Academy

FRONTIERS

The member magazine of the
Academy of Natural Sciences

Summer 2009

GREETINGS FROM THE ACADEMY

Welcome to the first issue of *Academy Frontiers*, our quarterly member magazine designed with you in mind. Taking our cue from Academy publications past, we plan to use these pages to tell the stories of the Academy and why it is such a treasure for the people of Philadelphia, and for the world.

Some of the Academy's long-time members may remember *Frontiers*, the Academy's member magazine published from 1936 to 1983. It is our hope to reprise that nearly 50-year success with *Academy Frontiers*. We want you to know about how we prepare for and install our exhibits, the discoveries from our latest research projects and field work, additions to the collections, and what goes on in the offices and labs tucked away inside the institution. More importantly, we're interested in hearing from you. After all, this important work isn't possible without people like you, our members. Keeping you in the know is just one of the ways we would like to thank you for the role you play in our success.

There are indeed many stories to tell. Some fascinating things have happened since our founding in 1812. And, some amazing people have been a part of making the Academy what it is today.

In our research, we continue to advance environmental science and lengthen our list of environmental services for local and federal agencies. Our public programs help those who are not scientists appreciate the wonder and importance of the natural world. And, every day we are making our collections more accessible to the world.

We place a special focus on biodiversity—the different kinds of wild, living things, where they live, and the research to protect them—and how it's threatened through climate change, exploitation, and the simple conversion of natural landscapes to concrete, asphalt, and other accommodations for human settlement.

We are the keepers of the codes of life. We have the collections, and our curators, scientists, and educators understand biodiversity. We study and document the many kinds of life, where they are, and how they live, or lived. We study their form and function, their DNA, their evolutionary paths, and the ways in which human society impacts them, and us. We do this so that our own species can truly understand the natural history of life on Earth. And, we study them so that we can guide our own behavior toward a planet that is rich with living things and healthy for us all.

Our work helps the everyday citizens of Earth to understand the scope, texture, and importance of nature. Governmental policies, including environmental, ebb and flow with political tides, but the Academy, as keeper of the codes of life, holds and articulates a deeper and a more constant wisdom.

We've made history in so many ways and we'll continue to do so—all the while making sure you're the first to know.

Sincerely,

Bill Brown

Bill Brown

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On the cover: Diatom species in the Academy's Diatom Herbarium include (clockwise from top left) *Aulacoseira pardata*, *Epithemia sorex*, *Thalassiosira lacustris*, *Aulacoseira nivalis*, *Stephanocostis lucens*, and *Aulacoseira tenella*. Photos by Dr. Marina Potapova.

THE ACADEMY OF NATURAL SCIENCES

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Academy Frontiers is a quarterly publication of the Academy of Natural Sciences, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103.

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.

Forensic Fisheries

Senior Scientist Dr. Rich Horwitz and staff scientists Shane Moser and Anthony Geneva successfully extracted and sequenced DNA from Academy specimens of a rare minnow, the Bridle Shiner, *Notropis bifrenatus*, collected from 1904–1916. It's an important accomplishment since specimens collected so long ago were not preserved in a way that makes DNA extraction an easy task.

The extraction is just one part of the scientists' efforts to gather information about the Bridle Shiner in and around the Delaware River. A century ago, the Bridle Shiner was a common fish in the Philadelphia area. Today, it is classified as a Pennsylvania state endangered species. The best way to research the current status of the Bridle Shiner is to sample as much of its historic range as possible and compare presence, abundance, and habitat use. This kind of sampling, both current and historical, has allowed for genetic comparison across an entire century.

Now, scientists are able to compare the genetics of these old specimens with current specimens they've been collecting over the past two years. This might tell why the population decline occurred, as well as what effect the decline has on the current population.

The historical status of Bridle Shiner in Pennsylvania is known mostly from early 20th-century collections held at the Academy. The species was originally described in 1867 by naturalist Edward Drinker Cope, who discovered the fish in a tributary of the Schuylkill River in Conshohocken, Pa., where it no longer occurs.

A new kind of happy hour

Scientists from the Academy and other Philadelphia-based science institutions have set up shop in a unique setting—a local pub. "Science on Tap" is a new science café formed through a collaboration between the Academy, the American Philosophical Society, the Chemical Heritage Foundation, the Mutter Museum, and the Wagner Free Institute of Science.

On the second Monday of every month, each institution takes turns presenting a featured speaker who introduces a topic or current project. The brief, informal presentations are followed by a Q and A with the expert and friendly conversation. In July, the Academy's Dr. Ted Daeschler, Associate Curator of Vertebrate Paleontology, presented "Cold Hard Science: Fossil Discoveries in the Canadian Arctic and the Origin of Limbed Animals."

Tune in to the Academy

In March, a producer and crew from Natural Light Films spent the day at the Academy filming a three-minute short for WHYY TV's "Experience the Arts" program. The piece will air on WHYY TV starting this fall and will run for about a year as filler in between regular programs on the station. Watch for some familiar Academy faces on WHYY this fall.

