

Science Pilgrimage⁵

From the depths of a legendary research lab to the decks of a pioneering cruise vessel, these six trips explore the fundamental wonders of our world

By Serena Renner



Alastair Philip Wiper (CERN images)

Physics

Switzerland

Just 15 minutes from Geneva lies CERN, one of the largest and most prestigious scientific institutions on Earth. You probably know it as the place from which the dangerous “antimatter” was stolen in *Angels & Demons*, or as the site of the 2012 discovery of the Higgs boson particle (aka the “god particle”), but it’s much more. About half of the world’s particle physicists, hailing from more than 110 nations, are connected to this lab, which houses Ferris wheel-size detectors, nearly 200,000 computer processor cores, and high-energy particle

accelerators such as the Large Hadron Collider (LHC), the biggest machine in the world. The LHC can blast bits of atoms at nearly the speed of light and recreate an energy state that resembles the universe shortly after the Big Bang.

Unfortunately, the LHC is closed to the public, but you can still get your physics fix with one of the campus’s free daily tours, on which you’ll see an experimental operations center, some surface accelerators, and, if you’re lucky, one of the detectors (which are designed to identify collided particles). Booking is competitive, so create an account in advance and be ready to snag a spot right at 8 a.m., Geneva time, 15 days in advance. Better yet, get a group of 12 together three months ahead of time

for a group tour, which may include a visit to underground caverns that are accessible for a limited time only.

Whether you score a tour or not, you’ll also want to visit the Globe of Science and Innovation, which contains a Steve Jobs–designed NeXT black box computer—one of the ones on which CERN researcher Tim Berners-Lee invented the World Wide Web in 1989. And you can turn physics physical on the Passport to the Big Bang, a 33.5-mile biking and hiking circuit in the Swiss-French countryside that outlines the path of the LHC and visits 10 CERN research sites. *Free, visit.cern*



{ Get to the Heart of All Matter }



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A visit to a revolutionary place requires revolutionary gear. Enter the wireless **Surface Earbuds** by Microsoft (available this spring). These button-size disks have touch controls, surround sound, voice recognition, and live transcription and translation for all of your CERN-inspired brilliant ideas. microsoft.com



{ Pick a Perch in the Pacific Northwest }

Forest ecology

Oregon, Washington, British Columbia

Nearly everyone has climbed a tree, but few people have had the experience of looking down 200 feet from the branches of one of the world's tallest and oldest.

"There aren't really words to describe the experience," says Expedition Old Growth founder Damien Carré. "Our relationship with trees is completely symbiotic. We don't breathe without them."

Carré's company helps the adventurous experience just such spiritual (and literal) heights in the Douglas firs, western red cedars, and Sitka

spruces of the Pacific Northwest's old-growth forests. Opt for a novice-level "elevator" ride, during which you're hoisted up the trunk via counterweight, or a more demanding climb using spring-release rope loops. Either way, you'll come face to face with small wonders—moss giving way to lichen, inchworms on microscopic missions, agarikon mushrooms that grow only here—and perhaps hear the spiraling song of a Swainson's thrush. "That's probably my favorite sound in the world," says Carré, who guides not only curious tree-huggers

but also scientists and members of nonprofits such as Archangel Ancient Tree Archive, which collects samples from these centuries-old trees for cloning and replanting as a defense against climate change.

Not ready to come down? Spend the night in a "tree boat" hammock, about 70 feet up a nearby maple. Carré's team prepares a candlelit dinner on the forest floor for groups of two to six; afterward, squirrel your way back up to rock-a-bye baby in the treetops. Climbs from \$200, overnight experiences from \$1,500, expeditionoldgrowth.com

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The Pelican G40 Charge Case will shield your mobile phone from rain or impact, and it packs enough power to charge your device four times. A carabiner loop enables easy clipping to your backpack or harness for mid-climb access. pelican.com



Courtesy of Expedition Old Growth (Pacific Northwest); Chris Sorensen (Chile)

Astronomy

Chile, Argentina

On December 14, 2020, Chile and Argentina will be treated to their second total solar eclipse in two years—and the last one visible from inhabited land until 2023. Vermont-based outfitter Boundless Journeys is taking advantage with a special Solar Eclipse Adventure.

After a (pisco- and seafood-filled) layover in Santiago, the sky tour kicks off in the Atacama Desert, which is one of the best places in the world for astrotourism due to its high elevation, dry climate, and lack of light pollution. At the Ahlarkapin Observatory, in the indigenous Atacameño community, you'll angle one of the region's largest telescopes toward the Southern Cross and Hydra constellations, as well as the second-brightest globular cluster in the Milky

Way, 47 Tucanae, which plays a part in the agricultural and religious traditions of the native Andean people to this day.

The itinerary then takes you across the volcanoes and waterways of Chile's Lake District and through the Switzerland-esque Argentine city of Bariloche in time for the main event. On a private ranch in Piedra del Águila, Argentina, you'll enjoy local food, drinks, and folk music, and learn about the solar eclipse from astronomy expert Francisco Pezzente, who specializes in planetary photography. The two minutes of totality in the middle of the moon's three-hour crossing

of the sun are nothing short of transformative. Day turns to night. The temperature drops. Birds go silent. Stars emerge. Then, the sun's corona (outermost atmosphere) swirls and pulses around the silhouette of the moon—truly a crowning moment for anyone lucky enough to see it. 11-day tour from \$7,295, not including airfare, boundlessjourneys.com

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The Celestron Regal M2 100ED Spotting Scope is any stargazer's ideal travel companion. The magnesium alloy body is lightweight; the eyepiece zooms from 22 to 67x magnification; and the built-in adaptor allows you to easily connect a camera. Don't forget a solar filter if you're planning to photograph the eclipse. celestron.com



{ Take a South American Star Tour }



{ Navigate the Northwest Passage }



Climate science

Alaska, Canada, Greenland

Last year, Norwegian cruise line **Hurtigruten** launched its first hybrid ship, the *MS Roald Amundsen*, which cuts its fuel consumption by 20 percent using electric propulsion. Last fall, the ship became the first hybrid-electric vessel to traverse the Northwest Passage—fitting, since the first person to conquer this treacherous seaway was Norwegian explorer Roald Amundsen.

