Research & Collections News

The Occasional Newsletter of the Research and Collections Staff

Natural History Museum of Los Angeles County

re•search (rī-sûrch′, rē′sûrch) *n*. **1.** Scholarly or scientific investigation or inquiry. See synonyms at **inquiry**. **2**. Close, careful study. **3.** When performed on collections, the *raison d'être* of all great natural history museums.

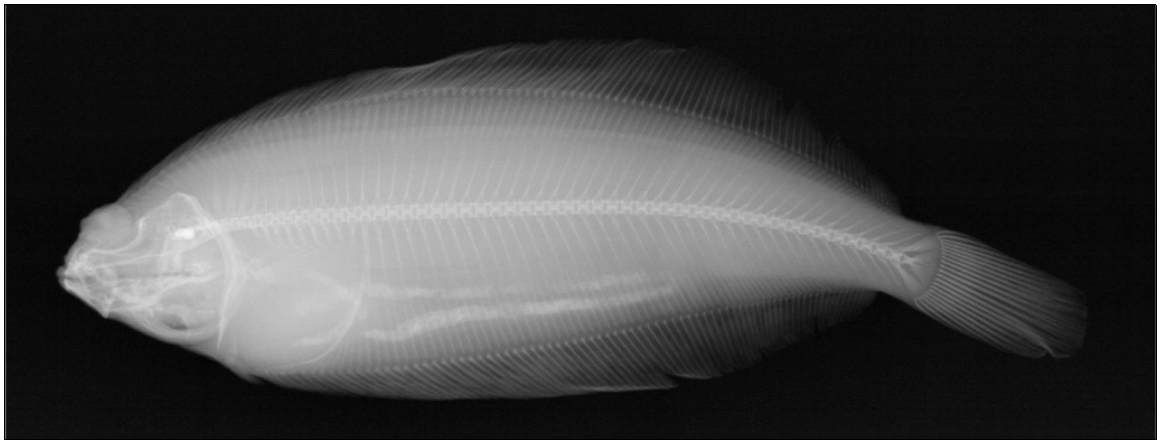
March, 2008

(covering the months of January and February, 2008)

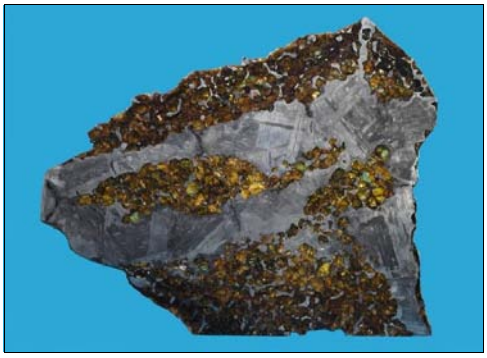
Collection News

Ichthyology

On November 30, 2007, Ichthyology's new NTB GmbH EZ 320 digital x-ray scanner was installed, replacing traditional x-ray film in the Fishes Faxitron X-ray machine. Specimens can now be previewed on a computer screen. When the correct exposure is determined, the specimen is scanned and saved as a TIFF file. The x-ray images are then available for editing in any photo editing program for publication or for sending by email. The scanner eliminates the need for costly and toxic chemicals, dark room space, and time-consuming developing (see photo below)



Mineral Sciences



The Mineral Sciences division recently purchased a large slice of the spectacular meteorite "Seymchan," a 1967 find from eastern Russia. Seymchan is a pallasite, a type of meteorite that consists of large crystals of the greenish mineral forsterite (gem name: peridot) imbedded in a matrix of iron metal. Pallasites are very rare and often quite beautiful.

Iron meteorites are fragments of the cores of small (much smaller than Earth) planets that formed in what is now called the asteroid belt. These planets were broken apart by collisions in the earliest days of the solar system, close to 4.5 billion years ago. Pallasites are pieces of the boundary between the metal core and the rocky mantle of the planets, but they are not strictly analogous to the core-mantle boundary of the earth, as the earth's greater mass means the pressure at the base of the mantle is much higher and the mineral forsterite is not stable.

