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NATIONAL GEOGRAPHIC

Explorer



Fancy Feathers₂

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FANCY FEED

Meet some birds that show off
in weird, wild, and wonderful ways.

By Rene Ebersole

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Life Science



COMPREHENSION STRATEGY:

As you read, look for words that help you picture the birds.





Chee! Chee!

This loud screech rises from the rain forest. It sounds like an angry bird being attacked. It's not. This bird is just showing off.

In fact, the noisy screech is just the start of its act. Next, it hops along a branch. Snip, snip, snip. One by one, it rips off all the leaves and drops them. As it works, it pauses to chirp, grunt, and buzz.

Then the bird flies down to the ground. Against its stage of green leaves, its colors really stand out. The skin on its bald head shines bright blue. Red and yellow feathers shimmer on its back.

Suddenly, the bird fans out its neck feathers. They look like a stiff collar. The bird's green chest feathers rustle. The bird hops one way. Then it hops and twists to face the opposite way. Its two curly tail feathers shiver and shake.

In many parts of the world, such bright feathers, fancy moves, and loud noises could make a bird look like easy prey. Not here. That's because this Wilson's bird of paradise lives in a paradise for birds.



This is a Wilson's bird of paradise. It shows its bright colors.

This male bird fluffs out his feathers.



Land of Plenty

Welcome to New Guinea, the largest tropical island, and its nearby islands. They are home to some of the weirdest and wildest birds.

The flashy Wilson's bird of paradise is just the start. As many as 38 more **species** of birds of paradise live here. They're not alone. The world's the tiniest parrots, one of the largest flightless birds, and the only poisonous birds live here, too. Many are **endemic** to the area. That means these birds are found nowhere else in the world.

For these birds, New Guinea is a land of plenty. Since it lies near the Equator, most of the island remains warm all year. Juicy fruits grow all the time. Tasty insects are always buzzing and crawling through the forests. That means there's always plenty to eat. So the birds don't face a lot of **competition** for food.

The island also has many different kinds of habitats. Swamps line parts of the coast. Rain forests grow farther inland. Steep mountains rise to icy glaciers in the middle of the island.

Some birds thrive in the swamps. Others live only in the rain forests. So their paths don't cross. These birds don't have to compete with one another for a place to live. There's plenty of room for all of them.

No Need to Hide

There's one more reason why New Guinea is a paradise for birds. The birds have few predators here. So they rarely risk becoming another animal's dinner.

This helps explain the birds' bright colors and whacky behaviors, too. They don't have to hide from predators. So they don't need **camouflage** or other adaptations to help them stay safe. Instead, these birds use their energy to stand out. Let's meet some more of these bizarre birds.



Flight of Fancy

High in the mountains, a black bird searches for fruit to eat. As it flies, two white tail feathers flutter behind it. They look like party streamers. These tail feathers stretch three times longer than the bird's body.

No other bird has longer tail feathers than the ribbon-tailed astrapia. In other parts of the world, this bird might be easy prey. Here, though, the bird doesn't have to worry that a predator will grab it by its long tail.

The ribbon-tailed bird is not the only odd bird of paradise. Take the superb bird of paradise. At first glance, this bird doesn't look like much. Suddenly, though, its neck feathers stick straight out. Then, with a loud rustle, the bird flips some feathers over its head.

Two patches of shiny turquoise feathers appear. These two blue dots shine like beady eyes. More blue feathers form an oval. They look like a grinning mouth. It looks like this bird is wearing a mask. The bird hops this way and that. It snaps its tail feathers together with a loud click, showing off its flashy feathers.

Dance Moves

A king bird of paradise may have even fancier moves. This bright red bird flaps its wings and screams. Then it flips its two long tail feathers over its head. Each is topped by a swirl of green feathers. They look like lollipops.

The bird waves these tail feathers over its head. Then it digs its bright blue toes deep into a branch. Suddenly, it swings upside down. As it hangs head down, it stiffens its body and bobs back and forth.



superb bird of paradise

This king bird of paradise waves his wings to show off.





A male bowerbird dresses up his nest.

Bird Builders

A bowerbird may not dance like a bird of paradise. It doesn't have flashy feathers, either. Yet this bird shows off in another way. It's a master architect. It doesn't build regular nests. It builds bird mansions.

