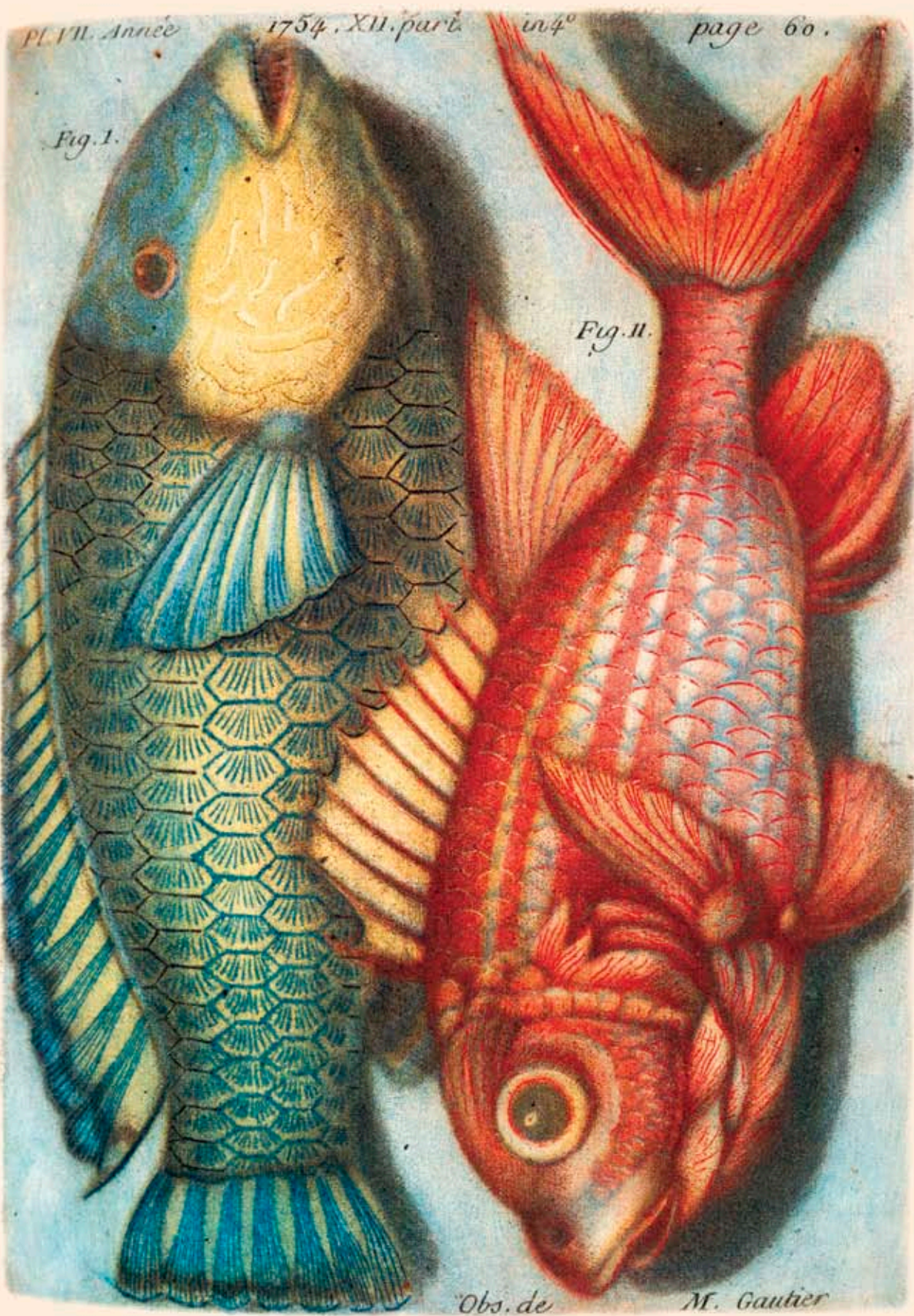


Academy

FRONTIERS



The member magazine of the
Academy of Natural Sciences

Fall 2009

GREETINGS FROM THE ACADEMY

Bruce Tepper/ANSP



In the pages of *Academy Frontiers*, we hope you give you an in-depth look inside the museum, particularly into our treasured collections, the lifeblood of the Academy. The stories emerging from our collections are endless—from invaluable specimens collected by Lewis and Clark on their 3,700-mile expedition, to the recent discovery of a new species stored in the shadows of the collection for more than 150 years.

These collections find many uses. Their study is the backbone of research in systematics and evolutionary biology. They are used by conservation and environmental protection agencies to document and monitor success in forestry management, endangered species protection, and invasive species prevention and control. They provide the basis for understanding the diversity of life, and the identification of new species worldwide.

But, the current uses of these collections do not cover the expense of their acquisition, care, and use. Even with the infusion of other revenue sources, many collection-holding institu-

tions are challenged financially, and some have been unable to meet that challenge.

A grant from the Andrew Mellon Foundation funded an international gathering this past June at the Academy of the chief executives of eight leading natural history institutions located in the United States, United Kingdom, Paris, the Netherlands, and South Africa.

We discussed possible new markets for science collections and we identified as top priorities the need to preserve viable tissue and DNA of all known species, image and digitize the information for all type specimens, and generally improve coordination and access to museum information.

This meeting is only the beginning—it's the first of what we hope will be a continued collaboration in this effort to share our collections with the world. Stay tuned!

Sincerely,

Bill Brown

Bill Brown

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On the cover: Part of the Academy's growing digital collection, this illustration of two African fish was printed from four separate plates colored with red, yellow, blue, and black inks, a process employed in the late 18th century by Jacques-Fabien Gautier d'Agoty. See page 8 to find out how the Academy is adding images like this one, as well as millions of pages of natural history literature, to the digital universe. Photo courtesy of the Ewell Sale Stewart Library.

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Academy membership includes a subscription to *Academy Frontiers*, free admission to the museum, discounts in the Academy Shop and Ecology Café, invitations to special events and exhibit openings, and much more.

For information about Academy membership, call 215-299-3790 or visit www.ansp.org/membership.

