

ACADEMY

FRONTIERS

The member magazine of the
Academy of Natural Sciences
of Drexel University

WINTER 2012



Greetings From the Academy

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

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ON THE COVER: The vibrant plumage of an Agami heron (Agamia agami) from the Academy's Ornithology Collection. Photo by Mark Laita.



THE NEW YEAR IS UPON US, and the Academy has plenty of reasons to celebrate. On October 26 we hosted a free community day and press conference to mark our new affiliation with Drexel University. Along with Drexel President John A. Fry and Mayor Michael Nutter, I welcomed school students, visitors, and staff to the Academy of Natural Sciences of Drexel University. Scientists provided botanical-specimen-making demonstrations, mammal skull identification lessons, chances to peer at microscopic algae, and more! Our young visitors made triceratops and Mario the Dragon sock puppets and even met our mascots in person.

Our staff closed the week with a reception at Drexel's Papadakis Integrated Sciences Building. The event provided an opportunity for Academy staff to mingle with our host, John Fry, and our new Drexel colleagues. Complete with a 75-foot biowall of plants which serves as a biological air filter, the Papadakis Building will be the home of a new department at Drexel called Biodiversity, Earth, and Environmental Sciences (BEES). Academy and Drexel scientists will lead the department, which will accept its first students in fall 2012. Turn to page 10 to learn how two Drexel students already are benefitting from our partnership.

The coming year offers exciting programs, events, and an exhibit in honor of 200 years of discovery here at one of the world's greatest natural history museums. Turn to page 11 to find out about our upcoming book talk and signing, scientific symposium, environmental programming, and more. I hope you've been following us online at ansp.org/200/stories as we reveal Academy tales about folks ranging from our researchers and Edgar Allan Poe to our record-breaking python and a teenaged mummy who lived 2,200 years ago.

I look forward to seeing you here at the Academy this year. Thank you for your many generous gifts to the Annual Fund. Your support allows us to continue to share our science and discoveries, today and into our next 100 years.

All the best,

A handwritten signature in black ink, appearing to read 'George W. Gephart, Jr.', written in a cursive style.

George W. Gephart, Jr.
President and CEO

ACADEMY FRONTIERS

Winter 2012

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JOIN US FOR THESE UPCOMING EVENTS!

JANUARY

- HEAT WAVE WEEKEND
Saturday–Monday, January 14–16, all day
- URBAN SUSTAINABILITY FORUM, WALKABILITY:
PHILADELPHIA STRIDES INTO THE FUTURE
Thursday, January 19, 6 p.m.
- AN INSECT COLLECTION: PINNING AND PRESERVING
ADULT PROGRAM
Tuesday, January 31, 6:30 p.m. 💰 🗳️

FEBRUARY

- TINY TOT EXPLORERS
Wednesdays, February 1–Wednesday, March 14,
11 a.m.–noon 💰 🗳️
- BUDS AND BARK ADULT FIELD STUDY
Saturday, February 4, 11 a.m. (Snow date: February 11) 💰 🗳️
- SAFARI OVERNIGHT
Saturday, February 4–Sunday, February 5,
6:30 p.m.–9 a.m. 💰 🗳️
- MEGA-BAD MOVIE NIGHT:
THE LOST WORLD: JURASSIC PARK
Thursday, February 9, 6:30 p.m. 💰
- URBAN SUSTAINABILITY FORUM
HIGH TUNNELS: A SUSTAINABLE SOLUTION FOR
LOCAL URBAN AGRICULTURE
Thursday, February 16, 6 p.m.
- PALEOPALOOZA
Saturday and Sunday, February 18–19, all day

MARCH

- SAFARI OVERNIGHT
Friday, March 9–Saturday, March 10, 6:30 p.m.–9 a.m. 💰 🗳️
- SKETCH-A-SAURUS ADULT PROGRAM
Saturday, March 10, 10 a.m. 💰 🗳️
- BICENTENNIAL WEEKEND
Saturday and Sunday, March 24 and 25, all day
- ACADEMY EXPLORERS CAMP
Wednesday, March 28–Tuesday, April 10 (weekdays),
9 a.m.–4 p.m.
Ages 5–12, Before- and after-care available. 💰 🗳️

APRIL

- SCIENCE ON TAP: MONGOLIAN FISH HUNT
Monday, April 9, 6 p.m.
National Mechanics, 22 S. Third Street, Philadelphia

💰 Fee 🗳️ Registration required

Unless otherwise noted, all events held at the Academy are free with museum admission.

Visit ansp.org for more information and to register.

On Exhibit



Charley Harper

Beguiled by the Wild: The Art of Charley Harper

ART OF SCIENCE GALLERY
THROUGH FEBRUARY 26, 2012

Known for his highly stylized wildlife prints, posters, and book illustrations, American artist Charley Harper (1922–2007) developed a strong love of nature as a child growing up in West Virginia. This fascination is clear in *Beguiled by the Wild: The Art of Charley Harper*, the Academy's newest installation in the Art of Science Gallery. Through delightfully graphic geometric shapes and vivid colors, Harper's work continues to inspire environmental stewardship in people of all ages.

Beguiled by the Wild: The Art of Charley Harper was created by the Virginia Living Museum.

Everything Under the Sun: New Photographs of Academy Specimens by Rosamond Purcell

ART OF SCIENCE GALLERY
MARCH 3–MAY 20, 2012

Photographer Rosamond Purcell captures the extraordinary nature of everyday objects. A world-renowned Boston artist and author who has photographed natural history and anatomical collections for years, Purcell was the official photographer for Robert M. Peck and Patricia Tyson Stroud's new book *A Glorious Enterprise: The Academy of Natural Sciences of Philadelphia and the Making of American Science* (University of Pennsylvania Press, April 2012). In this exhibit, Purcell presents a selection of the book's stunning color photographs that depict some of the amazing specimens in the Academy's vast collections. Purcell shot all of the objects in natural light, and her artistry reveals the beauty of these Academy wonders.



Rosamond Purcell

The Academy at 200: The Nature of Discovery

CHANGING EXHIBITS GALLERY
OPENING MARCH 24, 2012



TWO HUNDRED YEARS *of* DISCOVERY

Building on the Academy's extraordinary collections and two centuries of scientific exploration, this exhibit celebrates our groundbreaking discoveries of the past and present and provides a glimpse into our future. Journey alongside Academy scientists as we search for new species and explore how human activity is affecting the environment. Encounter rare and amazing specimens from our collections, and find out how

scientists use these specimens to understand environmental issues from pollution to climate change. Join with the Academy in our commitment to shaping a sustainable future for our community and our planet. Step into our shoes and experience your favorite natural history museum in a whole new way at *The Academy at 200: The Nature of Discovery*.