In August 2020, the *Amundsen* sets sail from Nome, Alaska, for nearly a month on its second Northwest Passage expedition. From the

tiny Northwest Territories settlement of Ulukhaktok to Nunavut's Pond Inlet, you'll learn how the Inuits have survived amid the mountains, glaciers, and fjords for centuries; you'll also see how these people, along with animals such as polar bears and walruses, are adapting to climate change. Nowhere are the effects of global climate change more visible than at Greenland's Ilulissat Icefjord, where you'll hear the Sermeq Kujalleq glacier cracking and calving at record speed.

If you want to dive deeper, the ship's Science Center has microscopes and video

screens connected to underwater robots. You can even help researchers study climate change by participating in citizen science projects such as mapping phytoplankton threatened by rising ocean temperatures or sending cloud photos and observations to NASA. Then relax in your Scandinavian-style cabin and warm up in the *Amundsen's* infinity pool, hot tubs, and sauna as the ship makes its final push to Halifax, Nova Scotia. *29-day itinerary includes transfer from Vancouver, British Columbia, to Nome, Alaska; from \$25,138, hurtigruten.com*

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Since 1971, polar explorers, speleologists, and volcanologists have donned the **Rolex Explorer II**. A 24-hour hand, a display that glows blue after dark, and temperature-, shock-, and water-proof technologies all keep adventurers on time, no matter the conditions. rolex.com



Oscar Ferrera/Hurtigruten (cruise)

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{ See Natural Selection at Work }

Evolutionary biology

Ecuador

A three-hour drive from Quito delivers you to a 6,000-acre rain forest reserve that's dripping, squawking, and buzzing with life. At the five-star **Mashpi Lodge**, a glass wall is all that separates your suite from the canopy, which is home to—deep breath—400 bird species, rare mammals such as the weasel-like *tayra*, 300 types of moth and butterfly, howler monkeys, tree frogs, and orchids (one species was discovered just last year). There are dozens of ways to explore the forest: Take a hike to see the cock-of-the-rock's cartoonish courtship dance, pedal through the treetops on a “sky bike” (cue the *E.T.* theme), or book a night tour to see tarantulas and a glow-in-the-dark fungus straight out of *Avatar*. You can even relive your elementary school science lesson on butterflies at the lodge's Life Centre; take note of the owl butterfly, whose wing patterns are adapted to mimic the eyes of owls.

You say you want more evolution? Head to the Galápagos

Islands, 700 miles out in the Pacific. From your beachfront basecamp at **Finch Bay Galápagos Hotel**, you can walk to view nesting sea turtles and swimming marine iguanas, which come in different sizes and colors on each island (exemplifying the theory of natural selection Charles Darwin developed here). A day trip on the lodge's private yacht offers the chance to meet 12 of the “Big 15,” such as frigatebirds and blue-footed boobies, while an excursion to a highland reserve promises Galápagos giant tortoises, an iconic, threatened animal whose population is being restored by conservationists. *Mashpi Lodge* from \$1,340, mashpilodge.com; *Finch Bay Galápagos Hotel* from \$600, finchbayhotel.com



+ Pack It

Sunglass company **Costa Del Mar** teamed up with the ocean data organization **Ocearch** on a new range of polarized shades inspired by great whites and tiger sharks (residents of the Galápagos). Each purchase from the **Ocearch Collection** helps support global shark research. costadelmar.com

{ Discover the Diversity of Life Down Under }

Botany, marine biology

Australia

The year 2020 marks the 250th anniversary of Captain James Cook's voyage to Australia. The festival features a visit from a replica of the *Endeavour* and historic reenactments of Cook's landing and his crew's interactions with the Guugu Yimithirr people. Learn how the natives interact with nature, too, on one of Nugal-warra elder Willie Gordon's Cooktown Cultural & Aboriginal Tours, during which he explains how animals can forecast the weather and which plants are used for food and medicine. He may also track kangaroos, which the *Endeavour* crew named after the Guugu Yimithirr word *ganguuru*.

Speaking of the ship's crew, naturalists Joseph Banks and Daniel Solander and botanical illustrator Sydney Parkinson collected and archived more than 300 plant specimens on the 1770 expedition. You can see much of that flora on a botanist-led boat ride up the Endeavour River or in the Banks and Solander collection at the Cooktown Botanic Gardens, which is debuting a new First People's Grove in time for the festivities.

Cap off your own journey of discovery with **Coral Expeditions'** Great Barrier Reef cruise from Cairns to Lizard

Island, which Cook and Banks christened after the resident monitor lizards. Here, you can see Moray eels, angelfish, and sea turtles; tour the Lizard Island Research Station; or take part in citizen science projects focused on coral reef regeneration. *Cooktown Expo 2020*, cooktown2020.com; *Coral Expeditions four-night Northern Reef cruises* from \$1,590, coralexpeditions.com



+ Pack It



For an adventure by land, air, or sea, bring the **GoPro Hero8 Black**. New stabilization software creates smoother footage on bumpy boat rides, and the housing—waterproof down to 33 feet—has built-in mounts so you can connect a grip or snorkel pole without an attachment. gopro.com

Andrew Pearce/Getty Images (Galapagos); Paul Dymond/Getty Images (Cooktown); Gregor Lengler/Alamy/Redux Pictures (Gordon)

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