

08.2018

UPDATE: A NAT GEO
EXPLORER WALKS
AROUND THE WORLD

ARE WE REALLY
AS AWFUL AS WE
ACT ONLINE?

THE SECRET TRADE
IN EXOTIC
BUTTERFLIES

NATIONAL GEOGRAPHIC MAGAZINE

*"We are now living
in a worldwide test of the
negative consequences
of sleep deprivation."*

ROBERT STICKGOLD,
HARVARD MEDICAL SCHOOL

SLEEP

INSIDE THE NEW
SCIENCE OF SLUMBER

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CONTENTS



On the Cover

Wile Wennman, seven, of Nacka, Sweden, watches cartoons on his iPad—a modern bedtime ritual for some. He is photographed by his father Magnus, a photographer who’s traveled the world to capture how and where people sleep.

MAGNUS WENNMAN

EMBARK



20

THE BIG IDEA

Are We as Awful as We Act Online?

It’s not human nature that sparks mean posts and tweets. But evolution does play a role.

BY AGUSTÍN FUENTES

EXPLORE

36



THROUGH THE LENS

An Image’s Impact

They shared a photo to warn of climate threats to wildlife but the message got sidetracked.

BY CRISTINA MITTERMEIER

ATLAS

Coral Reef Loss

Rising sea surface temperatures cause coral bleaching and death at landmarks like the Great Barrier Reef.

BY LAUREN E. JAMES

DATA SHEET

Earth-Friendly Transit

Transportation systems help cities stem pollution, increase livability.