ROLAND WALL: BUILDING THE CENTER FOR ENVIRONMENTAL POLICY

SEEING THE NATURAL WORLD UP CLOSE WAS A HOBBY FOR ROLAND WALL before he joined the Academy. When he wasn't working as a clinical social worker and social service administrator, Wall made time to watch birds, boat, hike, and read about environmental issues. In 1999 he left his 15-year social service career to make his hobby a way of life.

Ruth Patrick, founder of the Limnology Department (now the Patrick Center for Environmental Research), hired Wall as a science writer and coordinator for the Environmental Associates, a group of corporate executives and Academy supporters concerned about the environmental effects of industrial activities. In addition to writing the monthly *Know Your Environment* series and managing the Associates, Wall returned to the University of Delaware to pursue a graduate degree in Applied Ecology.

"In the early 2000s, a new generation of environmental thinking was developing, with a focus on the connections between the environment and economics," Wall says. "I learned a lot about sustainability fairly quickly."

As Wall's leadership role at the Academy grew, so did his desire to enhance our environmental programming. When then Vice President of the Patrick Center David Hart suggested a Town Square series, Wall eagerly began to develop the concept.

"We first envisioned the Town Square as a modest program with four to five public events a year with our scientists, but we realized that outside scientists and speakers could add valuable insights into the environmental issues evolving at that time," he remembers.

In 2005 Wall planned a Town Square featuring a big-screen video conference with sustainable development leader William McDonough. The speaker's reputation drew a new audience of architects and designers, including engineer Rob Diemer of the Delaware Valley Green Building Council. Inspired by the attendance, Diemer approached Wall with the idea for the Urban Sustainability Forum, a collaboration of local leaders who would raise environmental awareness and influence local and national sustainability efforts through innovative programming.

"Though we planned only six initial programs, we continued when we saw how the Forum linked previously disjointed environmental groups," Wall explains.

The Academy-sponsored program became influential, serving as a forum for Philadelphia mayoral candidates in 2007. "It was a great way to develop a relationship with the future administration's Office of Sustainability," says Wall.

With the Academy's increasingly prominent position in the local environmental community, the William Penn Foundation encouraged the institution to bring its environmental

expertise into the policy realm. In 2007 Wall and colleagues formed the Center for Environmental Policy (CEP) to engage government, business, and stakeholder groups as well as the general public.

Today CEP holds 45 programs a year featuring Pulitzer Prize winners, government officials, and environmental experts. Now the Director of CEP, Wall is excited to see how the affiliation with Drexel University will advance this programming. With support from Drexel's public health, engineering, and policy specialists, programming will continue to reflect the most up-to-date environmental ideas, he says.

"Environmental thinking increasingly connects to urban development, infrastructure, and resource availability—basic issues for how society works," Wall notes. "The Academy's focus on connecting people with nature takes on a more critical meaning in the context of overtaxed ecosystems and diminishing resources."

Whether focusing on his own efforts to live more sustainably or the ways he can strengthen the Academy's role as a convener on environmental issues, Wall remains passionate about preserving our natural resources.

"My work connects me to some of the most critical issues in the world today," he says. "I get to talk to the smartest people about the most important issues on Earth."

Turn to page 19 to hear from Wall about CEP's 2012 programming.

~ Mary Alice Hartssock

Academy Abbreviated



Kelly & Massa Photography

ACADEMY/DREXEL AFFILIATION DAY

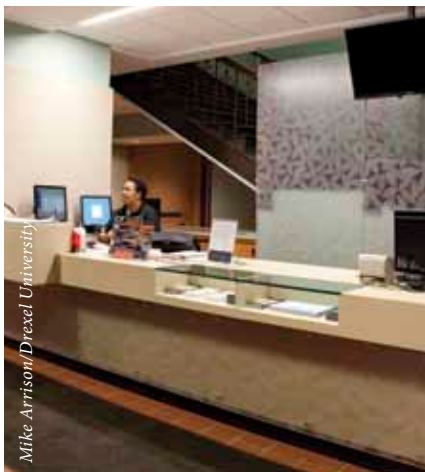
On Wednesday, October 26, the Academy of Natural Sciences and Drexel University hosted a free community day to mark the signing of a historic affiliation agreement between the two institutions. The new affiliation promotes learning, discovery, and civic engagement in the natural and environmental sciences, creating an internationally recognized powerhouse in scientific research and education.

Attendees posed for pictures with Drexel's Mario the Dragon and the Academy's triceratops mascot, had their faces painted, and made dinosaur and dragon puppets to take home. Our scientists shared their knowledge about plant preparation, snail imaging, chemical testing, and more. Visitors explored Dinosaur Hall and hunted for dinosaur bones in the *Big Dig*. They also watched fossils being prepared for study in the Fossil Prep Lab.

DRESSING UP THE ACADEMY

In March 2011 the Academy's Board of Trustees personally agreed to fund more than \$700,000 in renovation projects aimed at "Dressing Up the Academy" in preparation for the Bicentennial. The list of projects included changes to our 19th Street lobby, where construction crews created a brighter, more welcoming space to address the needs of arriving and departing visitors, visitors with special needs, and school groups. The new lobby features upgraded finishes, new furniture, improved lighting, automatic doors, and a new admissions desk.

At the Florence R. Foerderer Live Animal Center, new signage acquaints visitors with the animals and the staff that care for them. In the Art of Science Gallery, you'll notice a new panel featuring our Irish Elk (*Megaloceros giganteus*), which asks viewers to consider the intersections between art and science.



Mike Arrison/Drexel University



THE ACADEMY IN THE COMMUNITY

In November, 800 sixth- through eighth-graders and their teachers came to the Academy for two career days made possible by a grant from the Philadelphia-based chemical manufacturer FMC Corporation with support from Pfizer. The FMC grant enabled the Academy to help Philadelphia public middle school students and their teachers learn more about the variety of learning and career opportunities in science, technology, engineering, and math.

Participants found out about local after-school activities such as the Academy's Women in Natural Sciences program, which works closely with underserved high school girls. Academy scientists described how they first got interested in science and how they have applied their schooling to their careers. Teachers got information on Academy resources that will help them integrate math and science into their regular curriculums.

