



AMERICAN MUSEUM OF NATURAL HISTORY

ROTUNDA

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Science
in the
Solomon
Islands



NAPOLEON: MURDER OR MISHAP?

From the President

Ellen V. Futter



There is enormous excitement in the way that science is advancing today, through an extraordinary integration of knowledge and technology. In work fueled by new technologies and unprecedented computing power, scientists are revealing, at a breakneck speed, the mysteries of previously invisible worlds. And a growing culture of cross-disciplinary, often international, research is facilitating a rapid synthesis of knowledge across fields.

Just as science is vastly different than it was mere decades ago, so is “going out into the field” a very different proposition than it was when Franz Boas launched his pioneering 1897 expedition to study the native peoples of the Northwest Coast of North America—the Museum’s first large-scale expedition.

And so this year, the Museum launched Explore21, an initiative that calls upon innovative, multi-

disciplinary approaches and new technologies to power the Museum’s fieldwork and collecting activity for a new era. The first major, modern expedition of Explore21 took place this fall, when Curator John Sparks, an ichthyologist, led an interdisciplinary team to the Solomon Islands. There, aboard the astonishing, high-tech scientific vessel *Alucia*, they used state-of-the-art submersibles and other dazzling technology to study previously unseen worlds in the ocean’s depths.

Through this expedition and Explore21 more broadly, the Museum is positioned to make even greater strides in exploring Earth’s biodiversity, learning how to protect it, and identifying vital connections between humans and other species, with important implications for human health—all to the end of dramatically advancing our legacy work of deepening our understanding of the natural world and humanity’s place in it.

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Pterosaurs: Flight in the Age of Dinosaurs Opens April 5



Pterosaurs, including the pteranodon above, were the first vertebrates to take to the sky.

Some were the size of a sparrow, others as big as fighter jets. This spring, these ancient winged reptiles are landing at the Museum for a special new exhibition *Pterosaurs: Flight in the Age of Dinosaurs*, which is free for Members and opens April 5 in the LeFrak Family Gallery on the fourth floor.

For years, pterosaur fossils puzzled paleontologists. “It takes a lot of imagination to picture these animals alive, soaring above the ground. There is nothing like this today, and these fossils show how spectacular the history of life on our planet is,” says Mark Norell, curator and chair of the Division of Paleontology who conducts pterosaur research in Romania, China, and Mongolia. Dr. Norell curated the exhibition with Alexander Kellner, a Museum research associate and paleontologist at the Museu Nacional in Rio De Janeiro who has described more than a dozen species of pterosaurs.

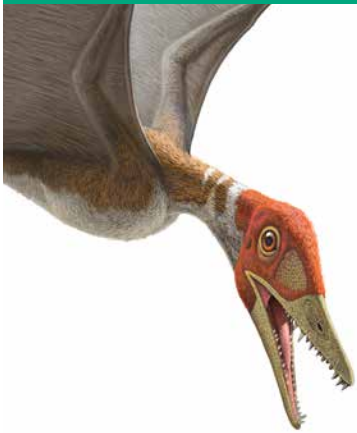
A diverse group with more than 150 known species, pterosaurs appeared 220 million years ago and survived for nearly 150 million years before becoming extinct. What set them apart was their adaptation for flying, a unique trait that will be explored in *Pterosaurs* through multiple interactive exhibits, including a virtual wind tunnel, and rarely seen specimens such as a wing section with fossilized membrane never before exhibited outside of Germany.

Young visitors will enjoy seeing life-size models, including the 26-foot-wingspan pterosaur *Tropeognathus mesembrinus* swooping overhead at the gallery’s entrance, as well as exhibits about how these animals grew, walked, and took to the air. A special display will showcase the variety of pterosaurs’ impressive crests, which may have been used for heat regulation or species recognition.

The exhibition will also offer a detailed look at the pterosaurs’ ancient world in a dramatic diorama re-creating an inland sea in Brazil where pterosaurs, fish, crocodiles, and other species co-existed millions of years ago, with a cross-section view showing how some pterosaurs hunted flying fish. The display will also illustrate how these animals were preserved at what today is one of the world’s richest pterosaur fossil sites.

The Museum gratefully acknowledges the
Richard and Karen LeFrak Exhibition and Education Fund.

MEMBER PREVIEW
WEDNESDAY, APRIL 2, 4–8 PM



Discover a world where pterosaurs soared overhead in the exciting new exhibition *Pterosaurs: Flight in the Age of Dinosaurs*. Explore pterosaur models, casts, and fossils and find out how these extraordinary ancient vertebrates moved on land and in the air, how they hunted, and what scientists are discovering about them today.

Members are invited to see *Pterosaurs* at a special preview on Wednesday, April 2, beginning at 4 pm. View the exhibition and stay for a wine reception from 5 to 8 pm. Please RSVP by calling the Membership Office at 212-769-5606.

CURARE CONTAINERS

The curare pot featured in *The Power of Poison* was collected in the early 20th century by the archaeologist Hermann Walde von Waldegg and donated to the Museum by geologist and collector Dr. Harvey Bassler in 1961. Three other curare containers are on exhibit in the Hall of South American Peoples, along with blowguns and related artifacts.

PRECISION INSTRUMENTS

Amazonian blowguns made from reeds or thin palm-wood stems measure from 8 to more than 13 feet long, with a range of more than 100 feet. Armed with small curare-tipped darts, they are typically aimed straight up to reach targets directly above the hunter and, in the hands of a skilled user, are highly accurate.

CURING WITH CURARE

Curare compounds have more benign applications in medicine, where they are used as a muscle relaxant in abdominal and other types of surgery, allowing doctors to use lighter anesthesia for faster recovery. These alkaloids can also reduce convulsions and aid treatment of spastic paralysis and other conditions.

DIFFERENT INGREDIENT

When derived from the vine *Strychnos toxifera*, curare poison for blowgun darts contains another neurotoxin: the alkaloid strychnine, rather than curarine. Both interfere with the normal transmission of signals from nerves to muscles. But while curarine causes muscles to relax, even to the point of shutting down the ability to breathe, strychnine makes muscles contract and, at high enough doses, brings on convulsions and death.

A CONSIDERABLE COLLECTION

The Museum’s South American ethnographic collection, one of the largest in the country, includes more than 21,000 objects from some 200 tribes. Although all regions of the continent are represented, the greatest number of objects originated in three areas: the Amazon rain forest, the Gran Chaco region, and Tierra del Fuego. About 700 objects, including blowguns and curare pots, come from Tukanoan cultures in the western Amazon.

A Poison Pot

When British naturalist and explorer Alfred Russel Wallace (1823-1913) traveled through northwest Amazonia in the mid-19th century, he observed Tukanoan Indian hunters of the Rio Negro aiming blowguns with poisoned arrows at the treetops. The effects made an impression: “The wounded birds sometimes turn giddy and drop in a few seconds, or fly away to a neighboring tree and in a minute fall heavily to the ground,” he wrote.