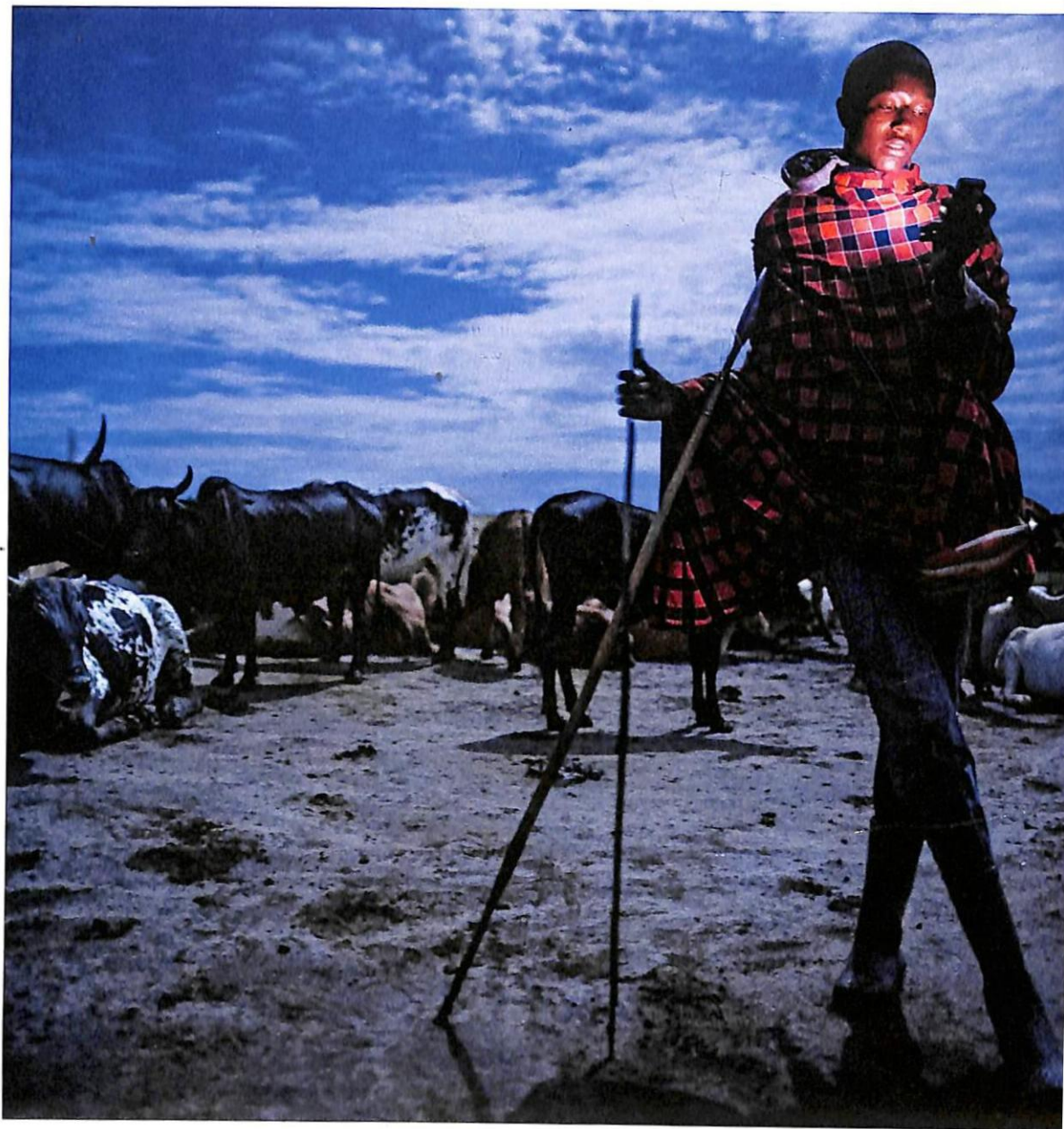
BY RYAN MORRIS AND KELSEY NOWAKOWSKI

ALSO

- Ancient Bloodsuckers
- Chilling Out on Mars
- Migration’s Artifacts

ALSO

- Out of Eden Walk: Update



FEATURES

The Science of Sleep

Though slumber may look like an idle state, new science reveals that our brains aren't less active when we sleep—just differently active. On a good night, we'll cycle repeatedly through several sleep stages, each with distinct qualities and purpose.

BY MICHAEL FINKEL
PHOTOGRAPHS BY
MAGNUS WENNMAN

P. 40

▲
Poisoning Africa

To stop predators that kill livestock, Kenya's herders put out toxic bait—and end up poisoning the ecosystem.

BY EDWIN DOBB
PHOTOGRAPHS BY
CHARLIE HAMILTON JAMES

P. 76

Butterfly Catchers

Winged beauties end up on a black market.

BY MATTHEW TEAGUE
PHOTOGRAPHS BY
EVGENIA ARBUGAEVA

P. 98

DISPATCHES

Health Care Crisis

Yemen's war makes it harder and costlier to get medical treatment.

BY NINA STROCHLIC
PHOTOGRAPHS BY
MATTEO BASTIANELLI

P. 120

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SOUTH ASIANS IN AMERICA: BUILDING A NEW DREAM

NATIONAL GEOGRAPHIC MAGAZINE

*"I want to go out and
be a face in the crowd
that no one looks at."*

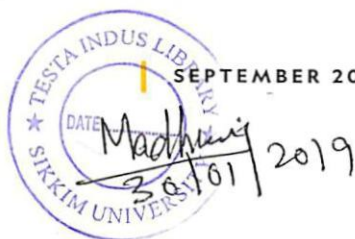
KATIE STUBBLEFIELD
FACE TRANSPLANT
RECIPIENT

THE STORY OF A FACE

Inside the
groundbreaking
face transplant
that has given
a young woman
a second chance
at life

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On the Cover

Before Katie Stubblefield had a face transplant, she posed for this portrait. It shows her severely injured face—but photographer Maggie Steber also wanted to capture “her inner beauty and her pride and determination.”

MAGGIE STEBER

PROOF



20

Rockets for Regular Folks

Each year in the Nevada desert, hobbyists gather to launch high-powered projectiles thousands of feet into the sky.