Extending our global reach

In February, a 20-foot overseas shipping container pulled up to the Academy's loading dock and, in less than two hours, more than $50,000 in purchased and donated scientific supplies were on their way to Mongolia. The container traveled by ship from New York to China, then by rail to Mongolia—a journey of about two months. The three projects that the supplies will benefit are the Mongolian Aquatic Insect Survey project in western Mongolia exploring the insect life of streams and rivers and the links to understanding water quality, headed by Entomology Curator Dr. Jon Gelhaus; a project led by the Asia Center's Dr. Clyde Goulden with University of Pennsylvania exploring the effects of climate change on traditional nomadic life and the environment in Mongolia; and the Asia Center's project developing Mongolian citizens' involvement in environmental monitoring, particularly in streams and rivers.

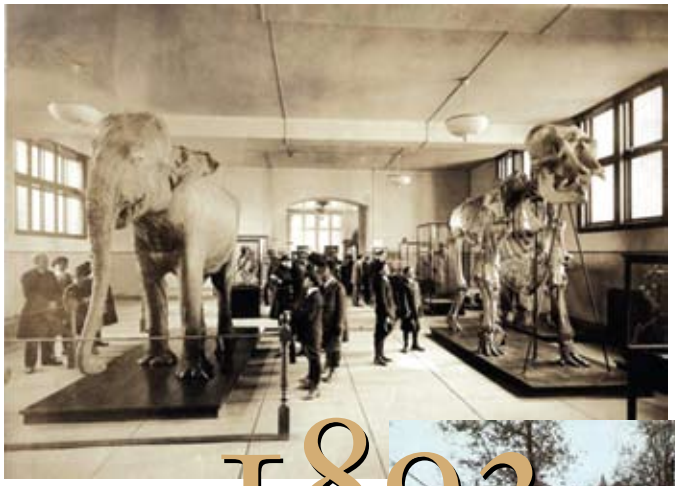
The call for donations to the scientific work in Mongolia yielded a hoard of useful surplus supplies from throughout the Academy's research sections, including museum cabinets, file cabinets, thousands of sample bottles, vials, pipettes, petri plates and the like, various glassware, and hundreds of scientific journals and other literature.

The purchased supplies will benefit the three projects, and the donated supplies will go to any number of universities and scientific institutions, through the Academy's network of scientists.

1876

Cathedral of Nature

Early photographs of the Academy show a place—both inside and out—that is hardly recognizable to modern eyes. From the street, it resembled a Gothic cathedral, complete with spires and arched doorways. Inside, it was also cathedral-like, with long, elegant, light-filled galleries. But, instead of pews were row upon row of skeletons, taxidermy mounts, display cases, and shelves of books. Everything was on display; nothing was in storage.



1892

Growth Spurts

Just 15 years after moving into its new building, the Academy began adding on. The first addition was a modest, two-story wing. It was followed four years later by a larger, four-story wing to the south. These new wings were filled with displays and collections ranging from archaeology to zoology. The tradition of placing everything on display was still strong, although a growing number of specimens were being kept in closed storage cabinets.

THE EVER-ACADEMY

by Barbara J. Ceiga

Natural history museums, especially long-lived ones like the Academy, have a reputation of being places that never change. In reality, most are always changing. Over the years, the Academy has undergone some remarkable changes—and we have the photographs to prove it.

The photographs on these pages were gathered together as part of the first phase of a Facility Master Plan Project recently completed by the Academy. They are just a few of the hundreds of images, architectural drawings, and construction documents that the master plan team studied as part of their work.

Individually, photographs like these are fascinating to look at. Together, they are a powerful reminder of just how much the Academy has changed since taking up residence at its current location at the corner of 19th and Race streets in 1876.

CHANGING

Change isn't just a thing of the past. More changes are in store as the Academy develops a facility-wide plan that not only brings all areas of the building into the 21st century, but also places the Academy on firm footing for many years to come. Realizing such ambitious goals will be challenging, especially in uncertain economic times. But as these photos show, the Academy has a long track record of making big changes.

Laboratories and Library Stacks

Some of the most dramatic changes have taken place behind the scenes. In 1976, a seven-story laboratory tower was built. Fourteen years later, a six-story tower housing new library stacks and more laboratories was added. These two towers added nearly 100,000 square feet to the Academy.

From Minerals to Earth History to Dinosaur Hall

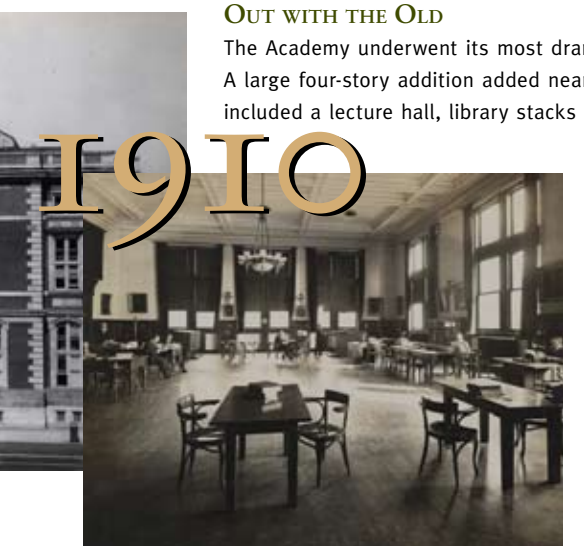
Even the Academy's permanent exhibits have changed over the years. The gallery known today as "Dinosaur Hall" dates back to 1986. Before that, it was the Hall of Earth History, and before that the Hall of Minerals.