GREEN AWARD

In October the Academy was named as the recipient of a Green Power Award for leadership in supporting sustainable energy and for its renewable energy policy. The award from Citizens for Pennsylvania's Future (PennFuture) recognized the leadership role of the Center for Environmental Policy in

the Urban Sustainability Forum, a collaboration of local organizations with the common goal of making Philadelphia the greenest, most livable, and most sustainable city in America.

The award also was given for the Academy's offsetting its expected energy use with 100 percent renewable energy

over a two-year period with Green-e certified renewable energy certificates donated by GDF SUEZ Energy Resources. We are extremely grateful to receive this award as recognition of our commitment to environmental research, protection, and education.

SHAPING OUR STREAMS

Anyone can be a naturalist. In each issue of *Academy Frontiers*, our scientists share their knowledge to help you explore the natural world. In this issue, Dr. Jerry V. Mead, assistant scientist and leader of the Watershed and Systems Ecology section of the Patrick Center for Environmental Research, describes one way to determine how weather patterns affect your neighborhood streams.

Throughout the year, weather changes affect the shape and composition of stream channels. The degree to which weather variations transform stream channels often depends upon the moisture content of the soil around a stream before a major weather event, Mead explains. When the soil's moisture content is high, additional moisture from an intense rainstorm or melting snow can modify the stream channel shape, intensify stream bank erosion, increase the speed and volume of flowing water, and shift the streambed's composition.

Comparing photographs taken before and after a winter storm is an excellent way to assess stream channel changes, says Mead. Select a stream that measures 10 meters wide or less between the tops of each bank. Standing above the bank and away from the slope, position your tripod near a landmark (such as a tree or boulder) that you will be able to find again. Focus your camera on a large, prominent object on the opposite stream bank and snap a photograph. Then note the object and the exact location, direction, and zoom from which you took the photograph.

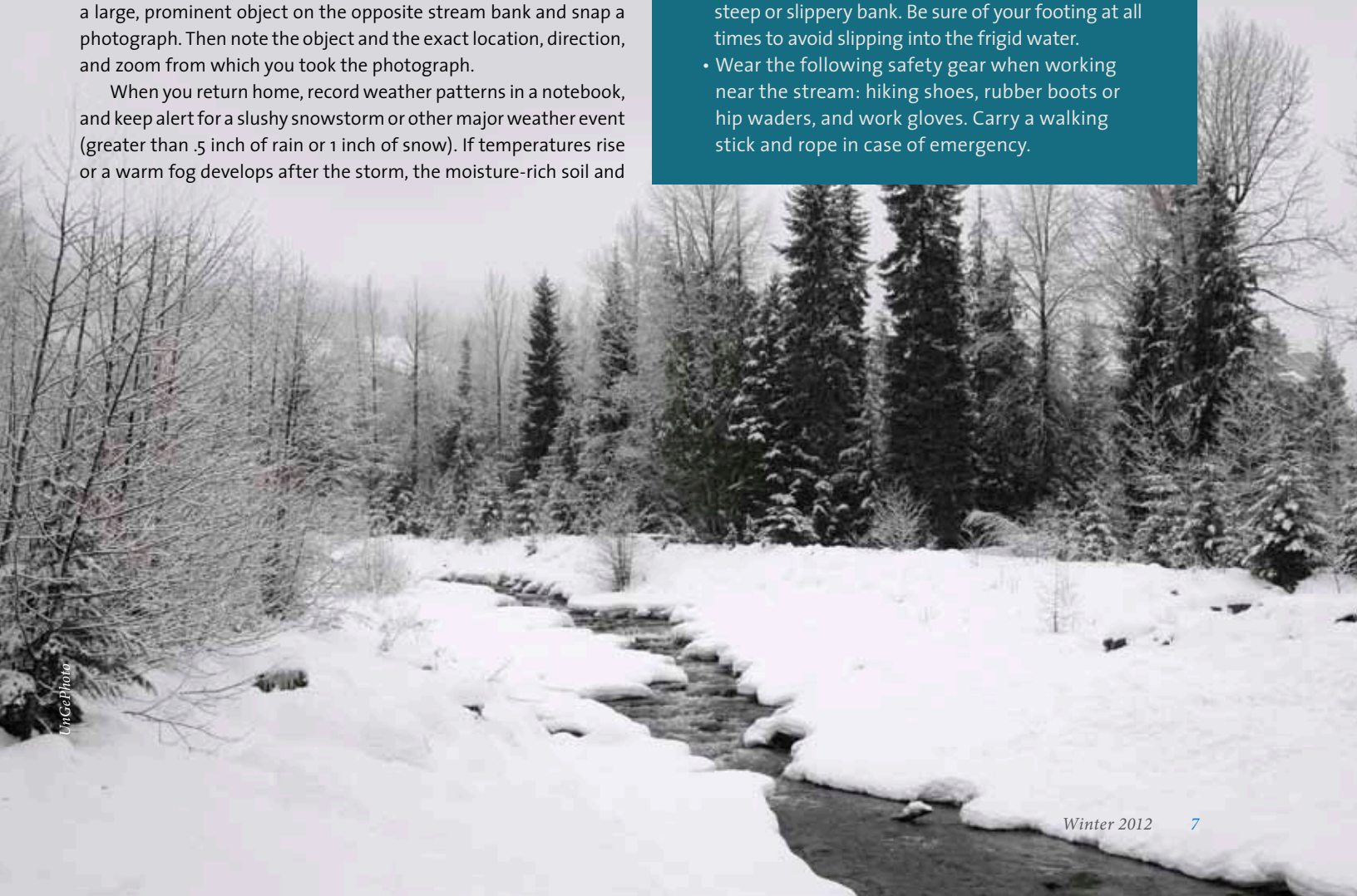
When you return home, record weather patterns in a notebook, and keep alert for a slushy snowstorm or other major weather event (greater than .5 inch of rain or 1 inch of snow). If temperatures rise or a warm fog develops after the storm, the moisture-rich soil and

increased flow may alter channel width or modify bank elevation and vegetation. Wait for a week after the weather event until dangers of high water and fast-moving currents have subsided, advises Mead. Then return to your original landmark to take another photograph of the object on the opposite bank. Compare the photos and identify the changes! 🌊

SAFETY FIRST!

