

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.

January, 2007

(covering the months of November and December, 2006)

Collection News

Mineralogy

The David Eidahl Mineral Collection

The Mineral Sciences Department is pleased to announce the donation of a portion of the David Eidahl Mineral Collection by Duane and Charlotte Eidahl, parents of the late collector. The Eidahls have placed the remainder of the collection on loan to the museum with the intent of donating the entire collection in installments in coming years. They have made clear their desire to keep the collection together and to make it available for the enjoyment of the public in their son's memory.

David Eidahl's untimely death from a cerebral aneurism in 1982 at the age of 26 shocked and saddened the mineral collecting community, locally and around the world. David grew up in Los Angeles and began collecting minerals at an early age. He graduated from Pacific Palisades High School in 1974 and, while attending Pepperdine University in Malibu, he began working part-time for Pala International in Fallbrook, California. He became a full-time employee in 1976 and by the time of his death had become director of mineral sales and purchases for the company and its shop "The Collector."

His intense love for minerals and sophisticated appreciation for mineral aesthetics helped him to become the youngest major mineral collector and dealer of his time. In a very short time span, he assembled a world-class collection of fine mineral "miniatures." At the 1980 Tucson Gem & Mineral Society Show, he won the coveted Ed McDole Memorial Trophy for "best rocks in the Show," as well as the Walt Lidstrom Memorial Award for the best individual mineral, an exquisite crystallized gold from the Colorado Quartz mine in Mariposa County, California.

David Eidahl Collection



Epidote
Knappenwand, Austria



Elbaite
Golconda mine, Brazil



Silver
Kongsberg, Norway



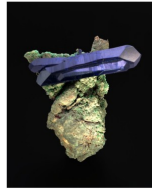
Wulfenite
Tsumeb, Namibia



Fluorapatite
Panesquiera, Portugal



Rhodochrosite
Hotazel, South Africa



Azurite
Tsumeb, Namibia



Aquamarine
Minas Gerais, Brazil



Torbernite
Kolwezi, Dem. Rep. of Congo



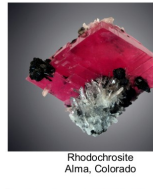
Bourtonite
Herodsfoot mine, England



Azurite
Bisbee, Arizona



Calcite
Pallafat mine, England



Rhodochrosite
Alma, Colorado



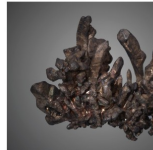
Siderite
Alleverd, France



Diopside
Tsumeb, Namibia



Gold
Colorado Quartz mine, California



Silver
Houghton County, Michigan



Goshenite
Itatiaia, Brazil



Peridot
St. John's Island, Egypt



Gold
Massachusetts Lode, California



Silver
Kongsberg, Norway



Hematite
Cavradi, Switzerland



Silver
Dos Cabezas, Mexico



Boleite
Santa Rosalia, Mexico



Elbaite
Isle of Elba, Italy



Topaz
Urals, Russia



Heliodor
Minas Gerais, Brazil



Phosphophyllite
Potosi, Bolivia



Ferro-axinite
Bourg d'Oisans, France



Fluorapatite
Knappenwand, Austria



Fluorite
Gosheneralp, Switzerland



Jeremejevite
Cape Cross, Namibia

David's collection is not large in number, consisting of 32 specimens, and the largest specimen, a gemmy aquamarine crystal, is a mere 90 mm in length; but it has been said that each and every piece in the collection approaches perfection. The collection is especially rich in old classics, such as a dramatic stacking of epidote chevron twins from Knappenwand, Austria, elegant specimens of both crystallized and wire silver from Kongsberg, Norway, a remarkable cluster of large, lustrous azurite crystals from Bisbee, Arizona, and a group of fine gold crystals from the Massachusetts Lode in Grass Valley, California, that was one of the "Famous 25" specimens originally in the collection of William Sansom Vaux (1811-1882). Contemporary masterpieces are also well represented by such wonderful pieces as a 60mm-long deep blue crystal of jeremejevite

from near Swakopmund, Namibia, and a gemmy cherry-red rhodochrosite crystal from the N'Chwaning #2 mine, Kuruman, South Africa. Every specimen provides the viewer with a unique visual delight and a new appreciation for the best that the mineral world has to offer. Photographs of the collection (on the preceding page) were taken by Tony Kampf.