PHOTOGRAPHS BY
ROBERT ORMEROD

EMBARK

28

THE BIG IDEA

Bacteria Strike Back
Antibiotic resistance is on the rise, thanks to an evolutionary trick.
BY DAVID QUAMMEN

DATA SHEET

New Silent Spring
Birds are disappearing from French farmlands.
BY DAISY CHUNG AND
MICHAEL GRESHKO

ALSO



Whale Tracking
Fishnet Benefit

EXPLORE



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DECODER

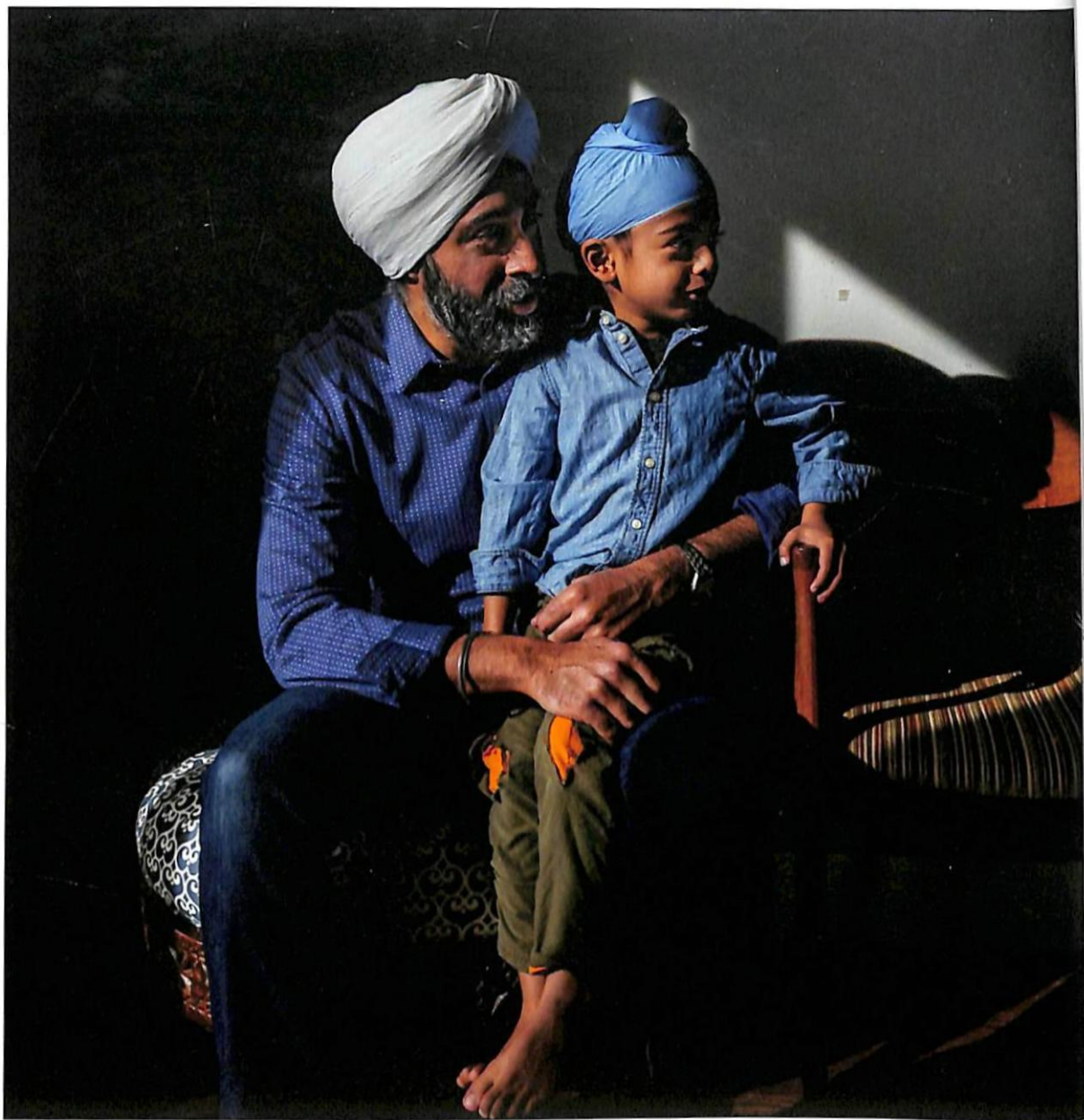
Life on Cheese
The bacteria and fungi that live in cheese rinds are tiny—but may lead to solutions for some big world problems.
BY DANIEL STONE

