

### NEW DISPLAYS

## Giant Tortoise

A new museum exhibit featuring the remains of a giant tortoise was unveiled last November. Found by local hunters Mike Higley and John Rhea Jr. this Ice Age giant was discovered resting in sediments of the Tehama Formation near Red



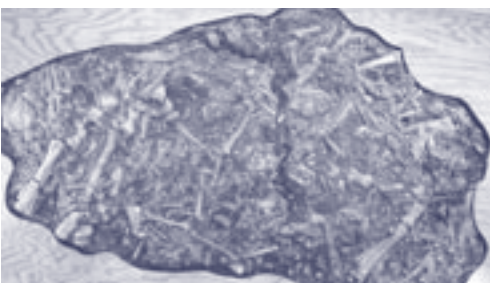
Bluff, California. We estimate that this terrestrial giant lived approximately 3 million years ago. Other fossil bones found nearby included a large extinct cat (larger than a present day bobcat) and remnants of horse, deer, camel, bear and pond turtle. When this tortoise roamed early California, there also lived mastodons, hyena-like dogs, giant ground sloths and various species of rodents and birds.

According to Dr. James Parham, specialist in fossil turtles and tortoises, the Red Bluff find may very well be the most complete of any of the giant tortoises found in California. It may also be a species yet to be formally described in scientific literature. The Tehama Formation, where the remnants of the giant tortoise were found, lies above a dated Nomlaki volcanic ash layer that covered much of northern California about 3.3 million years ago. It was deposited in the Red Bluff area and is composed of debris washed down ancient creeks and rivers and deposited in the north valley as mud, sand and gravel.

Besides discoverers Higley and Rhea, members of the excavation team included Sierra College professors Richard Hilton and Charles Dailey, museum technician George Bromm and volunteers Patrick Antuzzi and James Readle.

## Tar Pit of Doom

This fascinating new exhibit found its way to the museum after a long and fascinating journey. Originally excavated from an ancient tar seep near Bakersfield, it left California only to be neglected in a private collection. This sample, similar to those found at the famous La Brea tar pits in Los Angeles, reveals thousands of bones



and fragments of animals that were trapped and died in the southern valley between 4,000 and 36,000 years ago. This "tar lump" contains bones and fragments of myriad animals, including tortoise, hawks, eagles, turkeys, horses, bison, camels, dire wolves, short-faced bears, coyotes and foxes. Insects, such as beetles and many woody plant parts are also preserved in this intriguing snapshot of the past.

### NEW FOSSIL DISPLAY

## Ice Age Mammoth

An Ice Age fossil find near Elk Grove last summer is now on display at the museum. Found by Edwin Bragado during the trenching of a gas line, bones of a Pleistocene mammoth were exposed. Fossil finds of this age are common in Southern California but considerably rarer here in the north state. Richard Hilton, geology professor and museum chairman commented, "It's one thing to talk about the Ice Age...it's another to dig it up in your own back yard. It makes the Ice Age itself a reality for local people."

Found in the sedimentary layers of the Riverbank Formation, the fossil is believed to be between 200 and 400 thousand years old. Based on the size of its teeth, the animal appears to have been young, about the size of a modern day elephant and possible female.

Dave Maloney, paleontologist and former Sierra College student, credited Sacramento Municipal Utilities District with ensuring that the fossils were not destroyed during the trenching. SMUD paid for the excavation and the preparation of the bones for display.



**A GREAT EVENT**

# Dinosaur Day 2005



Despite drizzling skies, this year's Dino Day was the best attended ever! Approximately 1,400 dinosaur fans came out to the museum on Mother's Day to take part in the broadest variety of educational fun yet to be conducted at this event. Coming up the walkway toward the museum, participants became cautious of a big crate labeled "Live Dinosaur" on a flat-bed truck. With loud animal noises and a rocking crate, who was to question the

unlikely contents? Once past this perceived danger, visitors were presented with myriad options of activities related to our fascinating extinct fauna.

Participants could frost their own dinosaur cookies, wear an *Archaeopteryx* headband, construct a dinosaur puppet, paint casts of dinosaur bones and color drawings of various dino species. Educational videos and lectures highlighted our Mesozoic reptile friends. Our Dino Day visitors could also view many dinosaur-related exhibits in Sewell Hall, watch paleontologists prepare bones, purchase dinosaur models, toys and t-shirts and more. The planetarium was open for viewing and shows, outdoor canopies sheltered fossil-casting, dinosaur bone excavation and even an ECOSudent Club barbeque. A special treat was Radio Disney, present with lots of games and giveaways.