A gardener bowerbird is a good example. First, it finds a perfect spot to build. It doesn't search for the highest treetop. Instead, it finds a soft and mossy spot on the forest floor. That doesn't seem too safe. Yet on New Guinea, this bird doesn't have to worry.

Next, the bowerbird collects sticks and twigs. One by one, it carefully leans them against the trunk of a young tree. Eventually, a teepee of twigs towers over the bird.

The bird isn't done yet. It flies through the forest looking for nuts, fungi, bright berries, or even bugs. When it spots a shiny beetle, it spears the bug with its beak.

After each hunting trip, the bird carefully piles what it's collected in front of its nest. The bird studies its work. It moves a few berries. It rearranges its carpet of dead beetles. This building and decorating project can take many months. Finally, it's done.

Now it's time to hold an open house. The bowerbird struts. It calls out. Its loud chirps mimic, or copy, other sounds. The calls might sound like dripping water, flapping wings, even people talking. This bird does whatever it takes to get attention.

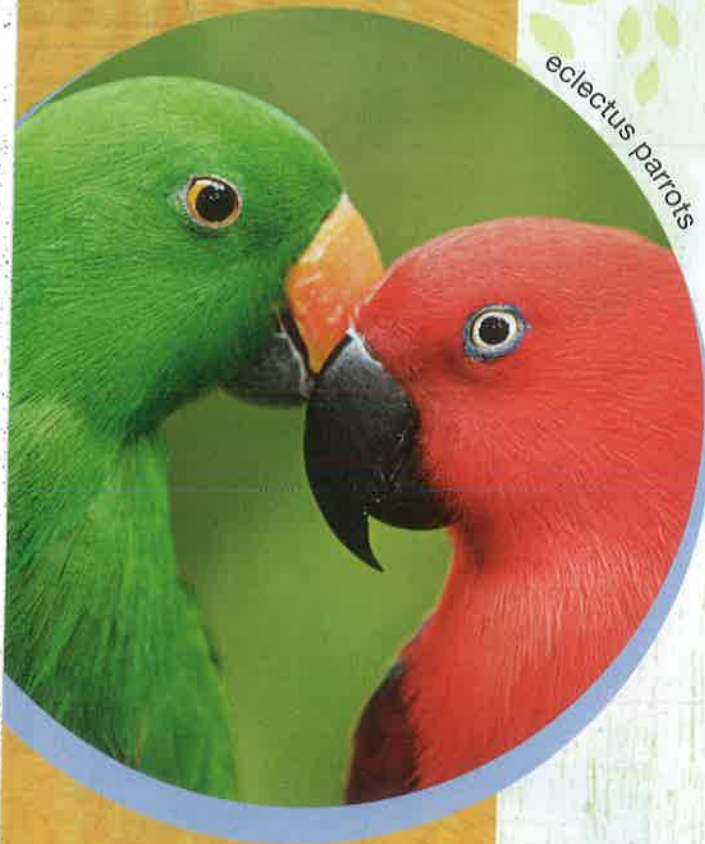


Family Feathers

For the Huli people, birds of paradise are sacred. The birds' feathers are an important part of their sing-sings, or celebrations.

These girls wear colorful feathers on their heads. Some Huli thread long, white feathers through their noses. The feathers represent the spirits of their ancestors. They believe the feathers give them strength.

Today, the Huli rarely hunt these birds. So one generation often passes their family's feathers down to the next generation. In that way, the tradition lives on.



Pretty Parrots

New Guinea also is home to some unique parrots. Some have tiger stripes. Others come in rainbow colors. For example, a male eclectus parrot has a green head, red sides, and a yellow beak. A female has a red head and a bright blue body. Unlike most parrots, the males and females don't look alike. In fact, scientists once thought they were two different species.

Pygmy parrots stand out for a different reason. They're tiny! They are the smallest parrots in the world. Six different species of pygmy parrots live on New Guinea and its nearby islands.

The smallest of all is the buff-faced pygmy parrot. With yellow and green feathers, it looks like many other parrots. Yet it's only as big as a person's thumb.

A pygmy parrot's diet is unusual, too. Many birds eat fruit and insects. When a pygmy parrot hunts for dinner, it looks for lichen, too. It hops along a tree branch until it spots a green patch growing on the bark. Then it rips up a strip of leathery lichen and eats it.