THROUGH THE LENS

This Look Could Have Killed
In a cave teeming with bats and snakes, a photographer thought he knew the dangers.
BY JOEL SARTORE

ALSO

Red Panda Passion



FEATURES

Katie's New Face
 Identity. Experience. Emotion. The human face expresses all this and much more. As a result of one impulsive act, a teenager lost her face. Incredible medical advances and skilled surgeons made it possible for her to get a new one.
 BY JOANNA CONNORS
 PHOTOGRAPHS BY MAGGIE STEBER AND LYNN JOHNSON
 P. 46

Building a New American Dream
 Expanding on their immigrant parents' successes, second-generation South Asian Americans are increasingly visible. And some are leaving their forebears' career paths to take on new roles: politician, astronaut, stand-up comedian.
 BY YUDHIJIT BHATTACHARJEE
 PHOTOGRAPHS BY ISMAIL FERDOUS P. 90

Passage to Another Time
 Walking among the peaks of Central Asia.
 BY PAUL SALOPEK
 PHOTOGRAPHS BY MATTHIEU PALEY
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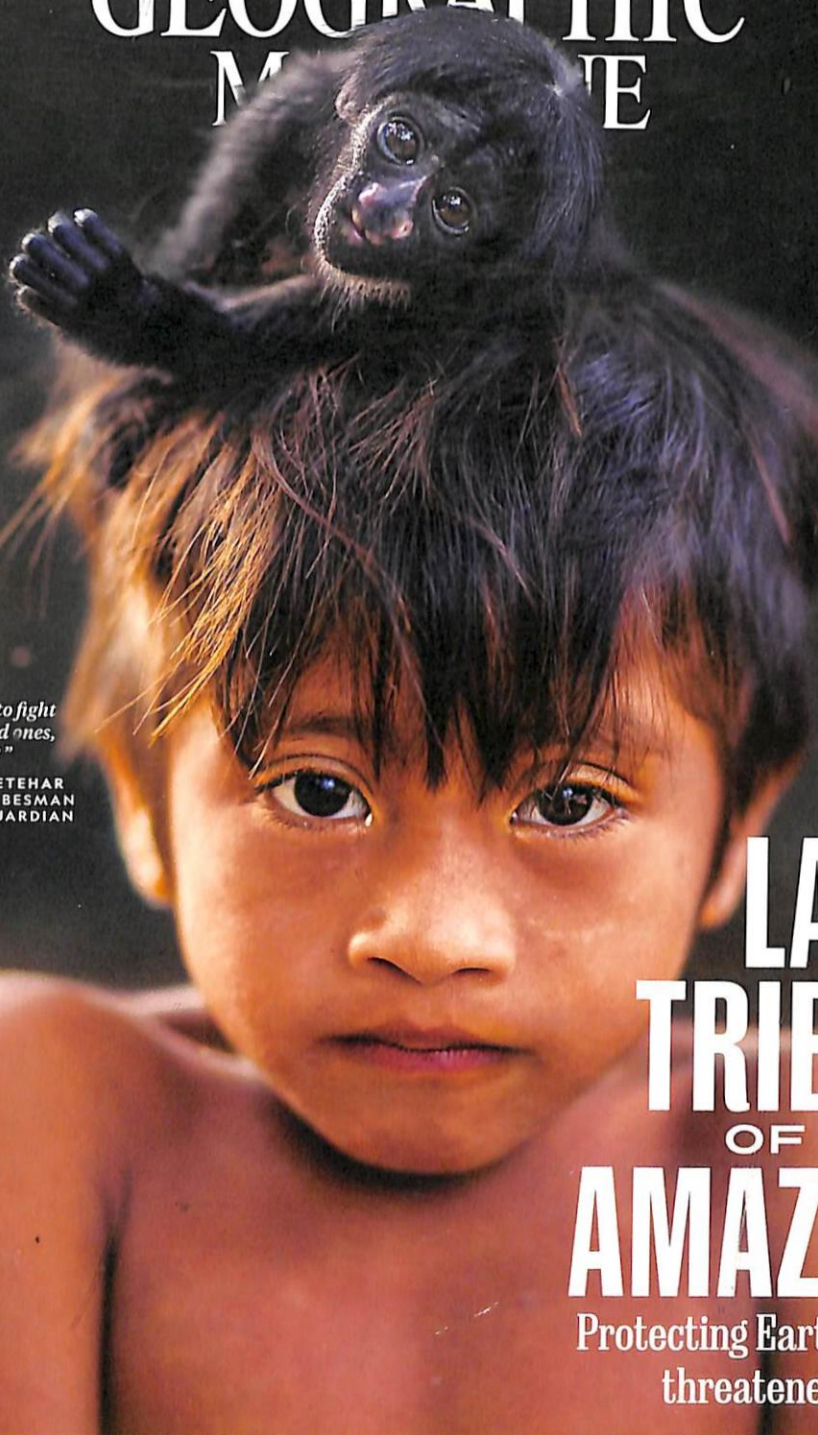
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OF THE SKY