Reclaiming "No Man's Land"

The soaring, double-height atrium above the second floor gallery of the original building was sacrificed to create more room for collections storage and curatorial offices. Iron railings were demolished, steel beams placed across the atrium, and the grand skylight covered up.

Out with the Old

The Academy underwent its most dramatic architectural transformation in 1910. A large four-story addition added nearly 30,000 square feet of interior space. It included a lecture hall, library stacks and spacious reading room, and curatorial offices and laboratories. Also at this time, the elaborate Gothic exterior of the original building was made over in granite, brick, and terracotta to match the new Neo-Classical wing. Many of the collections—including all of the library holdings—were placed in safe storage, not on public display. In the exhibit galleries, dioramas began to replace specimen-filled cabinets.



This summer, Dr. Marina Potapova began several projects to upgrade and expand the Academy's Diatom Herbarium, one of the largest collections of diatoms in the world.

ACADEMY'S TINIEST TREASURES GET AN UPGRADE

By Katie O. Clark

The Academy's Dr. Marina Potapova has got a big responsibility: serve as guardian over one of the world's largest collections of nature's tiniest organisms. Diatoms, a type of algae, are Potapova's area of expertise, and they are very often overlooked, even though they are found in great abundance in all aquatic ecosystems on the planet. Several of her projects underway this summer aim to give some well-deserved attention to these unsung heroes of environmental science.

What are diatoms?

Diatoms are protists, or one-celled organisms, that play a major role in aquatic ecosystems. Diatoms may be invisible to the naked eye, but under the microscope, a different story unfolds.

"When I see a live diatom sample, I can't stop looking at it. It's always moving, always working," Potapova says. Live diatoms are breathtakingly ornate and symmetrical—richly colored live tissue flutters and pulses in and around an intricate pattern of silica grids, lines, and holes, which make up a diatom's skeleton.

The skeleton, or frustule, is what's left behind when the organism dies. All of the specimens in the Diatom Herbarium are dead; only the silica shell is necessary to determine the species, and to ultimately tell the story of the environmental conditions and history of an area.

Extant, or living, diatoms are widely used for assessing the environmental health of an aquatic habitat. They are important indicators of water quality; the presence of certain species in an aquatic habitat can suggest specific environmental conditions such as salinity, pH level, or pollutants. Fossil diatoms are used to measure the age of the sediments in which they're found.

Diatoms are highly important primary producers in freshwater and marine ecosystems, yet they are very often overlooked. "Diatoms have been neglected just because they are small," Potapova notes. "But, they play a huge role in the biosphere. They are very abundant and they live everywhere where there is water. These tiny things that you cannot even see produce one-fifth of all of the oxygen in the biosphere."

Didymosphenia geminata, collected in Jackson River, Virginia, in September 2007. This is an invasive species currently spreading in U.S. rivers.

Pleurosira laevis, collected in Ridley Creek, PA, in 2008. This species is usually found in fresh or brackish waters, including moderately polluted rivers.

"....anyone will be able to access the herbarium no matter where they are in the world."

Renovating and expanding the Diatom Herbarium

Most of the more than 200,000 specimens in the collection are stored on microscope slides, although many of the specimens collected in the 19th and 20th centuries appear as green-brown smudges on antique paper or as tiny piles of fine dust in vials that could be scattered with a careless sneeze.

Earlier this year, Potapova received a $300,000 grant from the National Science Foundation to upgrade the storage of the collection and create online access to a new digital catalog of the specimens. The grant brings the storage and digitization of the collection in line with modern standards to make it an international resource for diatom science.

"Now, unless you come to the Academy, there is no way of knowing what we have," says Potapova. "When it's all online, anyone will be able to access the herbarium no matter where they are in the world."

Potapova and Curatorial Assistant Jennifer Beals have already started reorganizing and making room for several new storage cabinets.

"Once we have the new cabinets, we'll be able to retrieve a specimen more easily and send it to the person who requested it," she adds.

