As we continue planning for the Richard Gilder Center for Science, Education, and Innovation, the Museum has launched important and significant enhancements to two existing and historic galleries.

Last September, we announced that we will be restoring and enriching the Museum’s very first permanent gallery, the Northwest Coast Hall—one of our most iconic and important halls, a testament to the beauty and depth of the cultures of the Pacific Northwest Coast of North America, and a historically significant space in museology and anthropology. We are honored to be undertaking this project in collaboration with representatives of the communities represented in the gallery, and held a convening in November to begin substantively planning together for its restoration. Beautifully restored with its objects fully conserved and contextualized, the renovated Hall will explicitly reinforce that these are ongoing, living cultures with contemporary voices.

In October, we announced the complete renovation of the beloved Halls of Gems and Minerals, and unveiled a spectacular 12-foot-tall amethyst geode, a centerpiece of the new halls. Magnificent favorites like the Star of India and the Patricia Emerald will continue to have pride of place in the new Allison and Roberto Mignone Halls of Gems and Minerals, and will be joined by unique treasures from the Museum’s extensive collections, as well as by new acquisitions such as the amethyst geode. These renovated halls are both slated to open in conjunction with the Museum’s 150th anniversary in 2019–20, followed by the opening of the Gilder Center. We can’t wait to share it all with you!

The Museum gratefully acknowledges Allison and Roberto Mignone for their leadership support of the redesigned Halls of Gems and Minerals.

Generous support has been provided by the Arthur Ross Foundation.

The Museum gratefully recognizes the Eugene V. and Clare E. Thaw Charitable Trust and Lewis Bernard, whose leadership support has made the restoration of the Northwest Coast Hall possible.

The Andrew W. Mellon Foundation has provided critical planning support, including for consultation with First Nations communities.

The conservation of painted totem poles has been made possible by the Institute of Museum and Library Services under grant number M-5 50 17-0260-17.

Additional support has been provided by the Gilbert &/Gibson Butler Family Foundation.

The new Mignone Halls of Gems and Minerals are expected to open in 2019, and the Northwest Coast Hall restoration will be completed in 2020.

Close-Up at the Museum

Critical Corals

Tucked among the 25 million specimens that comprise the Museum’s invertebrate zoology collection are historic specimens like this elkhorn coral (Acropora palmata). Collected in the Bahamas in 1942, this specimen offers researchers a window into a time when elkhorn coral was one of the most abundant species in the Caribbean. Along with its close relative, staghorn coral, elkhorn coral is considered to be a key reef builder, and the fast-growing, large branches that inspired its name create crucial habitats for many reef species. But since the 1980s, multiple threats—including coral disease, bleaching from warming waters, overfishing, pollution, and damage from hurricanes—have led to devastating losses, estimated at 95 percent in some locales. Both species were placed on the Critically Endangered Species List in 2008 by the International Union for Conservation of Nature (IUCN).

In addition to several coral diseases—white pox, white band, and black band among them—coral bleaching remains a grave threat. Elkhorn corals obtain their brilliant hues from microscopic algae-like protozoa called zooxanthellae that feed coral polyps with nutrients through photosynthesis. Under the stress of above-average water temperatures, zooxanthellae are expelled, and the loss of food from photosynthesis leaves them weak and more susceptible to disease. “They go into a spiral that is not very good for them,” explains Estefanía Rodríguez, associate curator in the Division of Invertebrate Zoology and an expert on Gudíauria, the phylum that includes corals, jellyfish, and anemones.

So it was with a sense of urgency that the Museum recently embarked on a three-year project, with a grant from the Institute of Museum and Library Services, to conserve, rehouse, and document the 4,000-specimen coral collection, with holdings that date back to the late 1800s, for future research.

“All corals are actually threatened,” says Dr. Rodríguez. “And some are not there anymore. So, if we want to know what was there, and what actually made them disappear, this collection is crucial!”

To see elkhorn coral from the Museum’s collection on display, visit the Paul and Irma Milstein Family Hall of Ocean Life.

