

Darkness is all around you. The air feels damp. You hear rushing water. You flip on your headlamp. Its narrow beam pierces the darkness. You're inside a cave.

A cave is a natural opening in the ground. Earth has millions of caves. People who explore caves are called **cavers**.

Being a caver is fun. You get to learn a lot about caves. You can learn how caves form and what lives inside them. First, you need safety gear and a good guide.

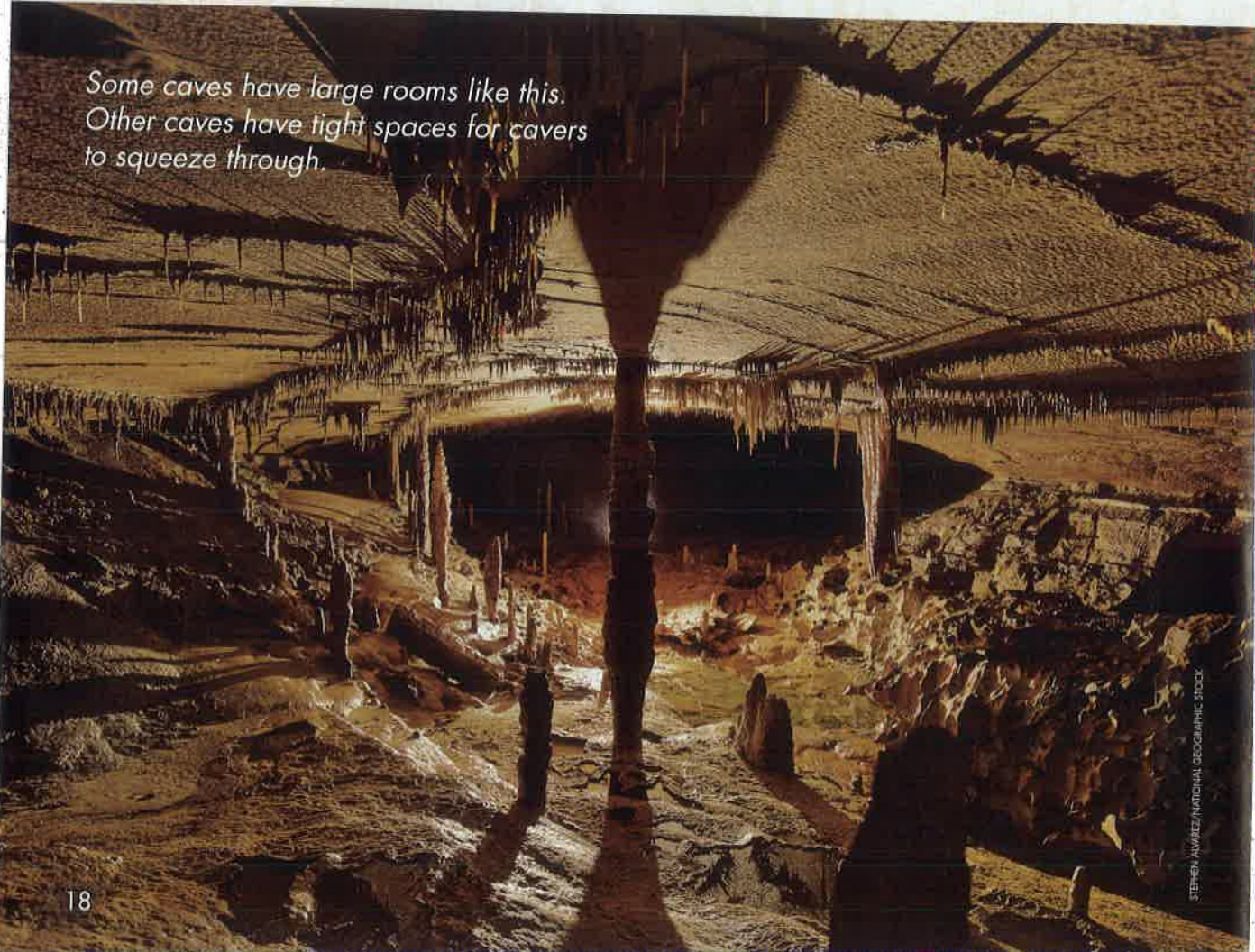
Meet a Caver

On this trip, Stephen Alvarez is your guide. He is a caver. He also photographs caves for the National Geographic Society.