Wallace had observed the effects of curare, the sap of a jungle vine that, when injected, acts as a powerful muscle relaxant. Its active ingredients include curarine and tubocurarine, alkaloids that are present in several Amazonian plants, including *Curarea tecunarium* and *Chondrodendron tomentosum* vines. A neurotoxin, curare blocks nerve impulses from reaching muscles when it enters the bloodstream, immobilizing the victim—a bird, monkey, or other small animal. But it’s harmless when ingested, so the meat of curare-stricken prey is safe to eat.

By incapacitating wild game this way, human hunters are doing what many animal predators do to secure their meals. Various species of scorpions, spiders, and venomous snakes inject calibrated cocktails of venom into their prey to paralyze or kill it. But humans have to create their weapons, and blowguns with curare-tipped arrows are ideal for rain forest hunting. Crafted from easily available materials, they bring down animals quietly, without alarming other prey and with little damage to fur or feathers.

The Tukanoan Indians prepare curare by scraping sap from the bark of a tropical vine, then pounding and boiling it down to a thick paste. Often, ingredients such as crushed snake fangs or stinging ants, which are thought to bestow magical powers, are added to fortify the curare. Because it loses potency when exposed to the air, curare is kept covered in gourds or clay pots like the one below, currently featured in the special exhibition *The Power of Poison*.

Members receive free admission to *The Power of Poison*, now open at the Museum.



Catalog no. 40.1/893

© AMNH/ D. Finnin



Catalog no. 461042

The Passenger Pigeon

The Passenger Pigeon, *Ectopistes migratorius*, was once so abundant that migrating flocks passing overhead could darken the sky for several days. Numbering in the billions, nesting in huge colonies scattered from the Great Plains to the East Coast, and intensely social, the species’ sheer numbers made it seem invulnerable to changes spurred by an industrializing nation. Yet in the second half of the 19th century, pressed by overhunting and deforestation, Passenger Pigeon populations began to decline. Within a few decades, they became scarce. The species disappeared altogether 100 years ago with the death of Martha, the last known Passenger Pigeon, who died in the Cincinnati Zoo on September 1, 1914.

In hindsight, the path to extinction was not altogether surprising. As vast stretches of hardwood forests were cleared in America’s westward expansion, the birds lost much of their habitat and food supply. The pigeons were hunted indiscriminately for sport and for commerce, killed by the millions and shipped to food markets in the cities. The enormous flocks were easy targets for hunting parties, who could shoot hundreds of birds from the sky in a matter of minutes. But although many observers noticed the species’ dramatic decline, there was little interest in or understanding of the process of extinction in the 19th century.

Today, with greater recognition of the threats to biodiversity and more sophisticated research tools, scientists can profile species at risk and help shape conservation work. “DNA sequencing and mathematical models can help us determine relatives of species and see how much genetic variability there is in a population or how it differs from another population,” says Associate Curator George Barrowclough, who has studied the endangered Northern Spotted Owl and the California Gnatcatcher. “It shows us how genetically distinct an endangered species is so that we can focus our conservation efforts on saving those that are particularly divergent.”

Find out more about genomic research and conservation biology at the Museum on a Members’ behind-the-scenes tour of the Sackler Institute for Comparative Genomics on February 18. See page 17 for more details.

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OFF-THE-CHARTS POPULATIONS

Nineteenth-century reports indicate astonishing numbers of Passenger Pigeons. One account estimated more than 2.2 billion birds in a single flock; another calculated 136 million birds in a Wisconsin nesting area. In 1813, John James Audubon reported a migrating flock in Kentucky that passed undiminished for three days overhead: “the light of noon-day was obscured as by an eclipse.”

GONE BUT NOT FORGOTTEN

The legacy of the last Passenger Pigeon, Martha, lives on, including at the Passenger Pigeon Memorial at the Cincinnati Zoo. Martha also figured in the 1966 film *Our Vanishing Lands* and inspired a song—“Martha (Last of the Passenger Pigeons)” — by the late bluegrass singer John Herald.

AN EARLY EFFORT

One of the Museum’s earliest displays, now on view in the Hall of New York City Birds on the third floor, shows a flock of Passenger Pigeons foraging for acorns amid leaf litter. The 4-foot-by-4-foot glass cube was one of 40 bird scenes created in the 1880s by Frank M. Chapman, the ornithologist whose 54-year career at the Museum was devoted to advancing the cause of bird conservation and building the Museum’s collection. These popular displays paved the way for the Museum’s iconic dioramas.

A VALUABLE RESOURCE

Specimens of extinct species provide valuable data to scientists working on conservation issues. The Museum’s collection of Hawaiian Honeycreepers, for example, has been important for the study of speciation on island archipelagoes. With more than a million specimens, the Ornithology Department’s collection includes nearly 99 percent of all known species. Some, like the flightless Dodo from the island of Mauritius, disappeared centuries ago. Others, including the North American Labrador Duck and Heath Hen, represent fairly recent extinctions, in the 1870s and 1930s, respectively.

BRINGING SPECIES BACK

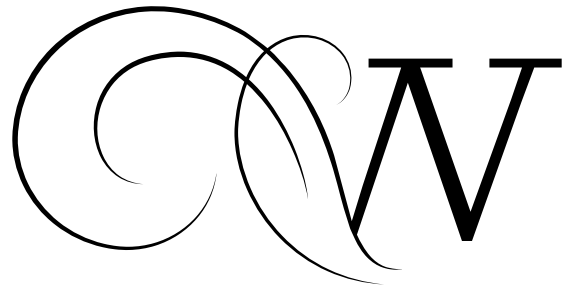
By combining genetic material from extinct species with cells from living species, researchers in the U.S. and abroad are attempting to reverse extinctions. In the case of Passenger Pigeons, this effort involves using closely related Band-tailed Pigeons as surrogates. Curator Ross MacPhee discusses such projects, and the ethical issues they raise, in the video segment “SciCafe: Science, Ethics, and De-extinction” on AMNH.tv.

Cold Case



Napoleon
and the
Arsenic Connection





Was Napoleon Bonaparte poisoned? This question has plagued historians since the defeated French emperor's death on May 5, 1821, on the island of St. Helena in the South Atlantic, where he lived in exile for nearly six years. Napoleon himself fueled suspicion, writing in his will a mere three weeks before his demise at age 51, "I die before my time, murdered by the English oligarchy and its assassin."

For nearly 200 years, the debate has raged about the cause of Napoleon's death, which is one of several prominent and puzzling poisonings throughout history highlighted in the new exhibition *The Power of Poison*. Chief among the theories for the exiled emperor's death is arsenic poisoning—an idea reinforced by the remarkable condition of his body when it was exhumed in 1840 for reburial in Paris. Because it is also toxic to microorganisms, arsenic slows down the decomposition of human tissue, a phenomenon described as "arsenic mummification." Subsequent 20th-century tests of preserved locks of Napoleon's hair tested positive for arsenic.

But even if arsenic was the cause of death—which has not been proven with certainty—Napoleon's charge of foul play may not be justified. A less dramatic but nonetheless plausible alternative is that Napoleon could have been exposed to the poison through the toxic fumes given off by wallpaper at Longwood, his prison home. A sample had been secured by a visitor to the site in the 1820s and tucked into a family scrapbook. It surfaced in Norfolk, England, in the 1980s and, when tested by British scientists in the 1990s, was found to contain arsenic. The discovery was not entirely surprising given that arsenic-based pigments were widely used to create brilliant greens in the 19th century. In a hot and damp room, the wallpaper would give off arsenical vapors—enough to account for what was found in his hair, though perhaps not enough to kill him.