David relished sharing his love of minerals and took it upon himself to give other young collectors a hand, as exemplified by a guest editorial that he wrote for the *Mineralogical Record* in 1977 (Vol. 8, p. 426) entitled "Helping the New Collectors." It is in this context that it is especially appropriate that his collection will be on display in the Natural History Museum of Los Angeles County, where it will provide encouragement and inspiration to many generations of mineral collectors to come.

Mammalogy

Elephant Tusks from Dr. William Cherry

A magnificent pair of African elephant tusks was gifted to the Museum in November by Dr. William Cherry. The tusks were collected in 1897 by Cherry's grandfather, William Stamps Cherry, who spent 8 years exploring the remote jungles of central Africa and amassing an excellent collection of ethnographic artifacts. Each tusk measures over 7-1/2 feet in length and weighs more than 160 lbs. The trophy tusks and the ethnographic collection actually comprised a prominent exhibit in the earliest years of the LA County Museum. The donation of the tusks was one of the museum accessions featured in a recent Los Angeles Times article (link to story is below). To see the tusks, check out image number 11 in the photo gallery that accompanies the article.

<http://www.calendarlive.com/galleriesandmuseums/cl-ca-stuff24dec24,0,7098824.story>

Entomology

The family of the late local entomologist Robert Crandall has donated his insect collection to the museum. Numbering about 70,000 specimens, the Crandall collection is notable for its large holdings of smaller insects, and thus is not dominated by large showy (and overrepresented in collections) butterflies. The collection is worldwide in scope, but with concentration on southern California (especially the San Gabriel Mountains) and Madera Canyon, Arizona. Particularly impressive are the large number of specimens of giant flower-loving flies, including species now threatened with extinction.



Some of the Giant Flower-Loving flies from the Crandall collection.

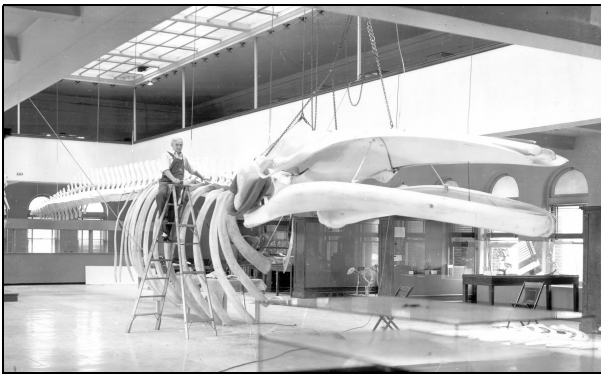
Mammalogy

Continued 1913 and New Museum Project

To accommodate the renovation and retrofit of the 1913 building, the iconic fin whale skeleton that long resided in the building's North Wing has been removed from display. Phil Fraley Productions, an exhibit company specializing in the fabrication and handling of large museum specimens, was contracted to do most of the work. It took nearly 3 weeks to carefully disarticulate and lower the suspended skeleton, meticulously catalog and crate the individual elements (bones),



and transport the skeleton to the museum's marine mammal warehouse for storage. The museum acquired the fin whale (*Balaenoptera physalus*) from the Trinidad, California whaling station in 1926. It took museum osteologist Eugene Fischer several years of painstaking cleaning, preparation and assembly before the articulated skeleton was finally placed on exhibit in 1944. At the time the North Wing was known as the Modern Skeleton Hall. The prepared skeleton was more than 70 feet long and weighed in at approximately 7,000 pounds. It represented one of the best and most complete large whale articulations on exhibit in the world.



Eugene Fischer, Museum Osteologist, assembling the fin whale skeleton.

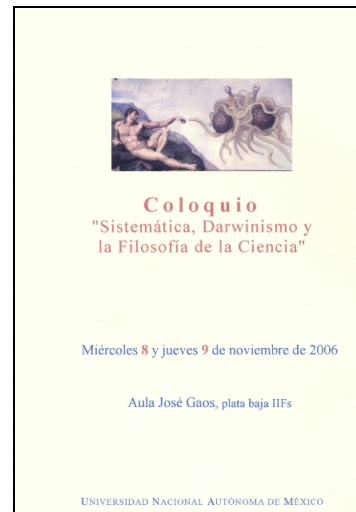
Vertebrate Paleontology

Related to the Museum's 1913 Building renovation, it became necessary to place into storage the world-famous Charles Knight mural of Rancho La Brea, which has for several years been exhibited in the Hall of Cenozoic Life. Sam McLeod, Howell Thomas, Gary Takeuchi, and Larry Barnes have re-configured the fossil mammal skeletons that are exhibited in the Hall of Cenozoic Life. One can now find clusterings of skeletons that demonstrate the diversity of life during Oligocene time in the central part of the United States, and the evolutionary diversity in North America of camels, of rhinoceroses, and of horses. The diversity, quality, and subject matter of fossil mammal skeletons that are exhibited in this hall have no parallels among other museums, and the hall is frequently used by science class field trips from area schools.