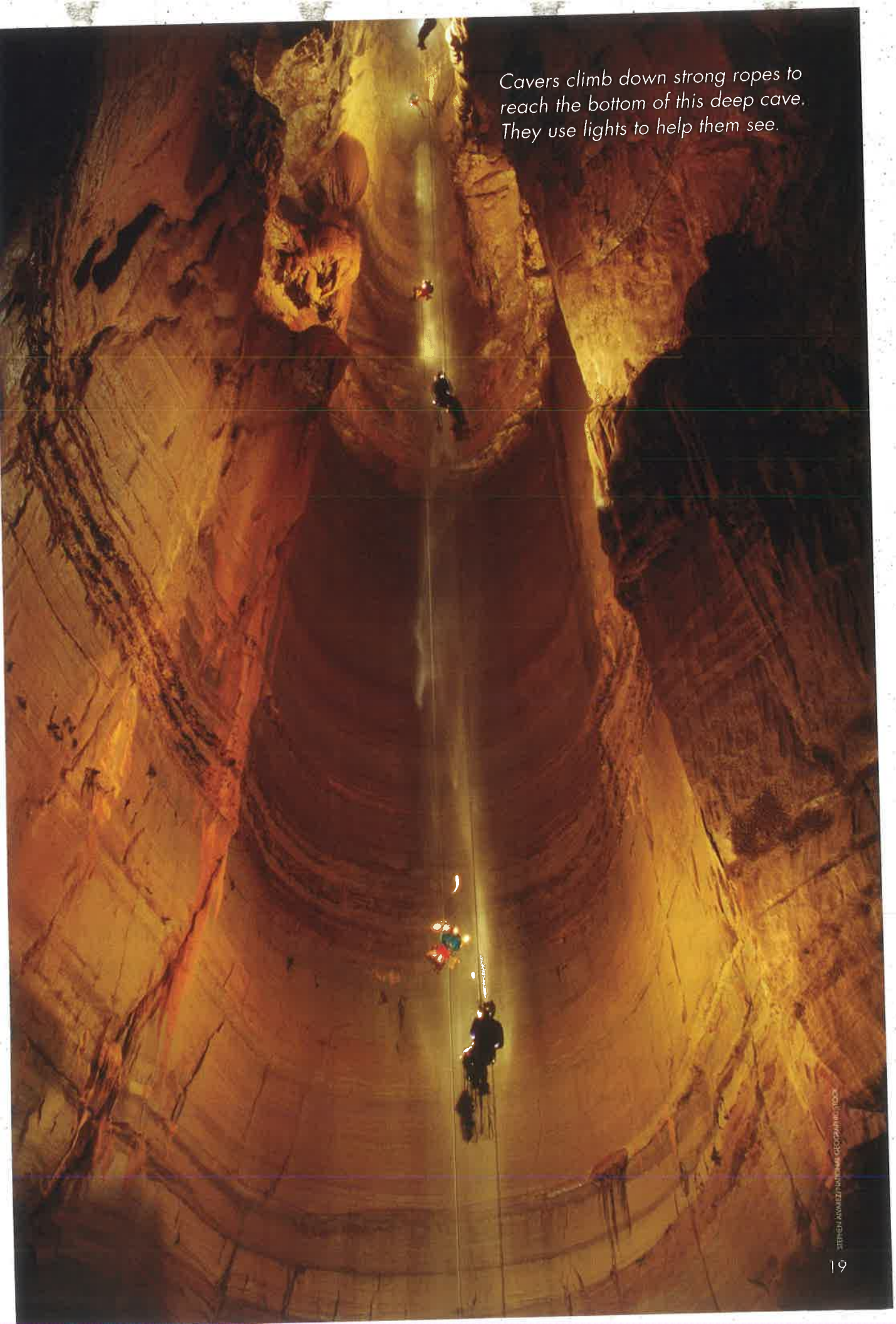
Alvarez climbs mountains to reach some caves. He dives into underwater caves. He hikes into ice caves and caves formed by lava.