Call to Action

The chair of the IUCN, David Obura, warned in late September 2017 in the journal Call to Action that the Paris Agreement’s aim to keep the rise in global temperature well below 2°C is “the only chance for coral reef survival.” He urged “action on an unprecedented scale” to curb greenhouse emissions, pollution, and overfishing, and to accelerate genetic research on heat-resistant corals.

Bright Spot

A healthy grove of protected elkhorn coral survives in the Gardens of the Queen marine reserve on the southern coast of Cuba, where it provides cover for colorful crabs, scallops, sea urchins, and other marine life. Here, an abundance of large predators at the top of the food chain—sharks, groupers, crocodiles—are also bellwethers of a balanced ecosystem.

Irreplaceable Record

Elkhorn and staghorn coral collected in the 1930s can be seen in the Milstein Hall of Ocean Life in the two-story diorama of the Andros Coral Reef in the Bahamas, curated by Roy Waido Minor. Completed in 1935, with a background painting based on underwater sketches, the display is a unique picture of the reef at its most vibrant.

The museum’s collection, with holdings that date back to the late 1800s, for future research.

Our Senses: An Immersive Experience

Our Senses: An Immersive Experience. Discover amazing stories about how other species see the world in our Senses: An Immersive Experience.

Sight for Snow

Caribou, also called reindeer, are well prepared for severe, snowy Arctic winters. Their thick coats, made of hollow hairs that trap heat close to their bodies, offer excellent protection against extreme cold. Their broad, concave hooves are designed to help them trapse through wintry terrain. And a keen sense of smell helps caribou search out nutritious lichens buried beneath thick blankets of snow. In 2011, researchers at University College London set out to study how well caribou are adapted to another extreme factor in their habitats: Arctic light. These mammals live through long, dark winters followed by long, bright summers. They’re also exposed to high levels of ultraviolet (UV) light, both because of the way the light is scattered in the Arctic atmosphere and because snow- and ice-covered surfaces are highly reflective, bouncing back up to 80 percent of the UV light that hits them. With this in mind, the researchers wondered: do reindeer sense and process UV light?

As it turned out, the study revealed that reindeer were able to see light wavelengths around 350–520 nanometers (nm), well outside of the so-called visible spectrum. And the ability to see the shorter wavelengths, researchers realized, gives caribou a few important advantages in their harsh environment.

For one, the caribou’s major winter food source—lichens—does not reflect UV light at all. That means lichens will appear black in a sea of snow, giving these UV-light-seers a big lead in the quest for a meal. That’s also true of food, so that caribou should be able to spot even well-camouflaged foes, including the white-furred Arctic wolf. Seeing what others miss in the snow, it turns out, is an important part of surviving the Arctic.

Antlers for All

Caribou are the only deer species in which both males and females sport antlers. One hypothesis? Searching for food in the winter, which requires digging through snow, is intensely competitive, so females may benefit from the additional headgear.

Big Moves

Among land mammals, caribou herds undertake the longest seasonal migrations, sometimes moving thousands of miles a year in herds that number more than 100,000 individuals. These fast runners, reaching speeds of 50 miles per hour, and steady swimmers, easily crossing large lakes or rivers during migration.

Lichens and Things

The caribou diet consists of lichens in winter, which they process with the help of special bacteria in their gut. But the menu expands in springtime to include leaves from willow and birch trees, as well as grasses. Some caribou have even been observed eating shed antlers, likely to get calcium.

Arctic Eyes

Humans who are overexposed to UV light can suffer temporary loss of vision from a painful condition commonly known as snow blindness, which is actually a sunburn of the cornea. Not so with Arctic mammals, which have shown no evidence of similar trauma, though the reasons they remain impervious are not known.

Catalog no. AMNH_IZC 00157712

Rangifer tarandus
I’ve worked in the Canadian Arctic, but it’s the case that now sea ice just doesn’t form to the same depth or in the same areas of distribution that it had only a few years ago. The changeover has been just incredibly dramatic—perhaps 10–15 years. Are those observations enough to predict the future? No. But you’ve got data going way back, and you can talk accordingly about individual changes in things like precipitation, for appreciably long periods of time. They are all showing effectively the same thing, which is that things are changing, and they’re changing at a very rapid pace.