THE
ACADEMY
OF NATURAL
SCIENCES

CALENDAR OF EVENTS

October

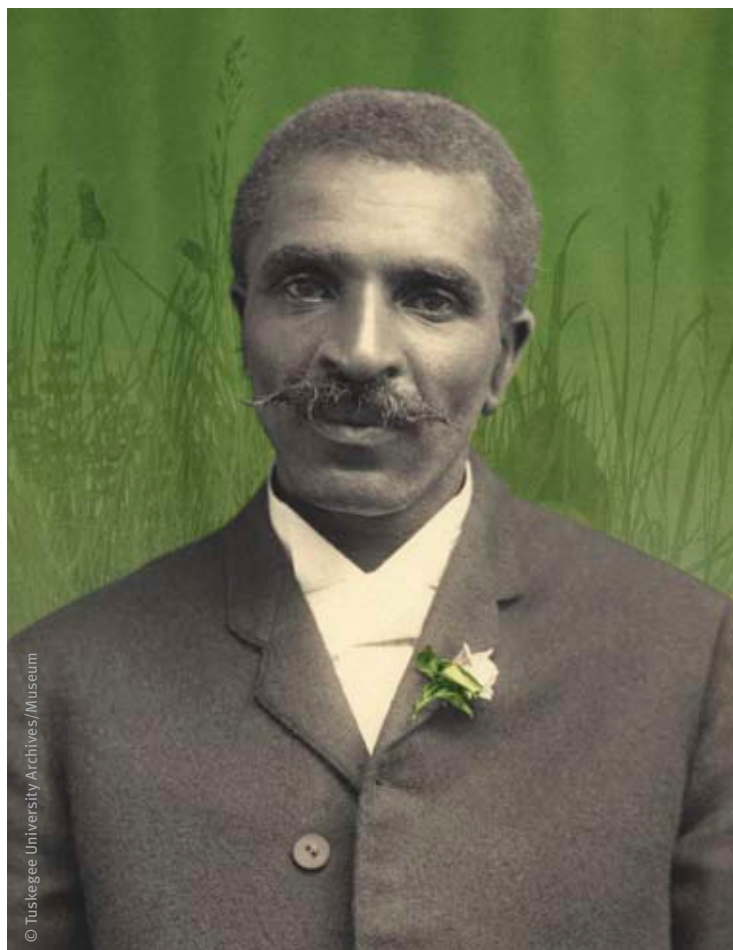
- 9** Philadelphia Shell Show preview party, 6–9 p.m.
- 10** 27th Annual Philadelphia Shell Show, 10 a.m.–5 p.m.
- 12** Science on Tap, 6 p.m.
“No Family History: Investigating What’s Behind the Breast Cancer Epidemic,” presented by Sabrina McCormick, fellow at the American Academy for the Advancement of the Sciences, on behalf of the Chemical Heritage Foundation.
National Mechanics, 22 S. 3 rd Street, Philadelphia
- 15** “Beginning Nature Photography” workshop for adults, 6:30–8:30 p.m.
- 17** “Beginning Nature Photography” field trip for adults, 8:30 a.m.–5 p.m.
New Jersey Pine Barrens
For more information, visit www.ansp.org/adultprograms
- 22** Town Square, 6:30–8:30 p.m., Urban Sustainability Forum
- 23** Second Annual Members’ Night , 5–9 p.m.

November

- 9** Science on Tap, 6 p.m.
“Embracing Darwin,” presented by Colin Purrington, associate professor of biology at Swarthmore College, on behalf of the American Philosophical Society.
National Mechanics, 22 S. 3 rd Street, Philadelphia
- 12** “Birds of Prey” workshop for adults, 6:30–8:30 p.m.
www.ansp.org/adultprograms
- 13** *George Washington Carver* members’ opening
- 14** *George Washington Carver* exhibit opening
- 17** Town Square, 6–7 p.m.,
Special lecture with Lonnie Dupre, polar explorer
- 19** Town Square, 6:30–8:30 p.m., Urban Sustainability Forum
- 26** Closed for the Thanksgiving holiday
- 27–29** Dino Weekend, 10 a.m.–5 p.m.

December

- 14** Science on Tap, 6 p.m.
Michael McCann, professor of biology at St. Joseph’s University, presents on behalf of the Wagner Free Institute of Science.
National Mechanics, 22 S. 3 rd Street, Philadelphia
- 25** Closed for the Christmas holiday
- 26–31** All-Star Week
The Academy of Natural Sciences shows off its most popular attractions with live animal shows, museum specimens, craft-making and storytelling during this weeklong celebration.
Saturday, Dec. 26, Dinosaur Day
Sunday, Dec. 27, Animal Day
Monday, Dec. 28, Butterfly Day
Tuesday, Dec. 29, George Washington Carver Day
Wednesday, Dec. 30, Reptile Day
Thursday, Dec. 31, Bug Day



GEORGE WASHINGTON CARVER

Born into slavery, George Washington Carver became a trail-blazing scientist whose experiments with plants laid the groundwork for today’s research on plant-based fuels, medicines, and everyday products. A true humanitarian, his extraordinary persistence and compassion nourished a lifelong mission to bring practical knowledge to those in need.

November 14, 2009 through February 28, 2010.

This exhibition was created by The Field Museum, Chicago, in collaboration with Tuskegee University and the National Park Service.

A Bite of Evolution

Curator of Ichthyology Dr. John Lundberg is quick to defend the piranha and dismiss its Hollywood reputation for attacking humans. He's been bitten and, sure, it bleeds a little, he says, but it's not all that bad. And, Lundberg recently co-authored a paper that suggests the modern piranha is hardly a threat compared to its ancestor, the Megapiranha, a late Miocene fish triple the size with teeth far more menacing.

The paper describes the fossil upper jaw of a prehistoric Megapiranha (*Megapiranha paranensis*), which lived in the waters of South America about nine million years ago. The specimen, collected in the early 1900s in Argentina, sat in a drawer for half a century before being rediscovered by Alberto Luis Cione, a paleontologist from Argentina's Museo de La Plata and co-author of the paper.

In the jaw of the modern piranha, there is a single row of six inter-



Mark Sabaj Pérez/ ANSP

locking teeth. Scientists believed that piranhas evolved from an ancestor with two parallel rows of teeth, such as seen in their closest relatives, the plant-eating pacus. The Megapiranha had two rows of blade-like teeth, arranged in a zigzag pattern. The paper suggests that the zigzag placement of the teeth in the Megapiranha jaw represents an intermediate step in the evolutionary path to the single row.