Meetings, Workshops, and Presentations

Polychaete Worms

Kirk Fitzhugh, Curator of Polychaetes, was an invited speaker to the international colloquium, '*Sistemática, Darwinismo y la Filosofía de la Ciencia*,' held at Instituto de Investigaciones Filosóficas, UNAM, Mexico City, from 8-10 November (see at right). He presented the talks "The Abduction of Biological Systematics Hypotheses" and "The Myth of Phylogenetic Hypothesis Testing." Other speakers included Dr. Paul Griffiths, University of Queensland, Australia; Dr. Olivier Rieppel, The Field Museum of Natural History, Chicago; Dr. David Williams, The Natural History Museum, London.



External Funding

Mammalogy

Jim Dines received a contract renewal from NOAA for \$5,000.00 to process and archive marine mammal specimens for the National Marine Fisheries Service. In addition to preparing and archiving skeletal and soft tissue specimens for future analyses, mammalogy staff provide NOAA scientists with important life history data collected from those specimens. Most of what we know about the biology of dolphins and whales is a result of programs like this and the museum's Marine Mammal Stranding Program.

Vertebrate Paleontology

In December, Xiaoming Wang, along with several Chinese colleagues, was awarded a grant of 2,000,000 Chinese Yuan (~\$250,000) from the Chinese Academy of Sciences. The title of this grant is "Mammalian Evolution and Biochronologic Frameworks in the Neogene of North China." The grant is in support of field work in various late Cenozoic localities in northern China.

Public Outreach

Polychaete Worms

Kirk Fitzhugh, Curator of Polychaetes, presented a talk regarding his research to the Museum's Alliance Board lunch on 1 November, followed by a tour of the polychaete collection. Dr. Fitzhugh also conducted tours of the polychaete collection during December for the invertebrate zoology class from Cal State Northridge, and for biology classes from L.A. International Charter High School.

Invertebrate Paleontology

Harry Filkorn, Invertebrate Paleontology, displayed many spectacular ammonites and talked with visitors during the "Amazing Ammonites" tours on Saturday, December 16, 2006. These tours were part of the Museum's ongoing series of Members' Safaris, organized by Kristina Windmiller, Membership, and led by Heather Saunders, Education. Everyone was excited to see these ammonites up close and meet the Museum's invertebrate paleontologist. Some visitors were impressed enough to have their pictures taken along with an ammonite!

Adventures in Nature

As always, R & C was very heavily involved with the winter Adventures in Nature program. Among other R & C contributions, Kirk Fitzhugh (Polychaete Worms) and Cathy Grove (Echinoderms) presented talks based on their respective collections for the "Creatures of the Deep" program on December 29. Jeff Seigel (Ichthyology) led a tour for 6-8 graders on "Mysteries of the Deep Sea." Jeff showed the kids examples of deepsea fishes, including anglerfishes and bioluminescent sharks, and told them about the variety of adaptations found in fishes that live in midwaters and the deep ocean. Jim Dines (Mammalogy) gave a behind-the-scenes tour to kindergarteners taking the "Winged Things" Winter AIN class. In addition to discussing how bats compare with other flying animals, the presentation featured examples of several different bat species and their various adaptations for securing food.

Ornithology

Kimball Garrett was interviewed recently on Larry Mantle's Air Talk program on local public radio station KPCC, with the program airing on November 27. Kimball discussed birding in the Los Angeles area and his new book on birds of Los Angeles (see the November R & C Newsletter). You can listen to Kimball's interview by going to:

http://www.scpr.org/programs/airtalk/listings/2006/11/airtalk_20061127.shtml.