Vertebrate Paleontology

Samuel McLeod, Gary Takeuchi, Howell Thomas, and Michael Williams have been busily relocating major vertebrate fossil collections that are housed in the basement of the Museum's 1913 Building. It was necessary to relocate these collections to accommodate renovation that is on-going in the 1913 Building. Sam reports that the specimen moves have gone quickly and efficiently, with many thanks to Eduardo Alarcon and Joaquin Solorio from Education who assisted with this move and many thanks also to Karen Wise and Susan Oshima.

During January, staff of Research Casting International in Canada worked with Vertebrate Paleontology employees to pack and ship several of our significant fossil mammal skeletons to make exhibit mounts for the planned Cenozoic Hall in the north wing of the 1913 Building. Specimens include a giant camel, the Simi Valley mastodon, our Sharktooth Hill *Allodesmus* (sea lion), an adult (above) and young sea cow from Santa Cruz, and our iconic rearing horse from Rancho La Brea. When these skeletons return to the Museum, we expect the new mounts to be in dramatic postures, because RCI is the company with which John Harris, Dave Whistler, and Lawrence Barnes worked when we mounted our famous Dueling Dinosaurs that now grace our Museum's Foyer.

Mammalogy

A freshly stranded juvenile gray whale in January meant a new specimen for the Mammalogy collections, but it also presented some interesting research possibilities. While Jim Dines, Dave Janiger (Mammalogy) and Jack Tseng (Vertebrate Paleontology) dissected out the whale's vestigial pelvic bones, visiting researchers Dr. Annalisa Berta and Dr. Tom Demere and two graduate students (all from San Diego State University) worked on the whale's head as part of their research into the anatomy and evolution of feeding in baleen whales.

The Museum's treasured fin whale skeleton has been in storage at the Vernon warehouse since it was dismantled in December 2006 to make way for the renovation of the 1913 building. In February the carefully crated skeleton was transported to the New Jersey studio of Phil Fraley Productions. Working closely with Jim Dines and other Museum staff, Phil Fraley and his team will be restoring the 82-year old skeleton and constructing a new support armature. Current plans call for including the newly articulated fin whale in the renovated Marine Hall, slated for next year. Above right: Crates containing parts of the fin whale skeleton are loaded onto a truck destined for New Jersey.

Dinosaur Institute

When the specimen of *Mamenchisaurus hochuanensis* was acquired by the museum in the 1980's little was known about the skull of these large sauropod dinosaurs. Paleontologists had assumed a diplodocids-type skull. Recent discoveries in China have revealed that this animal had a very different skull, and these finds have thus changed our ideas about the evolutionary relationships of this sauropod. It is now thought that *Mamenchisaurus* was a more primitive sauropod than previously thought.

Above: *Mamenchisaurus hochuanensis* originally on display in the Mesozoic Gallery

Left: Fossil preparator Doyle Trankina is sculpting a new skull for the specimen based on the recent discoveries in China. Later he will mold and cast it for display.

Exhibit fabrication companies New Jersey-based Phil Fraley Productions (in photo) and Canadian-based Research Casting International have been working with Dinosaur Institute staff to de-install, pack and ship twenty large Mesozoic specimens to their facilities for further preparation and mounting in anticipation of the Museum's new galleries. Many of the proposed specimens have never been displayed before.

Dinosaur Institute again

In January, Curator Luis Chiappe joined Jingmai O'Connor for a week of research at the Dalian Natural History Museum (DNHM) in NE China. Their work is part of a long-term collaborative program between the NHM and the DNHM to study a series of 125-120 million-year-old birds that are clarifying the early evolution of birds and their evolutionary connection to meat-eating dinosaurs. This work is also framed within the soon-to-be-effective "Center for Chinese Fossil Discoveries," a joint initiative between the NHM and USC that Luis co-directs.

Field Work

Entomology

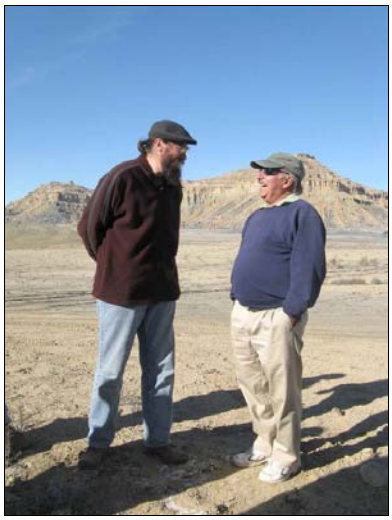
Entomology Curator Brian Brown traveled to Costa Rica from 18-22 February to work with his newly hired parataxonomist, Wendy Porras. He spent two days training her in the identification of phorid flies, and they did field work for an additional two days at the field station "La Tirimbina" in the northern part of the country (at left: the river at La Tirimbina).