Thanks to the intermediate zigzag tooth arrangement in the fossil jaw, scientists now know that the Megapiranha falls between the pacus and the piranhas in the family tree of these fishes.

Lundberg says he hopes research will continue if the lower jaw of a Megapiranha is discovered so scientists can learn more about the bite this giant could deliver.



Courtesy of Paul Callomon/ ANSP

Reviving Perry's *Arcana*

The *Arcana* or *Museum of Nature* was a magazine published privately by amateur naturalist George Perry in London between 1810 and 1811. It featured 84 color plates and eclectic text about animals, birds, fish, insects, shells, fossils, and a palm tree, as well as travelogues from Africa and China. Nowadays it is very rare, and only 13 complete sets are known, one of which can be found in the Academy's Ewell Sale Stewart Library.

The Academy has teamed up with Temple University Press to reproduce this wonderful work in full color. A full collation and systematic review by Richard E. Petit, a leading authority on the history of zoology, brings the *Arcana*'s contents up to date and

lays out the many new scientific names Perry introduced, some of which remain in use today.

Born in 1771, Perry was an architect by profession. In 1812, he also published his *Conchology*, a large book about shells, but then lapsed into such obscurity that not even the date of his death is known. Most of the *Arcana*'s plates are based on sketches made at private menageries in the heart of London. Among them are several Australian mammals, including—by luck—the first published picture of a koala. His artists stayed mostly true to life, but took small liberties such as depicting a condor bearing off a baby in its talons and a tiger leaping over a human skeleton.

Hidden Treasure

When Dr. Kristofer Helgen paid a visit to the Academy in 2006, he only planned to browse the collections. The Academy was the next destination on an international search for new species of mammals hidden in natural history museum collections, a passion that's driven Helgen, curator of mammals for the Smithsonian, for the past several years.

In his search of the world's natural history collections, Helgen developed a special interest in flying foxes, very large fruit-eating bats (belonging to the family Pteropodidae), because "there has been quite a bit of extinction in this particular group," he says.

Within the first hour of his 2006 trip to the Academy, Helgen noticed the skull of a flying fox in our dry mammal collection—but there was something peculiar about it.

"I knew right away that something was different," he says.

Helgen determined that the skull belonged to an unknown species of Samoan fruit bat that is now believed to be extinct. Collected in the South Pacific in 1856 by Henry Clay Caldwell, the skull—and a fragmentary skin preserved in alcohol—sat undiscovered on the shelves of the Academy for more than 150 years.

Helgen is lead author on a recently published paper that describes the specimen as *Pteropus allenorum*, named for both Harrison Allen, a naturalist who collected bats for the Academy in the late 19th century, and Allen Drew, who hosted the authors of the paper



Katie O. Clark / ANSP

in 2006. Several years of research later, Helgen concluded that the Academy's specimen was the only one of its kind in the world, thus serving as the "type specimen," which is the physical specimen to which a new species description is tied.

"It's an outstanding discovery," Helgen says. "I only spent a few days there—I'd like to spend a lot more time there to see what else I can find."

According to the Academy's Dr. Ted Daeschler, curator of Vertebrate Paleontology, "this is a poignant reminder of the scientific value of collections, the importance of collections care, and the significance of ensuring access to collections."

GET CONNECTED



Redhead duck: © Doug Wechsler/VIREO

Anyone can be a naturalist. In each issue of *Academy Frontiers*, our scientists and staff share their knowledge of the natural world you can find right in your own backyard.

In this issue, Dr. Nate Rice, manager of the Academy's Ornithology collection, highlights two "gorgeous" birds that can be spotted in the region at this time of year.

Redheads (*Aythya americana*) are one of North America's largest and most attractive ducks. As with most birds—and many insects, too—the male is flashier in appearance compared to the female. While the female is all brown, the male has a body of grey and black vermiculated, or finely striped, plumage with a head of deep red. During most of the year, their breeding grounds are in the Prairie Pothole Region

(Midwest) of the U.S. and Canada. In the winter, these ducks spend most of their time along the coasts. Locally, visitors to Meadow Lake in Philadelphia's Franklin Delano Roosevelt (FDR) Park have an opportunity to spot these striking ducks and the males' brick-red heads for which they are named.

A bit farther from Philadelphia, New Jersey's Barnegat Lighthouse State Park is the preferred winter hangout for "an absolutely gorgeous" type of bird, the Harlequin Duck (*Histrionicus histrionicus*), Rice says. The Harlequin Duck is primarily a sea duck—the females are typically brown and the males have a blue-grey body and unmistakable white markings on the head, neck and body that have also earned it several fanciful names, including the Painted Duck. If you are in New Jersey this fall, look for these unique ducks traveling in small flocks along the jetty near the lighthouse.



Harlequin duck: © Doug Wechsler/VIREO



Katie O. Clark/ANSP

Otte has spent more than 40 years studying insects in the field and through the microscope.

“These insects are part of the ecosystem, part of the food web. They are part of the whole fabric of life.”

—DR. DAN OTTE

AN HONOR OF



Courtesy of Dan Otte/ANSP

Otte uses a parabolic reflector in a Hawaiian thicket to record singing crickets in the 1980s.

In November, the Academy’s Dr. Dan Otte will be awarded the institution’s highest honor for four decades of dedication to the natural sciences.



Otte in the field in 1995, atop a mountain in Colorado, a favored habitat of short-winged grasshoppers.

tions, explorations, discoveries, or research in the natural sciences. Past recipients include Pulitzer Prize-winning biologist E.O. Wilson and evolutionary biologists Peter and Rosemary Grant. The award was announced in July at a scientific symposium in Canada in Otte’s honor.

One of six children of Lutheran missionaries, Otte was raised in Durban, South Africa, where the bush was his playground. In the 1960s, he made his way to the University of Michigan, thinking he would study mammal behavior. Instead, a professor suggested North American grasshoppers. Otte packed his notebook and tape recorder (there were no video cameras), and he never looked back.