Community Involvement

On Saturday November 4, the museum's Executive Board Room was the site for the final selection committee meeting for Los Angeles State Historic Park, the future CA State Park that will be located in the old Southern Pacific Freight and Passenger Yard in downtown (also known as the Cornfield), near Chinatown and Dodger Stadium. In addition to creating open space and playing areas in neighborhoods with little of either, the future park will be a place to engage both nature and culture, creating a regional gathering space around the theme of a larger, more diverse L.A. history that re-connects the city to the Los Angeles River. Dr. Pisano joined the group to offer a formal welcome to the museum. In a day-long meeting, the committee – composed of business and community leaders and elected officials (see photo below) – selected Hargreaves Associates of San Francisco as the winning design team. William Estrada, Curator of History, also was a member of the selection committee. The committee submitted their

recommendation of Hargreaves Associates to California State Park's Director, Ruth Coleman; it was accepted and announced to the public on November 17, 2006.



Selection Committee Photo (from left-to-right): William Estrada, Curator of History, Natural History Museum of Los Angeles County; Charles Woo, CEO of Mega Toys and Chairman of the Los Angeles Chamber of Commerce; Assemblymember Jackie Goldberg, 45th Assembly District; Robert Hertzberg, former Speaker of the California State Assembly; Clare Marter Kenyon, Chair of City of Los Angeles' Community Forest Advisory Community; Bruce Saito, Executive Director of the Los Angeles Conservation Corps; Julie Eizenberg, founding Principal of Koning Eizenberg Architecture; The Honorable Paul Junger Witt, (Committee Chair); Barbara Romero, Director of Urban Projects for the Mountains Recreation and Conservation Authority; Ruth Coleman, Director of California State Parks; Charles R. Jordan, Chairman of the Conservation Fund and Director of Parks and Recreation of Portland, Oregon.

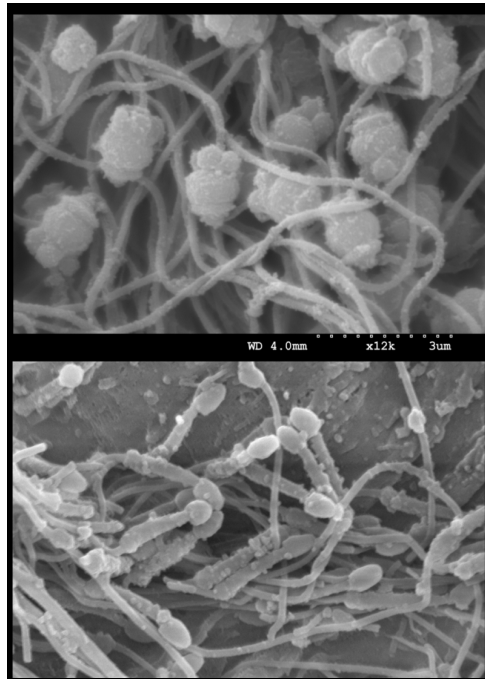
Student Mentoring and Research

Polychaete Worms

Kirk Fitzhugh, Curator of Polychaetes, has been a member of the Ph.D. committee for Ms. Maria Ana Tovar, in Chetumal, Mexico, at El Colegio de la Frontera Sur. Dr. Fitzhugh participated in Ms. Tovar's dissertation defense during December, which she successfully passed. Her research has dealt with the systematics of the fan worm genus *Chone*, a notoriously difficult group with a world-wide distribution. Ms. Tovar's dissertation is the first large-scale revision of this group.

Also in Polychaetes, over the holiday season two junior high school students from South Pasadena assisted Kirk Fitzhugh with his scanning electron microscopy research on sperm morphology of several new species of the polychaete genus *Laonome*.

Sperm morphology has become an important part of research on the phylogenetic systematics and ecology of fan worm polychaetes. The photos here were taken with the museum's scanning electron microscope by Kirk Fitzhugh, with the assistance of the two junior high students noted above. They show the very different sperm cells of members of two new species of *Laonome*, both from the same habitat along the east coast of Florida. It has been found that sperm shape is strongly correlated with larval development: spherical-shaped sperm (upper photo) are produced by individuals that have planktonic, free-swimming larvae, while elongate sperm (lower photo) are produced by individuals that brood larvae within their tubes.



Vertebrate Paleontology

Nicholas D. Pyenson, a graduate student in Paleontology and Integrative Biology at the University of California Berkeley, has been named as a Graduate Student In Residence in Vertebrate Paleontology. For his Doctoral Dissertation, Nick is making extensive use of our Museum's important fossil collections from the 15 million-year-old fossil beds at Sharktooth Hill in central California, with special reference to the whales and dolphins that are found in that middle Miocene age deposit.

