

SUMMER 2012

# in the Field

THE FIELD MUSEUM MEMBER MAGAZINE



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IN THE FIELD (ISSN #1051-4546)

is published three times a year

by The Field Museum. Annual

subscriptions are \$20; \$10 for

schools. Museum membership

includes IN THE FIELD subscription.

Opinions expressed by authors are

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**ON THE COVER**

50 million years ago, *Coryphodon* used its knife-like tusks to uproot swamp plants for food. See this and other amazing animals in the new exhibition *Extreme Mammals*.

© AMNH / D. FINNIN

The **Field**  
Museum

1400 South Lake Shore Drive

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The Field Museum salutes the people of Chicago for their long-standing support of the Museum through the Chicago Park District. Programming is partially supported by the Illinois Arts Council, a state agency.

# dear member

Blustery, windy days have turned into sunshine and blue skies as we welcome the arrival of summer. Escape the heat with friends and family this summer by spending a day exploring The Field Museum.

We have had an exciting year thus far, opening exhibitions on a variety of subjects from mummies to a Mongolian ruler—and now, extreme mammals!

Explore the ancestry and evolution of extinct and living mammals in our new exhibition, *Extreme Mammals* (opening May 25). Discover an astounding variety of animal fossils and reconstructions from a 200-ton whale to a tiny, now-extinct mammal weighing slightly more than one gram. Everyone is sure to learn something new. See pages 4 and 5 for a preview of the fascinating animals featured in the exhibition and pages 10 and 11 for a look at our scientists' favorite extreme mammals!

And don't forget to visit *Genghis Khan* (page 14) before it closes September 3. The exhibition's look inside the life of the 13th century Mongolian ruler offers intriguing videos, recreated scenes, and the largest collection of Mongolian artifacts assembled outside of Asia.

While new exhibitions are exciting, our long-loved permanent exhibitions are always an essential part of a visit. Whether a first-time visitor to The Field or a seasoned member, use our summer visitor's guide of "must sees" (page 6) to help plan a fun-filled trip.

As always we thank you for your continued support and hope to see you soon.

**MICHELLE CLAYTON**

*Director of Membership*



DIANE ALEXANDER WHITE

# Nature's Toolbox: Contemporary Art with a Scientific Message

By Libby Pokel-Hung, Exhibition Developer

**YOU MIGHT NOT EXPECT TO SEE CONTEMPORARY ART AT THE FIELD MUSEUM, BUT ZOOLOGY CURATOR JOHN BATES, PHD, POINTS OUT THAT, "ONE OF OUR PRIMARY GOALS AS A MUSEUM IS COMMUNICATING SCIENCE. ART CAN BE A POWERFUL TOOL FOR DOING JUST THAT."**



COURTESY OF FEATURE INC., NEW YORK

Bates is co-curating *Nature's Toolbox: Biodiversity, Art, and Invention* along with Peggy Macnamara, The Field Museum's artist-in-residence. This exhibition looks at biodiversity through the eyes of artists, bringing together sculpture, illustration, photography, and video inspired by nature's diversity. It also examines how biodiversity positively effects our lives as humans.

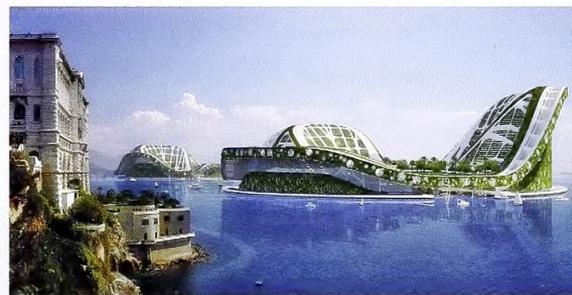
Opening on May 22—the International Day for Biological Diversity—the exhibition builds on the themes of the Gary C. Comer Family Gallery: environmental sustainability, conservation of biodiversity, and climate change. Throughout, brief labels provide comments from Museum scientists about the ways in which the exhibited works of art connect to scientific research.

In artist Isabella Kirkland's *NOVA* series, fantastical images of plants and animals

share a common trait: each species is new to science, discovered only within the last two decades.

Donna Keiko Ozawa's sculptures—created entirely from wood chopsticks—recall spiny sea urchins or haystacks. Ozawa's work references her Japanese heritage, but also calls attention to the astonishing number of trees harvested for disposable chopsticks.

Architect Vincent Callebaut shows how Amazon lily pads provide models for new housing structures designed to meet the future challenges of climate change.



COURTESY OF VINCENT CALLEBAUT ARCHITECTURES, PARIS

And while you may know that birds and bees do it, Isabella Rossellini—aided by paper props and puppets—reveals the diverse ways deer, ducks, and starfish reproduce in her *Green Porno* video series.

*Nature's Toolbox* is produced by Art Works for Change, an organization that employs contemporary art to start conversations about social and environmental issues. The Field Museum is the inaugural venue for *Nature's Toolbox*—see it before it closes on December 4, 2012! **ITF**

*Art Works for Change* presents *Nature's Toolbox: Biodiversity, Art, and Invention*, with generous support from: *The Nathan Cummings Foundation; the National Endowment for the Arts; The Adobe Foundation; and the Sprint Foundation.*

Clockwise from above:

Isabella Kirkland, *NOVA: Canopy*, 2011

Vincent Callebaut, *View of the Monaco Bay from the series Lilypad, A Floating Ecopolis for Climate Refugees, Oceans of the World*, 2008

Isabella Rossellini, *Bee from the Green Porno series*, 2009



COURTESY OF THE SUNDANCE CHANNEL

**EXTREME MAMMALS WILL INTRODUCE YOU TO** the surprising and often extraordinary world of extinct and living mammals. From mammals that hunted and ate dinosaurs (*Repenomamus*) to mammals that weigh less than a one dollar bill (*Batodonoides vanhouteni*) you'll be amazed at the variety of animals all related to you!

Take a look below to get a sneak peek of some of the amazing creatures you'll meet inside *Extreme Mammals*.

# Discover

# EXTREME Mamm



© AMNH / D. FINNIN

By Emily Waldren, Editor

## BATODONOIDES VANHOUTENI

The smallest mammal that ever lived, *Batodonoides vanhouteni*, was so small it could have perched on a pencil and weighed less than a one dollar bill! This tiny mammal lived approximately 50 million years ago in what is now Wyoming and is related to modern shrews and moles. The smallest mammal alive today is the bumblebee bat, which is only slightly larger than *Batodonoides*.

## INDRICOTHERIUM

*Indricotherium*, an herbivore that lived in the forests of central Asia between 34 and 23 million years ago, is the largest land mammal ever discovered. A fully grown adult weighed up to 20 tons—the weight of three or four African elephants, the largest living land mammals today! Because of its size, *Indricotherium* needed massive amounts of vegetation to survive, and as the central Asian forests were replaced by grasslands, this massive mammal suffered and eventually became extinct.



© AMNH / D. FINNIN

## PLATYPUS

Some mammals have evolved extreme ways of protecting themselves. This platypus may look harmless, but it carries a secret weapon. The male platypus is one of just a few mammals to produce venom. Spurs on its hindfeet are connected to the gland that produces the platypus' venom. While not lethal to humans, the venom is deadly to smaller animals.