DESPITE
PERILS, A CASE
FOR HOPE

REVISITING THE
LESSONS OF JAPANESE
INTERMENT

NATIONAL GEOGRAPHIC MAGAZINE



*"Who's going to fight
for the isolated ones,
if not us?"*

TAINAKY TENETE HAR
GUAJAJARA TRIBESMAN
AND FOREST GUARDIAN

LAST TRIBES OF THE AMAZON

Protecting Earth's most
threatened people

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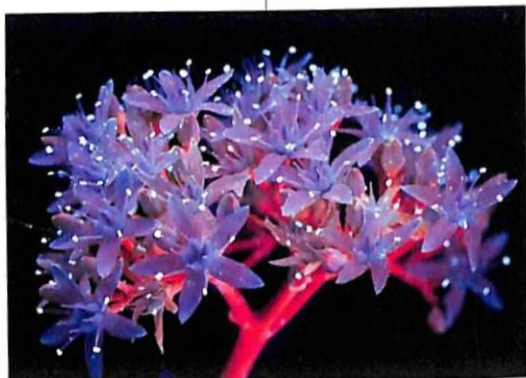
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On the Cover

In Posto Awá, an Awá village in eastern Brazil, a baby black-bearded saki monkey hitches a ride on the head of a five-year-old named Kaiáu.

CHARLIE HAMILTON JAMES

PROOF



24

Flowers in a New Light

A technique that relies on ultraviolet light reveals the hidden, colorful—and even sparkly—attributes of common plants.

PHOTOGRAPHS BY
CRAIG BURROWS

EMBARK

36

THE BIG IDEA

Despite Perils, Decide to Hope

Conflict, climate change, and pollution plague us. What better time to be hopeful?

BY ANNE LAMOTT

BREAKTHROUGHS

Prance Discovery

The dance moves of an unusual-looking bird in New Guinea came as a surprise to scientists.

BY NINA STROCHLIC



ALSO

Saving Brains

EXPLORE



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ATLAS

Rhino Recovery

Fewer than 100 Sumatran rhinos remain. A new conservation effort aims to save them.

BY LAUREN E. JAMES

ALSO

Eyes on Pixels



FEATURES

Threatened by the Outside World

Tribes in the Amazon.
BY SCOTT WALLACE AND
CHRIS FAGAN
PHOTOGRAPHS BY CHAR-
LIE HAMILTON JAMES
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I Am an American

Scenes from the
Japanese internment
still resonate today.
BY ANN CURRY
PHOTOGRAPHS BY
PAUL KITAGAKI, JR.
..... P. 82

▲ Rulers of the Sky

Humans and falcons
have been partners
for millennia.
BY PETER GWIN
PHOTOGRAPHS BY
BRENT STIRTON P. 104

American Tapestry

Census data reveal two
and a half centuries
of migration, conflict,
and prosperity.
BY MATTHEW W.
CHWASTYK
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ON NATIONAL
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STAY AT THE TOP OF ITS GAME?