Follow these safety guidelines when traveling to any stream:

- Have a buddy with you at all times, and let someone know where you are going and how long you expect to be there.
- Carry a cellphone in case of emergency.
- Use extreme caution when walking near a stream.
- Do not travel to a stream during inclement weather, when water is high, or when currents are strong. Wait for the water to recede to low flow before working near the stream.
- Do not work near a stream if snow or ice is covering the ground around the stream. Do not work on a steep or slippery bank. Be sure of your footing at all times to avoid slipping into the frigid water.
- Wear the following safety gear when working near the stream: hiking shoes, rubber boots or hip waders, and work gloves. Carry a walking stick and rope in case of emergency.





*Nate Rice shows off an Omei Warbler (*Seicercus omeiensis*) collected during the Academy's Sinkler expedition to Thailand in 1938. This important species is one of many that Rice collected during his recent expedition to Vietnam.*

Mike Arrison/Drexel University

Ordering the Wilderness

By Mary Alice Hartsock, Editor

Like many great Academy ornithologists that came before him, Ornithology Collection Manager Dr. Nate Rice gets cabin fever. He is passionate about managing the bird collection, and he gets equally excited about exploring wild regions and documenting the fauna there. That's why when ornithologists from the University of Kansas approached Rice with a project that provided him the chance to travel to an isolated area of northwestern Vietnam, he jumped at the chance to participate.

The expedition, which would support the work of the United States Centers for Disease Control and Prevention (CDC), focused on surveying local and migratory birds for emerging diseases such as avian influenza, which might be transferrable to humans. The trip provided Rice and his University of Kansas colleagues the opportunity to collect birds in a difficult-to-access region.

"It's a perfect partnership because the CDC is interested in the diseases, and my goal is to continue the Academy's centuries-long effort to collect and document birds in Asia," he says.

The team traveled to the area in 2010, and they returned in March 2011 for a six-week expedition. Preparation for the trips required months of gathering permits for national park and

forest access, bird collection, and specimen shipping. Rice joined three ornithologists, one herpetologist, four Vietnamese field biologists, a translator, and a Vietnamese cook for the 2011 trek.

"We try to go to the most remote areas possible," Rice explains. "This year we took a small plane to an airstrip in northwestern Vietnam, and we made our own trail as we hiked into the mountains. No matter what the country, we try to get as far away from human settlement as possible to get a sense of what the fauna is like in a certain natural environment.

"We study a lot of maps ahead of time, and we use GPS units in the field. We're hiking five or 10 kilometers a day—so we can't help but get lost! It's part of the fieldwork and being out in nature."

Rice does not hesitate to admit that fieldwork has its challenges. This year he and his colleagues geared up for tropical temperatures, but they found themselves in unseasonably cold weather. Food was sometimes difficult to find, especially when the team struggled to contact a nearby village for food.

But the thrill of collecting outweighed the practical difficulties. “Our goal was to document all of the species we could find in a certain area,” Rice says. “If we were unable to collect a bird, we made sure to record its voice.”

The intricate work of disease testing occurred deep in the wilderness. Rice and the team caught birds in nets; swabbed the birds’ mouths, posterior openings, and lung tissue; and preserved the CDC-bound swabs in ethanol.

“Based on last year’s trip, one percent or so of the specimens that we collect will have some active influenza,” Rice explains. “Those samples are used to make the next year’s flu vaccine.”

After the sampling was complete, Rice and his University of Kansas colleagues focused on preparing the specimens and preserving the tissues in ethanol. When the skins were dried, they were packed for shipment to the United States. The specimens will be used for a variety of ecological and evolutionary studies after being accessioned into the ornithology collections of the Academy and the University of Kansas.

In addition to gathering influenza antibodies, Rice and his colleagues are expanding researchers’ understanding of the diversity of birds in Asia. The teams will be performing genetic sequencing studies on some of the difficult-to-identify birds, because only the comparison of these birds’ DNA sequences with those of similar bird groups can determine their actual identities.

“We found quite a few species of birds that have never been documented for Vietnam,” Rice notes. “Knowing that these species are in the region increases the known avian biodiversity for that area, which can be critical to our understanding of current conservation issues and broad scale land-use planning.”

The specimens that Rice gathered will be unpacked, cataloged, databased, and housed in the Academy’s Ornithology Collection next to other bird skins that our ornithologists collected in Asia during expeditions dating back to the 1800s. According to Rice, recording the specimens’ data is just the first step in the research world’s utilization of these specimens.

“Scientists around the world are very excited about what we’re bringing back from this remote region and the research potential of these specimens. Next year, in 10 years, and 100 years from now, new research techniques will lengthen the lives of the specimens. My work is just one piece in two centuries of such research that will continue well after my time here.” ∞



Nate Rice (center), former Academy Ornithology Collection Manager Mark Robbins (left, now at the University of Kansas), and Erick Alejandro Garcia-Tokay of Universidad Nacional Autonoma de Mexico pause during a hike through a mountain pass in northern Vietnam.

Charles Linkem

LOOKING TOWARD THE FUTURE: DREXEL STUDENTS LEAD THE ACADEMY INTO ITS 200TH YEAR

By Michelle Chikaonda

“I’ve always liked playing in the mud!” says Viktoria Unger, a research assistant in the Patrick Center for Environmental Research and a master’s student in Drexel University’s Department of Environmental Science. While her work at the Academy is far more complex than playing in the mud—she studies the buildup of sediment in coastal wetlands—the recent affiliation of the Academy and Drexel University has allowed Unger to follow her passion for environmental research. She is one of many Drexel students who will benefit greatly from this partnership.

The affiliation presents myriad opportunities for future students to connect academic research with real-world experience, strengthening their learning while raising their competitiveness in a challenging job market. Since the 1990s, the Academy of Natural Sciences has worked with Drexel University’s co-op program, which helps students obtain resume-enhancing employment in practical, major-related positions before graduation.

The formal partnership between the institutions now gives the co-op program tremendous room to grow. The Patrick Center’s Director, Dr. David Velinsky, is hoping that the involvement of Drexel co-ops will expand in the next few years.

“This is a great clinic for experiential learning and future job opportunities,” says Velinsky, who believes the new opportunity for research partnerships is “a prospect that is very exciting.”

Ian O’Malley is a sophomore biology major at Drexel, currently undertaking his work co-op at the Academy’s Diatom Herbarium. At the beginning of his co-op, he entered data on already-completed research; he now takes digital pictures of microscope samples, studying and grouping the samples into species. This research will eventually be used in the North American Diatom Database.

“I have a sense of pride about my work,” he says. “I can see real-world results from my research, and that’s pretty great.”