“At the time, a lot was known about grasshoppers, but little of the knowledge was summarized, and there were no catalogs to the fauna,” Otte says. “I decided to write a comprehensive manual to the North American species.”

Little did he know where this path would lead.

During his remarkable career, Otte so far has described more than 125 new genera and more than 1,500 new species of crickets, grasshoppers, and other insects. He has faced hostile soldiers in Botswana, rubbed elbows with poisonous plants in Fiji, and fallen off a cliff in Hawaii—all to collect insects. He has added thousands of new specimens to the Academy’s Entomology collection and to other institutions around the world. He has vastly expanded the knowledge of insects through his publications, including more than 300 scientific articles and books on the taxonomy, evolution, systematics, biology, and behavior of Orthoptera (grasshoppers, crickets, katydids, and locusts). His latest book, *Caribbean Crickets* (The Orthopterists’ Society, 2009), is the first comprehensive assessment of crickets in the Caribbean islands and includes descriptions of 585 species, of which 458 are new to science.

Looking back on a lifetime of accomplishments, Otte is proudest of putting order to the huge taxonomic mess that describes Orthoptera. He did this by creating the Orthoptera Species File (see it at <http://osf2.orthoptera.org/HomePage.aspx>), a comprehensive database listing 24,390 species. At a time of climate change and habitat destruction, making a list of what species exist and which have gone extinct is essential.

“These insects are part of the ecosystem, part of the food web,” says Otte. “I think they are just as important as we are. They are part of the whole fabric of life.”

For most Academy scientists, the best part of their job is the field work, and Otte already has his next big adventure planned. He’s off to the Rockies and South Africa, two of his favorite collecting spots, in preparation for the third volume of his book, titled *The North American Grasshoppers*.

“There will be four volumes,” he says matter-of-factly. He will see to that.

A LIFETIME

By Carolyn Belardo

Walk into Dan Otte’s office on most days and you’ll find him hunched over a microscope, peering down the barrels to a dead insect, trays of preserved crickets and grasshoppers arrayed around him. This day he’s clearly excited about the dull brown grasshopper he collected this spring in South Africa. It’s missing a hind leg, but that’s because he gave it to a colleague at another institution to study.

“The grasshopper is covered in dirt!” Otte exclaims. “I’m thinking that’s by design. I’m wondering what it can do if it can be dirty.” Grasshoppers don’t normally cover themselves in dirt, so this discovery of a seemingly new behavior is intriguing to an entomologist, especially to Otte, a world authority on crickets and arguably the world expert on grasshoppers.

Otte, the Academy’s curator of Entomology, has spent four decades traveling the world—and risking life and limb in the process—to study, categorize and classify insects. For his lifetime of achievements, the Academy will honor him with the Joseph Leidy Award, the institution’s highest reward for scientific excellence, in November. Established in 1923, the award is periodically given to recognize exemplary publica-

The Academy joins an international collaboration to digitize its unique collection of biodiversity literature and make it available to the world.

FROM THE STACKS TO THE DIGITAL UNIVERSE



Katie O. Clark/ANSP

Moore College student intern Stephanie Zuppo scans a plate from the late 18th-century book, *An account of Indian serpents collected on the Coast of Coromandel* by Patrick Russell, now part of the Academy's digital collection.

By Katie O. Clark

Much of the world's biodiversity exists in tropical, developing countries, thousands of miles away from the Academy of Natural Sciences in Philadelphia. But, most of the information published about this biodiversity is tucked away in specialized research libraries, like our own Ewell Sale Stewart Library. The only way to access much of this centuries-old literature is to physically visit these specialized libraries—not an easy feat for scientists located half a world away.

Since 1998, the Academy has been digitizing its collections to make the information available to the online community. This summer, the Academy joined forces with 11 other major science institutions in an effort to digitize the legacy literature of biodiversity and make it available to the world.

Called the Biodiversity Heritage Library project (BHL), this collaboration has to date digitized more than 38,000 volumes of biodiversity literature collected over 200 years and made it

available online to support the work of scientists, researchers, and students around the world.

“Our founders wanted to share their knowledge—to collect and disseminate information,” says Danianne Mizzy, director of the Academy's Library. “We're just doing a more modern version of what our founders did.”

The BHL was launched in 2007 as a component of the Encyclopedia of Life (EOL), an online encyclopedia devoted to documenting all of the species known to science. It's funded through 2012 through the John D. and Catherine T. MacArthur Foundation and the Alfred P. Sloan Foundation.

As the 12th member of the project, we join our renowned library collections with those of the Smithsonian, American Museum of Natural History, Field Museum, and the Natural History Museum in London, to name a few.

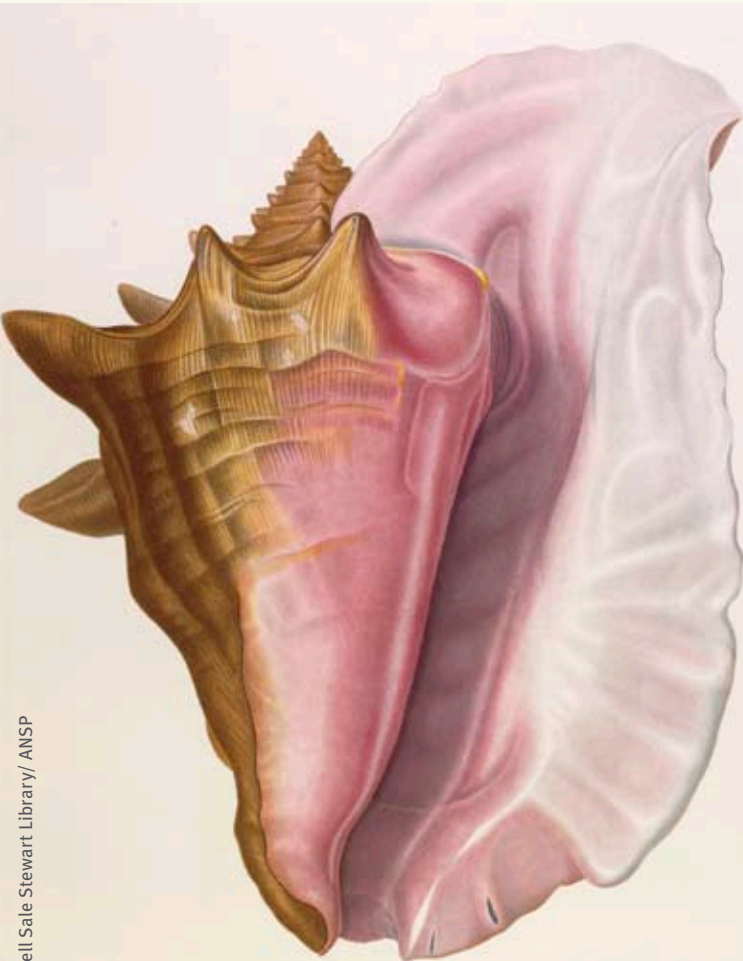
The Academy's application to participate in the project was

accepted because, according to BHL Program Director Tom Garnett, our library “is embedded in a dynamic organization whose focus is biodiversity research and conservation. It was a slam dunk.”