Distinguished Visitors

Crustacea and Polychaetes

In November, the Crustacea lab, along with Leslie Harris, Collection Manager of Polychaetes, played host to Dr. Sammy De Grave from the Oxford University Museum of Natural History. Dr. Grave, an expert on the systematics and evolution of caridean shrimp, was here working on the decapod crustacean Tree of Life grant, on which he is a collaborator.

Recent Publications

- Kampf, A. R.**, Steele, I. M., and Jenkins, Robert A. (2006) Phosphohedyphane, $\text{Ca}_2\text{Pb}_3(\text{PO}_4)_3\text{Cl}$, the phosphate analogue of hedyphane: description and crystal structure. *American Mineralogist* 91: 1909-1917.
Phosphohedyphane, $\text{Ca}_2\text{Pb}_3(\text{PO}_4)_3\text{Cl}$, a new mineral from the Capitana mine, Copiapó, Atacama Province, Chile, is an ordered intermediate phase in the pyromorphite – chlorapatite series. This study included the complete description of the mineral, the determination of its atomic structure and a chemical analytical survey of specimens identified as pyromorphite from numerous world localities. The latter showed phosphohedyphane to occur at 18 localities worldwide and indicated a complete solid solution in natural systems between pyromorphite and phosphohedyphane, but none between phosphohedyphane and chlorapatite. These findings may have important implications for the use of apatite to reclaim lead-contaminated waters and soils.
- Kung, G.** and **B. Brown.** 2006. Review of the Caribbean species of *Dohrniphora* Dahl (Diptera: Phoridae). *Journal of Natural History.* 40: 1931-1945.
- Martin, J. W.**, and **G. E. Davis.** 2006. Historical trends in crustacean systematics. *Crustaceana* 79 (11): 1347-1368.
An examination of the rates of discovery of new species of crustaceans over time, showing that we have not slowed down at all in our discovery and descriptions of new species.
- Squires, R.L., **Groves, L.T.**, & Smith, J.T. 2006. New information on molluscan paleontology and depositional environments of the upper Pliocene Pico Formation, Valencia area, Los Angeles County, southern California. *Natural History Museum of Los Angeles County Contributions in Science* 511:1-24, figs. 1-23.
Wildfires in October 2004 exposed outcrops of the Pico Formation that had not been examined in any detail in over 50 years, which allowed us to differentiate and properly assign the correct formational name for marine strata in the Santa Clarita and Simi valley areas. Several species of mollusks not previously reported from the Pico Formation have been documented and several species have been reassigned to proper genera.
- Witzke, T., Kolitsch, U., Krause, W., Wiechowski, A., Medenbach, O., **Kampf, A. R.**, Steele, I. M., and Favreau, G. (2006) Guanacoite, $\text{Cu}_2\text{Mg}_2(\text{Mg}_{0.5}\text{Cu}_{0.5})(\text{OH})_4(\text{H}_2\text{O})_4(\text{AsO}_4)_2$, a new arsenate mineral from the El Guanaco Mine, near Taltal, Chile: Description and crystal structure. *European Journal of Mineralogy* 18: 813-821.

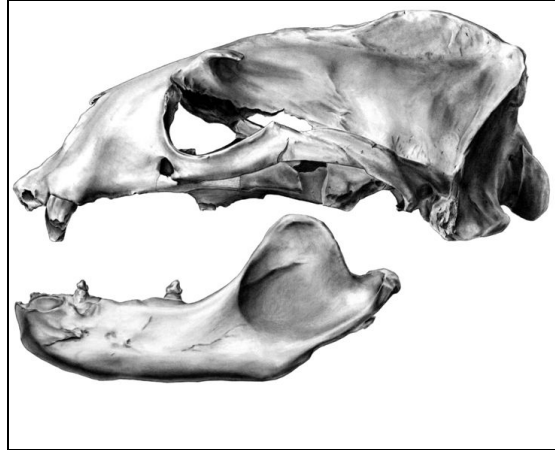
Miscellaneous

Vertebrate Paleontology

Larry Barnes' review and phylogenetic analysis of a group of cetaceans called the Platanistoidea is being published in a special festschrift volume of the Austrian journal, *Beitrag zur Paläontologie*, that honors Dr. Gudrun Hock upon the occasion of her

retirement. Larry's chapter includes naming a new family of dolphin-like toothed whales that lived in the North Pacific Ocean basin from about 22 to 10 million years ago. Our Museum has several outstanding fossil specimens that represent this group of amazingly long-snouted Miocene cetaceans.