Special thanks go to Kim Stevens, Sierra College geology instructor, for tirelessly coordinating this huge effort and for countless hours of preparatory work. Thanks also go to Sierra College student volunteers, Sierra science faculty Richard Hilton, Charles Dailey; Sierra College vice-president, Frank DeCourten (paleontologist); Ken Kirland, artist; Dave Mahoney, paleontologist; Mike Fredericks, "Prehistoric Times" editor; and Eric Göhre, paleontologist. The museum also sincerely thanks Museum Committee member Mike Price and the staff of the Marketing Department for their tremendous efforts and time in making certain that this event was a success.



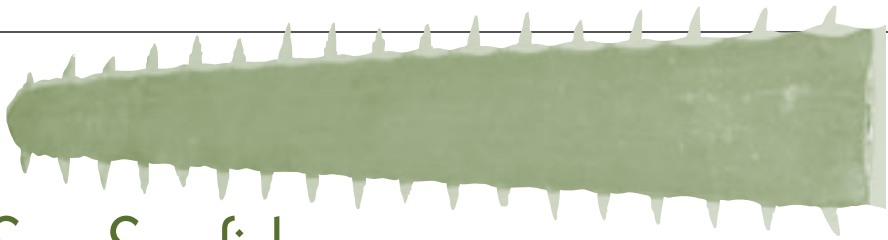
**NEW EXHIBITS**

## Outdoor Mining Additions

A Haskins New Giant water cannon adds an important element to the museum's Sierra mining exhibits. Museum Committee member and retired mining professor Don Juergenson oversaw the installation of the giant, generally known in the mining days as a "monitor." This particular water cannon was manufactured in Grass Valley in 1883, just one year before the 1884 ruling by Judge Sawyer which put an end to destructive hydraulic mining in California.

Additionally, the Museum received a \$995 grant from the Sierra College Foundation to improve its mining exhibit signage, develop a new Rock Walk exhibit around the perimeter of the mining equipment area and to print a self-guiding booklet for the outdoor exhibits. An exhibit guide holder has been installed adjacent to the granite museum sign at the Sewell Hall entrance.

New signs sponsored by this grant identify major specimen rock types as well as the museum's hard-to-find mining equipment.



## See Sawfish

The saw of a giant sawfish, *Pristis*, is now on display, appropriately next to the giant shark jaw display. Once attached to this four-foot long 'saw' snout was the body of a 12-14 foot-long bottom-dwelling shark. Its tooth-like scales were used to slash and kill prey for food. The sawfish snout was donated by the East Bay Parks and Recreation District.

## Exhibit Shuffle

Several museum exhibits have been relocated within the museum to make space for new displays. When you visit the museum, have a look around at the new arrangement. Don't forget to see our newest outdoor display, the Rock Walk.

## COSMIC CORNER

# News from the Sierra College Planetarium & Observatory

### ROBOTIC OBSERVATORY COMPLETES CONSTRUCTION AND EQUIPMENT PHASES

The Sierra College Robotic Observatory on the NCC Campus has completed its construction phase and has installed all the major telescope and computer equipment necessary for its operation. The observatory also completed its initial "First Light" test by pointing the telescope at an object in the night sky and sending its acquired image to a computer for display. One more major task remains and that is the installation of the software that will permit students, faculty and selected industrial and community



groups to gain access to the telescope for remote operation. This final pre-operation phase is scheduled for completion by the end of the spring semester. For more information on the status of the observatory, contact Professor Dave Kenyon at 916-781-0459.

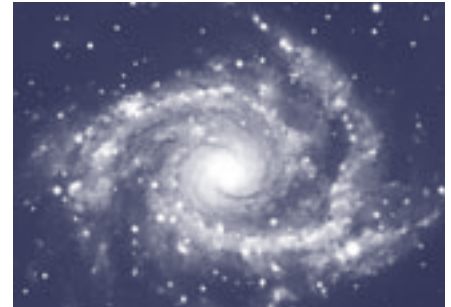
## Sky Watch

If you want the latest information on what to look for in the sky with all the details and future predictions, consult the following web site by Sky and Telescope magazine: <http://skyandtelescope.com/observing/>. This site also includes an interactive sky chart to help you locate constellations, planets and other sky objects.