The guidance O’Malley received at Drexel prepared him for the level of professional laboratory work he is responsible

for at the Academy. His now largely self-driven work has “massively improved [his] confidence with laboratory and microscope work.” He will bring this confidence to his studies at Drexel when he returns for the academic portion of his sophomore year.


Like O’Malley, Unger believes in the importance of merging academic study and professional experience. Her master’s thesis at Drexel focuses on determining the rate of carbon storage in coastal marshes in the context of the effects of climate change and rising sea levels. This work is an ideal match for her Academy work on understanding the ecosystem factors influencing sediment build-up in coastal wetlands.

Unger says that her choice to undertake her masters at Drexel ultimately was not a choice at all. Having already interned at the Patrick Center for several months when she was considering her options for graduate study, she recognized that Drexel’s curriculum would fit perfectly into her research here at the Academy. Plus, attending Drexel for her master’s

study allowed her to stay in Philadelphia while continuing to work with people she respects on research she loves.

“I wanted to expand on existing partnerships [between Drexel and the Academy],” she says. “I liked the people here, the research is here, the funding is here, and there was significant opportunity present in studying at Drexel to expand on the work I was already doing at the Academy.”

Unger, O’Malley, and their classmates are an essential part of the Academy and Drexel’s

successful collaboration, and their work will enable them to contribute to the future development of their fields. Unger hopes to become a research scientist for the Environmental Protection Agency, and O’Malley is intrigued by the possibility of field research after hearing about the “amazing adventures” of Academy scientists. Regardless of where their paths lead, these students are leaving meaningful foundations of collaboration and research for future young researchers to build upon. 



Mike Arrison/Drexel University

Graduate research assistant Viktoria Unger washes soil cores from a marsh to measure root material. Examining the below-ground biomass of these plant materials helps her assess the productivity of the marsh.



Mike Arrison/Drexel University

Drexel sophomore Ian O'Malley surveys the many boxes of slides in the Academy's Diatom Herbarium.



TWO HUNDRED
YEARS of DISCOVERY

2012 AT THE ACADEMY

By Mary Alice Hartsock, Editor

Since its 1812 founding, the Academy has become a world leader in biodiversity and environmental research. We invite you to celebrate with us from March 2012 to March 2013 as we mark 200 years of discovery with a year of fantastic exhibits, events, and programs.

AT THE MUSEUM

On March 24 and 25, join us as we kick off our Bicentennial with a public celebration featuring family activities, educational programming, music, games, crafts, and birthday cake. We will reveal *The Academy at 200: The Nature of Discovery*, an exhibit that highlights the groundbreaking discoveries of the past and present and provides a glimpse into our future. See rarely seen specimens and look over Academy scientists' shoulders as they travel the globe, seek to understand the natural world, and help others learn from their findings.

Get a historical perspective on our work on Wednesday, April 25, at a book talk and signing for *A Glorious Enterprise: The Academy of Natural Sciences of Philadelphia and the Making of American Science*. Written by Senior Fellow Robert M. Peck and historical biographer Patricia Tyson Stroud, this illustrated history of the Academy includes photographs by Rosamond Purcell.

This spring we will honor the brilliant women in the Academy's history at an event celebrating the **Women in Natural Sciences (WINS) 30th Anniversary**. As a competitive science education and life skills mentoring program, WINS encourages underserved young women in Philadelphia public high schools to explore careers in science. This ticketed event will feature a special speaker.

As our scientists return from the field in the fall, they will partner with area chefs to bring nature straight to the dinner table. On October 27, join

us for **Cuisine From the Collections**. Dress in black-tie attire or as your favorite critter and graze on exotic dishes of fish, shellfish, insects, birds, plants, and more, prepared by some of Philadelphia's best-known chefs.

SCIENCE IN ACTION

The Academy is a convener on the world's most important topics in the natural and environmental sciences. Our yearlong Bicentennial Town Square Series, **New Questions for an Old Planet**, will feature expert panels and distinguished speakers who will help promote action on crucial environmental issues. We'll offer a three-part series on each of four important topics: climate change and energy; food and public health; water; and green building, urban design, and the built environment.

Our October 11–12 symposium, **Biodiversity: From Evolutionary Origins to Ecosystems Function**, will

introduce current and future biodiversity research. Keynote speaker Douglas Futuyma, distinguished professor of ecology and evolution at the State University of New York at Stony Brook, and other authorities will discuss linkages between diversity and ecology, evolutionary biology, collection science, and environmental quality.

ON THE MOVE

Colorful, bold, stunning birds from the Academy's Exhibits Collection will be on display at the **Philadelphia International Airport** between Terminals C and D from May through November. Open to ticketed passengers, this exhibit highlights Academy ornithology and encourages visitors to stop by the museum for a closer look.

Whether you are visiting for the weekend or you are in Philadelphia to stay, brush up on the city's history on September 8 when you join us for a **bicentennial scavenger trek!** Learn about the Academy while competing for cool prizes.

MUSEUM MONTHS

Explore highlights from our collections during specially themed Bicentennial months. See specimens, watch scientists at work, and attend collection-focused weekends.

- APRIL** Sustainability Rocks!: Earth Month
- MAY** A Walk Through the Archives: Women in Natural Sciences Month
- JUNE** Birds of a Feather: Ornithology Month
- JULY** Furry, Scaly, Slimy: Mammal, Reptile, and Amphibian Month
- AUGUST** Bug Bonanza: Insect Month
- SEPTEMBER** All About Algae: Diatom Month
- OCTOBER** Shells!: Malacology Month
- NOVEMBER** A Living Exhibit: Live Animal Month
- DECEMBER** Focus on Fish: Ichthyology Month
- JANUARY 2013** The Science of Plants: Botany Month
- FEBRUARY 2013** Can You Dig It?: Fossil Month

LOOKING FORWARD

We hope you will join us throughout the year to get a taste of our amazing history, cool collections, and innovative research. Close the year with us in March 2013 at our **Third Century Celebration**. Stay tuned for details on this important evening where we'll honor our past and forge a path into our next 100 years.

Check ansp.org/200 for more information on events, fees, registration, special appearances, and more! ☺

Academy History

2012 marks the 200th Anniversary of the Academy of Natural Sciences of Drexel University. To celebrate this milestone, Senior Fellow Robert M. Peck and historical biographer Patricia Tyson Stroud are gearing up for the publication of *A Glorious Enterprise*, a “family history” profiling the fascinating people who have built one of the world’s greatest natural history museums. As we count down to our Bicentennial, we profile two individuals tied to the Academy who have linked natural science with their literary activities.