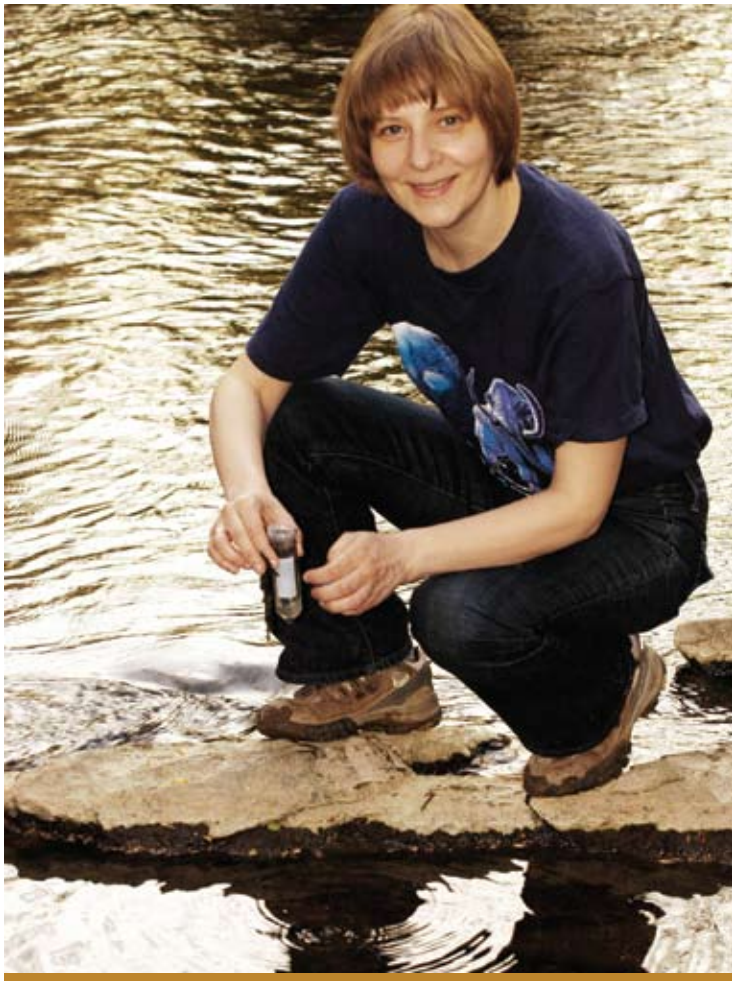
Concurrently, Potapova has been lake and stream hopping among the pristine, high-quality aquatic habitats of north-central Pennsylvania, an 18-month project funded by the Wild Resource Conservation Program of the Pennsylvania Department of Conservation and Natural Resources. This project makes the collection of diatom flora of Pennsylvania more complete. Collecting diatoms from these high-quality areas is important, Potapova says, since most of the Diatom Herbarium consists of samples collected from polluted waters.

"The diatom collections from the high-quality habitats in Pennsylvania are rare and therefore diatom species associated with them are relatively poorly known," she explains.

The more detailed knowledge gained about all diatoms, and whether they're "clean" or "dirty," the more valuable the Academy's Diatom Herbarium will be, Potapova says.

In addition to the goals of the project, Potapova hopes to discover new and rare species in north-central Pennsylvania. On a broader scale, she aims to increase awareness of diatoms and their considerable impact on aquatic ecosystems, despite their microscopic size.

"A loss of diatom diversity or shifts in their species composition caused by pollution or climate changes might have even larger consequences that those of the larger life forms like animals and plants," Potapova explains. "These tiny things are important."



History of the Academy's Diatom Herbarium at a Glance

The Academy's Diatom Herbarium, the largest of its kind in the country and the second largest in the world, is a primary source of taxonomic and ecological information. It includes approximately 220,000 slides, 5,000 of which contain type specimens. Materials include both fossil and recent diatoms collected from freshwater, brackish, and marine habitats. The core research collection was founded upon the collections of 19th- and early 20th-century amateur diatomists, and includes material from as early as 1771. Many additional collections have been contributed by diatomists working on all continents, including many from the water quality assessment projects of Dr. Ruth Patrick, founder of the Academy's limnology department in the 1940s, now known as the Phycology section. Potapova became Curator of the Diatom Herbarium in 2008. Since the 1940s, the Diatom Herbarium has been curated by Drs. Ruth Patrick, Charlie Reimer, Edward Theriot, and now, Potapova.

"It's a huge honor to be in charge of such a remarkable herbarium," Potapova says. "At the same time, it's a huge responsibility, particularly because you have to raise money to maintain the herbarium, initiate research projects, and create a user-friendly environment for the people who want to use it."

CALENDAR OF EVENTS

July

1
Tiny Tots Explorers
10–11 a.m.
Eco Explorers
11:15 a.m.–12 p.m.

8
Tiny Tots Explorers
10–11 a.m.
Eco Explorers
11:15 a.m.–12 p.m.

13
Science on Tap
"Cold Hard Science: Fossil Discoveries in the Canadian Arctic and the Origin of Limbed Animals," presented by Dr. Ted Daeschler
National Mechanics,
22 S. Third Street, Philadelphia
6 p.m.

15
Tiny Tots Explorers
10–11 a.m.
Eco Explorers
11:15 a.m.–12 p.m.

16
Town Square: Urban Sustainability Forum
Protecting Philadelphia Parklands
6:30–8:30 p.m.

18
Gecko Pet Workshop
10 a.m.–1 p.m.

20–24
Summer Explorers Camp
Water, Water Everywhere
9 a.m.–4 p.m.

22
Tiny Tots Explorers
10–11 a.m.
Eco Explorers
11:15 a.m.–12 p.m.

25–26
Art of the Gecko weekend
11 a.m.–4 p.m.

27–31
Summer Explorers Camp
Exploring Animal Antics
9 a.m.–4 p.m.

29
Tiny Tots Explorers
10–11 a.m.
Eco Explorers
11:15 a.m.–12 p.m.

August

3–7
Summer Explorers Camp
Fossil Frenzy
9 a.m.–4 p.m.