Big Bird

Pygmy parrots aren't the only birds that stand out for their size. So do cassowaries. Unlike the parrots, though, these birds are huge. A northern cassowary can grow to be 1.7 meters (5.6 feet) tall. Only emus and ostriches grow taller than this flightless bird.

Even though it's big, it's easier to hear a cassowary than to see one. Many of these shy birds live in swampy areas. As they call to one another, their booms echo. The sound is so loud and low that it makes the ground vibrate. The birds are just as noisy as they run up to 50 kilometers (31 miles) per hour. They crash through the brush.

Watch out if the crashing sound is close by. These big birds may be shy, but they're also dangerous. When a cassowary feels threatened, it fluffs out its shaggy black feathers and hisses. Then it kicks with sharp claws. More often, though, a cassowary uses its claws to dig through leaves for fallen fruit.





A Victoria crowned pigeon gets its name from its frilly feathers.

Poison Power

If all these birds aren't unusual enough, meet the pitohui. It's poisonous. In fact, it's one of the only toxic birds in the world. There's something even weirder about this bird. It has the same kind of poison as dart frogs that live far away in South America.

Scientists suspect the poison comes from toxic beetles. Both the birds and the frogs eat these beetles. The toxins then end up in the birds' colorful feathers. This chemical defense may protect the birds. It may keep away lice and other parasites.

Paradise for Birds

More than 700 other species of birds live on New Guinea, too. The world's largest pigeon lives here. Feathers rise from its head like a lacy crown. A bird that laughs lives here, too. So does a bird with whiskers like a cat's.

All over the island, they boldly squawk, dance, and show off their colors. Their wild ways and looks come from living in a special place. From its plentiful food to its lack of predators, New Guinea is a paradise for birds.

WORDWISE




camouflage: colors and markings that animals use to hide by blending into their environments

competition: a relationship between living things in which they must compete for such basic needs as food and space

endemic: found only in one area

species: a category of living things that are similar to one another





Social Studies

COMPREHENSION STRATEGY:

Combine what you already know with what you read to form new ideas about how inventions change the world.