Wendy (at right) was trained by the Costa Rican Instituto Nacional de Biodiversidad parataxonomist training program, and for many years she has been collecting and studying a variety of insects throughout Costa Rica. She is a superb naturalist and will be a tremendous help to Brown's work on the biosystematics of New World tropical phorid flies.

Meetings, Workshops, and Presentations

Vertebrate Paleontology

The Annual Meeting of the Western Association of Vertebrate Paleontologists (WAVP) was hosted by the Museum of Northern Arizona (MNA) in Flagstaff on 16 February. Representing our Museum were Gabriel Aguirre, Francisco Aranda, Lawrence Barnes, Aisling Farrell, Vanessa Rhue, Christopher Shaw, and Maureen Walsh, who were greeted by a snowstorm. Three of the talks were based on materials from our Museum, and Gabriel Aguirre-Fernández (graduate student, Universidad Autónoma de Baja California at Ensenada) gave a talk, co-authored by his Committee Members F. J. Aranda-Manteca and L. G. Barnes, entitled "Pliocene Delphinidae (Cetacea, Odontoceti) from the Gulf of California, México; and implications for evolution of the family." Above left is the exterior of the MNA, and at right Francisco Aranda-Manteca (Universidad Autónoma de Baja California at Ensenada and LACM Research Associate) and Lawrence Barnes pose in front of the MNA's mounted skeleton of a therizinosaur.



Following the WAVP meeting, MNA Curator Dr. David Gillettte (pictured at left with Dr. Aranda) led a field trip where participants visited localities in the Tropic Shale of southern Utah that yielded the therizinosaur, mosasaurs, plesiosaurs, and other Mesozoic marine animals. At the Bigwater Visitors Center in Escalante/Grand Staircase National Monument, student Gabriel Aguirre-Fernandez poses (below) in front of a mural interpreting therizinosaurs as having been marine dinosaurs with feather-like skin coverings.

Malacology

On Saturday, January 19th, Lindsey Groves hosted the twelfth annual gathering of the Southern California Unified Malacologists (SCUM) in the Education Classroom. SCUM is an informal association of professional, amateur, and student malacologists and molluscan paleontologists in southern California who are active or interested in research on mollusks. The purpose of the annual gathering is to facilitate contact and keep one another informed of research activities and opportunities. There are no dues, officers, or publications. The 35 attendees included Malacology, Crustacea, and Invertebrate Paleontology staff and associates John Alderson, Hans Bertsch, George Davis, Lance Gilbertson, Lindsey Groves, George Kennedy, Pat LaFollette, Jim McLean, LouElla Saul, Richard Squires, Carol Stadum, Bob Stanton, and Ángel Valdés. Additionally 6 members of the Pacific Conchological Club attended the event including Kathy Kalohi, Phil Liff-Grieff, Bob Moore, Lawrence Mosher, Terry Rutkas, Shawn Wiedrick. SCUM XIII will be hosted by Ángel Valdés at Cal Poly Pomona in January of 2009.

Crustacea

Jody Martin, Dean Pentcheff, and Regina Wetzer attended the Society for Integrative & Comparative Biology Meetings from January 2-7 in San Antonio, Texas. Jody hosted the 2-day NSF-funded "Advances in Decapod Crustacean Phylogenetics" Symposium and Workshop. The three-day invent attracted specialists on crabs, shrimps, lobsters, and their relatives from as far away as China, Singapore, Germany, and Australia. These scientists came together to discuss and organize our knowledge about the 15,000+ described species of decapod crustaceans. Dean gave two talks: “Growing the decapod tree of life: making systematic information globally available” and “ATOL Decapoda: The literature subproject” (N. D. Pentcheff, R. Wetzer, and J. W. Martin). Regina presented a paper entitled "The evolutionary relationship of gall crabs (family Cryptochiridae) and their placement within the Brachyura" (R. Wetzer, S. L. Elwell, and J. W. Martin).