Other evidence suggests that Napoleon's exposure to arsenic was likely life-long. In 2008, an Italian team widened the inquiry by testing not only strands of Napoleon's hair from four points in his life—including his boyhood, his exile, the day of his death, and the day after—but that of his son, Napoleon II, and his wife, Empress Josephine. All samples were found to have similarly high

Famed Renaissance poisoner Lucrezia Borgia was said to wear a ring filled with arsenic, but historians today believe she may have been wrongfully blamed for her family's crimes.



Page 6: John Cancalosi/AGE Fotostock; page 7: DEA Picture Library/AGE Fotostock

Page 8: Mary Evans Picture Library; Page 9: top, © AMNH/D. Finnin; bottom, © AMNH/R. Mickens

arsenic levels, roughly 100 times that of living people whose hair was included in the analysis for comparison. The team from Italy's National Institute of Nuclear Physics concluded that the results suggest "chronic exposure...simply attributed to environmental factors, unfortunately no longer easily identifiable, or habits involving food and therapeutics."

Arsenic was a common ingredient in a number of household products in the 19th century, according to *The Poisoner's Handbook*, Deborah Blum's compelling history of forensic medicine. Besides containing arsenic to deter rats, wallpaper was also hung with arsenic-laced paste (a double-whammy that perhaps lends new meaning to Oscar Wilde's rumored deathbed quip, "Either the wallpaper goes, or I do.") The same arsenic-based pigments used in wallpaper also were used to color fabrics, artificial plants, candles, paper products, soap, and more. Arsenic was used in weed killers, fly paper, and as rat poison. In what were thought to be safe doses, arsenic was used in popular medicinal tonics like Dr. Fowler's Solution, an arsenic-based cure-all for any number of ailments that was sold into the 1950s; "complexion wafers," ingested to remove blemishes and produce translucent skin; and Salvarsan, widely prescribed for the treatment of syphilis, from which Napoleon was also said to suffer.

Even as arsenic was prevalent in healing potions, its potency as a poison was also well-established by the 19th century, especially as the soluble compound made by heating the heavy metal element with oxygen to form arsenic trioxide—the odorless and tasteless white arsenic. The latter was a notorious weapon of choice in both fact and fiction, as explored in *The Power of Poison*. *La canterella*, thought to be a lethal mix of arsenic and cantharidin, was favored by the murderous Borgia family of Renaissance Italy. In France, where it was known as *poudre de succession* or "inheritance powder," arsenic was implicated in almost 40 percent of all poison murders between 1835 and 1880, according to a study cited by Blum. In the U.S., another survey showed that of 31 indictments for poison murder in 12 counties in New York State for the decade 1879 to 1889, half involved white arsenic. From Agatha Christie in *4:50 from Paddington* to Arthur Conan Doyle in *A Study in Scarlet*, crime writers have relied on its potency to drive dozens of plots.

As an instrument of murder, arsenic had advantages. Mixed in food or drink, it was difficult to taste. Especially administered over time in steady doses, the outward effects of arsenic poisoning—nausea, vomiting, diarrhea, convulsions, confusion, difficulty breathing, abdominal pain—mimicked natural diseases, like influenza, cholera, or just an ulcer. Arsenic's ubiquity into the 20th century meant that its presence in a cadaver was not necessarily considered proof of foul play.

Still, as forensic techniques improved over time, arsenic's tendency to spread throughout the body eventually offered pathologists the edge. "A poison like arsenic, which hits some fundamental cellular process like the production of energy from sugars or other substances, affects everything," says Mark Siddall, curator in the Division of Invertebrate Zoology who curated *The Power of Poison*. "This allows us to go back in time, because you can detect arsenic in hair samples that have been sitting around for a couple hundred years."

In Napoleon's case, arsenic was likely just one of many compounds taxing an already troubled system. In the course of treatments for a variety of symptoms—swollen legs, abdominal pain, jaundice, vomiting, weakness—Napoleon was subjected to a smorgasbord of other toxic substances. He was said to consume large amounts of a sweet apricot-based drink containing hydrocyanic acid. He had been given tarter emetic, an antimonial compound, by a Corsican doctor. (Like arsenic, antimony would also help explain the preserved state of his body at exhumation.) Two days before his death, his British doctors gave him a dose of calomel, or mercurous chloride, after which he collapsed into a stupor and never recovered. (As detailed in *The Power of Poison*, mercury was a main ingredient in popular remedies from purgatives to infants' teething powder well into the 20th century.) An autopsy carried out the next day revealed ulcerating stomach cancer.

In what is perhaps the most convincing hypothesis, published in the *Journal of the Royal Society of Medicine* in 2004, an international team of toxicologists and pathologists concluded that Napoleon's death was a case of "medical misadventure," and that the various drugs he was administered combined with the arsenic and a weak state of health to create a fatal imbalance and cardiac arrest. They added, "If the arsenic poisoning was intentional, it would still be homicide." And so the mystery continues. ☹

The Power of Poison, which is free for Members, is now open at the Museum.

Major funding for *The Power of Poison* has been provided by the Lila Wallace – Reader's Digest Endowment Fund.

Rotunda / Winter 2014 / AMNH.org

Help Solve an Arsenic Mystery



Why did farmer George Bodle fall ill after breakfast one morning in 1833—and why is chemist John Marsh called in to help with the case?

A live presentation in *The Power of Poison* takes visitors back in time to 19th-century England, when the science of detecting poison and the use of forensic evidence in court were still very new.

Enjoy the show, then try your hand at solving three other puzzling poisonings in the exhibition. Bring the fun home with the free "The Power of Poison: Be a Detective" app for iPad, available at amnh.org/poison.

Exhibition Highlight: an Enchanted Book



Knowledge about plants that can cure or harm has been prized for hundreds of years. Visit the exhibition to discover an "enchanted" book that comes to life to reveal details about poisonous plant species with each turn of the page.



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A CENTURY IN THE SOLOMON ISLANDS

QUICK FACTS

WHAT

Nearly 1,000 islands, spanning more than 1,000 miles

WHERE

South Pacific, northeast of Australia and east of Papua New Guinea, along the Pacific Ring of Fire, where a large number of volcanic eruptions and earthquakes occur

POPULATION

Sparse; less than 600,000 people

CAPITAL

Honiara, on the island of Guadalcanal, with a population of 30,000

TERRAIN

Mountainous, with peaks as high as 8,000–10,000 feet; some smaller islands are made solely of living coral

MUSEUM PROJECTS

In the Solomon Islands, Center for Biodiversity and Conservation scientists work in the Western Province, a group of about 400 islands west of Guadalcanal, on the islands of Tetepare, Kolombangara, and in the Marovo Lagoon

For nearly a century, the Solomon Islands—an archipelago of nearly 1,000 islands just east of Papua New Guinea—have beckoned biologists from the American Museum of Natural History with an astonishing diversity of flora and fauna, from beautiful mollusks to reptiles and majestic bird species found nowhere else.