5
Tiny Tots Explorers
10–11 a.m.
Eco Explorers
11:15 a.m.–12 p.m.

10–14
Summer Explorers Camp
The Art of Nature
9 a.m.–4 p.m.

12
Tiny Tots Explorers
10–11 a.m.
Eco Explorers
11:15 a.m.–12 p.m.

15–16
Bug Fest
10 a.m.–5 p.m.

17–21
Summer Explorers Camp
Bugs...and Other Spineless Wonders
9 a.m.–4 p.m.

19
Tiny Tots Explorers
10–11 a.m.
Eco Explorers
11:15 a.m.–12 p.m.

20
Town Square
Urban Sustainability Forum
6:30–8:30 p.m.

26
Tiny Tots Explorers
10–11 a.m.
Eco Explorers
11:15 a.m. – 12 p.m.

ON EXHIBIT AT THE LIBRARY

Now through September, the Academy presents "Brethren of the Net: 150 Years of the American Entomological Society," a special exhibit outside the Ewell Sale Stewart Library. The exhibit celebrates the history of the American Entomological Society through its Philadelphia beginnings in 1859, its partnership with the Academy, and its continued emphasis on collections, a library, scientific publication, and education. The American Entomological Society is the oldest continuously operating scientific organization in the United States devoted to the study of insects. The Society celebrates its 150th anniversary in 2009.

September

7
"Geckos—Tails to Toepads"
exhibit closing

7–19
"Butterflies!" exhibit closes for its annual maintenance

9
Town Square
Investing in the Planet
6:30–8:30 p.m.

14
Science on Tap
Speaker TBA
National Mechanics
22 S. Third Street, Philadelphia

17
Town Square
Urban Sustainability Forum
6:30–8:30 p.m.

October

9
Philadelphia Shell Show and Festival
Preview party
6–9 p.m.

10–11
27th Annual Philadelphia Shell Show and Festival
10 a.m.–5 p.m.

12
Science on Tap
Speaker TBA
National Mechanics
22 S. 3rd Street, Philadelphia
6 p.m.

14
Town Square
Investing in the Planet
6:30–8:30 p.m.

15
Town Square
Urban Sustainability Forum
6:30–8:30 p.m.

23
Members' Night
5–9 p.m.

GET CONNECTED

Anyone can be a naturalist. In each issue of *Academy Frontiers*, our scientists and staff share their knowledge to help you develop a passion for nature in your own backyard.

In this issue, Entomology Curatorial Assistant Greg Cowper shares his passion for the "Dog-day" Cicada.

When Cowper thinks of summer, this noisy insect comes to mind. According to Cowper, July and August are months most commonly known for the annual emergence of this insect whose song is synonymous with summer—the Cicada. Its song, which only the male produces, is the steady buzzing underscore of the long, hot summer months.

"Their buzzing was very soothing to me as a child," says Cowper. "It was the white noise backdrop for a sticky summer's afternoon nap."

Bearing the common name "Dog-day" Cicada (*Tibicen canicularis*), it emerges during what are referred to as the "dog days" of summer in the mid-Atlantic region, hanging around through Labor Day. In addition to the male's overpowering song, the Cicada also make its presence known with the discard of its alien-like pupal shell. The light brown, fragile shells are cast off when it transforms from a pupa to an adult.

"These insects have a really neat metamorphosis—it's almost spiritual in a way," says Cowper. "They go through four stages (egg, larva, pupa, adult) and then emerge as this beautiful adult that can produce sound."

Once the adults emerge, the male Cicada sings that unmistakable, buzzsaw-like song to attract a mate. The sound it makes is not from rubbing its wings together as crickets do, but by rapidly vibrating membranes called timbals on the sides of its abdomen. The male contracts and retracts the timbals, creating a series of clicks, amplified by the hollowness of its abdomen.

Cicadas aren't easy to spot, because they are usually found high in trees. If you do spot an adult Cicada, watch for the quick rise and fall of its abdomen and listen for the corresponding change in pitch in its song.

"They're difficult to see but the best thing to do is look for pupal shells, listen for sound, try to pinpoint where the sound is coming from, and use binoculars to scan that area of the tree," Cowper suggests. This is the technique used by entomologists studying sound producing insects, he adds.

"Just listen for them and you'll find them," he says.

Book Review

THE SCIENCE OF DESCRIBING: NATURAL HISTORY IN RENAISSANCE EUROPE

by Brian W. Ogilvie

Reviewed by
Curator Emeritus of Botany Alfred E. Schuyler

Most of us, at one time or another, are questioned about what we do or what we are doing—something I'm asked often while I am out collecting wild plants. I used to tell them I was a "botanist." It soon became apparent that people wanted something more explicit. I then went to "museum curator." When this did not suffice, I told them I worked at a natural history museum in Philadelphia—the answer that finally satisfied their curiosity. I started to wonder why this answer worked so well while I was struggling to understand the meaning of "natural history."