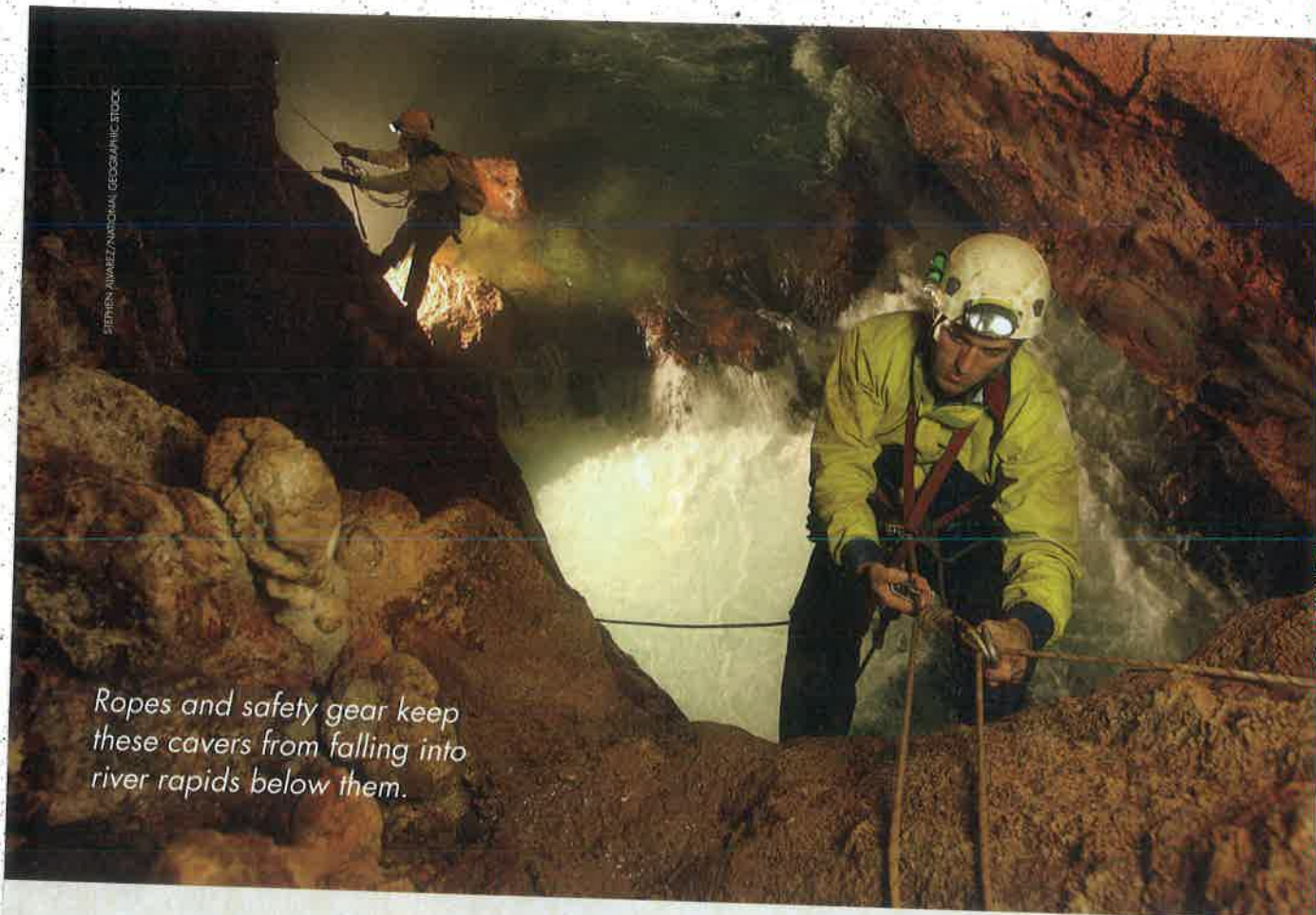
Alvarez has photographed many famous caves. One of the longest caves is in Kentucky. It has 580 kilometers (360 miles) of tunnels! In Europe, one of the deepest caves goes 2.2 kilometers (1.4 miles) underground.

Some caves have large rooms like this. Other caves have tight spaces for cavers to squeeze through.



Cavers climb down strong ropes to reach the bottom of this deep cave. They use lights to help them see.





Ropes and safety gear keep these cavers from falling into river rapids below them.

Underground Danger

Is caving dangerous? It is. “Caves are dangerous if you don’t know what you’re doing,” says Alvarez. Cavers expect to get scratched and muddy. But being safe is important. Alvarez never goes into a cave alone. He stays with a team. Team members look out for one another.

Serious cavers use the right gear. Helmets are a must. Knee pads and gloves are helpful, too. Headlamps keep hands free to climb. A backup flashlight is always a good idea. Alvarez packs powerful lights to help him take pictures.