© AMNH / R. MICKENS

# 20 TONS



© AMNH / D. FINNIN

# mals

## Opening May 25

LAYS EGGS

### SHORT-BEAKED ECHIDNA

Native to Tasmania and New Guinea, the short-beaked echidna is a monotreme. Unlike most other mammals, monotremes never evolved live birth, so they instead lay eggs. While monotremes do produce milk for their young, they lack nipples; instead, their milk comes out of special ducts of the mammary glands onto specialized patches.



© AMNH / D. FINNIN

LOOKING  
ODD

### MACRAUCHENIA

One of the oddest looking mammals that ever lived is the extinct South American large-hoofed *Macrauchenia*. The *Macrauchenia* seems to be a combination of several mammals we know today—it had a camel-like body, a giraffe-like neck, and a flexible trunk, similar to that of an elephant.

Organized by the American Museum of Natural History, New York, in collaboration with the California Academy of Sciences, San Francisco; Canadian Museum of Nature, Ottawa, Canada; and Cleveland Museum of Natural History.

Major Sponsor: Discover



© AMNH / D. FINNIN

7-INCH NOSE

### PROBOSCIS MONKEY

The endangered proboscis monkey lives on the coasts and near rivers in Brunei, Malaysia, and Indonesia. The nose of a male can grow up to seven inches and is believed to attract females, making it one of many mammals that show startling differences between sexes, often to attract mates. **ITF**



GEO86500\_037D / KAREN CARR

# Summer

By Franck Mercurio, Associate Editor, In The Field

## SUMMER IS A GREAT TIME TO VISIT The Field Museum.

In addition to temporary exhibitions like *Extreme Mammals* and *Genghis Khan*, you can experience the Museum's engaging permanent exhibitions. Step inside the Museum's exhibition halls and (re)discover the world of science!

### Evolving Planet

Take a journey through four billion years of life on planet Earth. *Evolving Planet* showcases evolution through an amazing diversity of specimens selected from the Museum's collections. See "Morgy," one of the first known mammals that walked with the dinosaurs; "Tully," the unusual sea creature and official state fossil of Illinois; and "Lucy," the earliest known hominid and the "mother of humankind." Learn the essentials of evolution through engaging animated videos that make science fun.

*Evolving Planet is made possible by Kenneth and Anne Griffin. The Elizabeth Morse Genius Charitable Trust is the generous sponsor of Evolving Planet's Genius Hall of Dinosaurs.*



GN91147\_013AD / JOHN WEINSTEIN

### DNA Discovery Center

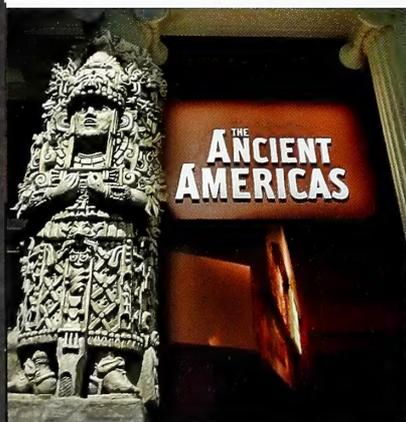
DNA contains the building blocks of life; it is the thread that connects every living thing on Earth, from bacteria to birds and hydrangeas to humans. Take a peek behind the scenes and learn from Museum scientists as they analyze DNA from thousands of specimens in the Pritzker DNA Laboratory. View videos and play interactives to better understand the science behind DNA.

*The DNA Discovery Center is generously supported by the Daniel F. and Ada L. Rice Foundation.*

### The Ancient Americas

*The Ancient Americas* takes you on a journey through 12,000 years of human history in the Western Hemisphere. Walk beside Ice Age hunters and woolly mammoths. Visit ancient villagers who produced beautiful pottery and textiles—and deadly weapons. Explore sophisticated cities that rivaled those in Europe. Along the way, investigate questions about human societies: How were plants and animals domesticated? Is warfare inevitable? Why do some societies collapse while others last for millennia?

*The Ancient Americas is made possible by the McCormick Foundation.*



GN90960\_002CD / JOHN WEINSTEIN

### Abbott Hall of Conservation: Restoring Earth

How do Field Museum scientists put "science into action?" Visit the Museum's newest permanent exhibition, *Restoring Earth*, and journey across the globe through larger-than-life videos. Learn the roles of Museum scientists in studying, protecting, and conserving the Earth's biodiversity and diversity of human cultures. Rounding out the experience are engaging interactives and beautifully designed displays of flora, fauna, and human-made objects from the Museum's permanent collections.

*Abbott Hall of Conservation Restoring Earth is made possible through the generosity of Abbott.*



GN91573\_041D / JOHN WEINSTEIN

# Science

**AFTER SPENDING TIME AT THE FIELD**, why not explore science in the great outdoors? The Museum Campus, Grant Park, Northerly Island, and even downtown Chicago provide opportunities to put “science into action.” Here are activities suggested by Museum staff:



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## **Bird Watching on Northerly Island:**

Doug Stotz (Senior Conservation Ecologist, ECCo) recommends Northerly Island as a great place to birdwatch. A short walk east of the Museum Campus, Northerly Island features both prairie and shoreline habitats and attracts a wide variety of birds including species that breed and nest during the summer season: song sparrows, savannah sparrows, dickcissels, and eastern king birds. In July, many shore birds—notably killdeers and spotted sandpipers—begin their migration back north to Northerly Island. Don't forget to bring your binoculars, field guide, and logbook to record your sightings.



© ISTOCKPHOTO.COM / JIM JURICA

**Discovering Native Plants:** William Burger (Emeritus Curator, Botany), sees Grant Park as an example of how humans use plants “to enhance our environment and our lives.”

A further enhancement is the use of native plants in landscape design. Becky Schillo (Conservation Ecologist, ECCo) recently created a native plant garden outside the Museum's north entrance in collaboration with the Chicago Park District. The garden contains wildflowers and grasses specially adapted to the local soil and climate conditions—it also attracts native birds and insects, supporting the local ecology. Take a walk to the native plant garden and see what types of flowers and insects you can identify.

## **Fossil Hunting on Michigan Avenue:**

Quarried in Indiana, Salem Limestone (also known as Bedford Limestone) was used to construct many of Chicago's historic buildings. Paul Mayer (Collections Manager, Geology) says this stone is over 340 million years old and was formed from the shells of marine creatures that once lived in a warm, shallow sea that covered much of the Midwest. Evidence of these animals are preserved as fossils in large limestone deposits. After visiting the Museum, go to the Magnificent Mile and see if you can find brachiopods, bryozoans, crinoids, and trilobites embedded in the Michigan Avenue Bridge and the Chicago Tribune Tower. **ITF**

## **Want to make a contribution to science?**

Then participate in the “School of Ants” project this summer on your own or with your school class. Dr. Corrie Moreau, zoology curator and ants specialist, is leading this national “citizen-scientist study” for Chicago.

Visit the website [www.schoolofants.org](http://www.schoolofants.org) to learn how to collect ants and send them to the School of Ants research facility where they will be analyzed and mapped, giving us a better understanding of which ant species are inhabiting which locales throughout the U.S.