What we can expect going forward, seemingly, is that the Arctic will be substantially ice-free, with no reversion to what has been the rule for centuries unless something undoes the warming mechanism. You could say, for paleontologists it’s great. The permafrost is going away. But when the permafrost goes, the tundra turns to mud. This is particularly hideous because it’s just sort of this slurry of water and mud, just above freezing. Can’t find fossils, can’t survey properly—and meanwhile, Arctic villages are disappearing into the muck.

Ross MacPhee
Curator, Department of Mammalogy
Research focus: paleobiogeography, recent mammalian extinctions
I published a paper a few years ago on impacts of climate change in Madagascar, based on two surveys we did of the highest mountain range in Madagascar, over a 10-year period. I didn’t design the surveys to look for this. But what I started noticing, at the first couple of lower elevation camps, was that certain species were missing. We did ultimately find these species, but now they were at higher elevations. This upslope movement also coincided with a period of climate warming in Madagascar, and is consistent with species moving to higher elevation to stay in the same temperature zone.

The big concern is that as species get pushed up mountains, usually the area that they occupy gets smaller, and they become more vulnerable. And eventually, of course, once you reach the top, you’re going to run out of space.

Chris Raxworthy  
Curator-in-Charge, Herpetology  
Research focus: reptiles and amphibians in Madagascar

I work in the lower Congo. There are lots of rapids on that system. And so, it’s very critical for me that I time my research visits to when the water level is low. That used to be something that was highly predictable, even in the 10 or so years that I’ve been going there. But in the last four or five years, that’s completely gone by the board. When you talk to the Congolese about it, they swear up and down that they used to be able to predict almost to the day when the rains were going to start. And that’s just no longer true, so it’s completely disrupted that predictability in that enormous system.

Now, it’s anecdotal in the sense that there haven’t been good functioning water gauges in the Congo for many decades now. So, you can’t really exactly show it, but boy, they talk about it, and people know that things are really changing.

Melanie Stiassny  
Axelrod Research Curator, Department of Ichthyology  
Research focus: tropical freshwater fishes

I’m a geochemist, and I work primarily with corals. I look at biological carbonate deposits whose chemistry changes based on the environment in which they formed. This work allows us to understand how the environment was changing at the time of formation. It’s similar to tree ring analysis.

We can sample the coral to analyze 20 to 30 samples per year for the last 500 years, allowing us to look at monthly changes to temperature, salinity, currents and nutrients. When you’re able to understand climate outside the influence of greenhouse gas emissions, we can better understand how the many systems interact. For the last 10 years I’ve been in Asia, and our study sites span the Indo-Pacific. The long-term goal with everything we do is to better understand how the natural system interacted before we started adding greenhouse gases. Our intention is that this will inform climate modelers, so that we can improve predictions of how the climate behaves after humans began altering the system.

Nathalie Goodkin  
Curator, Department of Earth and Planetary Sciences  
Research focus: ocean-atmosphere interactions, climate behavior over past 500 years

We’re working with island communities in the Pacific who are facing the real impact of changing climates. They’re seeing changes in what they can grow in their gardens. They’re seeing changes in the frequency and severity of storms. They’re seeing different amounts of rainfall. They’re seeing changes in fish movements across and around the reefs.

Food is an excellent way into the conversation about climate change. In recent decades, we’ve seen a rise in extreme weather events like storms, droughts, and heatwaves, with strong evidence connecting this trend to human activities. Future projections based on this evidence and on complex models predict a rise in these events. That’s going to be really hard on food production—on a lot of the foods that we really depend on.

Eleanor Sterling  
Jaffe Chief Conservation Scientist, Center for Biodiversity and Conservation  
Research focus: ecological and social resilience

We’re re-imagining our section about climate change, with interactive data visualizations of global climate trends, will open in the Gottesman Hall of Planet Earth later this year.
Plankton isn’t a term for animals, nor a genus or family. It’s a catch-all for a staggering variety of marine organisms that share one important trait: they’re drifters. In other words, if it lives in the world’s oceans and can’t swim against a current, then it’s plankton.