Water at Work

Running water forms many caves. Water carves these caves out of limestone. Limestone is rock made from ancient shells and animal bones.

Here’s how it works: Raindrops mix with carbon dioxide in the air. This forms an acid. The acid dissolves, or breaks up, the limestone. Over time, it carves out long tunnels.

Minerals in the water form shapes called decorations. **Stalactites**, for example, hang down from the ceiling. **Stalagmites** poke up from the cave floor. When a stalactite and a stalagmite meet, they form a column.

From Pearls to Popcorn

Some decorations look like stone curtains. Others look like popped corn. Some are named “cave pearls” or “bacon strips.”

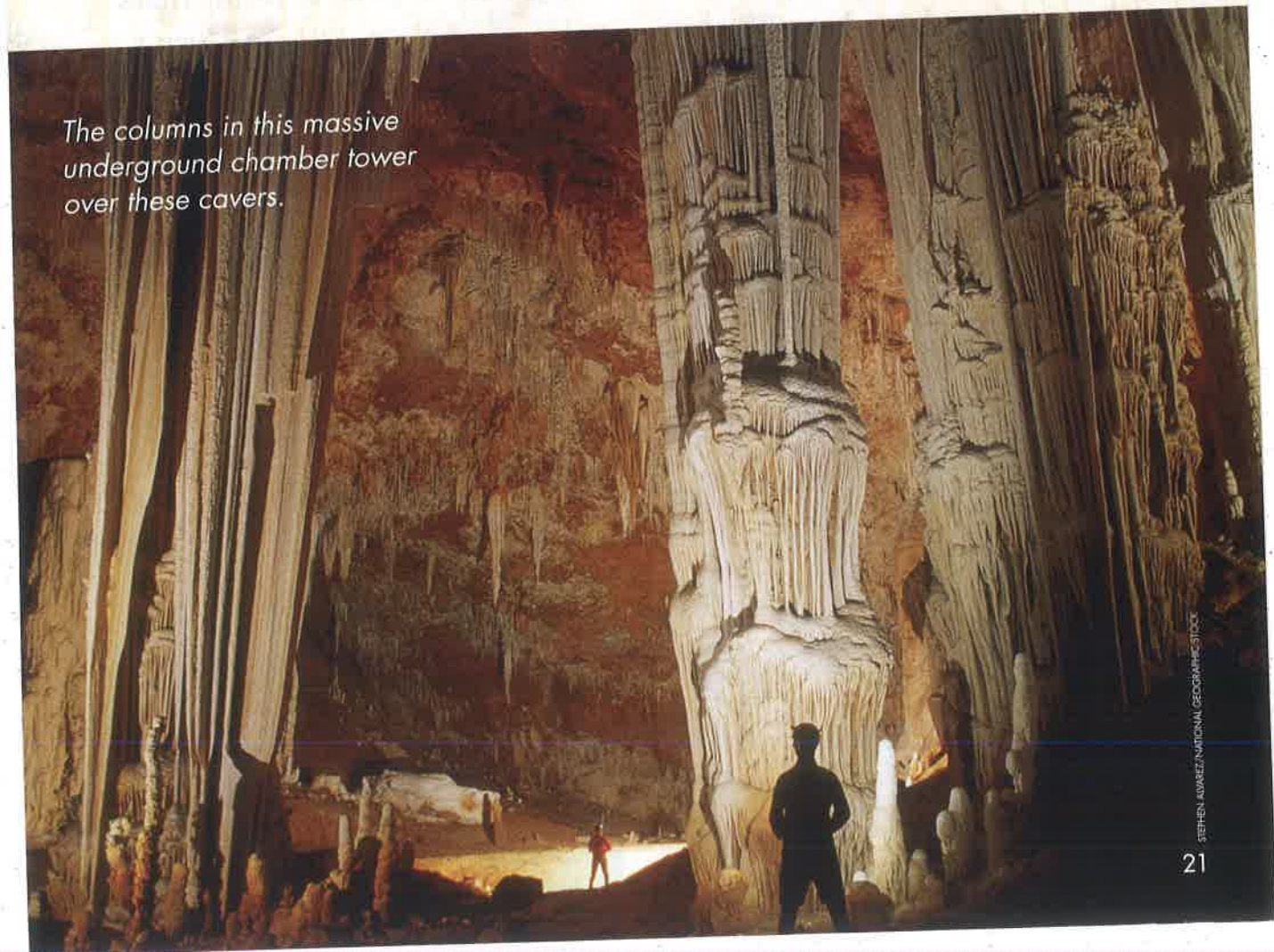
Perhaps the most delicate cave formation is a **helictite**. They form on cave walls and ceilings. Some look like piles of worms. Others look like antlers. One kind looks like fish tails sticking out of the walls!