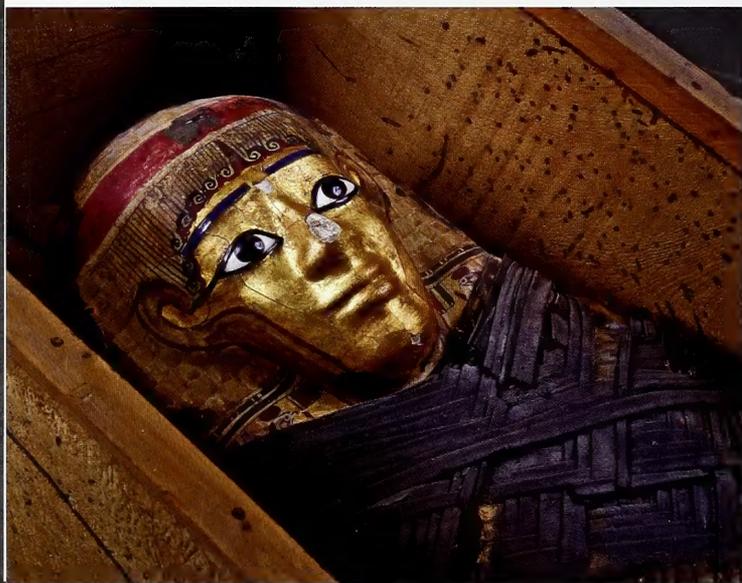


© ALEX WILD

# Images of the Afterlife: Facing the Ancient Egyptians

By Sarah Sargent, Exhibition Developer

**THE RECENT EXHIBITION** *Opening the Vaults: Mummies* featured CT scanning technology that revealed new information about The Field Museum's mummy collection. Its companion exhibition, *Images of the Afterlife*, opens June 8 and goes a step further; in this smaller exhibition, CT scans of Egyptian mummies are used to produce realistic portraits of people who lived and died thousands of years ago.



AT10657C / RON TESTA

Curated by Dr. Robert Martin, A. Watson Armour III Curator of Biological Anthropology, the exhibition allows visitors to come face to face with two of the Museum's mummies.

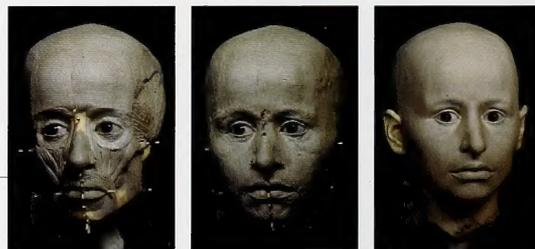
Using CT scanning technology, Museum staff created incredibly detailed images of mummy skulls without unwrapping them. Examinations of the scans revealed that one skull belonged to a teenaged boy and the other to a woman in her forties. A local firm, Paradigm, used a process called stereolithography—passing a laser through resin in minute layers—to create three-dimensional replicas of these skulls from the CT scans.

Resin skull replicas were then shipped to Atelier Daynès in Paris, a studio famous for facial reconstructions including one of King Tut. Using the skull replicas, artist Elisabeth Daynès will reconstruct the faces of the woman and the boy.



J.P. BROWN / THE FIELD MUSEUM

The two mummies, the scans, and the portraits will serve as the centerpieces of *Images of the Afterlife*. These objects will be joined by Elisabeth Daynès' reconstruction of the head of King Tut, recently purchased by The Field Museum. An interactive allowing visitors to virtually explore a mummy will also be on display. **ITF**



## Combining Science + Art

Elisabeth Daynès' realistic reconstructions of ancient people are famous the world over, and are shown in many museums. Daynès works from skull casts and replicated bones. Starting with the skeleton, she builds up layers of muscle and skin to produce a life-like sculpture. In addition to *Images of the Afterlife*, The Field Museum also features her reconstruction of the early human Lucy in *Evolving Planet*.

THE ANNUAL FUND

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The Field  
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*A gift to The Annual Fund helps sustain our research, exhibits, and education.  
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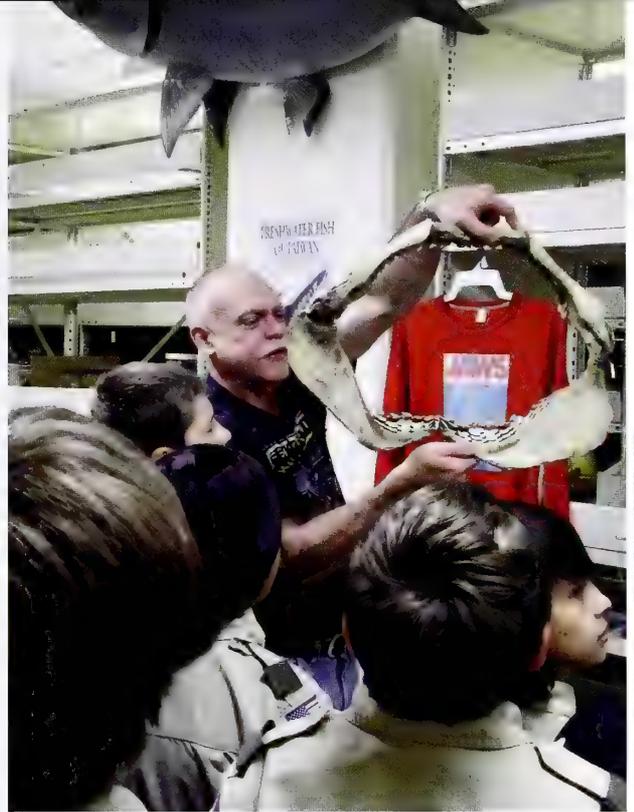
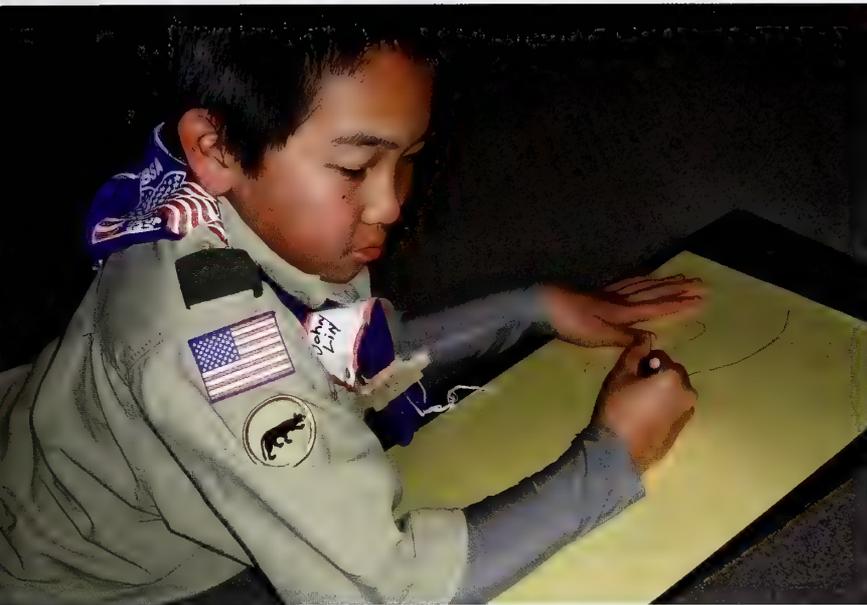
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IMAGES: THE FIELD MUSEUM / EDUCATION DEPARTMENT

# Badge Day at The Field: A New Program for Boy Scouts

By Lindsey Snyder, Public Programs Coordinator

**THE FIELD MUSEUM'S EDUCATION DEPARTMENT** has unveiled a new program for Boy Scouts entitled *Badge Day at The Field*. This program was first piloted last fall and reached nearly 800 Scouts and parents; it offers Scouts the opportunity to earn all of the requirements for specific badges by completing a full day of activities on a Saturday at the Museum.