There’s phytoplankton, plant-like organisms that can be found near the ocean’s surface. And then there’s zooplankton, animals that come in a range of sizes from remarkably tiny to easily observed with the naked eye.

Plankton is the ultimate source of nutrition for the world’s oceans—the food source that makes everything else possible. And many species don’t just depend on plankton for a meal. They actually start out as plankton themselves.

Some of the most recognizable fishes and other marine animals begin life as tiny larvae. These larvae spend some time floating passively before either joining the ranks of active swimmers or drifting down to live out life on the seafloor.

“Many species of fishes start out life as planktonic larvae, suspended in the water column, unable to propel themselves, and at the whim of wind and oceanic currents for their dispersal,” says John Sparks, curator of the upcoming Oceans exhibition, which opens in March. “These larval fishes are temporary members of the zooplankton that, in turn, feed on smaller plankton.”

Permanent Plankton
For some planktonic life forms, though, it’s not just a phase—it’s who they are. Innumerable microscopic species, including bacteria and viruses as well as algae, tiny water fleas, and copepods, will spend their entire existence riding the currents—and feeding the rest of the ocean’s residents.

“Although small and inconspicuous, phytoplankton are the foundation of the oceanic food chain,” says Sparks. “They are primary producers, converting sunlight via photosynthesis into their own food energy, just as land plants do. Phytoplankton serve as a food source for zooplankton, which in turn feed the largest animals in the ocean, such as whale sharks and blue whales.”

Phytoplankton have another crucial role on Earth: they produce about half of the oxygen we breathe. And just because many planktonic species are small, don’t think that they are simple. Consider the diatom, represented by tens of thousands of living species. Despite being single-celled, many species of diatoms craft cell walls called frustules. While they’re invisible to the naked eye, these cellular armors are often intricate and beautiful pieces of engineering when viewed through a microscope.

Among the soon-to-be-swimmers: the blue marlin, Makaira nigricans, one of the world’s most iconic game fishes, which can grow to weigh more than 1,000 pounds. Blue marlins start their lives as humble, millimeter-long eggs that, when fertilized, develop into slightly less tiny larvae and spend their early days floating among other zooplankton.

If they survive long enough—and avoid being eaten—another subset of part-time plankton settle down—way down. These benthic species, as they’re known, sink out of the water column and stick to the seafloor. Starfishes and sea urchins, for example, get their start as drifting planktonic larvae before moving to a more sedate maturity.
Whale watching is a popular pastime for tourists in coastal regions around the world. But marine biologists take cetacean surveillance to the next level. By attaching video cameras and electronic tags to these marine mammals, scientists are answering longstanding questions about how whales travel, feed, and live in the world’s oceans.

These details are critical to finding out how these species behave and to supporting conservation efforts where protective measures are required. But until recently, observing the ocean’s largest inhabitants was no easy task. Only in the past two decades have ever-more sophisticated tags and software allowed researchers to gather thorough data about whale behavior. “What drives our research is a curiosity to understand how these enigmatic, gigantic animals live and operate,” says Jeremy Goldbogen of Stanford University. “We have a digital record, with video and 3D movement, of what a whale does on a daily basis.”

Jeremy Goldbogen
Assistant Professor of Biology, Stanford University

A tagged minke whale in Antarctic waters can offer researchers insight into feeding and social behaviors.

**Made to Measure**

**High-Tech Tags Are Helping Scientists Glean More About Whales**

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**How to Tag a Whale**

First things first: before a tag can do its job, researchers have to get the electronic device applied—and make sure it stays put. It’s a demanding task that’s made possible by careful seamanship, dedication, and patience. (A long stick doesn’t hurt, either.)

**Use Suction**

Applying a piece of electronics that has staying power underwater and doesn’t bother the tracked whale is typically a job for a heavy-duty suction cup. Scientists will place these suction cups, which support a kit that holds a camera and a small suite of sensors and transmitters, on the end of a pole more than 20 feet in length, allowing them to get close enough to tap a whale on the back.

By tracking when the speed of a whale increases, and then suddenly and dramatically decreases, these researchers are able to map the “lunges” that rorqual whales like humpbacks use to gulp down huge mouthfuls of prey at a time.