Museum scientists first traveled to the Solomon Islands as part of the historic Whitney South Sea Expedition. The legendary 19-year voyage helped the Museum amass the world's largest collection of birds by the time it ended in 1939. Just a few months ago, a team of researchers set out for the Solomon Islands under the banner of an exciting new scientific initiative, Explore21, which is bringing new technologies and multi-disciplinary methods to field research and collections (for more, see page 12).

From cloud forests to coral gardens, the Solomons offer a window into some of the largest contiguous island wilderness areas on Earth. For the last eight years, the Museum's Center for Biodiversity and Conservation (CBC), under the direction of Dr. Eleanor Sterling, has led major efforts to protect these sites. Working with indigenous islanders, the CBC has built "conservation infrastructures"—bottom-up networks that fuel critical conservation efforts, including some of the largest protected areas in the region. The CBC also helped to advise the Solomon Islands government on passing the first-ever protected-area legislation for the archipelago.

"Combining scientific discovery with investment in local governance, the CBC's conservation work is improving local capacity to conserve the lush mosaics of forest and marine systems that inspired Museum scientists a century ago," says CBC Director of Pacific Programs Chris Filardi. "And, as a result, we have a timeless opportunity to interact with a tropical Pacific that has vanished from nearly all other large archipelagos in the region."

Creating and maintaining such opportunities is central to CBC's mission and has informed its work around the globe since its founding in 1993. (See page 23 for information about the Environmental Lecture and Luncheon on April 30, which celebrates the CBC's 20-year anniversary.) But the community-based work in the Solomon Islands offers particularly inspiring examples of how conservation can work in the 21st century.

Here's just one recent example. In the waters off the coast of Tetepare, the largest uninhabited island in the South Pacific, the CBC is working with local rangers on a community-based wildlife monitoring program. Rangers and monitors there—members of the Tetepare Descendants' Association, whose ancestors lived on Tetepare hundreds of years ago—train and work with CBC staff to survey populations of endangered green sea and leatherback turtles, coconut crabs, and large mollusks. In addition, the group monitors the prevalence of sea grasses that provide essential nursery areas for animals as well as food for marine mammals called dugongs.

"Through these efforts, we hope to not only improve the conservation of these marine animals, but to gain a better understanding of their mysterious life history," says CBC Pacific Programs Manager Michael Esbach. "And we're empowering local communities to steward everything that is unique and mysterious to Tetepare." 🌿

Significant support for the CBC's work in the Solomon Islands is provided by the John D. and Catherine T. MacArthur Foundation and the Prince Albert II of Monaco Foundation—USA.

Top left: The Whitney Expedition began in 1920 and lasted nearly two decades.

Top right: The Museum's CBC works with rangers of the Tetepare Descendants' Association, which represents hereditary descendant landholders and manages conservation activities across the island.

Bottom right: Biologists on the Whitney Expedition included the young Ernst Mayr (second from left), who collected thousands of bird specimens, including species not known to science.

Middle left: Individual turtles have unique numbers and shapes of scales on the sides of their head, so photographs such as this one can help track individuals.

Bottom left: On the island of Kolombangara, the CBC has worked with indigenous communities to help conserve lush forests.

INSIDE THE EXPLORE21 EXPEDITION TO THE SOLOMON ISLANDS

Expeditions are the lifeblood of natural history museums, bringing back knowledge and collections that fuel scientific discovery. And at a time when habitats and species are under threat from deforestation, pollution, and climate change, they're also a particularly urgent undertaking.

In September 2013, the Museum launched a new scientific initiative, Explore21, to help define what a 21st-century expedition looks like. The first effort, a three-week expedition aboard the research vessel *Alucia*, focused on investigating mysterious organisms that light up deep waters, uncharted microbial life, and a rich diversity of fishes, corals, and other animals in the Solomon Islands.



The Museum greatly acknowledges the Dalio Foundation for its generous support of the inaugural Explore21 expedition.

The Museum's Explore21 Initiative is supported by the leadership contributions of Kathryn P. and Thomas L. Kempner, Jr., and Linda R. and William E. Macaulay.

JOHN SPARKS CURATOR, DEPARTMENT OF ICHTHYOLOGY

Curator John Sparks led the interdisciplinary team, which included biologists specializing in fishes, marine life, microbial life, and conservation. One key research goal: to conduct a broad survey of biofluorescent fishes, whose fluorescent proteins may have potential applications in medicine. Sparks (below) and team used a suite of powerful tools, including a submersible and several custom-built, high-resolution cameras to capture images underwater, as well as a range of collecting methods at different depths. Their findings: a surprising level of biodiversity, perhaps even new species.



DAWN ROJE RICHARD GILDER GRADUATE SCHOOL PH.D. STUDENT

A trained diver who helped with the larger biofluorescent fishes survey, Dawn Roje managed the on-board laboratory and collected larval eels (like the one pictured below), flatfishes, and jacks for her research on these animals' dramatic metamorphosis. "From our first mid-water trawl in 600 meters of water off the Solomon Islands, I got a beautiful flatfish larva still swimming upright but with its right eye inching to the left side of its head," says Roje. "That kind of luck is rare but glorious."



DAVID GRUBER MARINE BIOLOGIST

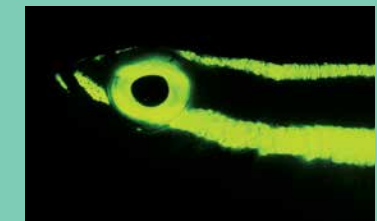
With access to a submarine, David Gruber, a Museum research associate and marine biologist at the City University of New York who specializes in the study of coral reefs, and Sparks were able to spend hours probing depths that are far beyond the reach of even the most advanced SCUBA divers. "So much of it is pure ocean exploration," says Gruber, shown above working in the submersible, who used ultra low-light cameras and other custom equipment to record deep-reef biofluorescence and bioluminescence. "In every place we went, we were most likely the first humans to lay eyes on these places."



BOB SCHELLY ICHTHYOLOGIST

In addition to daytime dives to collect fish by hand, Bob Schelly (above) helped process specimens pulled up during mid-water (800–1,000 meters) trawls. "It's a race against time before they decay," says Schelly, who helped preserve, photograph, and package thousands of specimens, as well as hundreds of tissue samples for the Museum's Ambrose Monell Cryo Collection.

SEE FLOURESCENT FISH
ON AMNH.ORG/BLOG



VINCENT PIERIBONE NEUROSCIENTIST

Together with John Sparks and David Gruber, Vincent Pieribone, who's based at Yale University, used special low-light cameras during dives to record bioluminescence. By flashing white light, they were able to "excite" marine animals, setting off a dazzling underwater conversation. The lightning-quick speed of the response indicates a unique cellular system with exciting potential for applications in neurobiology.



Photos courtesy of Ken Corben, David Gruber, John Sparks

SEARCHING FOR MICROBES IN THE SOLOMON ISLANDS

Assistant Curator Eunsoo Kim, who studies tiny single-celled organisms that are some of the most ancient forms of life, likes to say that in her area of research, “anywhere you go, you will find something interesting.” It’s her way of underscoring that microbial diversity remains largely unknown.