**Saturdays  
9am–3pm**

**program  
dates**

- September 22
- October 6
- October 20
- November 3
- November 17
- December 1

*Badge Day at The Field* offers several badges for Scouts to earn. They include Mammal Study, Indian Lore, Geology, and Environmental Science. Scouts will be able to engage in a range of hands-on and interactive experiences to receive their badges including scavenger hunts, behind-the-scenes tours with Field Museum scientists, and conducting science experiences.

For example, in order to earn the Environmental Science Badge, Scouts will explore Museum exhibitions and research animals to become an expert on an endangered animal such as an American bison, whooping crane, gray wolf, or California condor. Afterwards, Scouts will use the results of their research to create their own mini-exhibition, which will be put on public display for Museum visitors to enjoy.

Due to the successes of the pilot, the Museum is hosting six *Badge Day at The Field* events this fall, between the months of September and December (left). Tickets will become available beginning in July and are \$25 per Scout per event, and \$5 per chaperone per event. For additional details, please visit [fieldmuseum.org/happening/badge-day-field](http://fieldmuseum.org/happening/badge-day-field). **ITF**

*Above: Scouts become experts on an endangered species (left). Field Museum scientist shows off some amazing specimens on the behind-the-scenes tour into the Fishes division (right).*

# The Best of the Best

OUR NEWEST EXHIBITION WILL INTRODUCE YOU TO SOME OF THE MOST EXTREME MAMMALS OF ALL TIME. BUT WHAT MAMMALS DO FIELD MUSEUM SCIENTISTS GET EXCITED ABOUT? WE ASKED THEM TO WEIGH IN AND TELL US THEIR PERSONAL FAVORITES.

Compiled by Emily Waldren, Editor



## CRABEATER SEAL (LOBODON CARCINOPHAGA)

**BILL STANLEY**

*Negaunee Collection Manager, Division of Mammals*



GN91604\_09D

While difficult to tell you my favorite extreme mammal, the Crabeater seal (*Lobodon carcinophaga*) is right up there. One of the most populous large mammals, Crabeaters live only in Antarctica, and in many ways

look like any other seal. But anyone who sees the teeth of this seal is stopped in their tracks. All seals in the family *Phocidae* have cusps on most of their cheek teeth, but those of the Crabeater are long so that the seals can filter feed, much like a baleen whale. They take a mouthful of the sea, close their teeth together to form a strainer, and push the water out leaving their mouth full of shrimp-like krill. What a mind-blowing result (and example) of evolution!

ABOVE: Z94335C / JOHN WEINSTEIN

LEFT: ©ISTOCKPHOTO.COM / STEVE HUMPHREYS



## MOUNT DATA SHREW RAT (RHYNCHOMYS SORICOIDES)

**ANNA GOLDMAN**

*Collections Assistant, Preparator, Division of Mammals*



GN91603\_19D

On a mountain, in a mossy forest on Luzon Island in the Philippines, lives an extreme, nosy rat named the Mount Data Shrew Rat (*Rhynchomys soricoides*). This rat is different from most other rats because of its affinity for earthworms.

Its skull has evolved to have a long rostrum, or snout, greatly reduced molars (in size and quantity) and needle-sharp incisors specifically designed for consuming soft-bodied invertebrates. They construct little trails throughout the forest floor and flick away any debris. When an earthworm presents itself, the Mount Data Shrew Rat will pounce on it using its grasshopper-like thighs, grabbing the earthworm with its front paws. It bites down on one end, and as if it were playing a trumpet, he takes one paw and cleans the dirt off the worm with one "swoosh," then sucks the worm down its throat whole!

ABOVE: REBECCA BANASIAK / THE FIELD MUSEUM

BELOW: DANILO S. BALETE / THE FIELD MUSEUM



**FAIRY ARMADILLOS  
(CHLAMYPHORUS TRUNCATUS)**

**BRUCE PATTERSON**

*MacArthur Curator of Mammals*

GN91606\_21D



In the rain-shadow of the Andes Mountains—in Bolivia, Paraguay, and Argentina—live fantastic creatures that are fittingly named “fairy armadillos.” These four-ounce animals are restricted

to arid habitats with loose soils. They diverged from the other South American armadillos roughly 32 million years ago. The two living species have been separated for 17 million years! With enormous hands (a quarter the length of their bodies) for burrowing, they live their entire lives underground, feeding on soil invertebrates. Whereas most armadillos are encased in heavy bony shells, the fairy armadillos wear a loose fitting plated mantle. On exhibit today in *World of Mammals*, our

specimen has amazed museum visitors since the Columbian Exposition of 1893.

LEFT Z94227C / MICHAEL TROPEA



**AFRICAN GIANT POUCHED RATS  
(CRICETOMYS)**

**CARRIE SELTZER**

*Resident Graduate Student, Division of Mammals*

GN91607\_18D



African Giant Pouched Rats (*Cricetomys*) don't look extreme at first glance, but these aren't “normal” rats by any definition. These rat cousins are about four times the weight of a typical city rat which makes them about the size of a cottontail rabbit.

The four species in the genus all have large hamster-like cheek pouches which they stuff full of seeds and fruits to hide for eating later. Throughout sub-Saharan Africa, they are like unintentional little foresters planting trees all over the place. Easily acclimated to captivity, their skillful noses benefit people and can be trained to sniff out land mines and detect tuberculosis. Between planting trees and saving lives, I'd say these rodents of unusual size are extremely helpful!

ABOVE, LEFT: Z94580\_02BD / JOHN WEINSTEIN

ABOVE, RIGHT: BILL STANLEY / THE FIELD MUSEUM



**MARSUPIAL SABERTOOTH (THYLACOSMILUS ATROX)**

**WILLIAM SIMPSON**

*Collections Manager, Fossil Vertebrates, Department of Geology*

GN91605\_09D



Starting about 55 million years ago, there have been at least four separate lines of sabertoothed mammals. These carnivores are often cited as among the best examples of convergent evolution, or unrelated species evolving similar features. The most extreme of all these sabertooths is *Thylacosmilus atrox* from Argentina. It was discovered in 1926 by Field Museum's first paleontologist, Elmer Riggs, who was prospecting in rocks dated at just