Tags also let researchers eavesdrop on what whales hear in their ocean environments—which, in places with a lot of ship traffic and human activity, is a lot of racket.

“In the ocean, where sound is a primary mechanism for communication, that can be a really disruptive thing for social animals,” says Friedlaender.

And tags that stay on for 24-hour spans let researchers observe more behaviors than ever before. For example, when Friedlaender and colleagues tagged humpback whales in Stellwagen Bank National Marine Sanctuary off the coast of Massachusetts, they discovered the species had several ways of foraging on the seafloor—feeding behaviors that also put whales at risk of entanglements in bottom-set fishing gear.

And in 2014, Friedlaender and team were working in Antarctica and tagged minke whales for the first time—yielding new data that showed the species has carved out a niche by hunting krill under sea ice where larger species like humpbacks can’t go.

“Part of it is just sitting and watching, which is quite powerful,” says Goldbogen.

**Time It Right**

To apply a tag, researchers wait for a whale to surface to breathe. An ideal encounter is with a whale that’s either busy with a meal or catching a short nap at the surface.

**Retrieve, Repeat**

After the tag falls off, it floats to the surface and emits a radio signal that researchers track to its location. From there, they can scoop up the sensor and upload that data to a computer for analysis. Tags can be reused multiple times, on different animals.
### Programs and Exhibits

**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 canceled by the Museum. Please check amnh.org for Member ticket prices for live animal exhibits and giant-screen 2D and 3D films.

Information about programs is current as of December, 2017. Please check amnh.org for updates.

### Exhibitions

#### Admission by timed entry only.

**Oceans**

*Opens March 9*

**Free for Members**

Meet the elusive giants of the sea, including whales, sharks, and giant squid; sink beneath the waves in a virtual submersible theater; and marvel at the vivid fluorescence displayed by marine creatures but invisible to us... until now.

#### JANUARY

**SciCafe: The Power of Poop**

*Wednesday, January 3*

7 pm

Free for 21+ with ID

The rise of artificial intelligence will affect crime, war, justice, jobs, society, and our very sense of being human. Max Tegmark explores the myriad questions surrounding AI and implications for the future. A book signing follows.

**Walk on the Wild Side**

*Eight Wednesdays, January 10–February 28*

8 am

Free for Adventurer-level Members and above.

Tickets available starting December 1. Registration required; call 212-769-5506.

Herd the call of the wild and join an intrepid band of walkers for a fitness experience like no other: power walking the halls of the Museum before it opens to the public.

#### Science Sense Tour: Theodore Roosevelt and the Diversity of Life**

*Wednesday, January 17*

3:30 pm

Free

Join a Museum tour guide to explore the Milstein Hall of Ocean Life, the Felix M. Warburg Hall of New York State Environment, and the Hall of Vertebrate Origins. Examine some of the world’s oldest living fossils to gain a better understanding of the origins and evolution of life on Earth.

**Discovery Squad**

*Saturday, January 13*

3 pm

Free

Join us for a Members-only evening lecture on the science that informs the Museum’s new special exhibition, *Our Senses: An Immersive Experience*. Learn from Curator Rob DeSalle how the human brain has evolved extraordinary abilities to gather and process sensory data. The evening will conclude with an opportunity to view the exhibition with new insights fresh in your mind.

**Curator’s Lecture: Our Senses: An Immersive Experience**

*Thursday, January 11*

6 pm

Free for Adventurer-level members and above.

Registration required; call 212-769-5506.

Join us for a Members-only evening lecture on the science that informs the Museum’s new special exhibition, *Our Senses: An Immersive Experience*. Explore our newest special exhibition, *Our Senses: An Immersive Experience*, to better understand how we use sight, smell, hearing, touch, and taste to understand the world around us.

**Our Senses: An Immersive Experience**

*Free for Members*

Explore 11 funhouse-like spaces that dare you to trust your senses—and show you how or why what we perceive is not simply what is occurring around us. See a garden through the eyes of a bee or butterfly, test your skills at tracking sounds, try to unpack a scent, and much more.