EUR

How the invention



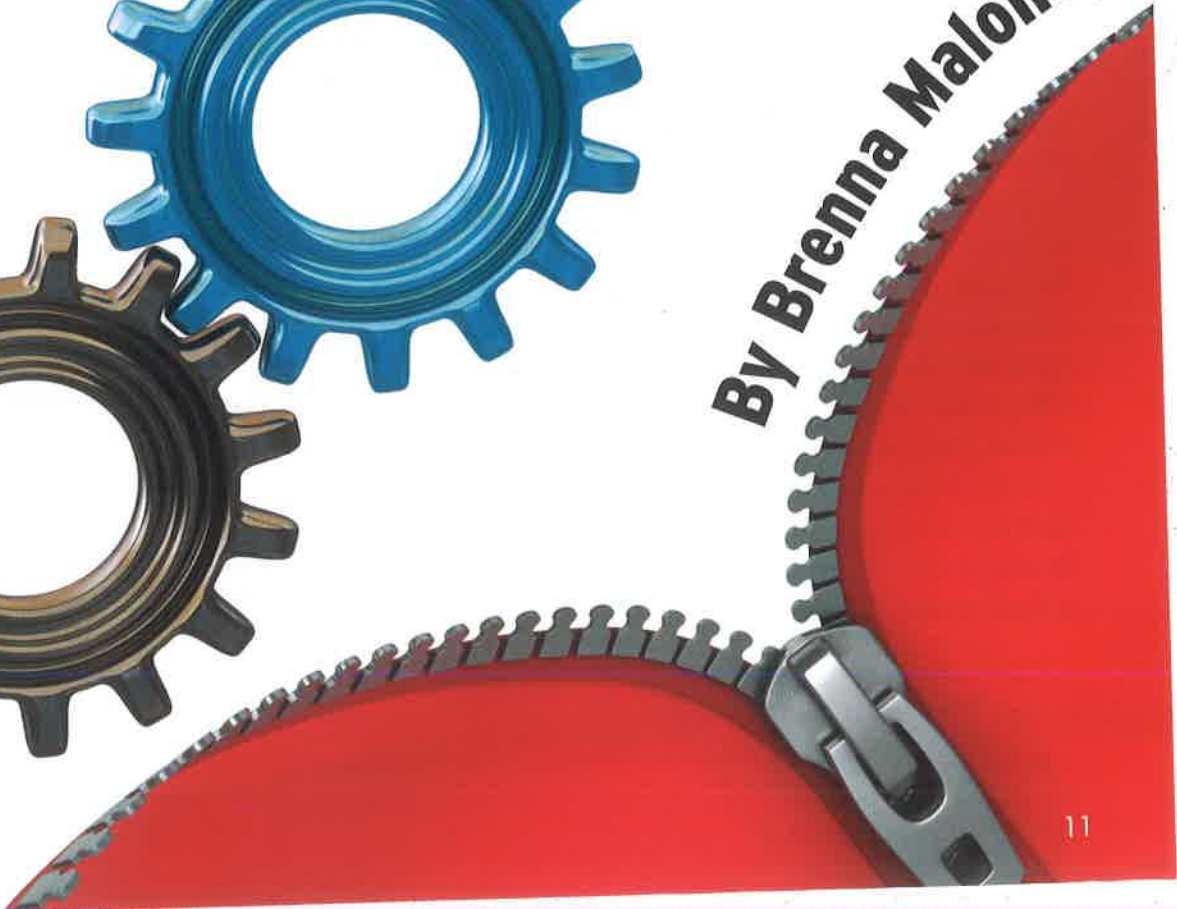


WEEKKA!

of everyday objects changed the world.



By Brenna Maloney



Chester Greenwood had a terrible problem. He lived in Maine, where winters are frosty. His ears were often cold.

Other kids wrapped wool scarves around their heads. This was out of the question for Greenwood. Wool made him itch.

One bitter day in 1873, Greenwood went ice-skating on a pond near his home. His ears started burning from the cold. Suddenly, he had a great idea.

He ran home and twisted some wire into two loops. He asked his grandmother to sew fur onto them. He ran back to the pond and put the earmuffs over his ears.

They worked! Greenwood's ears stayed warm. Later, he added a spring that fit over his head and held the earmuffs in place.

It was a simple **invention**, but one that had everyone talking. Soon everyone wanted a pair of Greenwood's "Champion Ear Protectors."

Trying Something New

Greenwood was only 15 years old when he made his first invention. Like many inventors, he had a problem to solve, and he solved it. To invent something is to create something new. It can be a thing, a way of doing something, or even an idea.

Throughout history, people have made inventions that changed the world. Some inventors got lucky and stumbled into a great discovery. Others tried and failed and tried again until they got their inventions right. Others improved something that already existed, creating something better.

Behind every invention, there is a story. Each invention has an inventor and a reason for why it was created. Let's take a look at a few of these stories.

Simple and Complex

Some inventions are very simple. Take the fishhook. It's just a piece of curved wire with a sharpened end. Yet for thousands of years, people have used it to catch dinner. It's been around so long, no one really remembers who invented it.

The earliest hooks were made of shell. Over time, fishermen made many different kinds of hooks. Some were carved from horns. Others were made from wood, thorns, and even the leg bones of dead fishermen. No matter what fishhooks are made from, the basic design is the same.

Other inventions are more complex. Take the traffic light, for example. Garrett Morgan invented it in 1923. Morgan was an inventor and a businessman. His most important invention to date had been a type of gas mask. Firefighters used it to protect their lungs.

Everyone used Morgan's next invention. Traffic in the 1920s could be a nightmare. City roads were crowded and chaotic. People on foot shared roads with horse-drawn carts. Cars and bicycles clogged the roads, too.

Morgan's traffic light didn't work like the ones used today. It had arms that raised and lowered to show "Stop" and "Go" signs. His invention controlled traffic by giving everyone a turn. It let people on foot cross safely, too. Morgan's invention saved lives.

Catching fish is easier
with a fishhook.



See a Need, Fill a Need

The driving force behind many inventions is to fill a need. These inventions are meant to make life easier or better. Margaret Knight's invention did just that. She invented a machine that made bags with square bottoms.

Knight worked in a factory in the late 1860s. The factory made flat bags. They looked like envelopes. Knight thought that a bag with a square bottom might be more useful for carrying groceries. At the time, such a bag could be made, but only by hand.

Knight studied the machines in the factory. She learned how each one worked. Then she studied how the bags with flat bottoms were made by hand.

She took notes on what she saw. She also sketched her own ideas. Her goal was to make one machine that could cut, fold, and paste a paper bag from start to finish. Knight spent two years working on her invention. At last, she had a **model** that worked.