Still, last fall’s Explore21 Expedition to the Solomon Islands offered Kim an above-average universe of possibilities for studying microbes: a marine environment with warm water, relatively pristine conditions, and extensive coral gardens, all promising great diversity.

“Being able to collect from several water body types—from shallow water to blue ocean water surface to deep water—I was really excited about interesting, rare material,” says Kim, who also spent a day at Woods Hole Oceanographic Institution in advance of the expedition to learn how to use advanced instruments to gather data about water salinity, temperature, and depth.

Once in the field, Kim focused on collecting water samples from various sites: by hand from some of the Solomon Islands’ remote lagoon systems; by boat, dragging a plankton net with a fine mesh at 10 to 20 meters down; by a special sampler, dropped from on board the *Alucia* to 200–400 meters down; and by *Alucia*’s submarine at depths of up to 900 meters. Some of the samples drawn during the trip were sent on to colleagues in Canada, France, Norway, Korea, and Japan.

Another rare opportunity afforded by the *Alucia*: the chance to isolate single-celled organisms, some with a diameter of one-hundredth of a human hair, from freshly collected samples



Eunsoo Kim collected samples in several different ecosystems, including lagoons.

while still in the field. The vessel’s stabilizing system made it possible for Kim to set up an on-board microscopy lab, for which the team brought along two high-powered microscopes and other specialized equipment. After filtering the samples, she was able to use pipettes to draw out single cells by hand, then drop them into tubes with a nutrient-rich solution to start growing microbial cultures while still at sea.

The bulk of the work analyzing the collections gathered on this expedition—including 90 DNA samples, about 40 plankton-net samples of “large” (50 thousandths of a millimeter) single-celled eukaryotic organisms, 36 bottles of frozen seawater samples, and 80 bottles of live water samples from lagoons and coral reefs—will be done back at the Museum, as well as in labs around the world. “In this immense diversity, there is immense possibility, so much to be discovered,” says Kim. “So it’s great to be working with colleagues who specialize in a variety of organisms.”

Chris Filardi first came to the Solomon Islands in 1997 as a graduate student at the University of Washington, where he was studying patterns of speciation and the biogeographic history of tropical Pacific birds. As director of Pacific Programs for the Museum’s Center for Biodiversity and Conservation, he has returned here dozens of times, to continue his research on island bird species and also to work with local communities to protect island ecosystems.

By helping to address threats to rain forest and nearby lagoon and reef systems, Filardi and his CBC colleagues have helped ensure that biologists will be able to study these areas for decades to come. And being part of the Explore21 expedition gave this seasoned Solomon Islands-visitor an entirely new perspective on the archipelago.

“What we are experiencing above the waterline is literally the tip of a living iceberg,” says Filardi. “For years, we have been immersed in the incredible forests sweeping from the coasts up into the clouds. Now, submarines and specialized diving are dipping our view under the waves, where some of the most vibrant reefs on earth thrive, and it all falls away into unexplored depths of luminescent mystery.”



Chris Filardi first came to the Solomon Islands for his graduate work, to study island birds.

Glimpsing a Great Egret in the West Indies

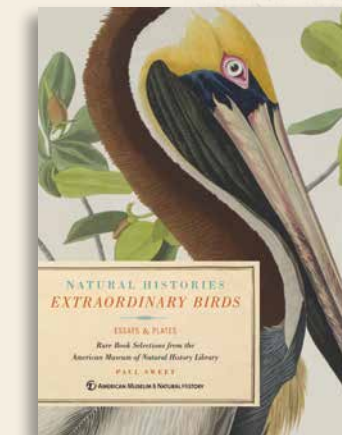
This article is excerpted from
*Extraordinary Birds: Rare Book
Selections from the American Museum
of Natural History Library* by Paul Sweet
(Sterling Signature, 2013).

In 1687, the young Hans Sloane—later a preeminent collector whose collections formed the foundation of the British Museum after his death in 1753—traveled to the West Indies from London as physician to the newly appointed governor of Jamaica, the Duke of Albemarle. The duke died soon after arriving, but Sloane spent 15 months in the islands collecting specimens of plants and animals and documenting their natural histories.

On his return to England, he produced his two-volume publication *A voyage to the islands Madera, Barbados, Nieves, S. Christophers and Jamaica*. This remarkable account of his travels and observations of West Indian natural history is illustrated by many fine prints, mostly by the Flemish engraver Michael van der Gucht, based on drawings made from life by the Reverend Garret Moore. These include “the largest white Gaulding,” seen here. “Gaulding” or “gaulin” is the West Indian colloquial name for herons and is still in use today.

During Sloane’s time, there were four species of white herons in Jamaica; the largest is now known as the Great Egret. This is a widespread species, found in warmer areas worldwide. In the United States during the 19th century, large numbers were slaughtered for their plumes, which were used as women’s hat decorations. Laws passed to protect this and other species were some of the first in bird conservation—the Great Egret is now the symbol of the Audubon society. ①

Paul Sweet is the collections manager in the Museum’s Department of Ornithology.



Extraordinary Birds is available
at the Museum Shop, where Members
receive a 10 percent discount.



Programs and Events

For more programs and to purchase tickets, visit amnh.org/calendar.

For updates and reminders, sign up for monthly **Calendar Highlights for Members** by sending your membership number and request to subscribe to members@amnh.org. The Museum does not trade, rent, or sell this information.

Tickets

Tickets are available by phone at 212-769-5200, Monday–Friday, 9 am–5 pm, or by visiting amnh.org. Please have your Membership number ready.

Availability may be limited. Please purchase tickets in advance.

Please be aware that ticket sales are final for all Member programs. All programs go ahead rain or shine. There are no refunds unless the program is cancelled by the Museum.

Walk on the Wild Side
Early-morning walks for Members at the Adventurer level and above begin January 8 and run for 12 weeks. Call 212-769-5606 to register.

Exhibitions

The Power of Poison
Free for Members
Explore poison’s paradoxical roles in nature, myths, and human health and history, and help solve puzzling cases in this exhibition. Live presenters in the Detecting Poisons theater will share real-world cases and highlight dramatic advances in toxicology and forensic detection.

JANUARY

Wild, Wild World: Wolves
Saturday, January 11
11 am (for children 5 and under); **1 pm; 2:30 pm**
\$10 Members
Meet Atka, an Arctic gray wolf from the **Wolf Conservation Center** in South Salem, New York, on a visit the Museum.

Our Mathematical Universe
Monday, January 13
7:30 pm
\$12 Members
Cosmologist **Max Tegmark** elucidates the physics, astronomy, and mathematics that led to his theory of the ultimate multiverse. A book signing follows.

Behind the Scenes in Herpetology: Poisonous Reptiles and Amphibians
Thursday, January 16
6:30–7:30 pm (family tour); **7–8 pm, 7:30–8:30 pm**
\$35
Tour the Department of Herpetology’s extensive collection to learn about poisonous reptiles and amphibians with Curatorial Associate **David Kizirian**. For ages 10 and up.