The Academy’s Library was established in 1812 at the founding meeting of the institution, with just five books and two maps. Today the collection is world renowned and unique in the Western Hemisphere for its holdings of rare and historic printed books in every discipline of natural science. It contains more than 200,000 volumes and an extremely rich archival collection dating from the 1500s.

The Library was an early adopter of digital technology. Staff began scanning books, photographs, art, and manuscripts in 1998 in order to make them more widely accessible. Funding from the Albert M. Greenfield Foundation made it possible to purchase high-end scanning equipment and to develop the necessary expertise to provide professional-quality images for scientific and popular publications, exhibits, and educational Web sites. The Library’s technical proficiency was recognized when it received a National Leadership Grant from the Institute of Museum and Library Services for a two-year project, and again in 2002 when

This illustration of the Pink or Queen Conch (*Strombus gigas*), is one of 482 plates in Jean Charles Chenu’s *Illustrations conchyliologiques ou description et figures de toutes les coquilles connues, vivantes et fossiles*. Paris. 1842-1853. It is one of the most sumptuous and prized shell publications of the 19th century. This publication and its colorful plates is one of thousands of volumes in the Academy’s digital collection.



Ewell/Sale Stewart Library/ ANSP

it received funding from the Getty Foundation to scan more than 2,000 works of original art from the archives.

This digital library (available at www.ansp.org/library/digital_library) is both a delight to the eye and a scientific treasure trove. Scanned projects include Edward Lear’s fabulous parrots, Philadelphia’s stately trees, and the Kern brothers’ 1849 watercolors of Native Americans and Southwestern landscapes.

“The Academy demonstrated with its own in-house digital equipment the mastery of the skills and technology needed to participate in a global project,” Garnett says.

Details on exactly what the Academy will contribute to the project are still preliminary, but there are plans to submit the serial run of the *Journal of the Academy of Natural Sciences*, the institution’s earliest scientific journal, published between 1817 and 1842.

Since the start of the BHL, more than 15 million pages of scientific information on biodiversity have been scanned. The project features works published since 1480 in more than 30 languages.

The BHL aims to make this knowledge available online, and fast. “You can search by title, author, subject or taxonomic name,” Garnett says. “Rather than downloading a 500-page document, which could clog up your computer for quite a while, you can select individual pages and have them e-mailed to you and your colleagues within minutes.”

The Academy’s Dr. Ted Daeschler, vice president for systematics and curator of Vertebrate Paleontology, is sure the BHL will cut his research time in half.

“Before, research meant digging in the library, literally going from one volume to another looking at references, and references for those references,” he says. “It’s changed now. Instead of physically digging through the stacks, we’ll have this new, more efficient tool for finding and exploring all these library print resources.”

As the BHL collection continues to develop, our scientists say it has the potential to expand the horizons of their research.

“In science, many times you start off your research with one question, one direction,” says Daeschler. “But then you get inspired to explore something else that you find along the way. The BHL opens up those opportunities for scientists to get stimulated, for the light bulbs to go off. It’s just remarkable.”

For more information on the Academy’s Library, see www.ansp.org/library/about_collections.php.

For more information on the Biodiversity Heritage Library project, visit www.biodiversitylibrary.org.

Book Review

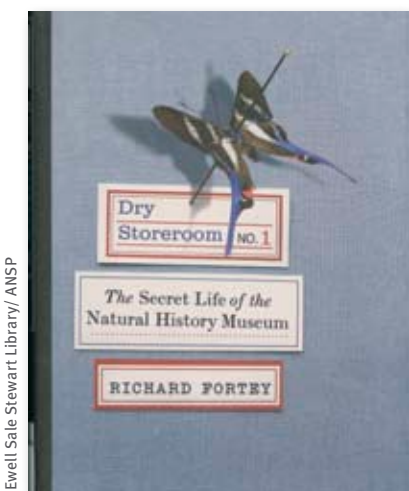
DRY STOREROOM NO. 1: THE SECRET LIFE OF THE NATURAL HISTORY MUSEUM

By Richard Fortey

Reviewed by Dianne Mizzy
Library Director

In *Dry Storeroom No. 1*, Richard Fortey—former senior paleontologist of London’s Natural History Museum—provides a social history of the “secret museum” behind the public galleries. He shares his fascination and love not just of the collections which “sequester information from the degradations of time” but for the collectors themselves. Fortey embodies his own standard for a systematist—someone with “a good eye for character.” The narrative brims with the personalities, passions, and peculiarities of the curators of London’s Natural History Museum. His choices are definitely iconoclastic, but as he observes in the first chapter, “all our lives are collections curated through memory.”

Fortey brings both the scientists and the science to life with fascinating anecdotes such as the cryptogamist mistakenly recruited to work on the Enigma Code at Bletchley Park during World War II. Unbelievably, this “seaweed man” (who knew nothing of breaking codes), thanks to a lifetime preserving marine algae, knew exactly how to treat the sodden codebooks



that had been recovered from German U-boats.

One of the joys of *Dry Storeroom No. 1* is that the chapters are arranged as a tour of the different curatorial departments. I enjoyed every story, from the 1753 Act of Parliament establishing the British Museum (of which the Natural History Museum was once merely a branch) right up to the NHM’s latest crowning achievements—the Darwin Centre and its participation in the Millenium Seed Bank project.