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**Dangerous Worlds**

*Six Tuesdays, February 6–March 13*

7 pm

Free

Join a Museum tour guide to explore the Milstein Hall of Ocean Life, the Felix M. Warburg Hall of New York State Environment, and the Hall of Vertebrate Origins. Examine some of the world’s oldest living fossils to gain a better understanding of the origins and evolution of life on Earth.

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Captioning devices are available.

Earthflight
Free for Members
Narrated by Academy Award-winning actress Cate Blanchett.
Earthflight is a totally immersive experience, taking the audience on an incredible flight across the world on the wings of birds.

Exhibition Credits

Our Senses is generously supported by Dana and Virginia Rauh.

Inside You is made possible by the generosity of the Arthur Ross Foundation.

Our Senses is generously supported by Chase Private Client.

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

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

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

Spring 2018 / AMNH.org

Eugene

The Dalio Ocean Initiative.
The American Museum of Natural History gratefully acknowledges the Richard and Karen LeFrak Exhibition and Education Fund.

Ocean is generously supported by Chase Private Client.

Our Senses is generously supported by Dana and Virginia Rauh.

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

Admission to this special weekend viewing of our new special exhibition, Oceans, is made possible by start of master

Member Preview Days: Oceans
Friday, March 9
Saturday, March 10
Sunday, March 11
10 am–5 pm
Free for members at the top level and above.

Join us for this special weekend viewing of our new special exhibition, Oceans, Our Senses serve as the setting for an intensive after-hours drawing course with Patricia Wynne. Learn about the gifted artists who created the world-class dioramas as you sketch subjects in their “natural” environments.

For those who have never taken the Museum's popular Animal Drawing class, this new course begins with the basics and offers one-on-one guidance from master illustrator and naturalist Patricia Wynne.

Beginner Animal Drawing
Six Wednesdays, March 7–April 11
7–9 pm
$20

For those who have never

Learn more about the role of humans in the global ecosystem, and find out how we can preserve the seas for future generations.

Submersibles, robots, and sensors enable scientists to descend to depths beyond human reach, transmit data quickly, and collect samples of unexplored ecosystems.

Discover the explorers and equipment that are pushing the frontiers of ocean exploration.

Dive into the latest ocean research, technology, and conservation efforts in an evening of lively talks with the brightest minds in marine exploration, art, and science.

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For those who have never

Passed the Thousand Footer. Tom Hank's "The Terminal" film and the popular "Wheel of Fortune” game challenge one's ability to identify places on the map and navigate their way through the world.

Milstein Science Series: Ocean Technology
Sunday, February 25
11 am–4 pm
Free
Submersibles, robots, and sensors enable scientists to descend to depths beyond human reach, transmit data quickly, and collect samples of unexplored ecosystems.

Discover the explorers and equipment that are pushing the frontiers of ocean exploration.

Dive into the latest ocean research, technology, and conservation efforts in an evening of lively talks with the brightest minds in marine exploration, art, and science.

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For those who have never

Learn about the gifted artists who created the world-class dioramas as you sketch subjects in their “natural” environments.

Member Preview Days: Oceans
Friday, March 9
Saturday, March 10
Sunday, March 11
10 am–5 pm
Free for members at the top level and above.

Join us for this special weekend viewing of our new special exhibition, Oceans, before it opens to the public!

Faster, Higher, Stronger
Tuesday, February 27
7 pm
$12

Steve Beyer and Jackie Fathery take inspiration from the Olympic motto “Citius, Altius, Fortius” for this epic marathon through space, asking: who are the celestial champions of the universe? Follow them in search of the greatest velocities, most distant objects, and most energetic stars.

Smaller, Faster, Lighter, Stronger
Tuesday, March 6
6:45–7:15 pm
$15

Dr. Erin Vogel shares her research on wild orangutans from the tropical forests of Sumatra and Borneo, illuminating how the diet, behavior, and metabolism of our primate cousins can provide insights on human conditions.

Ocean Luminaries: Making Waves
Friday, March 2
7 pm
$20

Pamela Peplin and Steve Beyer discuss the latest research in ocean technology.

Join us in the Sackler Lab for an evening exploring the biology behind our senses.