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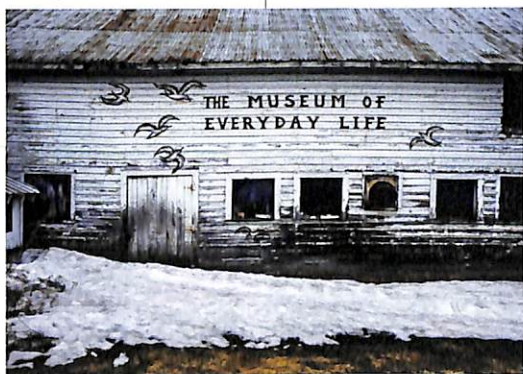


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On the Cover

The Shard, London's tallest building, has redefined its skyline and dwarfed older landmarks such as Tower Bridge. More than 70 skyscrapers are under way, promising to redraw the cityscape even further. **LUCA LOCATELLI**

PROOF



22

Uncommon Kingdom
A Vermonter describes the state's northeast corner as a realm apart, a kingdom whose subjects are independent and eccentric.

BY ARCHER MAYOR
PHOTOGRAPHS BY STÉPHANE LAVOUÉ

EMBARK

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THE BIG IDEA

A Sun-Powered Sail Into Space

A solar-sail spacecraft, set for a fall launch, is the stuff of astronomers' dreams—and a glimpse of the future.

BY BILL NYE

CAPTURED

As the Worm Turns

An intestinal parasite can actually be beneficial.

BY LORI CUTHBERT



ALSO

Crow Funeral Rites
Flu Virus Genetics

EXPLORE



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THROUGH THE LENS

When a Friend Defies Death

A photographer documents his buddy's ropeless climb of Yosemite's El Capitan.

BY PETER GWIN

DECODER

Taking Mars's Pulse

Late this month, the Mars lander InSight is set to start gathering data on the red planet.

BY JASON TREAT

MARS

The second season of the National Geographic series premieres at 9 p.m. on November 17.



FEATURES

London Rising

Looking at the future of the global city as it grows at an exponential rate and experiences uncertainty over Brexit.

BY LAURA PARKER

PHOTOGRAPHS BY LUCA LOCATELLI
..... P. 50

Battle for the American West

Who gets to choose how the land is used?

BY HANNAH NORDHAUS

PHOTOGRAPHS BY AARON HUEY
..... P. 92

Menu of the Future

Coming to your table: dishes featuring grass, insects, and algae.

BY TRACIE McMILLAN

PHOTOGRAPHS BY GRANT CORNETT
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Flooding History

A controversial dam in Turkey will destroy an ancient settlement.

BY SUZY HANSEN

PHOTOGRAPHS BY MATHIAS DEPARDON
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PALM OIL:
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EXPANDING
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PUMAS OF PATAGONIA

THE NEW
HEROES OF THE
PHILIPPINES

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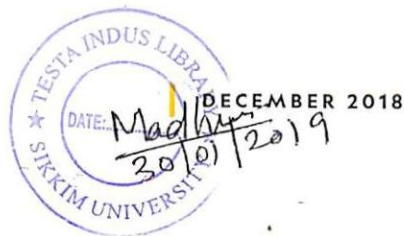
BIBLE HUNTERS

Scholars, schemers,
and the search for
ancient texts

*"If you are dealing with
antiquities, you must get
your hands dirty."*

EITAN KLEIN
ISRAEL ANTIQUITIES
AUTHORITY

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On the Cover

On this Torah scroll, which is hundreds of years old, a passage from the book of Exodus is visible.

PAOLO VERZONE; VAN KAMPEN COLLECTION ON DISPLAY AT THE HOLY LAND EXPERIENCE, ORLANDO, FLORIDA

PROOF



20

Season of the Whale

On the North Slope of Alaska, the indigenous Inupiat follow a 1,000-year-old tradition that unites their community: hunting bowhead whales.