Pterosaurs
Opens **Saturday, April 5**
Free for Members
The fossils of ancient winged reptiles known as pterosaurs puzzled paleontologists for hundreds of years. Find out about how incredible new discoveries are revealing more about this extraordinary group of animals in this new exhibition.

Astronomy Live: Mercury and Mars
Tuesday, January 28
6:30 pm
\$12 Members
Join Director of Astrovisualization **Carter Emmart** for an evening seeing Mars and Mercury up close.

The Art of Diorama
Five Thursdays
January 30–February 27
\$170 Members; materials included
With Museum exhibition specialist **Tom Doncourt**, study some of the Museum’s most popular dioramas and create your own replica to take home.

Curatorial Lecture on The Power of Poison
Wednesday, January 30
6:30 pm–8:30 pm
Free for Members at the Adventurer level and above (Reservations required by January 24; call 212-769-5606)
Curator **Mark Siddall** will give a special presentation about *The Power of Poison*, highlighting important research and sharing details about producing a special exhibition. Following the lecture, enjoy an after-hours visit to the exhibition free of crowds.

Please check amnh.org for Member ticket prices for live-animal exhibits, IMAX films, and Space Show.

The Butterfly Conservatory: Tropical Butterflies Alive in Winter
This annual favorite features up to 500 live, free-flying tropical butterflies from Central, South and North America, Africa, and Asia.

Credits continue on page 18

FEBRUARY

Frontiers Lecture Asteroids: Earth’s Nearest Neighbors
Monday, February 3
7:30 pm
\$12 Members
Jet Propulsion Laboratory astronomer **Amy Mainzer** explores the origins and evolution of asteroids.

Winter Lunchtime Bird Walks
Four Thursdays
February 4–February 25
Noon–1:30 pm
\$50
Museum ornithologist **Paul Sweet** guides you through Central Park to observe the varied bird species.

SciCafe: Star Sifting: Research at Palomar
Wednesday, February 5
Free for 21+, cash bar
Ben Oppenheimer, curator in the Museum’s Department of Astrophysics, discusses his latest exoplanetary research.

LeFrak IMAX THEATER
Mysteries of the Unseen World
Opens **Friday, January 10**
Discover phenomena that can’t be seen with the naked eye, revealed through time-lapse photography, electron microscopy, and more.

Hayden Planetarium Space Show: Dark Universe
Narrated by Neil deGrasse Tyson, the new Space Show celebrates pivotal discoveries and the cosmic mysteries that remain.

Global Weekends: Give Your Voice
Saturday, February 8
Noon–5 pm
Free for Members
The Museum’s celebration of Black History Month features performances by many artists, including **Camille A. Brown & Dancers**.

Taste the Museum: A Walking Food Tour: The History of Chocolate
Tuesday, February 11
6:30 pm; 7:00 pm; 7:30 pm
\$40
Take an after-hours culinary journey through the Museum, complete with tastings of chocolates from around the world.

Romance under the Stars
Friday, February 14
6 pm or 9:30 pm
\$85 per person (includes 1.5 hours of open bar and appetizers)
Celebrate Valentine’s Day with music, champagne, and a unique NYC experience.

Natural Histories
Free for Members
View reproductions of beautifully illustrated scientific works from the Museum Library’s Rare Book collection in a new exhibition inspired by the 2012 book *Natural Histories*. Highlights include large-scale reproductions of works by Albrecht Dürer, Joseph Wolf, and John Woodhouse Audubon.

Credits continue on page 18

Behind the Scenes in the Sackler Institute for Comparative Genomics
Tuesday, February 18
6:30–7:30 pm (family tour)
7–8 pm
7:30–8:30 pm
\$35

Take a tour of this state-of-the-art facility devoted to genomic research with SICG Director **George Amato**. Explore the Museum’s labs and learn about current research by Museum scientists. For ages 10 and up.

Sackler Brain Bench Adult Course: Your Busy Brain
Saturday, February 22
9 am–4 pm
\$85 (Lunch included)
A one-day course devoted to elucidating the workings of the busy human brain, a bustling center of organization and complex cognitive reasoning.

Astronomy Live: Things That Go Bang in the Universe
Tuesday, February 25
6:30 pm
\$12
Astrophysicist **Jackie Faherty** will guide you around our explosive universe using the 3D Digital Universe Atlas, the most comprehensive of its kind.

Credits
Major funding for The Power of Poison has been provided by the **Lila Wallace – Reader’s Digest Endowment Fund**.

Lord & Taylor is the proud sponsor of The Butterfly Conservatory.

Generous support for The Butterfly Conservatory has been provided by the *Eileen P. Bernard Exhibition Fund*.

Inspired By Nature: Creative Writing with Hannah Tinti
Five Tuesdays, starting Feb. 25
\$295 Members
This creative writing class with author **Hannah Tinti** will focus on the natural world, with each session in a different gallery.

Poison for Good: From Toxins to Treatments
Thursday, February 27
6:30–7:30 pm
Free for Members (Reservations required; call 212-769-5200)
Join biologist Dr. **Mandē Holford** to learn how marine snail toxins are used in medical treatments.

MARCH

Global Weekends: Experience Korea
Saturday, March 1
Noon–5 pm
Free for Members
Explore the diversity of Korean and Korean-American perspectives at this family-friendly festival.

Pterosaurs is organized by the American Museum of Natural History (www.amnh.org). The Museum gratefully acknowledges the Richard and Karen LeFrak Exhibition and Education Fund.

Museum Tour: Geology of North America
Monday, March 3
6–8 pm
\$25
Visit great American landscapes this winter in the warmth of the Museum’s halls with geologist and historian **Sidney Horenstein**.

SciCafe Into the Abyss: New Frontiers in Deep Sea Exploration
Wednesday, March 5
7 pm
Free for 21+
Join Curator **John Sparks** and Research Associate **David Gruber** for an undersea adventure in the Solomon Islands.

The Extreme Life of the Sea with Stephen Palumbi
Sunday, March 9
3–4 pm
Free for Members, Call 212-769-5200 for reservations
Explore the extreme species that thrive in the deep ocean with author **Stephen Palumbi**, introduced by Dr. **Eleanor Sterling**, director of the Center for Biodiversity and Conservation.

The presentation of Natural Histories at the American Museum of Natural History is made possible through the generosity of the Arthur Ross Foundation.

Credits continue on page 18

**Frontiers Lecture:
Dreams of Other Worlds**
Monday, March 10
7:30 pm
\$12
Noted astronomer **Chris Impey** tells the story of 11 iconic exploratory space missions and how they have transformed our scientific and cultural perspectives.

**Behind the Scenes in
Ornithology: Raptors**
Tuesday, March 11
6:30–7:30 pm (family tour)
7–8 pm, 7:30–8:30 pm
\$35
View the Department of Ornithology’s collection of birds of prey with Collections Manager **Paul Sweet**. For ages 10 and up.

Animal Drawing
Thursdays, March 13–May 1
7–9 pm
\$160 (Materials not included)
Sketch subjects in their “natural” environments with illustrator and naturalist **Patricia Wynne**.

**Isaac Asimov Memorial
Debate: Selling Space**
Wednesday, March 19
7:30 pm
\$12
Enter at 77th Street
Join host and moderator **Neil deGrasse Tyson** for a debate about the future of space exploration in this year’s Isaac Asimov Memorial Debate.