External Funding

Dinosaur Institute

Graduate-student-in-residence Alyssa Bell received a student research grant of $2000 from the Department of Earth and Planetary Sciences at USC. This grant will help fund a summer field expedition to Carter County, Montana, that she is planning in conjunction with the Dinosaur Institute. Congratulations Alyssa!

Public Outreach

Dinosaur Institute

Dinosaur Institute staff have been working closely with the exhibits department and consultant exhibit design companies in preparation of the new *T. rex* lab, providing labor, content, images and specimens for the space. This exciting new public-viewing lab is due

to open at the end of March. They have also collaborated with the Education department in providing content for the dinosaur puppets that will be seen roaming around the museum starting in April.

Invertebrate Paleontology

Harry Filkorn, Invertebrate Paleontology, displayed many spectacular invertebrate fossils and talked with visitors during the "Fantastic Fossil Invertebrates" tours on Saturday, February 23, 2008. These tours were part of the ongoing Museum Membership program, Scavenger's Safari, organized by Carla Calavitta, Director of Membership, and accompanied by Membership associates Patti Stoltenberg and Christina Gonzalez. Everyone was thrilled to see some of the Museum's rarest and most unusual fossils up close, including some trilobites that are 500 million years old!

Polychaete worms

Kirk Fitzhugh, Curator of Polychaetes, presented two two-hour talks on 20 February to AP biology classes at Redondo Union High School on the subjects of science, evolutionary biology, and intelligent design. Their teacher, Mary Simun, is also a volunteer at the Page Museum.

Right: Future mad scientists from one of the AP biology classes in which Kirk Fitzhugh presented talks on science, evolution, and intelligent design.

Crustacea

The USC College of Letters, Arts, and Sciences is highlighting the Museum Work Study Program. Anita Rai, a USC senior who is currently working in Crustacea, was interviewed for the program. A video featuring Anita at work in the Museum and interviews with Regina Wetzer, Dean Pentcheff, and Katie Fiedler has been released on the popular "YouTube" site at: http://www.youtube.com/watch?v=Tm99OnlLkog.

The publicity about the Work Study Program and our mentoring of students will most certainly increase awareness of Museum staff's involvement with USC students and the research and collection work at the Museum. A professional photographer is guaranteed to have gotten some nice photos of Anita at work in the Museum for an article that will appear in the May 2008 issue of USC's "Research Matters" newsletter.

Malacology

As part of the Weekend Programs series at LACM, Lindsey Groves presented *Late Cretaceous faunas of Silverado Canyon and environs, Santa Ana Mountains, Orange*

County, California on Sunday February 10th , which coincided with the monthly meeting of the Pacific Conchological Club. This presentation focused on the history of paleontological research in the Silverado Canyon area, the geological setting, and the invertebrate fossils that are commonly collected on the biannual trips led by Lindsey and LouElla Saul. The next trip will be on Saturday, May 10th, 2008.

Student Mentoring and Research

Vertebrate Paleontology

Gabriel Aguirre-Fernández (right), a graduate student in Ciencias Marinas at the Universidad Autónoma de Baja California at Ensenada, spent the latter part of February studying in the Department of Vertebrate Paleontology. His Masters Thesis, about the evolution of dolphins in the Gulf of California, involves specimens in our collections and other specimens that were collected during cruises of the Gulf of California during the Museum Members' Travel Programs, and which are now conserved in Mexican institutions.

Dinosaur Institute

Scientific Illustrator Stephanie Abramowicz traveled to New York to participate in a week long internship on scientific photography with Mick Ellison, senior principal artist in the division of Paleontology at the American Museum of Natural History. The training covered the technical aspects of creating professional, quality images for scientific publications, from the initial captures through post processing, as well as a broad overview of several digital photographic systems, including studio setups.

In January, Graduate-student-in-residence Alyssa Bell visited natural history museums at the Universities of Kansas and Nebraska, as well as the Sternberg Museum of Natural History in Fort Hays, Kansas. Alyssa is working on a group of Cretaceous diving birds known as Hesperornithiformes. She measured specimens and gathered morphological data from these museum collections for her dissertation.