Now I have some help with this question, at least from the standpoint of when and how natural history originated. In his book, *The Science of Describing*, Brian Ogilvie explains the "invention" of natural history step by step in the 15th and 16th centuries. The story begins in northern Italy where Niccolò Leoniceno (1428–1524) taught medical botany at the University of Ferrara. His library contained multiple manuscript and printed copies of Dioscorides' *Materia medica*, written in the first century. With great respect for this ancient Greek author, Leoniceno worked to correct errors made by medieval scribes and determine the identity of the medical plants described by Dioscorides. Leading medical faculties at Padua and Bologna followed suit and eventually courses in *materia medica* became commonplace in European universities.

With medical botany widely established, plants of medical importance became objects of careful study. In 1542, the German Leonhart Fuchs published his herbal *De historia stirpium*, with large woodcuts that portrayed plants with

Illustration: Hand-painted woodcut of a chili pepper (*Capsicum annuum*) in the Academy's copy of Leonhart Fuchs' *De historia stirpium* (1542).

considerable accuracy. The original art is of high quality, but the descriptions, for the most part, are copied from the ancients. Fuchs did, however, include two species of New World plants that could not have been known to ancient writers: Indian corn (*Zea mays*), which he thought came from Asia, and chili peppers (*Capsicum annuum*), which he erroneously thought the ancient naturalist Gaius Plinius Secundus, or Pliny the Elder, had described in the first century. Another contemporary German herbalist, Otto Brunfels, treated plants not described by the ancients as "herbae nudae" in his *Herbarium vivae eicones* (1532). He acknowledged the existence of plants that were not described by the ancients.

It gradually became apparent to those living north of the Alps that they were finding plants unknown to Dioscorides. Many of these plants became prized as garden plants for their aesthetic value and rarity, and medicinal value. The invention of the herbarium led to a collecting urge, so naturalists could study plants all year long. Eventually these factors led to a focus on defining and describing new species. Consequently, we find hundreds of new species in the published works of Carolus Clusius. In his *Rariorum plantarum historia*, published in 1601, Clusius followed his desire to enumerate the entire vegetable kingdom. The woodcuts and vicarious descriptions in his book bring the science of describing to a level that firmly establishes natural history as a scholarly discipline. The aim is to explore and catalogue the world of plants and animals. Medical botany is no longer at the forefront.

Ogilvie's book is a scholarly work that fully explores and documents the invention of natural history. We get a detailed prelude to the founding of natural history museums, the taxonomic scheme of Linnaeus, the evolutionary doctrine of Darwin, and the desire to preserve the biodiversity we continue to discover and describe.

Become a Friend of the Library

For as long as we can remember, we have had a Friends group dedicated to promoting the Library at the Academy of Natural Sciences. Membership in the Friends is open to all and includes those with a particular interest in rare or historical books or in the history of natural science. Members enjoy special exhibits, illustrated talks by noted historians, scientists, authors and bibliophiles, and receive a Friends of the Library newsletter.

The Friends' fund supports library collections and activities. It has enabled the conservation of rare books as well as the purchase of new books and technology. In recent years, the Friends played an integral role in raising money to endow the position of Academy Archivist.

If a person likes fish or fowl, or any other life form on Earth, our records from the past will be housed, and continuously updated, in the Academy's Library. Please consider becoming a Friend and supporting this endeavor.

– Donald H. Cresswell
President, Friends of the Library

For more information visit us on the Web at www.ansp.org/library/friends.php

A Director's Welcome

By Danianne Mizzy

When visiting the Academy, many people pass right by the Reading Room of the Ewell Sale Stewart Library, one of the loveliest rooms in Philadelphia. The Reading Room dates from the turn of the 20th century, although the Library goes back to the founding of the Academy in 1812.

This history of the Library is embodied in the 37 portraits of prominent Academy members that line the walls of the Reading Room, including founder Thomas Say, and contemporary figures such as Dr. Ruth Patrick. These eminent figures share the Reading Room with some equally illustrious birds. One of the five volumes of John James Audubon's double elephant folio of *The Birds of America* is always on view, with a new plate revealed every Friday.

Situated around the Reading Room are additional cases filled with changing exhibits, as well as Academy scientists and researchers from around the world delving into the Library's collections.

The reference collection in the Reading Room's glass-fronted cases is only the tip of the iceberg. The Wolf Rare Books Room and adjacent annex contain more than 2,600 rare books and hundreds of illustrated works from the 18th and 19th centuries. An additional 200,000 books are housed in the main stacks, consisting of more rare books, contemporary works, and lengthy runs of serial publications.

Most of the Library exists beyond the Reading Room, hidden from public view. Behind the scenes, librarians and staff support the Academy's research, curatorial, educational, and exhibition work. Materials are selected, cataloged, and circulated, but not just to Academy affiliates. Interlibrary loan of books and scanning of shorter works and articles allows Academy collections to be shared across the globe, and for Academy staff to obtain materials not available locally. The Academy also benefits from the cooperative program known as museum exchange. From the earliest days of the Academy, institutions have traded publications with one another; copies of Academy journals are shipped around the world. In exchange, we receive publications from more than 66 countries and 22 states.

Although much of the Academy is hidden behind closed doors, The Reading Room is an extraordinary place open for visitors to enjoy. The Reading Room is open Monday through Friday from 9:30 a.m. to 4:30 p.m. Research is available by appointment. We hope to see you soon.

Danianne Mizzy is the director of the Academy's Ewell Sale Stewart Library.

