkin pieces decomposed first? Which was last? Were your predictions accurate? Can you think of a reason why some pieces decayed before the others?

ISOPOD INVESTIGATIONS

"Isopod" is the scientific name for pill bugs or roly-polies, the familiar little bug that will curl up in a ball when you touch it.

In these experiments you will find out what type of habitat a pill bug prefers by building a behavior chamber that will give your pill bugs a choice between two environments. The design of the chamber is up to you. A shoebox divided into two sections with a piece of cardboard would be fine.

You can make it as simple or elaborate as you wish.

Go out and collect some isopods. Put a piece of damp paper towel in a collecting jar.

Look under rocks, leaves or pieces of wood to find them. Ask a grownup to lift the wood carefully to make sure there are no scorpions or spiders. Collect about 10 pill bugs.

First, make some basic observations: How many segments does it have? How many legs? Draw it and label the body parts you can identify.

Set up your behavior chamber so the floor on one half is covered with damp paper towels and the other

half is covered with dry paper towels.

Put five pill bugs in each side. Count the number of pill bugs in each side every minute for 10 minutes.

Which environment do your pill bugs prefer? Moist or dry? Can you think of a reason why they prefer that environment?

Return your pill bugs to a proper habitat outside when you are finished.

CAMO CRITTERS

You will need at least two people to play this game.

Materials: scissors, crayons and cardboard or paper.

Look around your backyard. Notice colors and textures. Pass out pieces of paper and let everyone use markers or crayons to create a camouflaged pattern on their paper.

This is your camouflage critter. Do not show your critter to the other players, and do not look at theirs.

Players should hide their "critters" one at a time while the other players keep their eyes closed.

Everyone should hide his or her critter in a place where it blends in well.

All players gather at a starting place. Scatter and try to find one of the critters made by someone else.

The critter that is found first is out. They got eaten! The critter that is found last, is cut into two pieces (it reproduced). This will make it even harder to find in the next round.

Everyone should hide their critters again. The person whose critter reproduced hides both pieces.

The first one found is out. The last one found reproduces (is cut in two).

Continue play for three rounds or until one player has four pieces.

THANK YOU!

Each fall, we like to thank museum members of the Curators' Circle and Director's Circle for their outstanding commitment to the museum. We also want to give special recognition to our 2008 Annual Corporate Sponsors. Thank you for your support.

Director's Circle Members

Craig and Maria Abbott
Mike and Whitney Alvis
Mervin and Eleanor Barnes
Karl Bergey
Chet and Maureen Bynum
Rod and Janene Davis
Astrea Milam Fatica
Josie Freede
Dee Gammill
Mark Goodman
Lauren and Graham Guhl
Patrick and Melanie Hall
Jeff Hargrave
Cal and Elaine Hobson
Sandy Kinney and Mike Sugg
Ken and Sharon Lease
Sue Lunsford
Richard Mallinson
Jay Mitchel
Jessie and Chris Nance

Robert Newman

Bill and Barbara Paul
Bill and Doann Reed
Les and Paul Risser
Rachelle Whitten
Reggie Whitten

Curators' Circle Members

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James and Teresa Day
John Dyer and Lynne Ozinga
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Sarah Jawm Marie
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A SPECIAL OFFER FOR MUSEUM MEMBERS



FREE DINO BANK!

Bring this coupon in to the museum and receive a FREE DinoBank! This cute baby *Acrocanthosaurus* was designed especially for the museum by United Design. They make great gifts for children or grandchildren.

Valid Jan. 1 through Feb. 28, 2009, only.

Must present coupon and show membership ID at the museum to receive free gift. One coupon per membership only. Must present original coupon in person. DinoBanks cannot be shipped or mailed.

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