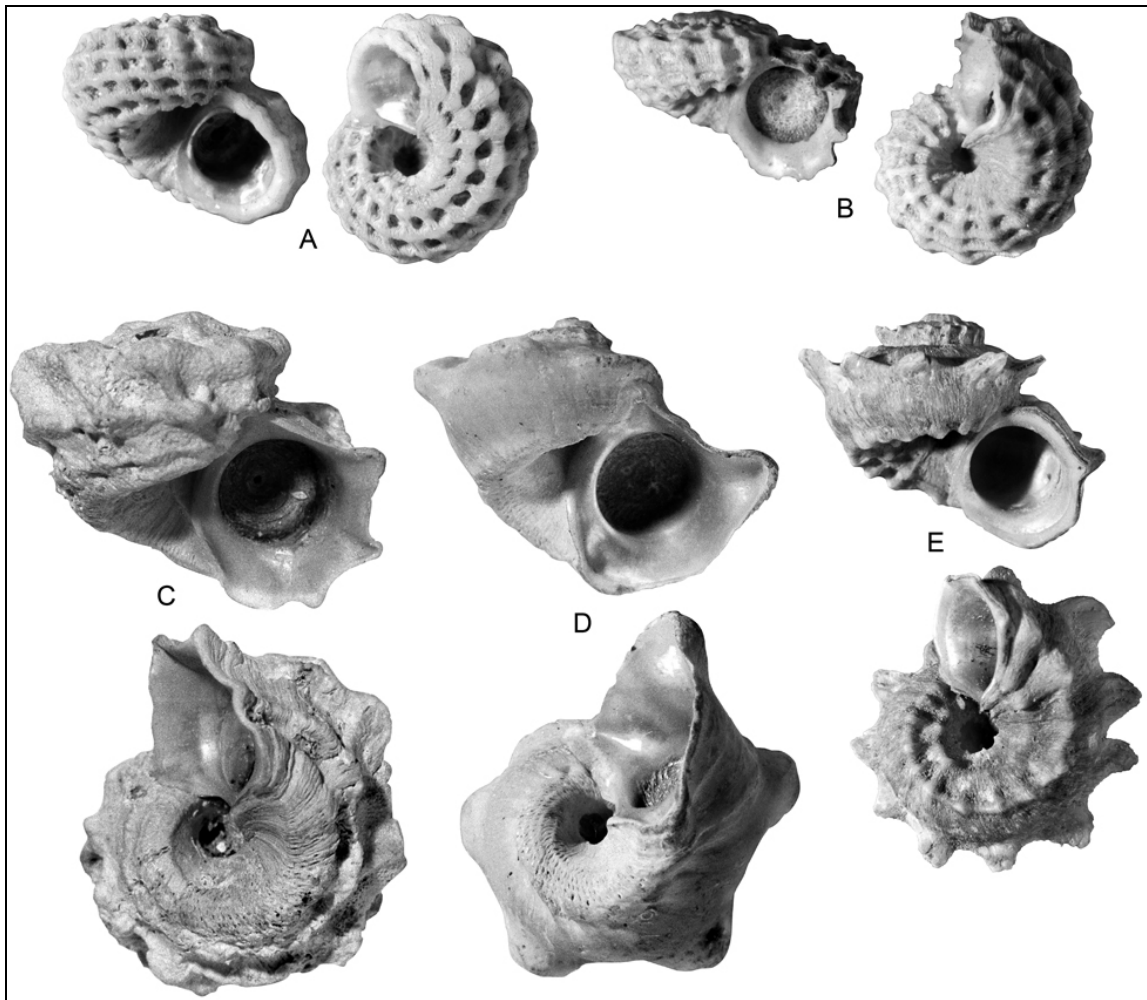
Larry is also co-author, with Clayton Ray (Smithsonian Institution) and Irina Koretsky (Howard University), of a chapter in a special Romanian festschrift honoring Dr. Dan Grigorescu on the occasion of his retirement. In this chapter, a new genus and species of sea lion is named from a 3 to 4 million-year-old Pliocene age deposit that is exposed on the coast of Oregon at Cape Blanco. This new sea lion is related to the living but endangered Northern, or Steller, Sea Lion. The phylogenetic analysis in this study, the first ever attempted for the sea lions, adds weight to ideas that the world's various living sea lions have relatively recently diversified, and that the northern and southern hemisphere species represent groups that became separated during Pleistocene ("Ice Age") climatic fluctuations. In the same volume, Larry is co-authoring with Dr. Koretsky a chapter about the evolutionary development and historical biogeography of all fossil and living sea lions, seals, and walruses.