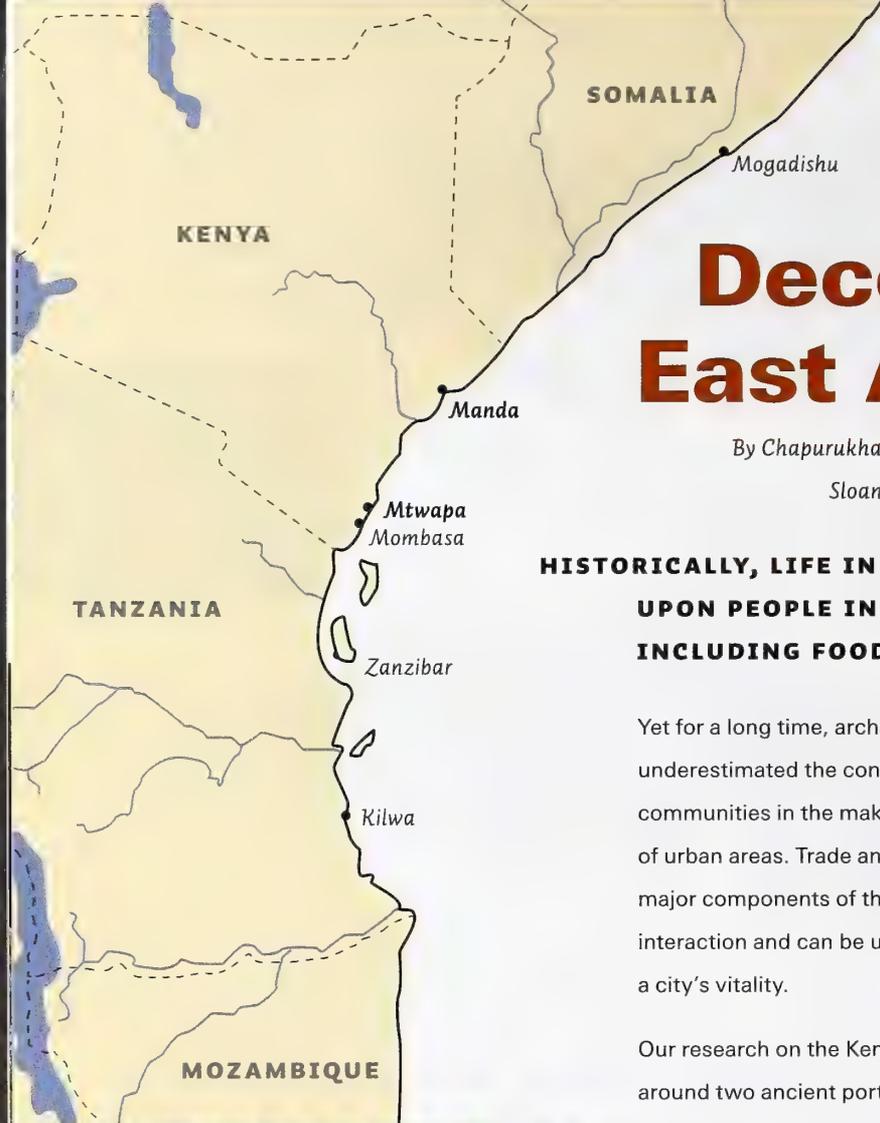
over six million years in age. Riggs christened his new fossil *Thylacosmilus* (“pouched carving knife”) because this carnivore is closely related to marsupials. Relative to the size of the skull, canines are bigger in this animal than in any other sabertooth. And unlike all the others; including sabertooth “tigers,” the huge sabers in *Thylacosmilus* never stopped growing—as they wore at the tip, more tooth was created inside the skull. **ITF**

RIGHT, TOP: GE084563C / RON TESTA

RIGHT, BOTTOM: VELIZAR SIMEONOVSKI / THE FIELD MUSEUM

ALL PORTRAITS: JOHN WEINSTEIN © THE FIELD MUSEUM





# Decoding East Africa's Past

By Chapurukha M. Kusimba, Curator, Anthropology and  
Sloan R. Williams, Adjunct Associate Curator, Anthropology

**HISTORICALLY, LIFE IN CITIES HAS BEEN ALMOST ENTIRELY DEPENDENT UPON PEOPLE IN THE COUNTRYSIDE FOR BASIC NECESSITIES INCLUDING FOOD AND RAW MATERIALS.**

Yet for a long time, archaeologists underestimated the contributions of rural communities in the making and sustaining of urban areas. Trade and migration are major components of this urban-rural interaction and can be used to measure a city's vitality.

Our research on the Kenyan Coast centers around two ancient port towns: Manda (circa AD 800–1450) and Mtwapa (circa AD 1000–1750). Our goal is to understand the origins of the people who settled in these cities and the relationships they had with their rural neighbors and other cities in the western Indian Ocean and Persian Gulf.

National Science Foundation and National Endowment for the Humanities funding is supporting extensive excavations of archaeological sites—both residential and mortuary—in Manda and Mtwapa. The data gleaned from this work will help us examine the history of migration in East Africa, clarify settlement dates, and better understand who these people were. To do this, we are extracting genetic material (both mitochondrial DNA and Y-chromosome DNA) from human remains to determine the geographic and ethnic origins of the citizens of Manda and Mtwapa both before and after colonial times.

Several other outcomes are anticipated from this study including potential answers to long-standing questions about urbanism in East Africa, such as: What are the ethnic and biological identities of Swahili-speaking peoples? Who built the ancient cities of coastal East Africa? What were the cultural, technological, and biological relationships between urban and rural populations of the coast? When and in what ways did East Africa become part of the Indian Ocean and Persian Gulf trading systems?

These questions have potentially transformative implications for understanding Old World relationships with Africa. Our research will likely increase the public's awareness of the shared ancestry among Kenyans and have positive implications for Kenyan national unity. The study also opens up new avenues in interdisciplinary research and trains a new generation of American and African anthropologists. **ITF**

*This research is supported by grants from The Field Museum's Africa Council, Irene D. Pritzker, the National Science Foundation, and the National Endowment for the Humanities.*



Excavation team members Janet Monge and Chap Kusimba (back row); Sloan Williams and Samantha Cox (front row).



Remains of an 11th century mihrab of the main Friday Mosque at Manda.

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# Filmmaking at The Field

By Franck Mercurio, Associate Editor, In The Field

## **BOTANICAL EXPLORATIONS IN FIJI. SCIENTIFIC RESEARCH INTO ENIGMATIC PRIMATES.**

**CT SCANNING OF ANCIENT EGYPTIAN MUMMIES.** These are just a few of the topics covered by filmmaker Federico Pardo in his role as Science Media Producer for The Field Museum.

This relatively new position was created to highlight the role of the Collections and Research division in furthering the Museum's scientific mission and increasing the Museum's public outreach via the Internet.

In his brief time at the Museum, Pardo has produced several documentaries including the series of short videos "The Field Revealed" which is accessible on the Museum's website. This series consists mainly of two-minute videos about fascinating scientific research conducted by Museum scientists and the personal stories behind their work.

In August 2011 Pardo journeyed to Mozambique on a scientific expedition organized by Shannon Hackett (Zoology, Division of Birds) and Julian Kerbis (Zoology, Division of Mammals). While there, he filmed the research team in Gorongosa National Park. The video showcases the work of Museum scientists in the field and their collaborations with local people and African scientists in conducting joint research.

The second season of "The Field Revealed" was launched this past Spring. To see the latest films, check out the Museum's website or the Museum's YouTube and Vimeo channels. **ITF**



COURTESY FEDERICO PARDO

*Above: Federico Pardo (center) with local people in Mozambique.*

*Top of page: Stills from two short films Fossil Carrion Feeders (left) and Field Work in Mozambique (right).*

THE FIELD MUSEUM

Pardo is uniquely positioned for his job at The Field. He studied biology as an undergraduate in his native Colombia, before earning an MFA from Montana State University in Science and Natural History Filmmaking.

The first film in "The Field Revealed" series, *Fossil Carrion Feeders*, features Museum zoologist Margaret Thayer and visiting student Chenyang Cai. It was an official selection at the 2011 Imagine Science Film Festival in New York City. More than 20 films were produced for "The Field Revealed" in its first season.