Left: Illustration of *Hesperornis* by Stephanie Abramowitz

Distinguished Visitors

Vertebrate Paleontology

Dr. R. Ewan Fordyce (right), Professor at Otago University in New Zealand, visited our Department in January, and he and Lawrence G. Barnes made progress on collaborative research on several groups of fossil cetaceans. Dr. Fordyce has co-authored with Dr. Barnes several articles, notably global reviews of cetacean evolution.

Malacology

Carla Stout (Cal Poly Pomona) visited Malacology twice to use the nudibranch collection and use the SEM for her thesis research; Robyn Stuber (US EPA) returned loans made when she was a grad student at UC Berkeley; Jack Burch (Univ. Michigan) spent parts of two days examining the Malacology holdings of the freshwater gastropod genus *Physa*; and Debbie Roman (CSUN Anthropology) utilized the chiton collection for comparison to specimens collected from middens in Baja California for her thesis research.

Vertebrate Paleontology(again)

During the last two weeks of February, Dr. Francisco J. Aranda-Manteca (left) of the Department of Ciencias Marinas at the Universidad Autónoma de Baja California, México, visited the Department of Vertebrate Paleontology. His time here allowed Dr. Aranda and Dr. Lawrence Barnes to continue their collaborative research describing a new species of gigantic fossil paleoparadoxiid desmostylian from the area of La Misión, Baja California, and a new species of small Middle Miocene pinniped from the Vizcaino Peninsula in Baja California Sur.

Mammalogy

In January Dr. Ewan Fordyce, University of Otago, New Zealand stopped in Los Angeles to visit the Museum's collections and staff. Fordyce is pictured discussing the anatomy of porpoise skulls with Jim Dines. The Natural History Museum of LA County is one of only a few institutions in the world to possess examples of all 6 modern porpoise species, making such side-by-side comparisons possible.

Mizuki Murakami, Waseda University, Tokyo, spent several days in January examining modern whale specimens at the marine mammal lab as part of his dissertation research.

In February Gabriel Aguirre, a graduate student from Universidad Autónoma de Baja California at Ensenada, Mexico, spent several days at the marine mammal lab using our extensive collection of toothed whale specimens. Gabriel is studying the evolutionary history of dolphins in the Gulf of California.

Crustacea

Dr. Frederick Schram, Burke Museum, University of Washington, and current editor of the Journal of Crustacean Biology, visited the Crustacea Section in early March.

Recent Publications

Chinsamy, A., L. Codorniu´ and L. **Chiappe**. 2008. Developmental growth patterns of the filter-feeder pterosaur, *Pterodaustro guinazui.* Biology Letters.

Feeney, R. F. and C. C. Swift. 2008. Description and ecology of larvae and juveniles of three native cypriniforms of coastal southern California. Ichthyological Research, 55 (1): 65-77.

Fitzhugh, K. 2008. Fact, theory, test, and evolution. *Zoologica Scripta* 37: 109-113.

Friscia, A. R., B. van Valkenberg, L. Spencer and J. M. **Harris**. 2008. Chronology and spatial distribution of large mammal bones in Pit 91, Rancho La Brea. *Palaios*, 23: 35-42.

Haynes, P. E., and **Kampf**, A. R. 2008. Minerals of the Singer mine, Goodsprings district, Clark County, Nevada. *Rocks and Minerals* 83, 65-69.

Kampf, A. R. 2007. Namibian diamond mining by Namdeb (in Gem News International). *Gems & Gemology* 43, 367-370.

Ray, C.E., D.J. Bohaska, I.A. Koretsky, L.W. Ward, and L.G. **Barnes**, editors. 2008. Geology and Paleontology of the Lee Creek Mine, North Carolina, IV, Special Publication of the Virginia Museum of Natural History, 14:i-x, 1-517.

Whitmore, F.C., and L. G. **Barnes**. 2008. The Herpetocetinae, a new subfamily of extinct baleen whales (Mammalia, Cetacea, Cetotheriidae), In: C.E. Ray, D.J. Bohaska, I.A. Koretsky, L.W. Ward, and L.G. Barnes, editors, Geology and Paleontology of the Lee Creek Mine, North Carolina, IV, Special Publication of the Virginia Museum of Natural History, 14:141-180.

Staff Departures and New Staff

Malacology

Malacology welcomed new volunteer Robert Moore (recently retired from teaching high school biology) who is helping curate backlogged material collected by Jim McLean. Volunteer Robert Sinclair has returned to Malacology to re-curate the vast holdings of the bivalve family Pectinidae (scallops and kin). Both Bob's were recruited as volunteers via the Pacific Conchological Club, which meets at LACM.