Donor Spotlight

Just a couple of years ago, Academy volunteer Jay Weiss knew next to nothing about the museum, except its address. Now, he says, he wakes up every day with a craving to be here.

Since 2007, Weiss, a retired carpet repair and cleaning business owner, has volunteered in Outside In, the children's nature museum at the Academy. It's a task that makes him happy and gives him a purpose, he says. Weiss became a volunteer after it was suggested by his girlfriend, who felt he wasn't busy enough, he says. Working with the children and live animals in Outside In is so important to him that he recently funded The Sherry E. Weiss Endowment for Outside In to ensure its future.

Weiss made the donation in honor of his late wife, Sherry, a Philadelphia school teacher for 30 years who often brought her third-grade students to the Academy on field trips. Weiss didn't know of his wife's class trips to the Academy until after she passed away in 2006.

"After I started volunteering, I began to feel a connection with my wife because I realized that she had taken her students here. Everything seemed to connect—it was an opportunity for me to be at a place that my wife visited," he says.

Weiss fell in love with Outside In rather quickly, he explains. And, his growing interest in working with the children is important for him as a person, and a way to honor his wife's memory.

By volunteering in Outside In, "I felt like I was keeping her passion for teaching alive," he says.

Weiss says he'd like Outside In to continue to prosper, and possibly even expand. He can see himself as a lasting part of its growth.

"I can imagine spending the rest of my life here," he says.

At the Academy, donors may set up an endowment to fund a specific interest. Weiss' endowment will support admission for students to the Academy and Outside In. For more information on funding an endowment, contact Linda Ellsworth at 215-299-1045. For information on becoming a volunteer, contact Lois Kuter at 215-299-1029.

Membership Matters

Are you traveling this summer? Take your Academy membership card along—as a member of the Association of Science-Technology Centers (ASTC) Passport Program you can get free admission to more than 300 science centers and museums around the world in a dozen countries.

Check the ASTC Passport Program list at http://www.astc.org/members/passlist.htm. The free general admission often does not include tickets to things such as giant-screen theaters, planetarium shows, or simulators. In addition, the program doesn't apply to some centers within a 90-mile radius of the Academy. However, enjoy free admission to the centers listed below.

Pennsylvania

Da Vinci Discovery Center of Science and Technology, Allentown 484-664-1002

Great Valley Nature Center, Devault 610-935-9777

Lancaster Science Factory, Lancaster 800-210-2927 (IDs)

National Watch & Clock Museum, Columbia 717-684-8261

North Museum of Natural History and Science, Lancaster 717-291-3941

Reading Public Museum, Reading 610-371-5850

Whitaker Center for Science and the Arts, Harrisburg 717-221-8201

Delaware

Delaware Museum of Natural History, Wilmington 302-658-9111

Hagley Museum and Library, Wilmington 302-658-2400

Iron Hill Museum (Delaware Academy of Science), Newark 302-368-5809

Maryland

Maryland Science Center, Baltimore 410-685-5225 (IDs)

New Jersey

The Newark Museum, Newark 973-596-6550

New York

Intrepid Sea, Air & Space Museum, New York 212-245-0072

New York Hall of Science, Queens 718-699-0005 (IDs)

New York Transit Museum, Brooklyn 718-694-1600

Staten Island Children's Museum, Staten Island 718-273-2060

So get out and have some fun with science this summer. Not just at the Academy, but wherever you may roam.

green gala

The Academy's social calendar is filled with exciting events all year long, many of which are members only events. Invitations to special events, receptions, and preview openings are just a few of the benefits available to Academy members.

Some recent events included the first Green Gala, hosted by the Academy on May 2. This unique fundraiser highlighted the Academy's commitment to biodiversity, conservation, and environmental sustainability. Gov. Edward Rendell greeted the more than 170 guests, who enjoyed dancing and an organic dinner. There was a silent auction of unique "green" products and experiences with Academy scientists, as well as behind-the-scenes tours of research and collection areas. We plan to make this an annual event, so join us next year to celebrate the Academy's dedication to a greener Philadelphia and planet.

Thanks to all of our donors and to these table sponsors:

Becker & Frondorf
Hangley Aronchick Segal & Pudlin
Pepper Hamilton LLP
SaylorGregg Architects
West Pharmaceutical Services, Inc.

Nancy and Ken Warren were the co-chairs of the event.
Jim McWilliams/ANSP

The Academy goes green for the evening.
Bruce Tepper/ ANSP

Gov. Edward G. Rendell with Academy President William Brown.
Jim McWilliams/ANSP

Guests admire an Iguana, held by handler Karen Verderame.
Jim McWilliams/ANSP

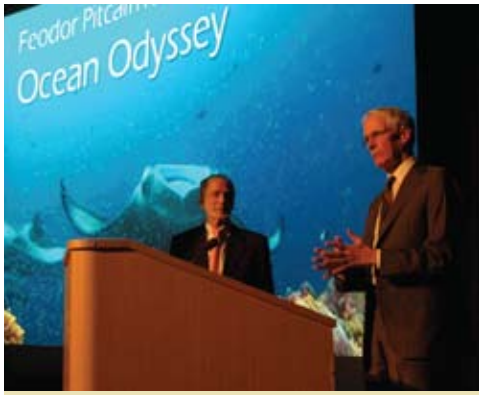
Exhibit Preview

Members enjoyed a special preview of our new exhibit "Geckos—Tails to Toepads" on May 29. Our supporters were the first to see the more than 75 live geckos representing 13 species from around the world. The exhibit runs through September 7.