Helictites start out as stalactites. But they don't grow down. They twist or pop out sideways. Helictites are small and can break easily.

Helictites are beautiful but fragile.



The columns in this massive underground chamber tower over these cavers.



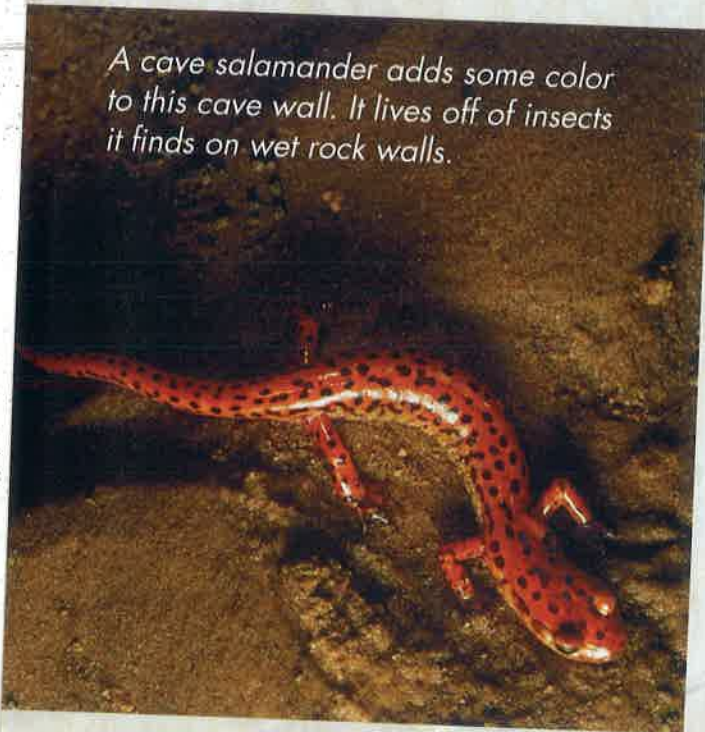
Cave Critters

You'll find many animals in caves, too. Bats hang out in caves during the day. At night, they leave to hunt. Then there are raccoons, snakes, and lizards. They use caves as places to rest or raise their young.

Some animals live in caves all the time. They are called **troglobites**. They have adapted to life in the dark. Their skins or shells are pale. Many of them have no eyes. What good are eyes without light? Alvarez has seen eyeless fish, shrimps, and spiders.

Most troglobites can't see. But their other senses are sharp. They use hearing, touch, and smell to get around. They can catch prey without seeing the victim!

A cave salamander adds some color to this cave wall. It lives off of insects it finds on wet rock walls.



STEPHEN ALVAREZ/NATIONAL GEOGRAPHIC STOCK

Small and Strange

Troglobites may seem strange. But bacteria that eat acid are stranger still. They drip from some cave ceilings like mucus. Scientists call these slimy blobs "snottites."

Cave Threats

Explorers like Alvarez know that caves can be damaged by pollution. Polluted water can flow into caves. This water destroys decorations and kills animals.

Human visitors can be a threat, too. They can destroy what took thousands of years to form. That's why cavers have this motto: "Take nothing but pictures. Leave nothing but footprints. Kill nothing but time!"



STEPHEN ALVAREZ/NATIONAL GEOGRAPHIC STOCK

This blind crayfish uses its antennae to feel its way through the darkness.