Participate in activities, challenges, and experiments led by neuroscientists, researchers, and educators. Wine and light refreshments will be served.

Neuroscience Night: Our Sensational Brain
Thursday, March 15
7 pm
$20

Join us in the Sackler Lab for an evening exploring the biology behind our senses.

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Visitors of all ages can drop in on a tour of the red planet and examine multiple iconic locations in exquisite detail. View the latest high-resolution imagery of rocky terrain assembled from NASA and the European Space Agency, and immerse yourself in the magnificent Martian landscape.

Mars In Focus
Tuesday, March 27
7 pm
$12
Join Carter Emmart and Irene Pease on a tour of the red planet and examine multiple iconic locations in exquisite detail. View the latest high-resolution imagery of rocky terrain assembled from NASA and the European Space Agency, and immerse yourself in the magnificent Martian landscape.

Brain Awareness Weekend: The Senses Lab
Saturday and Sunday, March 17–18
11:45 am–5:45 pm
Free
Visitors of all ages can drop into the Sackler Educational Lab to celebrate the wonders of the human brain and learn how this great organ processes the world around us. We will be joined by neuroscientists who will lead informal discussions, experiments, and activities with visitors.

Sun–Earth Day
Saturday, March 24
11 am–4 pm
Free
Join us as we explore the special relationship between Earth and the Sun and learn about the delicate balance that makes our planet the perfect place to call home. Meet scientists, look through telescopes, and engage in hands-on activities at this family-friendly event.

Ocean Dissection: A Slime City Tour
Saturday, March 26
11 am–2 pm
Free
Join us for a tour of the amazing creatures living in our oceans, and build your own sea creature out of slimy goo!

Ocean Awareness: The Power of Poop
Saturday, March 26
12–2 pm
Free
Join a Museum tour guide in the Milstein Hall of Ocean Life, and the Arthur Ross Hall of Meteorites on a journey from the depths of the ocean to outer space to examine some of the biggest, smallest, oldest, and rarest objects.

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In 1922, Pliny Goddard, the Museum’s Curator of North American Ethnology and a lifelong student of Native American cultures, was overseeing the renovation of the Hall of Northwest Coast Indians, now called the Northwest Coast Hall. The gallery, conceived by his mentor Franz Boas more than two decades earlier, showcased part of an extraordinary collection led by Boas at the turn of the century, on the Northwest Coast leg of his influential Jesup North Pacific Expedition. It was also revolutionary in its approach—the first public exhibition to present indigenous cultures in their own right instead of on a contrived evolutionary scale of “primitive” and “advanced” cultures. Goddard had big shoes to fill.

As he planned for the gallery’s next phase, Goddard envisioned a thicket of totem poles, the iconic wood sculptures carved by peoples across the Pacific Northwest to represent ancestry, spiritual beliefs, and important events.

To make it happen, Goddard wanted to bring in a set of new poles that would welcome visitors to the Museum, much like the ones that Jesup ethnographers had seen at the edges of streams or beaches and in the homes of chiefs and leaders of the Northwest Coast. So he turned to George Hunt.

The son of an English trader and a Tlingit noblewoman, Hunt had lived his whole life in British Columbia. In many ways, it was Hunt who helped realize Boas’ ambitious goals for the Pacific Northwest leg of the Jesup Expedition: he was the translator, fixer, and co-author on scholarly works about the languages of the region. For decades, he served as a procurer of artifacts for the Museum’s collections.

“Hunt was a full-fledged collaborator with Boas,” says Peter Whiteley, curator of North American Ethnology in the Museum’s Division of Anthropology. “A lot of the archival record that goes with the artifacts was meticulously written down by Hunt himself, and he maintained an ongoing relationship with the Museum after Boas left.”

Hunt, in turn, tried to commission the welcome poles for one of the few master carvers who remained active in the region—Arthur Shaughnessy. For decades, Shaughnessy had made his livelihood by carving elaborate masks and totem poles that were an important part of Kwakwaka’wakw culture. Totem poles were commonly raised to mark massive ceremonies of gift-giving, dance, and other traditions, known as potlatches. While potlatches and traditional carving were banned under Canadian law in 1885, just a year after Shaughnessy was born, the practices persisted. In late 1921, however, Shaughnessy had been arrested while attending a potlatch and jailed for two months. So when Goddard and Hunt approached him, he was wary of taking on new commissions. “He was nervous about undertaking any work of this nature, because it was dangerous in those circumstances,” says Whiteley.