Fortey rightly explains that systematic science requires comprehensive access to species descriptions from the oldest literature right up to the present. How else can you be sure that what is before you is truly a new species?

He clearly appreciates that these working library collections are also repositories of treasures, since great artistry went into much of 17th-, 18th-, and 19th-century scientific illustration.

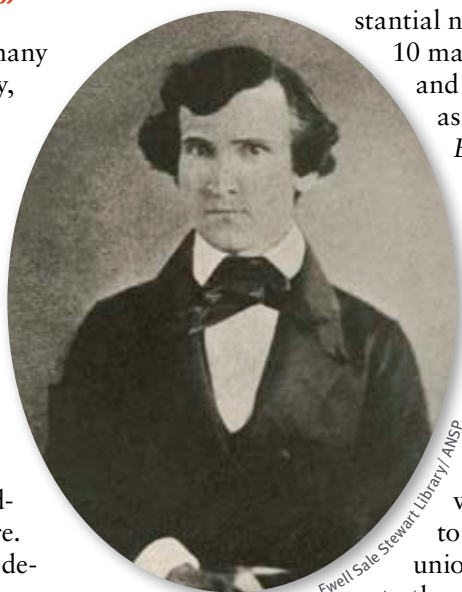
Fortey closes his book with a vision of the renaissance of the amateur naturalist. “Today, armed with the unlimited resources of the Internet, anyone talented and determined enough may carve out a place for himself as an expert on a favored group of organisms.” However for those interested in peeking behind the scenes at the professionals, *Dry Storeroom No. 1* celebrates the contributions of systematic research while giving an intimate portrait of the human fauna of the natural history museum habitat.

Dry Storeroom No. 1 (Alfred A. Knopf, 2008) is available in the Ewell Sale Stewart Library.

On Exhibit

“Everything Here is Quite New to Me.”

John Kirk Townsend (1809–1851), like many important early members of the Academy, was trained in medicine but pursued a passion for natural history. His interest in the natural sciences, particularly bird collecting, led him to accompany an expedition to the Rocky Mountains in 1834 on behalf of the Academy. There he collected many specimens, several of them completely new to science. He also kept—and later published—a journal of his travels, the *Narrative of a Journey across the Rocky Mountains to the Columbia River and a Visit to the Sandwich Islands* (1839), which is considered a classic of American travel literature. Townsend’s work helped to scientifically define the American West.



Townsend was one of the last naturalists to discover a sub-

stantial number of new species in America—20 birds and 10 mammals. The specimens that Townsend collected and brought back from his western journey served as models for artist John James Audubon in his *Birds of America* and *The Viviparous Quadrupeds of North America*. Many of his specimens, along with his journal, are a part of the Academy’s collection.

Starting in October, a new Library exhibit tells the story of Townsend and his travels through specimens of new species he discovered during his overland journey to the West Coast and other species that have since been named for him by others. The exhibit opening coincides with the 200th anniversary of Townsend’s birth, to be celebrated here at the Academy with a reunion of Townsend’s descendants. As a complement to the exhibit, the Library will display some of the letters that Townsend wrote to his family from the Wild West, as well as a beautiful miniature portrait of the explorer.

Inside the Academy Archives

By Clare Flemming
Brooke Dolan archivist

Need to see rare footage of an Academy expedition to Tibet in the 1940s? Manuscript chapters of Edward Drinker Cope's treatise on vertebrates? How about correspondence of the real James Bond? These items are among hundreds of thousands in the collections of original art, artifacts, film, photos, manuscripts, memorabilia, and, increasingly, digital material in the Academy Archives, part of the Ewell Sale Stewart Library.

Most of us are introduced to libraries at a very young age, but we may not be aware of the library's lesser-known partner, the archives. Archives contain unique pieces of unpublished information deemed to possess enduring value, whether the information comes as words in a diary, faces in a photograph, or raw data of a scientific study—items that shed light on a particular personality, historical epoch, or specific locale.

Far from being dry in content or dusty in neglect, the Academy Archives are a heavily consulted collection of one-of-a-kind documents that tell the story of the Academy from its founding in 1812 through its nearly two centuries of existence—a story written originally by quill pen and now available in bytes and bits. In our case, the Archives intimately document the collecting activities of the scientific departments, from the earliest days when the study

specimens were housed in a single “Cabinet of Curiosities” to the present where departments, arranged along systematic lines of inquiry, still send scientists to the field to expand our knowledge of the natural world. Imagine the wealth of documentation that exists for any one expedition alone: field journals, collecting notes, receipts, travel tickets, hand-drawn maps, expedition gear lists, perhaps even pieces of that gear.

Archives require space, supplies, and the staff whose job it is to identify, preserve, and make collections available. And, archives exist to be used. So who are typical users? Historians, scholars, artists, photo-researchers, doctoral candidates researching dissertation topics, creators of television and film programs, Academy staff and officers, visiting scientists, donors, and genealogists, to name a few.

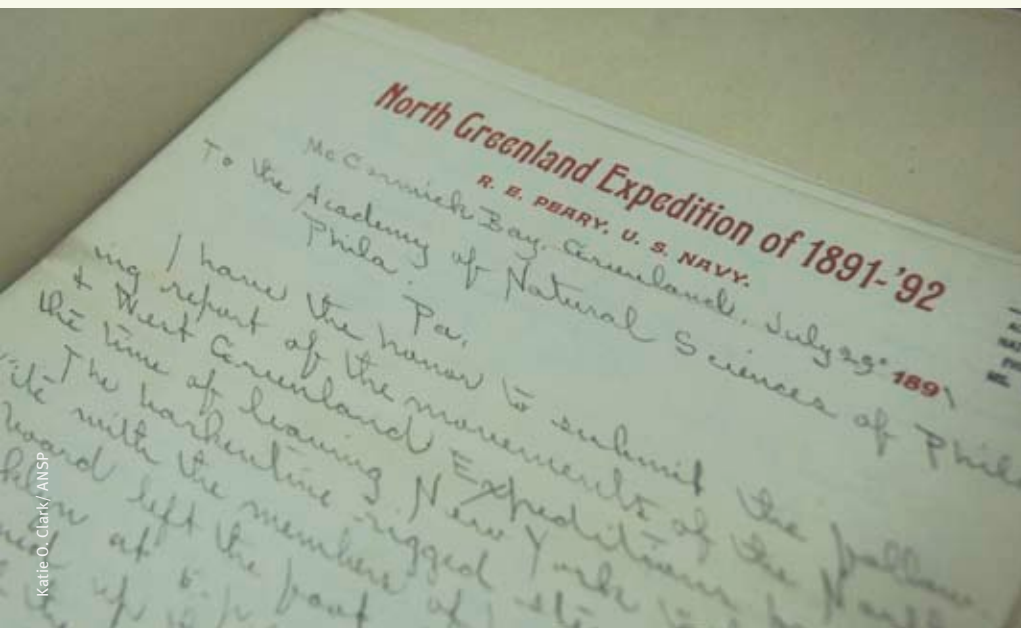
When the Academy prepared its bylaws of 1834, it mandated, “The officers of the Academy shall be a President, two Vice-Presidents,