WORDWISE

caver: person who enjoys exploring caves

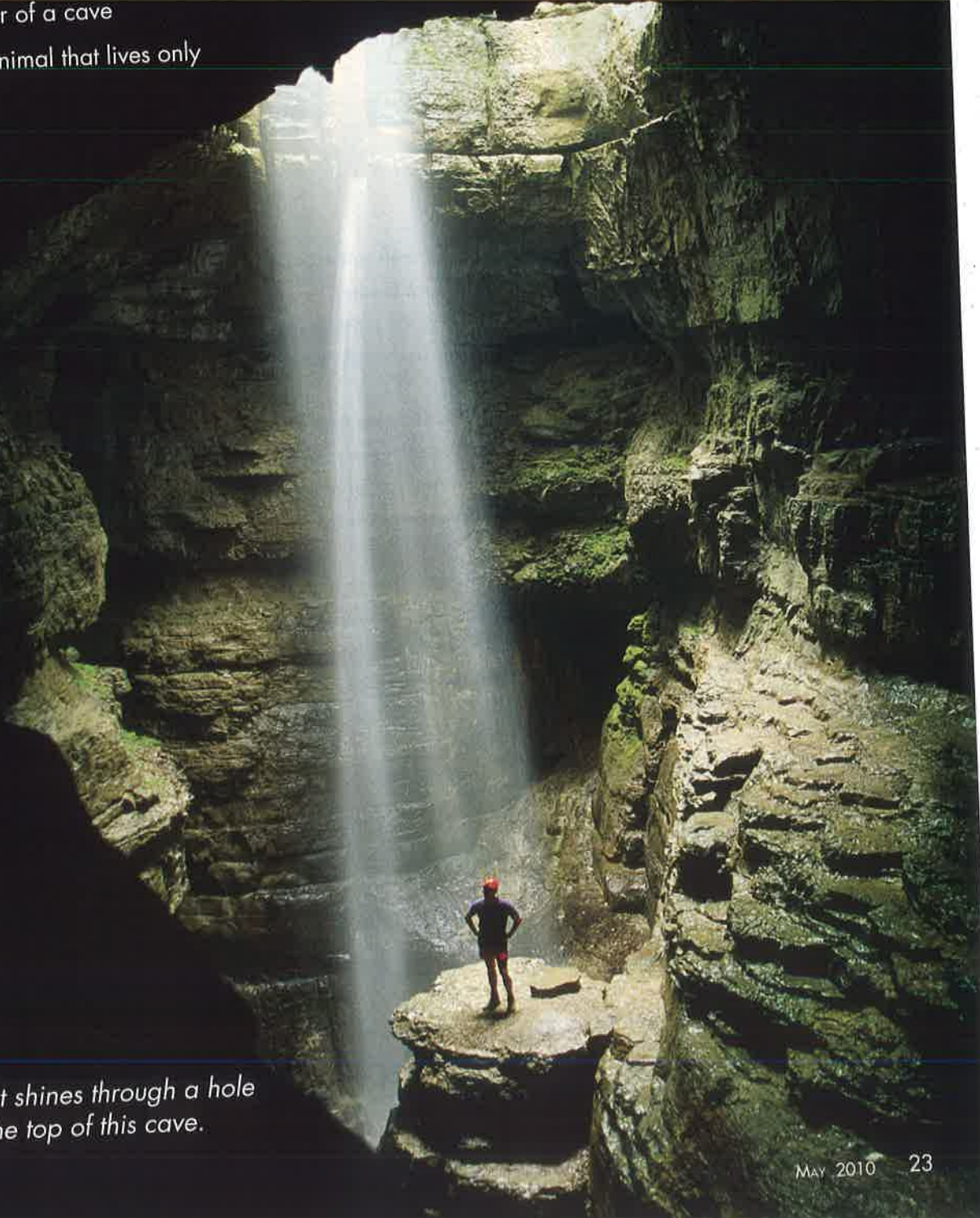
helictite: rock formation that angles or twists in an irregular way

stalactite: rock formation that hangs down from the ceiling of a cave

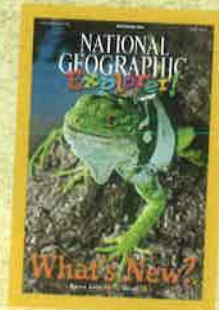
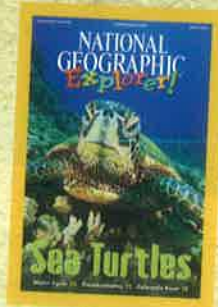
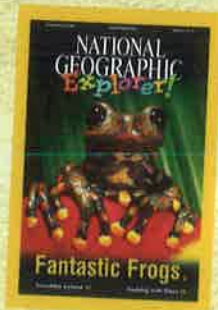
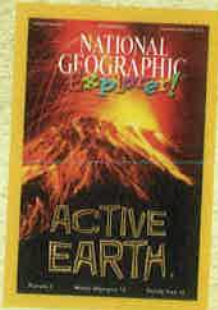
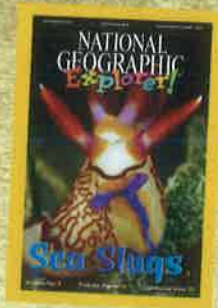
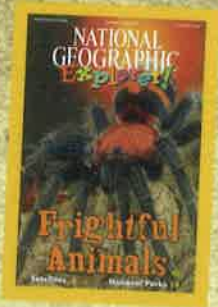
stalagmite: rock formation that sticks up from the floor of a cave