NASA Sun/Earth Day
Saturday, March 22
11 am–4 pm
Free
Celebrate NASA’s Sun-Earth day, a family-friendly program at the Rose Center for Earth and Space to explore the Sun and Earth.

**Astronomy Live:
Hubble Scavenger Hunt**
Tuesday, March 25
6:30 pm
\$12 Members
With presenters **Emily Rice** and **Christina Pease**, view amazing imagery from the Hubble Space Telescope in the Hayden Planetarium.

APRIL

**SciCafe: Anatomy and Human
Evolution with Alice Roberts,
Leakey Foundation**
Wednesday, April 2
7 pm
Free 21+
Enjoy cocktails, cutting-edge science, and conversation at this popular after-hours series.

**Family Program:
Baby Animal Encounter**
Saturday, April 5
11 am (recommended for younger children)
1 pm
2:30 pm
\$10 Members
Meet some of nature’s wildest and cutest youngsters, and learn how they adapt to their unique habitats. With **Jarod Miller**.

**Frontiers Lecture:
Unraveling the Mystery of
Continental Crust Formation**
Monday, April 7
7:30 pm
New research may solve Earth’s missing-mantle mystery. Come to learn more about Earth’s evolution.

Credits:
The SciCafe Series is proudly sponsored by Judy and Josh Weston.

Support for Global Weekends is provided, in part, by the Sidney, Milton and Leoma Simon Foundation, the May and Samuel Rudin Family Foundation, Inc., the family of Frederick H. Leonhardt, and the Weinig Foundation.

The Museum greatly acknowledges The Mortimer D. Sackler Foundation, Inc. for its support to establish The Sackler Brain Bench, part of the Museum’s Sackler Educational Laboratory, in the Spitzer Hall of Human Origins, offering ongoing programs and resources for adults, teachers, and students to illuminate the extraordinary working of the human brain.

Support for Hayden Planetarium Programs is provided by the Schaffner Family.

Credits continued from page 17

Dark Universe was created by the American Museum of Natural History, the Frederick Phineas and Sandra Priest Rose Center for Earth and Space, and the Hayden Planetarium

*Made possible through the generous sponsorship of **Accenture**.*

*And proudly supported by **Con Edison**.*

The Museum also gratefully acknowledges major funding from the Charles Hayden Foundation.

Presented with special thanks to NASA and the National Science Foundation.

Dark Universe was developed by the American Museum of Natural History, New York (www.amnh.org), in collaboration with the California Academy of Sciences, San Francisco, and GOTO INC, Tokyo, Japan.

JANUARY

8
Wednesday
Walk on the Wild Side begins

13
Monday
Our Mathematical Universe

16
Thursday
Behind the Scenes in Herpetology

28
Tuesday
Astronomy Live: Mercury and Mars

30
Thursday
The Art of Diorama begins

Curatorial Lecture on *The Power of Poison*

FEBRUARY

3
Monday
Frontiers Lecture: Asteroids

4
February
Winter Lunchtime Bird Walks begin

5
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SciCafe: Research at Palomar

8
Saturday
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1
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Experience Korea

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Geology of North America

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Saturday
NASA Sun/Earth Day

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Tuesday
Astronomy Live: Hubble Scavenger Hunt

APRIL

2
Wednesday
SciCafe: Anatomy and Human Evolution

Member Preview: *Pterosaurs* (see p. 3)

5
Saturday
Baby Animal Encounter

7
Monday
Unraveling the Mystery of Continental Crust Formation

Making the Most of Your Membership



With unlimited free admission, you can drop in just to see a favorite diorama.

Whether you’ve just joined the Museum or have been a Member for years, we want to help you enjoy the full range of benefits that come with your generous contribution. In that spirit, here are some of our best tips for getting more out of the Museum in 2014.

TIP 1
When general admission is free, time is on your side.

Exploring the American Museum of Natural History is not unlike exploring New York City: far more revealing and far less exhausting when taken a little at a time. With unlimited free admission, you can visit on a whim, take in something new, and walk out with great memories before overload sets in.

“While we truly enjoyed our first visit to the Museum, it was very frenzied because we felt we had to squeeze everything into one visit. As Members, we can spend as much or as little time as we want exploring the Museum,” says Denise Leonard, who joined as a Family Member last year. “There is no rush, and I never have to say ‘hurry up’—whatever we don’t see we add to the list for next time.”

Or as Member Jeff Bower puts it, “With my membership card in my wallet even a quick pop-in to visit my daughter’s favorite moose is 15 minutes well spent.”

TIP 2
Special exhibitions are always worth a repeat visit. Members see them first, and they see them for free.

Illuminating topics from poison to pterosaurs, the Museum’s special exhibitions are packed with information brought to you by world-renowned scientists, writers, artists, designers, and model makers. With unlimited free admission to special exhibitions, Members can come back as often as they like to study every display, marvel at every model, or try their hand at their favorite interactive exhibit one more time.

And before each special exhibition opens to the public, Members are invited to a special preview after Museum hours. After the exhibition is open, avoid the crowds by attending special Member events that include exhibition viewings.

TIP 3
Follow an expert behind the scenes.

For Members ages 10 and up, a behind-the-scenes tour with a curator or collections manager is the perfect way to get a scientist’s-eye-view of the Museum’s world-class collections—from the smallest invertebrates to the largest extinct mammal bones.

TIP 4
Join a weekend excursion (collecting equipment optional).

Eager to go farther afield? Member excursions offer fantastic options for naturalists and city-lovers alike. Learn about the history and ecology of greater New York City on guided walking tours, join a bird-watching trip to a nearby park or preserve with a Museum ornithologist, or roll up your sleeves for a fossil dig across the river in New Jersey. Learn about upcoming tours and excursions at amnh.org/calendar.

TIP 5
Visit amnh.org before your visit.

As a Member, you can book your tickets to Hayden Planetarium, IMAX, and live-animal shows, as well as to special exhibitions, in advance. You can also get a sneak peek at the shows on the Museum’s website, including exclusive video on amnh.tv (see opposite page). If you have young children, we have them covered, too. Visit amnh.org/ology to help inspire and nurture a life-long love for science.

TIP 6
Don’t forget the parking perk, plus the discounts in shops and cafes.

Many of our Members don’t realize that they can park in the Museum’s parking garage from 4 pm to 11 pm for just \$10—an amazing deal in the heart of Manhattan. So stay and enjoy the city or visit some local friends after the Museum closes. The meter won’t be running.

Of course, there are great deals inside the Museum, too. Members receive 10 percent off all Museum shop purchases onsite and online, with double-discount days several times each year. And don’t forget to show your Membership card in the Museum’s cafes for a 15 percent discount.

© AMNH/D. Finnin

Before Your Next Visit, Tune into AMNH.tv

Whether you have just a few minutes—or a free afternoon—you can find something interesting on the Museum’s online video player, amnh.tv. Travel to Madagascar, or Guatemala, with Museum researchers on a recent field expedition or learn about a new scientific finding. Take a tour of one of the Museum’s collections with a curator, or go behind the scenes of the latest major exhibition. With more than 700 original videos, including visualizations and features from the Museum’s Science Bulletins media program, there’s always more to explore for all ages.