[fieldmuseum.org/explore/the-field-revealed](http://fieldmuseum.org/explore/the-field-revealed)

[youtube.com/thefieldmuseum](http://youtube.com/thefieldmuseum)

[vimeo.com/fieldmuseum](http://vimeo.com/fieldmuseum)

From Ancient Iraq to Genghis Khan:

# Bow and Arrow Technology

By Alan Francisco, Anthropology Collections Registrar

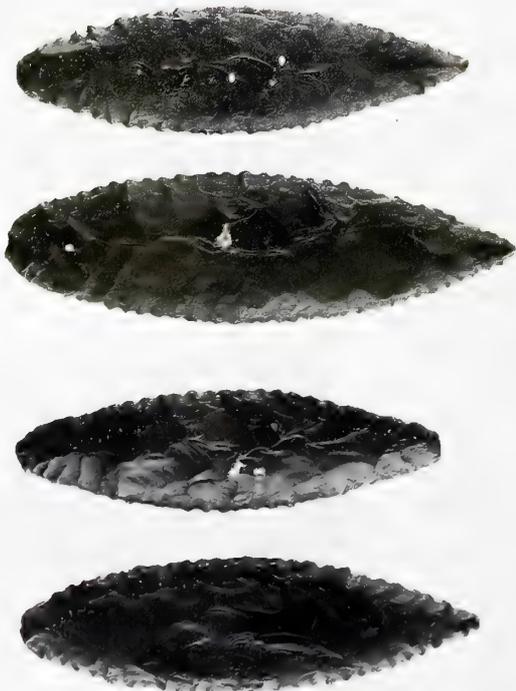
**THE GENGHIS KHAN EXHIBITION (OPEN THROUGH SEPTEMBER 3) PRESENTS MANY WEAPONS IN THE MONGOLS' ARSENAL, INCLUDING THEIR FAMOUS BOWS AND ARROWS. THE FIELD MUSEUM'S PERMANENT COLLECTION CONTAINS OTHER EXAMPLES OF BOW AND ARROW TECHNOLOGY FROM AROUND THE WORLD. THE FOLLOWING IS A SAMPLING.**



© ISTOCKPHOTO.COM / ANTHONY BAGGETT

## A UBIQUITOUS TECHNOLOGY

Until the invention of firearms just a few hundred years ago, the bow and arrow was the preeminent projectile weapon in almost every corner of the globe. Used in hunting and warfare, games and contests, and even in rituals, the bow was—and in some societies remains—an item of great importance. The Field Museum's Anthropology Collections contain a great number of bows, arrows, and other archery equipment, as well as depictions of the bow in use. The incredible diversity of age and places of origin of these objects reflect the bow's worldwide significance from ancient to recent times.



## ANCIENT IRAQ

Archaeological evidence for the use of the bow in the remote past usually exists in the form of arrowheads rather than the bow itself. This is due to the fact that wood, sinew, and other materials which comprise a bow tend to deteriorate much more rapidly than harder substances used to make the projectile point. These beautiful and well-crafted flint arrowheads (pictured left) in The Field Museum collections come from the site of the ancient Mesopotamian city of Kish in Iraq. They date to the Akkadian period (about 2350–2150 BC) and were most likely ceremonial, although their precise function is not yet known. Field Museum researchers are exploring the possibility that Kish may have been the production center for stone arrowheads like these that are found at sites throughout the region, from Susa in Iran to Tel Brak in Syria and to the south at the famous site of Ur. These fine points were made by a technique called pressure flaking, and their serrated edges were formed by a piece of bone or antler pressed firmly against the stone to remove tiny flakes, resulting in very sharp edges.

PHOTO, LEFT: A114652D\_001 / JOHN WEINSTEIN



## PLAINS INDIANS

For many of us, the bow and arrow is most readily associated with Native Americans, and in particular, the tribes of the Great Plains whose prowess at both archery and horseback riding offer a striking comparison with the Mongols. The Field Museum's outstanding North American ethnographic collections contain many examples of the centrality of the bow to Plains Indian life. In addition to the weapons themselves, there are toy bows and games that would have served not only as a form of entertainment, but as a way for young boys to hone their archery skills. This spectacular Cheyenne buffalo hide painting (pictured above) is a vivid source of information about the use of the bow in Plains warfare. The painting depicts several battles of the 1860s and 1870s. Plains warriors did not always fight on horseback. The detailed image (pictured below) shows an archer on foot seemingly facing off against a mounted opponent.



The hide painting would originally have lined the inner wall of a tipi or served as a bed curtain.

PHOTO, ABOVE/LEFT A107621C\_96808 / RON TESTA



CSA46385 / JOHN ALDEN MASON

## ARCHERY IN OTHER SOCIETIES

Field Museum expeditions undertaken in the early 20th century to South America, the Philippines, Papua New Guinea, and West Africa, produced documentary photography of contemporary cultural practices including archery. A man from Colombia's Guajira peninsula (pictured above) provides a demonstration of the bow and arrow used by his particular society. The photo was taken by Assistant Curator John Alden Mason during the Museum's 1922–1923 Captain Marshall Field Expedition to Colombia. Mason and his colleagues collected hundreds of archaeological and ethnographic objects for the Museum, including bows and arrows like those featured here. **ITF**

# Conquering the World

By Franck Mercurio, Associate Editor, In The Field

The Mongol bow was arguably superior to any other in the world during the time of Genghis Khan. It could out-shoot its closest competitor, the English longbow, by 100 yards. The secret to the Mongol bow's power was in its design. The composite construction—of animal horn, sinew, and glue—made it incredibly strong and resilient. Coupled with the Mongol's infamous "whistling" arrows (which made a terrifying screaming noise when fired by the thousands), the Mongol bow was a formidable weapon. Expert horsemanship enabled Mongol archers to shoot at their enemy while galloping on horseback—even while facing backwards.



© YU SHAN

# In the Spotlight: Frank Lloyd Wright's Buddha

By Franck Mercurio,  
Associate Editor, In The Field



DAVID WHEATLEY

**NEXT TIME YOU VISIT THE FIELD MUSEUM, TAKE A STROLL ALONG THE WEST MEZZANINE THROUGH THE EAST ASIA COLLECTIONS. THERE, YOU WILL FIND AN EXTRAORDINARY OBJECT RESIDING IN AN UNASSUMING CORNER OF THE EXHIBITION.**

It is a representation of the Amida Buddha or the "Buddha of Infinite Light," an outstanding example of Japanese religious sculpture. Besides its beautiful aesthetic qualities, this work has a remarkable provenance: it belonged, at one time, to the famous American architect, Frank Lloyd Wright.



Wright's love of all things Japanese is well documented. He made his first trip to Japan in 1905 and later made several return trips to supervise construction of the Imperial Hotel in Tokyo. During his sojourns, Wright collected Japanese art, most notably wood block prints by Hiroshige, Hokusai, and other important Japanese artists. In fact, Wright collected so many Japanese prints that he set-up a sideline business as an art dealer. Many of his prints now reside in museum collections across the United States.

But Wright also collected other forms of Japanese art, including sculptural works like the Amida Buddha. He eventually sold this piece to the Chicago art dealer, Hisazo Nagatani, who donated the sculpture to The Field Museum in memory of his wife, Chica.