Goddard undertook a campaign to persuade officials in British Columbia to grant special dispensation to carve four house poles in 1923, and in April 1924 Shaughnessy began the work. To fit the space, he carved house posts, which traditionally hold up the corners of a tribal leader’s home.

All four, each measuring 18 feet high, were finished in just three months, with some assistance from Hunt himself. Each showed a human figure perched atop the head of a grizzly bear, imagery that Whiteley says likely calls back to the roots of a lineage from the area around Fort Rupert, once a Kwakwaka’wakw fishing village called Tsaxis. Correspondence between Hunt and Goddard shows that the poles are largely copied from a set found in the home of a chief in the area who had refused to sell the originals to Hunt, despite some weeks of bargaining.

The finished poles were towed by boat from Fort Rupert to nearby Port Hardy, and from there, passed onto a cargo liner to Vancouver. A 3,000-mile journey by train to New York’s Upper West Side followed, and the posts arrived in late November, according to a letter from Goddard dated December 1, 1924. They were raised by the New Year. Though carved in the Pacific Northwest, from trees that had grown there for decades, the poles never stood in Kwakwaka’wakw country. They’d found a home in the Museum they were built for, thousands of miles from their birthplace, a record of a culture and a reminder of what could be, and of what stood to be lost.

When Boas’s successor Goddard asked Hunt to help source traditional totem poles, Hunt turned to a carver in nearby Alert Bay.
The Making of a Meadow

What better way to get an insect’s-eye view of the world than to walk into a larger-than-life meadow? Here’s how the Museum’s exhibition team created one of the buggiest galleries in Our Senses: An Immersive Experience.

**Invisible Paint**

Bees and butterflies can see ultraviolet light, an adaptation that lets them spot “nectar targets” on nearby flowers or identify potential mates. Humans can’t. So how did preparators make models of UV-hued blooms? By shining a UV light while working, as Andrea Raphael is doing in this photo (left).

**Massive Models**

At its longest, the wingspan of Heliconius butterflies is only about 3 inches. But to reveal details we’d normally miss on these tiny creatures and delicate plants, the models are 750 percent the size of the real thing.

**Highlighting with Light**

Some Heliconius look just like another butterfly—except for ultraviolet marks on their wings that only others of their species can see. Human visitors can spot them when a UV light, which cycles on and off on a timer, floods the scene and reveals the secret signal.

**Specs from Specimens**

Model makers don’t have to go far for inspiration. The Museum’s bee collection includes nearly 500,000 specimens representing more than 7,000 identified species. That’s a large library to reference for details that photos and other images can’t provide.

**It’s Electric**

A honeybee’s body is covered in nearly 3 million tiny hairs, which help it carry up to 30 percent of its own weight in pollen. To make sure the model bees looked their fuzziest, preparator Jason Brougham used synthetic fibers and static electricity to stand the strands up straight.

**Action Poses**

Jake Adams (pictured below) studied slow motion videos of butterflies in flight to capture how different species maneuver when landing on a flower. Heliconius butterflies tuck their legs next to their eyes and under their wings, while monarchs let theirs dangle.

Plan your visit today! Our Senses: An Immersive Experience is free for Members.
Central Park West at 79th Street
New York, New York 10024-5192
amnh.org

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, and Café on 4 offer Members a 15-percent discount. Hours are subject to change.

MUSEUM SHOPS
The Museum Shop, Dino Store, Planetarium Shop, Cosmic Shop, Senses Shop, and Online Shop (shop.amnh.org) 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: B (weekdays) or C to 81st Street; 1 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.

ACCESSIBILITY
For information on accessibility, email accessibility@amnh.org or call 212-313-7565.

Radiolarians are a type of zooplankton, one of the many marine organisms explored in the new exhibition Oceans, opening this March. Find out more about plankton and the exhibition on p. 10.