The skull of a new species of fossil sea lion from deposits on the coast of Oregon at Cape Blanco. This is the only known skull and lower jaw of this fossil relative of the Northern, or Steller, Sea Lion that now lives in the North Pacific Ocean and is endangered, apparently by over-fishing of its prey food.

Malacology

Emeritus Curator Jim McLean reports that plate preparation for his book *Shelled Benthic Gastropoda of the Northeastern Pacific (British Columbia to Central Baja California)* is progressing well. With the help of imaging assistant Brian Koehler, images cleaned in Photoshop and captions for each, which until now had been separately stored, are now being combined and embedded together so that the caption is printed with the working version of the plate. Approximately 1500 species are treated. Half of the nearly 300 anticipated plates are complete but are still subject to editing. A sample plate is shown on the following page.



Above: Figure 24. LIOTIIDAE. **A.** *Liotia fenestrata* Carpenter, 1864, intertidal, La Jolla, California (LACM 62-17.32), height 3.3 mm. **B.** *Macrarena cookeana* (Dall, 1918), 24 m, Twelve Fathom Bank, off Isla Natividad, Baja California (LACM 71-165.11), height 3.9 mm (juvenile shell). **C.** *Macrarena cookeana*, 18 m, W end San Clemente Island, California (LACM 152949), height 20.9 mm. **D.** *Macrarena californica* (Dall, 1908), 207 m, Isla Guadalupe, Baja California (USNM 110662, holotype), height 15.0 mm. **E.** *Turbinoliotia* [n.g.] *farallonensis* (A. G. Smith, 1952), 64 m, Santa Rosa Island, California (LACM 41-197.2), height 8.6 mm.

R&C Seminar Series Winter/Spring 2007

Tuesday, January 16, 2007

Dr. Jeffrey Crelinsten - The Impact Group, Toronto
"Einstein's Jury: The Race to Test Relativity."

Thursday, February 1, 2007

Dr. Donald Prothero - Professor of Geology, Occidental College
"Global Catastrophes and Mass Extinctions: Out with a Bang or a Whimper?"

Thursday, February 15, 2007

Dr. Brian Brown and Dr. Paul Smith - Entomology, Natural History Museum; and California State University, Bakersfield
"Bee-Killing Flies: Joint Investigations of Behavior, Morphology and Molecules."

Thursday, March 1, 2007

Dr. Larry Barnes - Vertebrate Paleontology, Natural History Museum
"New Fossil Discoveries Relating to the Evolutionary History of Platanistid 'River' Dolphins."

Thursday, March 15, 2007

Dr. Gordon Hendler - Invertebrate Zoology, Natural History Museum
"Three-Eyed Mini-Monsters: A Lunchtime Tribute."

Thursday, March 29, 2007

Dr. Jody Martin - Invertebrate Zoology, Natural History Museum
"An Expedition to French Frigate Shoals."

Thursday, April 12, 2007

Leslie Harris - Invertebrate Zoology, Natural History Museum
"Beautiful Images: Photography in Taxonomy."

Thursday, April 26, 2007

Carl Gage - The Bio-Models Company (NHMLAC: Exhibits, Retired)
(Title to Be Announced).

Thursday, May 10, 2007

Dr. Doug Given - U.S.G.S.; Caltech Seismological Laboratory
"Earthquakes in Southern California."

Thursday, May 24, 2007

Dr. Larry Barnes - Vertebrate Paleontology, Natural History Museum
"The Desmostylians, Strange Fossil Marine Mammal Herbivores of the North Pacific."

Unless announced otherwise, all seminars meet from noon to 1 pm in the Times Mirror Room. For more information, contact Gordon Hendler (hendler@nhm.org; x3526) or Ken Campbell (kcampbell@nhm.org; x3425).

R & C Holiday Party

Few wonders of the season compare to the annual R & C potluck party. This year's event was another huge success, and special thanks are due Terri Toggiai, Maria Ponce, Salena Small, Darolyn Striley, and Kathy Omura for the amazing amount of work they put in with the decorations and organization of all the food, and to honorary R & C member Wes Oakley for the music.

*The R & C Staff wishes all of you
a happy and prosperous New Year!*