PHOTOGRAPHS BY KILIII YÜYAN

EMBARK

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THE BIG IDEA

The Global Peril of Inequality

Among the threats to our life on Earth: the yawning chasm between rich and poor. BY JARED DIAMOND

GENIUS

Fossil Guardian

Paleontologist Bolortsetseg Minjin aims to keep Mongolia's dinosaur fossils from leaving the country. BY RACHEL HARTIGAN SHEA



ALSO

Bye-Bye, Bird Year
The Evolution of Nests

EXPLORE



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DECODER

Metamorphosis

By peering into a chrysalis with micro-CT scans, scientists can see more clearly how a caterpillar transforms. BY DAISY CHUNG

THROUGH THE LENS

Elegy for a Lion

Known as C-Boy, he was "everything an African lion should be."

BY DAVID QUAMMEN
PHOTOGRAPH BY MICHAEL NICHOLS



A mother puma rests with her two young cubs at Lake Sarmiento in Patagonia, Chile.

FEATURES

The Bible Hunters

Archaeologists are on an urgent mission to save sacred texts.

BY ROBERT DRAPER
PHOTOGRAPHS BY
PAOLO VERZONE

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The Other Oil Crisis

Palm oil is a coveted commodity around the world. Can it be sustainably produced?

BY HILLARY ROSNER
PHOTOGRAPHS BY
DAVID GUTTENFELDER
AND PASCAL MAITRE

..... P. 82

Heroes of the Philippines

For sending wages from abroad to assist their families, returning Filipinos are celebrated.

BY AURORA ALMENDRAL
PHOTOGRAPHS BY

HANNAH REYES MORALES
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Patagonia's Pumas

To ranchers, they're a costly predator; to tourists, an attraction.

BY ELIZABETH ROYTE
PHOTOGRAPHS BY
INGO ARNDT

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SPECIAL ISSUE

NATIONAL
GEOGRAPHIC
MAGAZINE

The cells of a patient's heart, lungs, liver, kidney, brain—you name it—can be replicated on this chip to help researchers develop individualized treatments.



THE
FUTURE
OF

MEDICINE

HOW NEW TECHNOLOGIES AND ANCIENT REMEDIES
ARE TRANSFORMING HEALTH CARE

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On the Cover

This composite photo shows highly magnified, functioning spinal cord tissue (background) that's micro-engineered onto a chip, which researchers can use to study disease.

CRAIG CUTLER (HAND WITH CHIP); SAMUEL SANCES, CEDARS-SINAI (BACKGROUND)

SPECIAL ISSUE: MEDICINE



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THE BIG IDEA

The Future of Medicine

Ever present and hyperconnected, the high-tech medical treatments of the future will focus on well-being and prevention.

BY DANIEL KRAFT



INTERVIEW

Watch What—and When—You Eat

Timing is everything.

BY MICHAEL ROIZEN AND MICHAEL GRUPAIN

DATA SHEET

Health Care Spending

High costs don't always yield better outcomes.