Space Show Topics
Brush up on dark matter and dark energy with Curator Mordecai Mac Low before going to see the new Space Show *Dark Universe*.

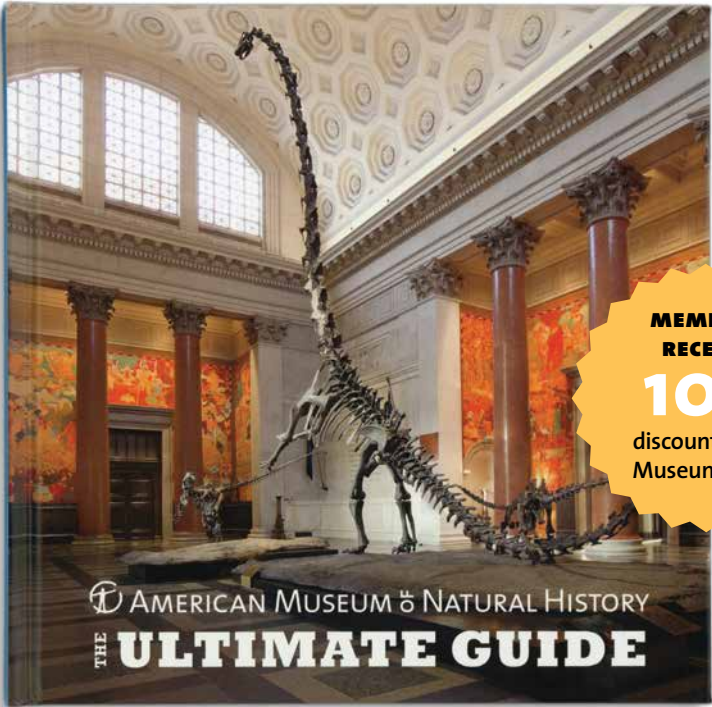
Dinosaurs Revealed
What did dinosaurs eat? More than 20 videos with Curators Mark Norell and Mike Novacek address dinosaur diet, speed, and more in this special series.

Diorama Details
Go behind the scenes with artists, curators, and conservators during the recent restoration of the Bernard Family Hall of North American Mammals.

Become the Ultimate Insider

Is the beloved blue whale a male or female? How old is the jade sculpture on display in the Hall of Mexico and Central America? And what percent of the Museum’s vertebrate paleontology collection is on display at any given time? (Hint: it’s less than 1 percent).

Find the answers—plus beautiful photographs of your favorite galleries and exhibits—in *The Ultimate Guide*, now available at the Museum Shop. You’ll get a hall-by-hall look at some of the most fascinating displays, glimpses of collections and research that takes place behind the scenes, and more—not to mention plenty of ideas to help you plan your next visit.



MEMBERS RECEIVE
10%
discount in the Museum shop.



1. Curator David Grimaldi places a doctoral hood on Isabelle Vea, one of seven inaugural graduates from the Richard Gilder Graduate School Comparative Biology program, on September 30.

2. Dame Alison F. Richard, who was awarded an honorary degree, spoke at the inaugural commencement ceremony on September 30.
3. Graduates of the Museum's Master of Arts in Teaching program received degrees conferred by the New York State Board of Regents.

4. Kathleen Glaymon and her son attended the Family Party on October 23.
5. The annual Family Party included hands-on activities for children of all ages.

Photos 1, 2, and 3 © AMNH/D. Finnin; photos 4 and 5 © AMNH/D. Finnin



1. Museum President Ellen V. Futter and Chairman of the Board of Trustees Lewis W. Bernard presented Mayor Michael Bloomberg with the Theodore Roosevelt Award during the Museum Gala on November 21.

2. Allison and Roberto Mignone, a Museum Trustee, enjoyed the festivities.
3. Museum Gala co-chairs Jodie and John Eastman pictured in the Milstein Hall of Ocean Life.
4. Florence Welch performed at the Museum Gala with Florence + the Machine.

Photos 1, 2, and 3 © AMNH/D. Finnin; photo 4 © AMNH/R. Mickens

Save the Date! Upcoming Events at the Museum

APRIL
4/2 Members are invited to an exclusive preview of *Pterosaurs*, an intriguing new exhibition that explores new science about this extraordinary group of ancient flying vertebrates.

4/5 The exhibition *Pterosaurs*, which is free for Members, opens to the public.

4/30 The annual Environmental Lecture and Luncheon will celebrate the 20th anniversary of the Museum's Center for Biodiversity and Conservation. Please call 212-769-5166 for more information.



MAY
5/6 Members at the Adventurer level and above are invited to the annual Open House, with opportunities to meet scientists, enjoy educational activities, and see the new exhibition *Pterosaurs* after hours. Please call 212-769-5606 for more information.



5/10 Identification Day
Bring your shells, rocks, insects, feathers, bones, and artifacts to the annual Identification Day. Museum scientists will attempt to identify your discoveries while showing you some specimens from the Museum's collections.

5/15 Dance the night away at the annual Museum Dance, the social event of the spring season. Please call 212-769-5166 for more information.

JUNE
6/5 Members at the Adventurer level and above are invited to begin their day at the Museum with a light breakfast and before-hours access to *Pterosaurs*. Please call 212-769-5606 for more information.

JULY
Explore the amazing world of arachnids when the exhibition *Spiders: Alive!* returns this summer.

Central Park West at 79th Street
New York, New York 10024-5192
amnh.org



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Photo courtesy of Michael Lombardi



The Explore21 expedition to the Solomon Islands, the first expedition launched under the new Explore21 scientific initiative, focused on investigating mysterious organisms that light up deep waters, uncharted microbial life, and a rich diversity of fishes, corals, and other animals in the Solomon Islands. Read more about the expedition in this issue.

General Information

HOURS

Museum: Open daily, 10 am–5:45 pm;
closed on Thanksgiving and Christmas.

ENTRANCES

During Museum hours, Members may
enter at Central Park West at 79th Street
(second floor), the Rose Center/81st Street,
and through the subway (lower level).

RESTAURANTS

Museum Food Court, Café on One,
Starlight Café, and Café on 4 offer
Members a 15 percent discount.
Hours are subject to change.




MUSEUM SHOPS

The Museum Shop, Dino Store,
Shop for Earth and Space,
Cosmic Shop,
Whale Shop, The Power of Poison Shop,
and Online Shop (amnhshop.com)
offer Members a 10 percent discount.

PHONE NUMBERS

Central Reservations 212-769-5200
Membership Office 212-769-5606
Museum Information 212-769-5100
Development 212-769-5151

TRANSPORTATION AND PARKING

Subway:  (weekdays) or  to 81st Street;
 to 79th Street, walk east to Museum
Bus: M7, M10, M11, or M104 to 79th Street;
M79 to Central Park West
Parking Garage: Open daily, 8 am–11 pm;
enter from West 81st Street. Members can park
for a flat fee of \$10 if entering after 4 pm.
To receive this rate, show your membership card
or event ticket when exiting the garage.