Here are the major highlights for the next few months for observers in the greater Sacramento area:

Don't miss taking a peek at Saturn with a good pair of binoculars or a small telescope. Seeing the rings will definitely leave an impression. Saturn will stand out as a bright "star" above the east-northeast horizon, just below Castor and Pollux, the two main stars of the constellation Gemini. It can be viewed low about an hour before sunrise. As a guide, you may want to have a star chart handy.

While after looking at Saturn, take a look at Jupiter too. Jupiter is much brighter than Saturn and shines low in the west-southwest twilight. When viewed through binoculars and/or a telescope, Jupiter will appear as a disk with dark bands running across it and you should notice up to four "stars" lined up parallel to the bands. These "stars" are actually Jupiter's largest moons: Ganymede, Callisto, Europa and Io. Jupiter and Saturn will close in on each other in August and be in close conjunction September first.



### PLANETARIUM PRESENTATIONS

The Astronomy Department offers "Wonders of Astronomy"—a presentation given in the Sierra College Sewell Hall Planetarium, this lecture/demonstration showcases our present understanding of the universe with a multimedia arrangement that includes a slide show, a hands-on activity and the projection of star images on the planetarium dome. Fun for all ages, call Dr. Harry L. F. Houpis, the Planetarium Director, at 916-789-2715 to schedule a presentation time.

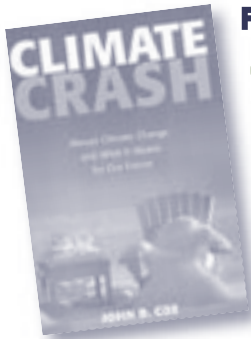
### STELLAR VOCABULARY AND TIDBITS

**Solar System Debris**—Basically anything in the Solar System other than the Sun, planets and their moons. For the most part, Solar System debris is thought to be the leftover remains of the Solar System's formation some 4.5 billion years ago. The debris breaks down into various categories of which the major groups are: asteroids, meteoroids, comets and Kuiper Belt objects.

**Comparative Planetology**—A field of study in which the major features of the planets are compared and contrasted for the purposes of better understanding the processes which drive any given planet's physical and chemical evolution since it was created.

*Newsletter contributors: Charles Dailey, Harry Houpis and Mike Price.*

# MUSEUM SEMINARS



**FRIDAY, SEPTEMBER 23, 2005**

## Climate Crash: ABRUPT CLIMATE CHANGE AND WHAT IT MEANS FOR OUR FUTURE

by John D. Cox

It is now apparent that alterations in Earth's climate can happen quickly and dramatically. Evidence reveals that centuries of slow, creeping climate variations have been punctuated by far more rapid changes. Many researchers are now quietly abandoning the traditional vision of a long, slow waltz of slumbering ice ages and more temperate periods of interglacial warming. Instead, a drastic climate shift more sudden and troublesome than we'd ever imagined could already be underway.

What are the mechanisms for triggering a significant climate change? In what ways should we expect this change to manifest itself? When will it likely happen? *Climate Crash* seeks to answer these questions, breaking the story of rapid climate change to a general public that is already intensely curious about what science has to say on the topic.

John D. Cox is a science writer who worked at The Bee for twenty years. Prior to writing *Climate Crash* Mr. Cox also wrote *Weather for Dummies* (2000) and *Storm Watchers: The Turbulent History of Weather Prediction from Franklin's Kite to El Nino* (2002).

**Sewell Hall (Science) Room S-111 • 7:30 p.m.**  
**General Admission \$5 • Students, Seniors \$3 • Museum Members free**

### AT A GLANCE:

#### MUSEUM SEMINARS— FALL 2005

**September 23**  
*Climate Crash* by John D. Cox

**October 21**  
*Micropaleontology* by Laird Thompson

**November 10**  
*The Tramp and the Roughrider*  
by Lee Stetson and Alan Sutterfield

**November 11–13 and  
November 18–20**  
*Aquatic Insect Monitoring Workshops*

**December 15**  
*Shark!* by John McCosker



**FRIDAY, OCTOBER 21, 2005**

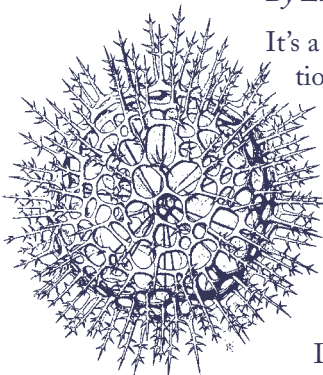
## Micropaleontology: THE COOLEST FOSSILS YOU'VE NEVER SEEN!