Academy volunteer Judi Gerstl (left) and Academy member Lindsey Wan observe a gecko in one of the exhibit's 14 naturalistic habitats.

Private Screening

Academy members were also invited on March 24 to attend a private screening of "Ocean Odyssey," filmed by world-renowned filmmaker and long-time ocean conservationist Feodor Pitcairn. The film was created for the Smithsonian Institution's National Museum of Natural History's Sant Ocean Hall, which opened last year. The 57-minute film features stunningly beautiful, rarely witnessed underwater life from exotic locales including the Galapagos, Raja Ampat, Maldives, Azores, French Polynesia and Belize. "Ocean Odyssey" was presented in high definition through the month of April in the Academy's auditorium in honor of Earth Day.



Feodor Pitcairn (right), with Academy President William Brown, speaks of the adventures that come with the production of his film, edited from thousands of hours of underwater footage.

SNAPSHOTS

A spotlight on Academy work and projects behind the scenes and in the field.

Behind the Scenes

The Academy recently took possession of the Alfred Cookman bird collection, including 728 birds skins, mainly from California, collected in the early 1900s. The collection holds skins of some exceedingly rare birds such as California Gnatcatcher, Black Rail, Least Tern, Island Scrub Jay, and Galapagos Mockingbird.

Alfred Cookman was a high school science teacher in southern California who, as part of his work as an educator, amassed an impressive collection of bird study skins to use in his lectures. He had a traveling naturalist road show of museum specimens that he would use to educate the public about the natural world. Included with the collection of skins were a number of supporting documents and photographs of his travels.

The collection arrived at the Academy packed in two large wooden crates. Through years of neglect, the collection was in generally poor condition with many specimens balled together in the packing crates. After a few days of unpacking and feather grooming, the skins are now a part of the Academy's Ornithology collection, which consists of more than 200,000 bird study skins.

In the Field

Dr. David Velinsky (left) and Paul Kiry of the Academy's Biogeochemistry group take two-meter cores from the tidal wetlands around the Delaware Estuary during a recent trip in Stow Creek, N.J. In some cases the core needs to be dug out in order not to disturb the sediment structure that can provide a historical record of the ecosystem over the past 100 to 150 years.

This research is funded by the Delaware River Basin Commission and the Academy's Environmental Associates and provides one of the largest databases for any estuary in the United States.

FLASHBACK

Stepping back in time into the Academy's rich history

Photo courtesy of Eleanore Sue Matuskowitz

This 1907 photograph captures a group of dignified gentlemen posing under the impressive antlers of an Irish Elk in the main exhibit hall of the Academy. The group was the Feldman Collecting Social, a local entomological club, and the occasion was its 20th anniversary.

At the time of the club's founding, Philadelphia was already home to the older and more prestigious American Entomological Society. However, according to an article from 1896, "…it long ago became apparent to the younger entomologists of Philadelphia that there was room for another society having for its subject the fostering of social features which they seemed to recognize would not be in keeping with the dignity of a society of world-wide reputation."

Apparently, the "social features" mentioned in the article referred to the light meal that followed the monthly meetings of the Feldman Collecting Social. After the business of sharing their latest finds and discussing techniques for capturing and preserving their quarry, the group would "adjourn to the annex" where refreshments were served and conversation continued late into the night.

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." The Academy is grateful for support of any kind. To make a gift to the Academy, please contact the Department of Institutional Advancement at 215-299-1022 or by e-mail at membership@ansp.org.

For Science Research

$20,000 will purchase a fish tagging and tracer system for the Patrick Center.
$20,000 will purchase a new dissecting microscope for the Patrick Center.
$10,000 will purchase a new digital camera and image capture system for the Patrick Center.
$8,000 will purchase stereo microscopes for working with microscopic insects and arthropods on slides.
$3,500 will fund the renovation of specimen storage cabinet(s) for the W. S. Vaux Mineral Collection.
$100 will purchase a 1000ml graduated cylinder.
Access to an apartment in the vicinity of the Academy to house visiting researchers.

For Education and Exhibits

$200 will purchase a general wrench set for use by the Exhibits Department.
Gift certificates (any amount) for grocery stores to purchase animal food for the Live Animal Center.

For the Ewell Sale Stewart Library

$25,000 will purchase a color planetary scanner for rare and oversize books.
$25,000 will purchase ContentDM software and hosting.
$8,000 will purchase an annual subscription to ZooTaxa, the world's foremost journal in taxonomy.
$2,200 will fund an annual subscription to BioOne, a database of more than 150 scientific journals.
$2,000 will purchase a museum-quality vacuum for use in Academy archives.
$525 will purchase an annual subscription to Cataloger's Desktop software.
$500 will purchase Climate Notebook environmental monitoring software.
$300 will purchase a drafting chair for library scanning station.

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