BY ALBERTO LUCAS LÓPEZ AND RYAN T. WILLIAMS

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THROUGH THE LENS

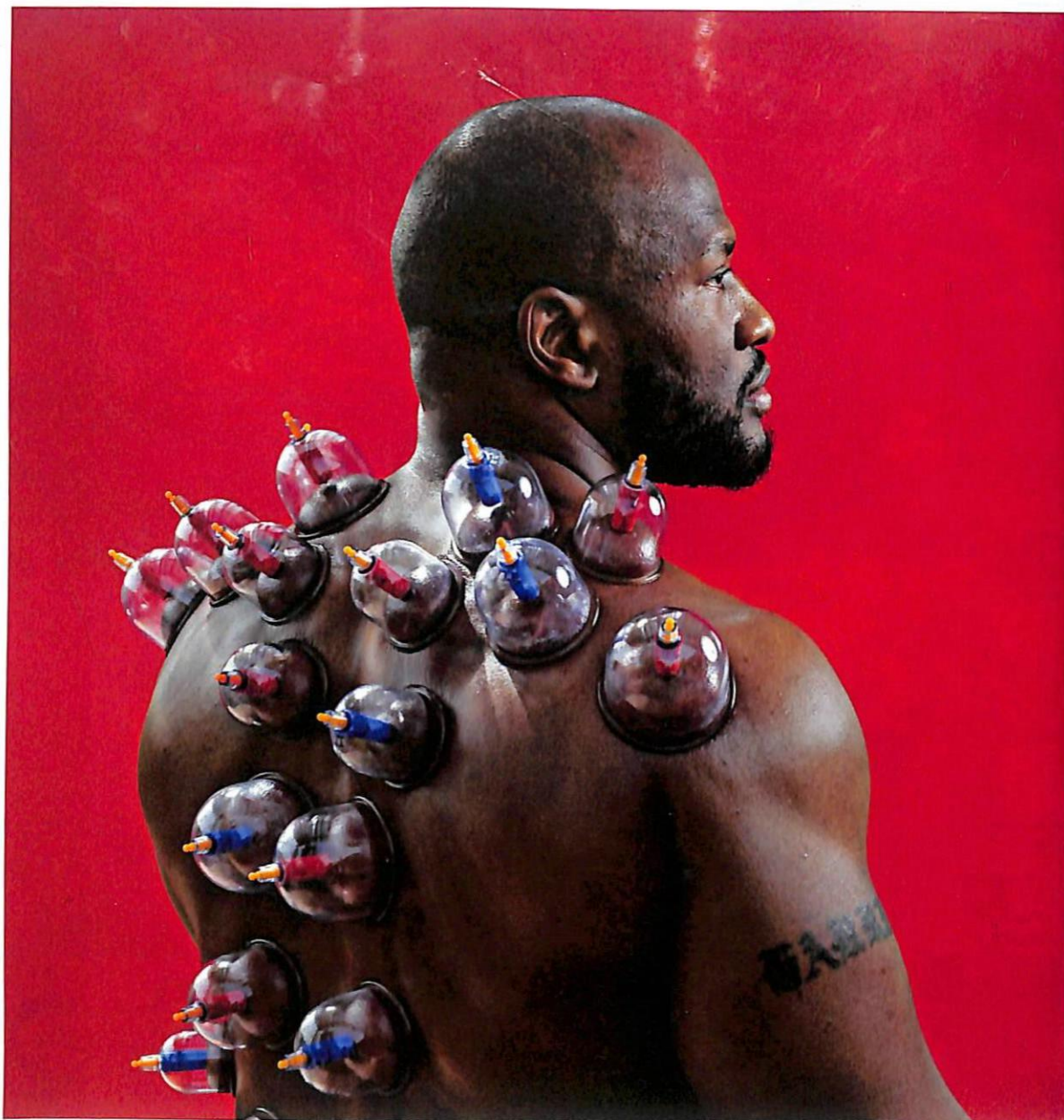
Doctor Photographer

Choosing between two consuming vocations.

BY MAX AGUILERA-HELLWEG

ALSO

- Cutting-Edge Music to Boost Premies' Brains
- Selfies Look for Cancer
- Contact Lenses May Track Glucose Levels
- 3D Printers Manufacture Missing Limbs
- Robot Rehab Coaches



FEATURES

Every Body Is Unique

Built on stunning advances in gene research and data mining, precision medicine devises treatments tailored to a patient's specific biochemical makeup. This new approach has the potential to upend decades of medical practice.

BY FRAN SMITH
PHOTOGRAPHS BY
CRAIG CUTLER

P. 36

The Immortal Corpse

An elderly woman donated her body to a researcher's ambitious project. He froze it, sliced it 27,000 times, and took pictures. The result: a virtual cadaver that can be examined by medical students and help them understand how, in life, she was put together.

BY CATHY NEWMAN
PHOTOGRAPHS BY
LYNN JOHNSON

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The Secrets of Chinese Medicine

Modern science examines ancient remedies.

BY PETER GWIN
PHOTOGRAPHS BY
FRITZ HOFFMANN

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The Truth About Maternal Mortality

Rates are relatively high for American women.

BY RACHEL JONES
PHOTOGRAPHS BY
LYNSEY ADDARIO

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