At first glance, the sculpture appears to be cast in metal, but it's actually carved from wood; its gold lacquered surface mimics the qualities of a bronze patina, a testament to the skill, devotion, and artistry of the Japanese craftsmen who produced it.

Buddhism spread from China to Japan in the 6th century AD. Soon after, a distinct form of Japanese Buddhism developed called "Pure Land." A central figure in this movement is the Amida Buddha, and artistic representations of this celestial being abound in Japan. The Frank Lloyd Wright sculpture and others like it are important components of the Museum's East Asia collections, reflecting the cultural traditions and spiritual beliefs of peoples from Japan, China, and other East Asian countries. **ITF**

*Special thanks to Alan Francisco and Deborah Bekken for their contributions to this article.*

PHOTO, TOP OF PAGE: PROVIDED BY THE FRANK LLOYD WRIGHT FOUNDATION

PHOTO, LEFT: A114878D\_012 / KAREN BEAN

## The McCarter Fund for Science

We are pleased to announce a special endowment initiative with our Museum members. You may already know that The Field Museum's President, John McCarter, recently announced his retirement, effective this fall. In honor of his extraordinary leadership at The Field Museum as well as in the Chicago community for the past 15 years, the Board of Trustees recently launched an endowment effort that will leave a lasting legacy for scientific innovation across the Museum: The McCarter Fund for Science. For more information please contact Robin Mucha at 312.665.7285 or [rmucha@fieldmuseum.org](mailto:rmucha@fieldmuseum.org).

## Become an Annual Fund Donor

Annual Fund donors enjoy exclusive access to Field Museum scientists, special after-hours events, and help advance our mission and broaden our reach in the community and around the world. Tax-deductible gifts ensure that our education programs, exhibitions, research and collections continue to thrive, maintaining our position as one of the leading natural history museums in the world. Make an impact today by supporting the Annual Fund! For more information, contact Madalyn Kenney, Manager of Annual Giving, at 312.665.7801 or [mkenney@fieldmuseum.org](mailto:mkenney@fieldmuseum.org).

## The Field Trip—A Mammals Extravaganza!

The President's Leadership Council invites you to join them for their annual benefit for the Education Department on Saturday, June 2. **Extreme Mammals Extravaganza** celebrates the opening of *Extreme Mammals* in a family-friendly format. Join us in Stanley Field Hall to explore this fantastic temporary exhibition in a festive party atmosphere complete with live music, a buffet dinner, scavenger hunt and a wide range of additional activities designed to engage guests of all ages. For more information or to purchase tickets, please visit [fieldmuseum.org/PLC](http://fieldmuseum.org/PLC).

# museum campus neighbors

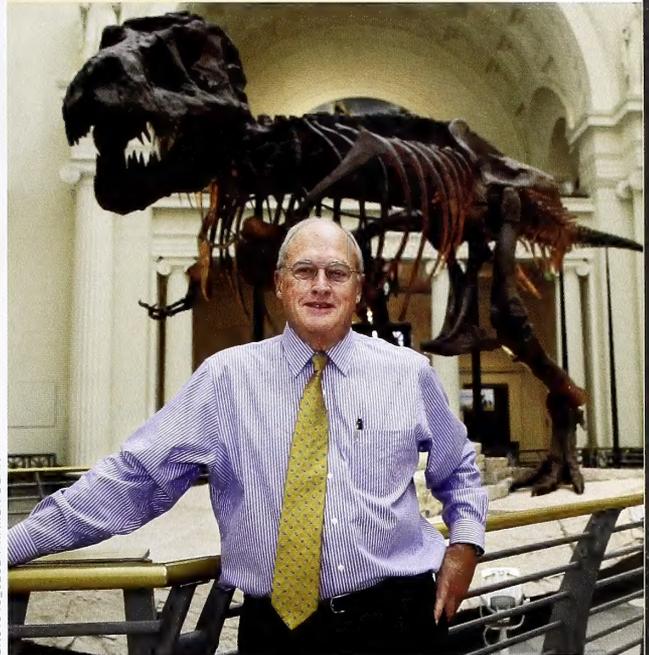
### SHEDD AQUARIUM

When was the last time you sat down with a penguin, took part in a dolphin training session, or got a kiss from a beluga whale? You haven't experienced the Shedd Aquarium until you've signed up for an **Extraordinary Experience** program. Tours show you Shedd staffers at work behind the scenes. Extraordinary experiences are unforgettable and make great gifts. Find out more at [sheddaquarium.org](http://sheddaquarium.org).

### ADLER PLANETARIUM

Take a journey through space to learn about orbital debris that threatens Earth in **Space Junk 3D**. Join the search for planets beyond our solar system in **Undiscovered Worlds** and come aboard a starship to experience space in **Deep Space Adventure**. Don't miss **Adler After Dark**. This 21+ event offers museum access, music, and the best view of Chicago's skyline! Visit [adlerplanetarium.org](http://adlerplanetarium.org) for more.

GN91345\_028D / KAREN BEAN



## Field Museum Memberships

### Time to renew your membership?

Call 312.665.7700 • Mon.–Fri., 8:30am–4:30pm

Visit [fieldmuseum.org/membership](http://fieldmuseum.org/membership)

*Field memberships also make great gifts!*

GN90695\_03D / JOHN WEINSTEIN



# program calendar

Program Tickets + Info 312.665.7400

General Museum Info 312.922.9410

## june

### Comer Symposium\* adult program

**6.2, 2pm** > Join us as WGN radio host John Williams moderates a spirited discussion focused on climate change solutions. Panelists include Chicago Department of Transportation Commissioner Gabriel Klein; author of *The Conundrum and Green Metropolis* David Owen; as well as Mark Hertsgaard, author of *HOT: Living Through the Next Fifty Years on Earth*.

*The Gary C. Comer Family, in fostering education, research, and public awareness of climate change, has funded the establishment of a five-year series of symposia at The Field Museum.*

### Artists and Authors\* family program

**6.16, 11am–2pm** > Splish, Splash, Sand, and Seashells! Join us as we explore an ocean of beautiful seashells. Use your sense of touch in our sensory bins to dig for hidden shells under the sand. Create a unique piece of artwork using the sand, sea, and shells as inspiration.



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## july

### Artists and Authors\* family program

**7.21, 11am–2pm** > Join artist Ian Sherwin in the Art Studio to create your own extreme mammal. Add claws, teeth, horns, antlers or tusks to your creature to make it EXTREME! Grab a seat and enjoy a reading of the book *Actual Size* by Steve Jenkins.

## august

### Artists and Authors\* family program

**8.18, 11am–2pm** > The Field Museum's resident artist joins us for an up-close look at birds and their nests. Visit artist Peggy Macnamara in the East Entrance Hallway outside of the Crown Family PlayLab as she works on one of her paintings using specimens from the collection as her inspiration. After listening to a reading of her book *Ten*, stop in the Art Studio to create your own bird's nest using clay and natural materials.

\*FREE with Museum Admission

 in the Crown Family PlayLab



THE FIELD MUSEUM

## register for summer programs!

### Dino Camp > ages 3–4

I spy a dinosaur, do you? Join us for two days of dino discovery where we will learn how to spot a dinosaur, see SUE's skull, and dig for dinosaur bones! This is an early childhood camp, designed expressly for young explorers ages 3–4 with their caregivers.