By Laird Thompson

It's a rarity to find dinosaur fossils; they occur only in very specialized deposits and their preservation is rare (when a lion dies in the Serengeti, it will most likely never be preserved in the rock record). There are, however, untold billions of fossils in the Central Valley of California (and all over the planet)—they're just very, very tiny! They are easily found, even in the tiny rock chips found on drill bits used while searching for oil. Microfossils run the gamut from algae to animals—"weeds and seeds"—bits of oceanic plankton, tiny arthropods, and even some unknown creatures! Their shells of calcite or silica preserve their structure and their placement in the sediments tell us about when they lived as well as the climate of the time. The world of microfossils is rich and varied.

Dr. Thompson will introduce the museum audience, with spectacular illustrations, to the fascinating subject of micropaleontology and the tiny fossils that describe the life and times of the distant past.

**Sewell Hall (Science) Room S-111 • 7:30 p.m.**  
**General Admission \$5 • Students, Seniors \$3 • Museum Members free**



## More upcoming events:

**THURSDAY, NOVEMBER 10, 2005**

### The Tramp and the Roughrider:

**JOHN MUIR AND TEDDY ROOSEVELT**

*By Lee Stetson and Alan Sutterfield*

Join professional actors Lee Stetson and Alan Butterfield for this rare performance illuminating the extraordinary 1903 encounter of President Theodore Roosevelt and naturalist John Muir in the Yosemite wilderness. Around the campfire, sifting through their stories, histories and hopes, these very different men discovered how the other had been shaped by the wilderness they both loved.



**THURSDAY, DECEMBER 15, 2005**

### Life in the Food Chain:

**THE BIOLOGY OF SHARKS, SEALS AND SURFERS**

*By John McCosker, Director: Steinhart Aquarium*

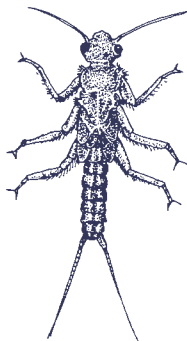


White sharks are variously feared, revered, and protected along the California coastline. Mark your calendars for a spectacular illustrated presentation by California Academy's Steinhart Aquarium Director, Dr. John McCosker.

**NOVEMBER 11-13 AND NOVEMBER 18-20, 2005**

### Aquatic Insect Monitoring

**THREE-DAY WORKSHOPS AT SIERRA COLLEGE**



So what is a hellgrammite? A stonefly? What kinds of fish swim in our streams and creeks? Are our watersheds being polluted? Protected? Join Dry Creek Conservancy staff and California Department of Fish and Game environmental scientist Jim Harrington for a three-day workshop about the fascinating world of aquatic ecosystems and how to understand and protect them.

Registration fee (\$10) payable to Dry Creek Conservancy at the workshop. For information, registration, contact: Dry Creek Conservancy, PO Box 1311, Roseville, CA 95678, (916) 771-2013 or e-mail: [dcc@surewest.net](mailto:dcc@surewest.net)

The Sierra College Museum of Natural History is a non-profit educational extension of the Science and Math Division. Its exhibits and displays are open to the public during regular school hours Monday through Friday each academic semester. For docent-lead group tours phone (916) 789-2724. For other information or to be placed on the museum's free mailing list call Dick Hilton at (916) 789-2787 or Joe Medeiros at (916) 789-2725.

#### **JOIN US! BECOME A MUSEUM MEMBER**

Regular yearly membership categories:

Supporter \$50 • Family \$35 • Individual \$20 • Student \$10

**How to join:** Send check payable to Sierra College Museum to: Sierra College Museum, Sewell Hall, 5000 Rocklin Road, Rocklin, CA 95677. Include membership category desired and your name and address.

# SIERRA COLLEGE NATURAL HISTORY MUSEUM

# NEWSLETTER

FALL 2005

## The Center for Sierra Nevada Studies

The Sierra Nevada is a tapestry rich in history and natural diversity. Through public programs and activities, the Sierra College Center for Sierra Nevada Studies seeks to capture and characterize this remarkable land.

The Sierra Nevada Virtual Museum is an interactive online museum presenting the rich history, culture and natural history of the Sierra Nevada. The museum is a nonprofit, educational website maintained for the education and enlightenment of the public. [www.sierranevadavirtualmuseum.com](http://www.sierranevadavirtualmuseum.com)



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For more information:  
[www.sierracollege.edu/museum](http://www.sierracollege.edu/museum)



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