Katie O. Clark/ ANSP

Clare Flemming, the Academy's Brooke Dolan archivist, examines one of the oldest Academy documents—the handwritten Constitutional Act of 1812 in which the founders express the purpose of their new institution, "...namely, Science exclusively, useful Science, Physics, the science of Facts, dispassionately demonstrable knowledge and no other."

Arctic explorer Robert Peary's distinctive left-leaning script reports on his "movements" during the North Greenland Expedition to his sponsor, the Academy of Natural Sciences, on July 29, 1891.



Katie O. Clark/ ANSP

a Recording Secretary, a Corresponding Secretary, a Treasurer, a Librarian, an Archivist (sic) and four Curators..." Only the most forward-thinking citizens would consider their legacy through planning an archive, and today we are the inheritors of their good planning.

Archival treasures are always on display to the public in the Academy's Library, and scholars who require direct access to archival material for detailed studies may request appointments. In person or at www.ansp.org/library/archives, see for yourself what treasures await you.

For an appointment, contact Clare Flemming at archives@ansp.org or 215-299-1075. Hours for research are Monday through Friday, noon to 4:30 p.m.

Donor Spotlight



Katie O. Clark/ANSP

For Bill and Elizabeth McLean, it all started with a fascination with plants and an old map.

For more than three decades, the McLeans have been supporting the Academy and its Ewell Sale Stewart Library. They became involved with the Academy in 1977, although Elizabeth declares “I was there first!” She began as a volunteer in the Botany Department to complement her love of gardening. Bill

became involved with the Library when he was looking for help protecting and displaying an old map and sought out Wilman Spawn, a skilled conservator married to then Academy librarian, Carol Spawn.

From there, “one thing led to another,” Elizabeth says of 32 years of giving to the Academy and the

Library. In that time, the McLeans— together with their two daughters, Sandra and Lisa—have supported various endowments, the expansion of the Library stacks, multiple book conservation funds, an archivist fund, a technology upgrade fund, and the creation and support of an adopt-a-book program, to name a few.

Preserving the Library’s rare books is a worthy cause, Sandra says.

“It’s not just that they’re old books, it’s a specialized knowledge not available elsewhere,” she says. “The knowledge in them is still very valuable today.”

Supporting the Academy and the Library is “a family disease,” Lisa jokes.

“We have just tried to make a difference,” Bill says. “The Library can play an important role in the Academy’s work, but you have to support it.”

“The McLean family has long been there for the Academy, with special commitment and passion from Bill McLean for the Library, and with the refined sense of humor and insight possessed by the entire clan,” says Academy President William Y. Brown. “We are very fortunate for their support.”

The McLean family contributes through personal donations and through the McLean Contributionship, a foundation which supports a variety of charitable, scientific, and educational organizations.

For more information on giving to the Academy, contact Amy Miller Marvin at 215-299-1013 or marvin@ansp.org.

Membership Matters

How can you gift wrap a *T. rex*, a mummy, and a moose?



It’s easier than you think.

Give the gift of membership to the Academy of Natural Sciences!

Membership to the Academy is a unique gift for a child who loves dinosaurs or butterflies, a teenager with a budding interest in nature, or an adult looking to indulge a passion for science and learning.

Give your friends and family a year’s worth of excitement that inspires a lifetime of learning.

It’s easy to give a gift membership to the Academy. Simply purchase the membership at www.ansp.org/joinus, ask at the museum’s front desk, or call our Membership Department at 215-299-1022. We’ll make sure your gift membership arrives in time for all of this season’s exciting events.

\$50 Individual/Basic Benefits

- Unlimited general admission to the museum including our exciting live “Butterflies!” exhibit, Bug Fest, Paleopalooza, and the Philadelphia Shell Show
- Free admission to more than 300 natural history museums and science centers worldwide
- Invitations to Members’ exhibit previews and Academy events
- Monthly e-news updates about programs and events
- Discounts in the Academy Shop and Ecology Café
- Invitation to Members’ Night at the Academy

\$70 Family

- Basic Benefits for two adults and all children (under 18) in the same household
- Discounts on workshops, lectures, special programs, and birthday parties

\$80 Family Plus

- Family Benefits
- Two free guests per visit

\$150 Supporting

- Family Plus Benefits
- Two general admission museum passes to give to friends
- Invitations to special VIP events

In the Mix

The Academy's calendar is always loaded with programs and activities for the public, as well as receptions, special events, and preview openings especially for members.

Gearing up for the Shell Show preview

On a beautiful Sunday afternoon in June, more than 50 members of the Shell Show Preview Party Committee gathered at the home of Susan and Robert Burch. Committee members enjoyed the beautiful setting and viewed various specimens from the Academy's Malacology Department.

Here, Khaki Young (left) and Lesley Coulson admire some of the many beautiful shells from the Academy's collection.



Heather Hahn Sullivan/ ANSP

The 2009 Annual Fund Drive is underway!

Please consider making the Academy part of your charitable giving this season.

The Academy of Natural Sciences is recognized internationally for its vast collections, research, exhibits, and educational programs. Your support makes it possible for the Academy to continue being a world-class natural history museum and help support the long-term care and preservation of our historic collections. Make a contribution today and insure the exciting future of the Academy.

Make your gift online at www.ansp.org/supportANS/donate.php or call 215-299-3790.