Program takes place from 9am–Noon in the Crown Family PlayLab.

Choose from the following two-day sessions:

- |                            |                             |
|----------------------------|-----------------------------|
| 1: Mondays, June 4 & 11    | 5: Mondays, June 18 & 25    |
| 2: Tuesdays, June 5 & 12   | 6: Tuesdays, June 19 & 26   |
| 3: Wednesdays, June 6 & 13 | 7: Wednesdays, June 20 & 27 |
| 4: Thursdays, June 7 & 14  | 8: Thursdays, June 21 & 28  |

\$75 general, \$65 member (one adult included in the price per camper).

Register online at [fieldmuseum.org](http://fieldmuseum.org) or by phone, 312.665.7400.

### Sign up for the Crown Family PlayLab E-News!

This e-newsletter is an early science literacy resource geared towards families with young children ages two through six. Each quarterly issue will feature theme-based, downloadable activities and articles designed to encourage outdoor exploration, creative play, and self-expression.

Email us at [playlab@fieldmuseum.org](mailto:playlab@fieldmuseum.org) to start receiving emails.



## looking ahead

### Badge Day at The Field

#### Boy Scouts—Earn a Merit Badge at The Field Museum!

Badge Day at The Field will have Boy Scouts trekking across the Museum with fun scavenger hunts, exploring natural sciences through hands-on activities, and experiencing a behind-the-scenes tour with a Field Museum scientist.

For more details, please see article on page 9.

[fieldmuseum.org](http://fieldmuseum.org)  
event details are available online!

Ever wondered what treasures lie hidden within The Field Museum's vaults? Unlock the Museum's secrets via the new **Specimania** iPhone and iPad app available at the iTunes App Store.

# digital programs for teens!



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The following programs are designed for students ages 13–18 and are FREE, including meals and CTA assistance. All applications are due on May 11. Space is limited so early application is strongly encouraged! Please visit [fieldmuseum.org/schools/summer-2012-teen-digital-program-applications](http://fieldmuseum.org/schools/summer-2012-teen-digital-program-applications) for more information.

## I Dig Tanzania

**Weekdays, 6.25–7.13, 11am–3pm** > Dig for virtual fossils at The Field Museum! This summer join the I Dig Tanzania team and use virtual worlds to go on a scientific expedition to Africa. Teens will get to excavate virtual fossils and create a virtual museum exhibit, get special behind-the-scenes access to fossil specimens, collaborate in real time with an international team of scientists in Tanzania and teens across the country, understand the connections between climate change and extinctions, and use the latest in digital media.

## Digital Planet

**7.16–7.20** > Travel the globe (virtually) for a week with Field Museum scientists this summer! Digital Planet 2012 will be embarking on another stellar expedition, this time to the Mummy Vaults! You can make your own movie magic based on the research of the Museum's fearless scientists. You'll meet and interact behind the scenes with the scientists and specimen that are not only changing the face of science but changing the future of our planet! You'll also get to work with real-world videographers who can help you improve your cinematic skills.

## Youth Design Team\*

**7.23–8.10** > The Museum is your playground during this three-week summer internship. You'll go behind the scenes to meet the scientists and staff members who make The Field Museum work! From Egyptian mummy experts, to web developers, to the security guards (who have the BEST stories); you'll get to see the Museum from the inside out...and then tell your own story about it. Using game-creators, mobile experience-makers, video, audio and social networking, you'll create a project that blows the top off how the world interacts with the Museum's 26 million specimen...less than one percent of which is actually on public display!

*\*Must have participated in a Digital Planet, previous Youth Design Team, iDig Science or other Field Museum digital program to be eligible. Minimum GPA requirement is 3.2/4.0*

*Digital Planet and Youth Design Team are implemented in partnership with the New Learning Institute of the Pearson Foundation.*



## Overnights at the Museum Plan Your 2013 Overnight Now!

2012 Dozin' with the Dinos are already sold out! Plan your 2013 experience soon. Dates for the 2013 season will go on sale July 1st. Visit [fieldmuseum.org](http://fieldmuseum.org) or call 312.665.7400 to register.

SUE the *T. rex* is having a sleepover! Join us for a night of family workshops, self-guided tours and fun activities. Explore ancient Egypt by flashlight, prowl an African savannah with man-eating lions and take a stroll through the Royal Palace in Bamum, Africa. Then spread your sleeping bag amidst some of our most popular exhibitions. The event includes an evening snack and continental breakfast in the morning. Fridays at 5:45pm to 9am the following morning.

## Premium Packages

Families can sign up for Premium Package 1 (\$75, \$65 members) and sleep in our *Evolving Planet* exhibition, or book Premium Package 2 (\$87, \$77 members) and sleep in *Evolving Planet* and add a behind-the-scenes tour with a Field Museum scientist!

## DOZIN' WITH THE DINOS

## Don't miss these exhibitions before they close!

### Science on the Half Shell

**Through August 19**

Did you know there are over 20,000 species of clams, scallops, oysters, and mussels living today? Discover bivalves through touchable models, real specimens, and hands-on activities.

*Science on the Half Shell is organized by the Paleontological Research Institution and made possible by a grant from the National Science Foundation.*

### Genghis Khan

**Through September 3**

Discover the history, technological innovation, and culture of one of the world's greatest conquerors. View more than 200 artifacts from the reign of Genghis Khan including gold jewelry, weaponry, silk robes, and religious relics.

*Genghis Khan is produced by Imagine Exhibitions, Inc. Lead Sponsor: Allstate Insurance Company.*



THE FIELD MUSEUM

## Getting to The Field Museum

Many buses and rail lines provide access to The Field Museum. For more information, call 888.YOURCTA or visit [www.transitchicago.com](http://www.transitchicago.com). Visit [www.rtchicago.com](http://www.rtchicago.com) for regional transit information.

## What do you think about In The Field?

For questions about the magazine, call 312.665.7107, email [ewaldren@fieldmuseum.org](mailto:ewaldren@fieldmuseum.org) or write Emily Waldren, Editor. For general membership inquiries, including address changes, call 866.312.2781.

always be discovering.

The Field  
Museum

# The Field Museum

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You can Adopt a *T. rex* for only \$39.00 plus \$4.00 shipping and handling. Adopt your *T. rex* by going online at [fieldmuseum.org/support/adopt-t-rex](http://fieldmuseum.org/support/adopt-t-rex), calling us at 312.665.7700, or visiting the museum. Please allow ten business days for processing and delivery.



DAVID QUEDNAU / THE FIELD MUSEUM

## "But, Mom, it followed me home!"

Take home your very own **Extreme Mammal** when you visit our Exhibition Store. Whether you are fascinated by enormous creatures like the elephant and woolly mammoth, or prefer the unusual like armadillos and aardvarks, you will find great toys, games, books and other curios to tickle your fancy. We've shopped around the world to bring you the extraordinary including this life-like plush aye aye, the large-eyed nocturnal native of the rainforests of Madagascar.

Shop the Museum Stores 24 hours a day at [fieldmuseum.org](http://fieldmuseum.org).

Remember that all proceeds from the Stores directly support the Museum's public and scientific programs, and that all Field Museum members receive 10 percent off their purchases in the Museum Stores.

LINDSAY KREMENAK / THE FIELD MUSEUM