Vertebrate Paleontology

Michael Williams (right) has been hired on the 1913 Building Project budget to assist in collections transfers that are necessary to accommodate construction, remodeling, and occupancy of new spaces and also on the New Museum Project budget to assist with the new Cenozoic Hall exhibit. Mike is currently also working toward his Doctorate Degree in paleoherpetology at Louisiana State University. Samuel McLeod (Vertebrate Paleontology Collections Manager) is raving about the progress that is being made with the collections moves, thanks in large part to Mike's efforts.

Vanessa Rhue (left) has been hired to assist Gary Takeuchi and Maureen Walsh in the preparation of our skeleton of a paleoparadoxiid desmostylian that we plan to exhibit in the new Cenozoic Fossil Hall. Paleoparadoxiids are an extinct group of amphibious, herbivorous marine mammals that lived exclusively in the North Pacific Ocean, and the photo at right shows our very important skeleton of one of these strange beasts that was collected in the Late Miocene Monterey Formation in Orange County. For a sense of scale, the skull, at top center in the skeletal slab with its snout pointed to the left, is nearly two feet long.

Dinosaur Institute

With preparation of fossils for the new dinosaur gallery (as part of the 1913 building project) in full swing, several new staff members have joined the museum over the last few months.

Left: Fossil preparator Paige Johnson prepares a block of ~220 million-year-old *Coelophysis* specimens. This small carnivorous dinosaur that stood about 1.5m tall was originally discovered in the late 1880's, but the largest accumulations of these creatures were discovered in New Mexico in the 1940's. This block is from those discoveries and is planned to go on exhibit in the new dinosaur gallery.

Right: Fossil preparator Karin Rice is working on a Triassic phytosaur snout from Petrified Forest National Park collected in the 1920's. Phytosaurs were a group of reptiles similar to modern crocodiles that lived from ~250mya – 200mya.

Below left: Fossil preparator Karl Urhausen is molding some of the teeth of the *T. rex* "Thomas." Below right: Fossil preparator Robert Cripps is carefully removing matrix from a portion of a *T. rex* vertebra.

Left: Fossil preparator Leann Moore is helping to restore a phytosaur skull recently moved from our storage area to the lab. Parts of the skull are real fossil but much of it was sculpted out of clay in the 1930's.

Marine Biodiversity Processing Center

The Biodiversity Synthesis Center, a component of the Encyclopedia of Life (EOL) project based at the Field Museum of Natural History in Chicago, snatched away our beloved Darolyn Striley, Curatorial Assistant in the MBPC. The Biodiversity Synthesis Center is committed to accelerating the pace of scientific discovery in biodiversity and evolution, developing new tools for the exploration of life, and providing a meeting place for asking and answering large-scale questions about the biodiversity of life. This is a fabulous opportunity for Darolyn, and a tremendous loss for us. We wish her well.

Miscellaneous

Dinosaur Institute Award

Luis Chiape's book *Dinosaur Eggs Discovered!* 21st Century Books (Dingus, L., Chiappe, L. M., and R. A. Coria) received two awards. The first one was for the 2008 Science Books & Films Prize for Excellence in Science Books, a distinction sponsored by the American Association for the Advancement of Science (AAAS) presented at their February meeting in Boston, and the second was awarded by the National Science Teachers Association (NSTA). Congratulations, Luis!

Dinosaur Institute again

Luis Chiappe, Karen Wise and Jane Pisano met with Matt Lamanna and Lowell Dingus from the Carnegie Museum of Natural History and the American Museum of Natural History, respectively, in a round table discussion about the proposed 'Age of Dinosaurs' Gallery. The two day meetings held in January were very successful as new ideas and plans were discussed. As the exhibit design unfolds more meetings will be held.

The R & C Newsletter is issued 5 times per year, in January, March, May, September, and November, by the Research and Collections staff of the Natural History Museum of Los Angeles County. Currently the Newsletter is compiled and edited by Dr. Joel W. Martin, Curator of Crustacea and Chief of the Division of Invertebrate Studies. All issues of the Newsletter can be found on the web at: http://collections.nhm.org/newsletters