ANSP Archives/Coll. 2011-003

EDGAR ALLAN POE: IN A NEW LIGHT

By Patricia Tyson Stroud, Guest Contributor

Many well-known individuals, including some recognized for their pursuits in the humanities, have historical connections to the Academy. The above daguerreotype depicts Edgar Allan Poe (right) with the young medical student Joseph Leidy (center) and possibly Samuel George Morton (left), surrounded by articulated animal skeletons in the Academy’s building at Broad and Sansom Streets. It probably was taken by chemist Paul Beck Goddard during the winter of 1842–43.

Poe, a friend of Goddard’s, may have first associated himself with the Academy while working on *The Conchologist’s First Book*, published in Philadelphia in 1839. Poe probably did research for his preface and the book’s overall presentation at the Academy, but the majority of his work on shells is drawn from three other sources, including French naturalist Georges Cuvier’s *Animal Kingdom*.

In addition to his fascination with natural science, Poe was interested in current scientific ideas like the daguerreotype, theories of animal magnetism, and phrenology. In his tales, he attempted to bridge the growing gap between science and the humanities by writing science fiction based more on science than fantasy. When a live orangutan was exhibited at the Masonic Hall on Chestnut Street in Philadelphia in 1839, a sensational event in a time before zoos, Poe used the creature as his criminal perpetrator in “The Murders in the Rue Morgue” (1841). He had studied the natural history of his protagonist for the story, because he describes the creature with a quote from Cuvier. ∞



ANSP Archives/Coll. 457

HENRY MCCOOK: ENTOMOLOGIST EXTRAORDINAIRE

By Kira Vidumsky, Guest Contributor

The Academy has been home to many great entomologists, including the Reverend Doctor Henry McCook (1837–1911). McCook became a member of the Academy of Natural Sciences in 1875 and vice president in 1882, earning many friends and admirers with his popular lectures on insects.

McCook observed the taxonomy and habits of ants and spiders in the mountains near Hollidaysburg, Pennsylvania. He became fascinated by the similarities between the societal habits of insects and human beings (a subject that would not be widely discussed for another century). He published his research in *Proceedings of the Academy of Natural Sciences of Philadelphia* and *Transactions of the American Entomological Society*.

In 1895 he published *A Summer Campaign in Brownieland against King Cobweaver’s Pixies, A Story for Young People*, which blended scientific research with whimsy to create a fairytale with characters based on the natural world. Accompanied by humorous anthromorphic illustrations by artist Daniel Carter Beard (1850–1941), the text was intended to engage young people and the general public in the lives of insects.

McCook’s interest in similarities between insect and human societies is evident in *Ant Communities and How They are Governed, A Study in Natural Civics* (1909), in which he suggested one could learn from natural history. “If socialism as a form of human government would be equally or even approximately successful,” he observed, “it must first attain that perfect individual discipline and absolute self-control, self-abnegation, self-surrender, and self-devotion to the good of the whole community that one sees in a commonwealth of ants.” ∞

LITTLE BUG BOOKS IN THE BIG LIBRARY

By Bridget Arthur Clancy, Cataloging and Serials Librarian

Did you know that the Academy's Ewell Sale Stewart Library is the official repository for the holdings of the American Entomological Society (AES)? As a result of the strong ties between the Academy and the AES (since its founding in 1859), researchers can access both collections in one location. Among the AES titles are two treasures.

The first, *Insekten-Cabinet nach der Natur gezeichnet und gestochen* (or, Insect cabinet, drawn and engraved from nature), created during 1791 and 1792, contains 100 engravings from copperplate, which were printed in black and white and then colored individually by hand. German engraver Jakob Sturm created, paid for, and published this tiny work (measuring 3.5 by 4.75 inches) in a limited run, and the work was well-received by entomologists and the public.

The second title, *Faunae insectorum Germanicae initia: oder Deutschlands insekten* (in English, Elements of the German insect fauna), was published between 1796 and 1844. The text is

by Georg Wolfgang Franz Panzer (1755–1829), a German physician and entomologist. Jakob Sturm served as engraver and colorist. Upon publication and for decades afterwards, this title was considered one of the most comprehensive entomological works. It consists of 190 parts in 62 volumes, arranged systematically. The tiny volumes (4.25 by 6 inches) contain a wealth of information and detailed drawings.

Panzer and Sturm met by chance when engraver Johann Sturm sent his son and apprentice, Jakob, to deliver a copperplate engraving of insects for an upcoming book. The overseer rejected it, demanding that Jakob Sturm quickly produce a replacement. As Panzer had the specimens, Sturm was directed to work with him. The new plate was superior, and Panzer was impressed with the young engraver.

Panzer envisioned a work for which he would write the scientific text while Sturm engraved the corresponding plates. *Faunae insectorum* started

publication around 1796, continuing for approximately 20 years. At Panzer's death, 110 of 190 parts were complete. German entomologist G.A.W. Herrich-Schäffer finished the remaining text.

Insekten-Cabinet and *Faunae insectorum* were meant to be used, affordable, and portable. Today they look as fresh as when first published. The colors are vibrant, the lines are clear, and the identifying information is complete. A typical plate has an image, along with specific characteristics such as the antenna. Many plates have a drawing comparing male and female. The detail is exact, and both *Insekten-Cabinet* and *Faunae insectorum* would hold their own if compared to modern field guides, since many of the insects shown are life-sized.

In addition to being the only library in the United States to hold *Insekten-Cabinet*, the Academy Library is one of only a few libraries worldwide with the entire set of *Faunae Insectorum*. These works are now among the rare treasures of the bibliographic universe. ☺



CYNTHIA P. HECKSCHER

CYNTHIA HECKSCHER WAS NAMED CHAIR OF THE ACADEMY'S BOARD OF TRUSTEES in late October, but her interest in nature and environmental activities can be traced back over three decades. During her 22-year career as a managing director of Diversified Search, one of the nation's largest providers of executive search services, she has completed numerous CEO searches for newly affiliated institutions like the Academy and Drexel University. Over time, she has provided strategic guidance to her clients and through her board service on matters related to culture and infrastructure of merged nonprofit organizations. Yet it was one of her earliest volunteer experiences that prompted her to join the Academy's Board in 2009.

As a young mother, Heckscher shared science with her children while providing volunteer support for the startup activities of the Montshire Museum of Science in Hanover, New Hampshire. Now a grandmother, she was looking for similar opportunities to blend family with volunteerism. She was excited to find out that then Academy President Bill Brown and Board Chair Jim Macaleer were searching for new trustees.