Going buggy

More than 2,000 people filled the Academy in August for the second annual Bug Fest, a weekend celebration of all things buggy. Here, six-year-old Adam Kraynak takes a closer look at an Atlas Moth (*Attacus atlas*) from the Entomology Department's research collection (top). Joan and Marshall Miller (below, middle) work diligently on their pooters, which are handmade bug collection devices. Karen Verderame (bottom), supervisor for Outside In, shows off a Mexican Red-kneed Tarantula (*Brachypelma smithi*).



Katie O. Clark/ ANSP



Katie O. Clark/ ANSP



Katie O. Clark/ ANSP

Behind the Scenes



Katie O. Clark / ANSP

The Academy recently created a new first impression for visitors in our main lobby. Just after Labor Day, the Academy began a complete renovation and restoration of the main entrance lobby, a project funded by the William Penn and Barra Foundations, the City of Philadelphia, and other sources. The biggest change visitors will see is a long-necked greeting from our cast of *Elasmosaurus platyurus*, a Mesozoic plesiosaur (carnivorous marine reptile). The cast—made from the real fossils of the type specimen in our research collection—is now poised in mid-glide over our new admissions desk.

The overall goals of the project were to restore the historic architecture of the space while integrating 21st-century exhibits and amenities.

In this photo, a technician from Canadian-based Research Casting International removes the cast of *Giganotosaurus carolinii*, which had been perched atop the admissions desk since 1998. The cast will be placed into storage.

“By restoring architectural features and showcasing treasures from the Academy’s collections, like *Elasmosaurus*, we can share with visitors our rich history that stretches back further than that of any other natural history museum in this country,” says Barbara Ceiga, vice president for public operations.

In the Field



Paulina Rojas

The Academy’s Dr. Jerry Mead (left) and Roger Thomas measure a forest stream’s width on a recent research trip to Patagonia, Chile. The forest was comprised of secondary growth, which is the regrowth of a woodland area after a major disturbance, such as fire or insect infestation. This and several other low-impact (very little human development) sites were chosen because of their similarities in climate and rainfall to our own riparian forests (forests attached to a body of water).

Mead and Thomas traveled to Chile to identify sites for the future testing and measurement of streams to determine the reasons for their widening or narrowing. Mead aims to conduct further tests on a return trip to Chile, and plans to record a detailed morphology of forested and non-forested streams.

The project’s goal is to benefit society by providing knowledge that environmental policy-makers and managers can use to make more science-based decisions regarding riparian forest restoration and management.



Ewell Sale Stewart Library / ANSP

Edward Drinker Cope (1840–1897), a curator at the Academy in the decades following the American Civil War, is one of the best-known names in American paleontology. In 1868, Cope described the giant marine reptile *Elasmosaurus platyurus*, a cast of which now soars overhead in our newly renovated lobby. The fossil helped to spark a heated rivalry between Cope and his rival, Othniel Charles Marsh at Yale University. The competition between these two brilliant scientists, dubbed the “Bone Wars” by later historians, marked an extraordinarily productive period in American paleontology. Together, these two men discovered and described more than 140 new species of dinosaurs. Many of Cope’s discoveries are kept in our collections. Pieces of Cope himself reside in other Philadelphia institutions—his brain is preserved in alcohol at the Wistar Institute, and his skull is part of the collection at the University of Pennsylvania Museum of Archaeology and Anthropology.

SUPPORT THE ACADEMY

These wish list items will help our staff continue to fulfill the Academy’s mission of “the encouragement and cultivation of the sciences.”

For Science Research

- 100 ml graduated cylinders (2). \$250
- Digital camera and software for use on Patrick Center microscope to aid in evaluating fish ages. \$900
- Gas chromatographic columns used for separation of organic compounds in the environment. \$1,000
- Turbo-molecular pumps for a stable isotope mass spectrometer, used for food web studies and ancient climate information. \$5,000
- Conference room furniture (table and 8–12 chairs) in gently used condition for use in Entomology or Ichthyology meeting room(s).
- An armchair (or a pair) and some reading lamps for use by research visitors in the diatom library / reading room.
- Center City housing for use by visiting scientists from all over the world who are doing research at the Academy and are in need of affordable accommodations.

For the Ewell Sale Stewart Library

- One new steno chair for the use of archives interns and researchers. \$125
- 1,000 four-flap paper enclosures to house glass lantern-slides. \$540
- A 20-cubic-foot, frost-free refrigerator to properly store archival films. \$650
- Digital archiving supplies such as CDs, archival paper, and archival ink cartridges. \$1,000
- Funds for secure network storage and network access to the Library and Archives Digital Image collection. \$4,000

For Education and Exhibits

- New carts (4) for Education staff to transport supplies and animals throughout the building. \$700 each/\$2,800 total
- Laptops (6) for student use during lessons for graphing, internet searches, etc. \$1,200 each
- Laptop for use by staff in the field or during national conferences. \$1,500
- New desktop computers (5) to replace outdated models used by staff. \$1,500 each
- Furniture (table and chairs) designed for preschoolers for use in our children’s hands-on gallery, Outside In. \$4,000

For the Live Animal Center

- Gift certificates to local pet stores for various supplies. **Any amount**
- An otoscope for animal examination. \$1,000
- Custom caging for bedtime enclosures for parrots. \$2,000
- New caging for housing reptiles. \$3,000
- A centrifuge to spin blood samples for testing. \$3,500

For Tech Support

- Fire-proof cabinet for documents and media. \$1,700
- Conversion software to support email system migration. \$5,000

To make a gift to the Academy, please contact Institutional Advancement at 215-299-1022 or membership@ansp.org.

Official registration and financial information of the Academy of Natural Sciences may be obtained from the Pennsylvania Department of State by calling, toll-free within Pennsylvania, 1-800-732-0999. Registration does not imply endorsement.



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Second Annual Members' Night October 23, 2009 5-9 p.m.

The Academy is once again throwing open
the "Staff Only" doors to give our members a glimpse
of what goes on behind the scenes of
America's oldest natural history museum.

FREE for members. \$5 for members'
guests (up to four per membership
holder, payable at the door).

RSVP by October 19
www.ansmembersnight.eventbrite.com
or 215-299-1022