troglobite: animal that lives only in caves

STEPHEN ANWREZ/NATIONAL GEOGRAPHIC STOCK



Light shines through a hole in the top of this cave.



Dear Explorers,

It's been an incredible year! You've visited coral reefs in the Indian Ocean. You've seen our planet from thousands of miles above Earth.

You now know to stay out of the way of *terribilis*, the poisonous golden dart frog. You've learned that the Goliath tarantula eats birds and that the spotted hyena can be a dangerous hunter.

In our final issue of the school year, you'll discover some new species. You'll also explore caves and take a look at all the trash floating in space.

Next, you'll be preparing for summer break. What sort of adventures will you have? At National Geographic, we'll be busy preparing new issues of EXPLORER, waiting for you to come back.

If you get some free time, drop me a line. I'd really love to hear from you. Let me know what stories, covers, and photos you liked this past year. More importantly, write to me and tell me your great ideas for stories you'd like to see from us in the future. I'm all ears. You can reach me at bmaloney@ngsp.com or 1145 17th Street, NW, Washington, DC 20036.

Have a safe and wonderful summer. See you in the fall!

Brenna Maloney

Brenna Maloney
Editor, EXPLORER magazine

560

INTERNATIONAL PAPER
FOUNDATION

NATIONAL GEOGRAPHIC SOCIETY
EDUCATION FOUNDATION

NATIONAL
GEOGRAPHIC
Explorer!

Vol. 9 No. 7

Editor in Chief: Jacalyn Mahler
Art Director: Karen Thompson
Editors: Brenna Maloney,
Miacon Morehouse
Designer: James Wildman
Photo Editor: Shannon Hibberd
Permissions Editor: Jean Cantu
Production Specialist:
Dreema Karnes-Byrane
Curriculum Consultant:
Merry Haugen

SCHOOL PUBLISHING GROUP
President and Chief Executive Officer:
Alison Wagner
Vice President and Publisher:
Francis Downey
Research Manager: Amber Petry

MANUFACTURING AND QUALITY CONTROL
Chief Financial Officer:
Christopher A. Liedel
Vice President: Phillip L. Schlosser
Director: Clifton M. Brown
Manager: Nicole Elliott
Postal Director: Kerry Knight

PUBLISHED BY THE
NATIONAL GEOGRAPHIC SOCIETY
John M. Fahey, Jr., President
Gilbert M. Grosvenor,
Chairman of the Board

NATIONAL GEOGRAPHIC EXPLORER
(ISSN 1541-3357) is published seven times
during the school year—September,
October, November–December,
January–February, March, April, May—by
the National Geographic Society, 1145 17th
Street NW, Washington, D.C. 20036-4688.
Postmaster: Please send address changes
to NATIONAL GEOGRAPHIC EXPLORER, PO Box
4002865, Des Moines, IA 50340-0597.
Periodical postage paid at Washington, D.C.,
and additional mailing offices.

To subscribe:
In the U.S., call 1-888-915-3276
In Australia, +61 2 8005 6889
In Hong Kong, +852 2191 2518
In Malaysia, +60 3 7785 3063
In New Zealand, +64 9 889 3988
In Singapore, +65 6744 9888

Copyright © 2010 National Geographic
Society. All Rights Reserved. Reproduction
of the whole or any part of the contents of
NATIONAL GEOGRAPHIC EXPLORER without written
permission is prohibited. National Geographic,
NATIONAL GEOGRAPHIC EXPLORER, and the Yellow
Border are trademarks of the National
Geographic Society.

Cover: A *bulabula* iguana from Fiji
basks in the sun.

(PHOTO: PADDY RYAN/WWW.RYANPHOTOGRAPHIC.COM)

03/10/QGL/1

Visit Us
Online!
NGPioneer.org