"I met with Bill and Jim, and the rest is history!" she says.

History was certainly in the making just months later when Brown resigned from his post and Macaleer called on Heckscher to join the committee charged with naming a new president.

"Jim really challenged us to think outside the box about the Academy's future and what kind of leadership we needed," she remembers. "He pushed us to look for someone who was committed to the Philadelphia community and who would bring demonstrated business and public relations skills.

"George Gephart came to my mind immediately. I had come to know George as a Trustee of Main Line Health when I was doing the search for the system's president and CEO. The influence he had on the board and the innovative ideas he brought to the table were indeed noteworthy.

"In all my years doing CEO searches, I have never seen a candidate come to an interview more prepared than George did during the Academy's search process. He was already thinking about all that he had learned in terms of the Academy's future. Moreover, he was even prepared to engage the search committee in a dialogue about what we thought the future of the Academy might hold."

In addition to serving on the committee that hired Gephart, Heckscher serves on the nominating and governance committee and the education and exhibits committee, which she considers "a great grassroots introduction to the Academy's work." She also served on the strategic steering committee, which helped to frame the idea for a partnership with Drexel University.

"The two institutions have tremendously compatible missions and wonderfully compatible and complementary leaders," she notes. "Having the opportunity to integrate our resources in science, education, communications, and public



Kelly & Massa Photography

service while respecting our distinct histories is a once-in-a-lifetime experience."

With the Academy's 200th anniversary on the horizon, Heckscher says, "It's an exciting time to begin asking some big questions. How can we continue to move forward with our scientific activities while continuing to enhance our reputation as a regional and local resource on matters related to sustainability and the environment? How can we tell our story in a way that unifies our historic mission with our future while engaging our community in that all-important journey? And finally, how can we deploy new metrics, branding, marketing, and communications strategies to help tell our story in an even more compelling and relevant way within the context of our Drexel partnership?"

To answer these big questions, we may need to begin with small steps, Heckscher explains, and as the new board chair, she has a lot of work to do. She hopes to begin by exploring the strengths of the Academy's governance practices and brainstorming ways to engage trustees in the museum's innovative educational and Bicentennial-related activities. She has taken the opportunity to spend time with the management team, learning about their departments and their priorities as the Academy moves into its third century.

"What goes on within the departments is truly cutting-edge," she says. "This work can only make all of us proud to be associated with such a remarkable institution and its future."


~ Mary Alice Hartsock

GIFTS OF LIFE INSURANCE

MAKING A GIFT OF LIFE INSURANCE can be a simple and flexible way to contribute to the Academy of Natural Sciences. It allows you to make a substantial donation at no cost to you, and you also may benefit from tax rules that apply to gifts of life insurance. Giving in this way can enable you to make a much greater gift than may have been possible during your lifetime.

There are several ways to structure a gift of life insurance:

1. You can make the Academy a beneficiary of an existing life insurance policy. Upon your passing, the full face value amount of the policy will go to the Academy. Although the proceeds from the policy will be included in your gross estate, the full amount received by the Academy may be deductible as a charitable deduction. To make the Academy a beneficiary of an existing life insurance policy, you can simply request a beneficiary designation form from your employer or insurance company.
2. You can make the Academy the owner and beneficiary of an existing paid-up life insurance policy. By doing so, you may be able to deduct an amount equal to the fair market value of the policy or your cost basis, whichever is less. Since the Academy becomes the owner of the policy, the proceeds will not be included in your estate for tax purposes.
3. You can make the Academy the owner and beneficiary of a policy on which you are still paying premiums. You may be able to deduct an amount equal to the approximate cash value of the policy or the policy's cost basis, whichever is less, in the year in which you give the gift. You also may be able to deduct any future premium payments, and the proceeds will not be included in your estate for tax purposes.
4. You can purchase a new policy and make the Academy the owner and beneficiary. Because the Academy is the owner, you may be able to deduct premium payments as charitable contributions for as long as the premiums are paid, subject to state limitations. The proceeds will not be included in your estate for tax purposes.

If you are considering a donation of life insurance, please consult with your legal or tax advisor to help identify the best approach. You may also contact Amy Marvin at 215-299-1013 or marvin@ansp.org, and she would be delighted to assist you. By making a gift of life insurance, you will be eligible for membership in the Academy's new 1812 Society, honoring those who have remembered the Academy in their estate plans. Thank you for your support! 

TRUSTEES NAMED TO ACADEMY BOARD

THE ACADEMY IS PLEASED TO WELCOME THREE NEW TRUSTEES to our governing board. With their in-depth knowledge of Drexel's resources, these individuals will offer invaluable expertise as our new affiliation takes shape.



JOHN A. FRY, appointed Drexel University's 14th president in 2010, has served higher education for his entire professional life. Through his roles as a consultant, board member, chief operating officer, and chief executive, he has acquired a deep understanding of the challenges of leading a major educational institution. Prior to working at Drexel, Fry was president of Franklin & Marshall College and executive vice president of the University of Pennsylvania. He has served on many boards, including those of the Haverford School and Pennsylvania Academy of the Fine Arts.



DR. MARK L. GREENBERG has been part of the Drexel community for 31 years. As Drexel provost and senior vice president for Academic Affairs, he has an intimate knowledge of the institution. He is founding dean of the Pennoni Honors College, where for 13 years he administered honors programming and developed innovative, interdisciplinary academic initiatives serving the entire University. He also is responsible for the Drexel Cultural Passport, Visiting Scholars, the Great Works Symposia, and discipline-based University Writing Program. He has served on the boards of Germantown Academy and the Science Leadership Academy, among others.



HELEN Y. BOWMAN has been the senior vice president, treasurer, and CFO of Drexel University since April 2011. She oversees, manages, and reports on approximately \$900 million in revenue, \$1.6 billion in assets, and an endowment of more than \$500 million. She also plays a vital role in providing strategic leadership and direction to all Drexel campuses. She came to Drexel with nearly two decades of corporate and higher education financial experience at PricewaterhouseCoopers, CIGNA Corporation in Philadelphia, the Group Insurance division, and Franklin & Marshall College.

Academy Support

ON BEHALF OF THE ACADEMY'S BOARD OF TRUSTEES, we wish to recognize and thank those supporters who have contributed to the Academy between **September 1 and November 30, 2011**. Your generosity helps to fund the Academy's many programs of research and education, and we are tremendously grateful for your support.

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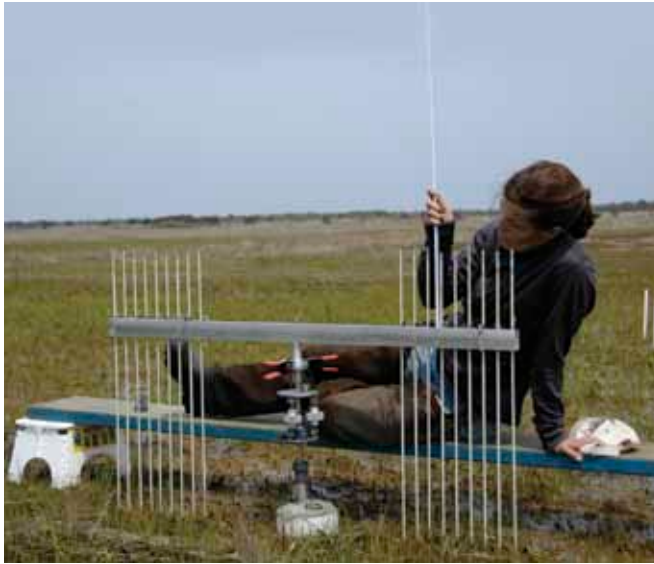


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Academy President & CEO George W. Gephart Jr., Mayor Michael Nutter, and Drexel President John A. Fry celebrated Affiliation Day on October 26 with the institutions' enthusiastic mascots.

Snapshots

IN THE FIELD



Led by Academy Wetland Ecologist Dr. Tracy Quirk, a team from the Patrick Center for Environmental Research is conducting long-term intensive monitoring of wetlands along the Delaware Bay and New Jersey's Barnegat Bay. Wetlands are important because they protect coastal communities from storm surges and flooding and they serve as habitats for wildlife. Wetlands also help to reduce watershed nutrient inputs to estuaries, improving water quality and habitat for shellfish and fish. By identifying changes in the marshes' surface elevation above sea level as well as in plant communities, plant biomass, and soil and water chemistry, the team hopes to gain a better understanding of the health of wetlands, how humans impact wetland health, and whether wetlands are going to be sustainable in the future.

In this photograph, Quirk performs wetland monitoring using a surface elevation table at Island Beach State Park in Barnegat Bay, New Jersey. In this process, the team jackhammers stainless steel rods, or pins, down into the marsh until they meet resistance, leaving a stable benchmark against which Quirk can measure the elevation of the wetlands over time. [↪](#)

BEHIND THE SCENES

Mike Beers, Exhibit Preparator, builds a monitor cover for a video about diorama foregrounds that will be featured in our newest permanent exhibit, *Secrets of the Diorama*, opening February 4, 2012. If you can't wait to find out more about what is inside the animals in the dioramas, you want to touch an antelope tongue, or you're wondering why the dioramas are important at all, this exhibit is for you!

Academy experts in exhibit development, exhibit design, graphic design, exhibit fabrication, writing, and audiovisual technology have come together to create this one-of-a-kind educational environment. The team has created a state-of-the-art space that will allow you to experience the dioramas with fresh eyes. The exhibit will contain lush, large-scale graphics that help tell the story of our dioramas; touchable items; interactive taxidermy activities and tools; videos on diorama history; and more information on all of our diorama secrets. [↪](#)





Mike Arrison/Drexel University
ANSP Archives/Coil. 2010-063

OUR ARCHIVES HOUSE MANY GREAT WORKS, including “Collection 2010-063,” an assemblage of photographs and related information compiled by past exhibits managers. Here is a visual record of the Academy’s public face, documenting everything from the elaborate processes involved in creating our dioramas to their completion and use by the public.

The collection provides an astonishing peek into the workings of our museum in the mid-20th century. Filling 29 shoe-box-sized containers are pictures of the African and Asian Hall displays as they were first unveiled; snapshots of some of our scientific luminaries at work; a glimpse inside our Library stacks, and pictures of beautiful book frontispieces from our collections. Each photograph is fixed to a card marked with a “subject” and “date” painstakingly pecked in by typewriter. This information is crucial, and the Exhibits Department staff has consulted it frequently in preparation for our new permanent exhibit, *Secrets of the Diorama*.

Perhaps most fascinating are photographs of diorama creators and early viewers. Diorama painters craft the displays we know by heart, and patrons interact with the dioramas, their enthusiasm clearly visible. Here in the Archives we are privileged to be the stewards of these records and of the process of creation contained therein. We are fortunate to have the opportunity to make these records available for new studies. ~ Sarah Kemp, Archives Assistant



Sustainability Matters

NEW QUESTIONS FOR AN OLD PLANET By Roland Wall, Director of the Center for Environmental Policy

Since the Academy’s founding in 1812, our scientists have worked with researchers throughout the world to solve many of nature’s great mysteries. As we enter our third century, new and urgent questions have emerged regarding how human behavior impacts the Earth and its natural systems and how changes to our planet affect human society. We will explore the complex relationship between humans and our planet this year at our Bicentennial Town Square Series, *New Questions for an Old Planet*, sponsored by the Academy and our new partners at Drexel University.

This special series of 12 Town Square programs will run from April 2012 to June 2013 and will consist of four three-part series organized around the local, national, and global dimensions of major sustainability issues. We will explore climate change and energy; food and public health; water; and green building, urban design, and the built environment.

The programs will feature expert panels and distinguished speakers who will work to promote awareness of and action on each of these important topics.

We will ask:

- › How do we keep our energy-dependent society functioning, even as the effects of climate change begin to ripple through our economy?
- › Faced with climate change, soil erosion, and population growth, how will we feed the world today and still protect the natural systems needed to feed us in the future?
- › What happens when 2 to 3 billion more people need access to the already strained freshwater systems of the world during the coming decades?
- › Can we live more sustainably by changing the way we design, construct, manufacture, and maintain our built environment?

Programs will cover topics like urban heat islands, clean energy, local food, watersheds, sea level rise, urban farming, global green building initiatives, and more. Additional information on dates, speakers, and registration will be available on ansp.org throughout the year. We hope you’ll join us as we work to understand what the next 200 years holds for planet Earth. ♻️

THE ACADEMY
OF NATURAL SCIENCES
of DREXEL UNIVERSITY

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Join us March 24 and 25, 2012,
as we kick off our
yearlong bicentennial celebration
with a weekend of exciting events,
special programs, public engagement activities,
and the grand opening of our spectacular exhibit,
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