Knight's machine changed the way people shopped. Shoppers didn't have to use heavy, wooden crates to haul their groceries any more. Nor did they have to squeeze all their food into narrow bags. Suddenly, grocery shopping got a whole lot easier.

Knight was awarded a **patent** for her invention. A patent is an official paper. It gives inventors the right to be the only one to make, use, or sell their inventions.

Carrying food became easier with this type of bag.



The invention of the traffic light helped to save lives.



Close, But Not Quite

Knight's paper bag machine filled a need. Yet filling a need doesn't always mean an invention will be used.

In 1903, Andrew Jackson, Jr., saw a need, too. He invented eyeglasses for chickens.

The glasses weren't made to improve the chickens' eyesight. They were safety goggles.

Chickens tend to peck at anything that annoys them or gets in the way of their feeding. In a crowded chicken coop, there's bound to be fights. Jackson thought his glasses would protect chickens from being poked in the eyes by other chickens.

Nobody asked the chickens, though. They had no interest in wearing glasses. Farmers had a hard time keeping them on the chickens.

As an inventor, Jackson isn't alone. There are a lot of strange inventions that never quite took off. There's the parakeet diaper and the vacuum haircutting helmet. There's even an alarm clock that squirts the sleeper in the face.



Chickens didn't want to wear Jackson's invention.

Thomas Edison worked for years to invent a light bulb.



Try, Try Again

Being an inventor takes a lot of patience. Few inventors get things right the first time. No one understood this better than Thomas Alva Edison. For nearly three years, Edison and his team worked on creating the light bulb.

It was frustrating work. The team made many **prototypes**, or early versions, of the bulb. They always failed. The bulb got too hot. The bulb burned out too quickly. The bulb didn't shine brightly enough.

Some team members got discouraged. Not Edison. After each test, he was more determined. "That's one more way it won't work, so we're closer to a solution," he would say to his team. At last, Edison found the right combination of materials. The bulb was cool enough, long lasting, and bright enough.

Room for Improvement

Some inventions are improved over time. People think up different ways to make them, or they use better materials. The toothbrush is a good example.

Throughout history, people have used all sorts of tools to brush their teeth. They've used frayed twigs and bird feathers. They've even used porcupine quills.

The Chinese were the first to use stiff pigs' hairs for bristles. They used bamboo or bone for a handle. The invention of a material called nylon in the 1930s helped create the toothbrushes we use today.



The microwave oven was invented by mistake.

Happy Accidents

Accidents happen, and sometimes they can lead to inventions. One afternoon in 1946, Percy Spencer was working in his lab. He was trying to create a powerful radar set for airplanes. During a test of a new device, something strange happened. The candy bar in Spencer's pants pocket melted.

Spencer wondered why the candy was melting. He also wondered what would happen if he put other items in front of the device. Next, he tried a bag of corn kernels. To his surprise, popcorn sputtered, cracked, and popped all over the lab.

Both the candy and the popcorn were being exposed to energy. Spencer made a metal box to hold this energy. When he put food inside, the energy cooked it. Spencer had invented something that would revolutionize cooking, the microwave oven.

Looking for a Use

Inventors don't always know what to do with their inventions. That's what happened with the invention of self-sticking notes.

In 1968, Spencer Silver developed a type of glue for his company. It was sticky, but not too sticky. He couldn't think of a good use for it. For years, no one used the formula for the glue.

One day, a coworker named Arthur Fry remembered the glue. Fry liked to sing. He used bookmarks in his music book to mark his songs. Yet he often lost his place because the bookmarks fell out. What he needed, he thought, was a better marker.

Changing the World

Fry put a little of Silver's glue on small slips of yellow paper. The self-sticking notes worked perfectly. Today, this invention comes in dozens of colors, and is sold in more than 100 countries.

Inventors don't always know what will come from their work. Many are driven to solve problems. Some want to make a better world or an easier life for those around them. Some create their inventions by accident.

Today, in living rooms and labs all around the world, inventors are hard at work. They are mixing their curiosity with their creativity. Through hard work and persistence, they may create something new. Who knows what the next invention will be?

Wordwise

invention: an original device, system, or process

model: a small object, that represents in detail another, often larger, object

patent: an official paper that gives an inventor the right to be the only one to make, use, and sell an invention for a certain time

prototype: an early model of something



Earth Science

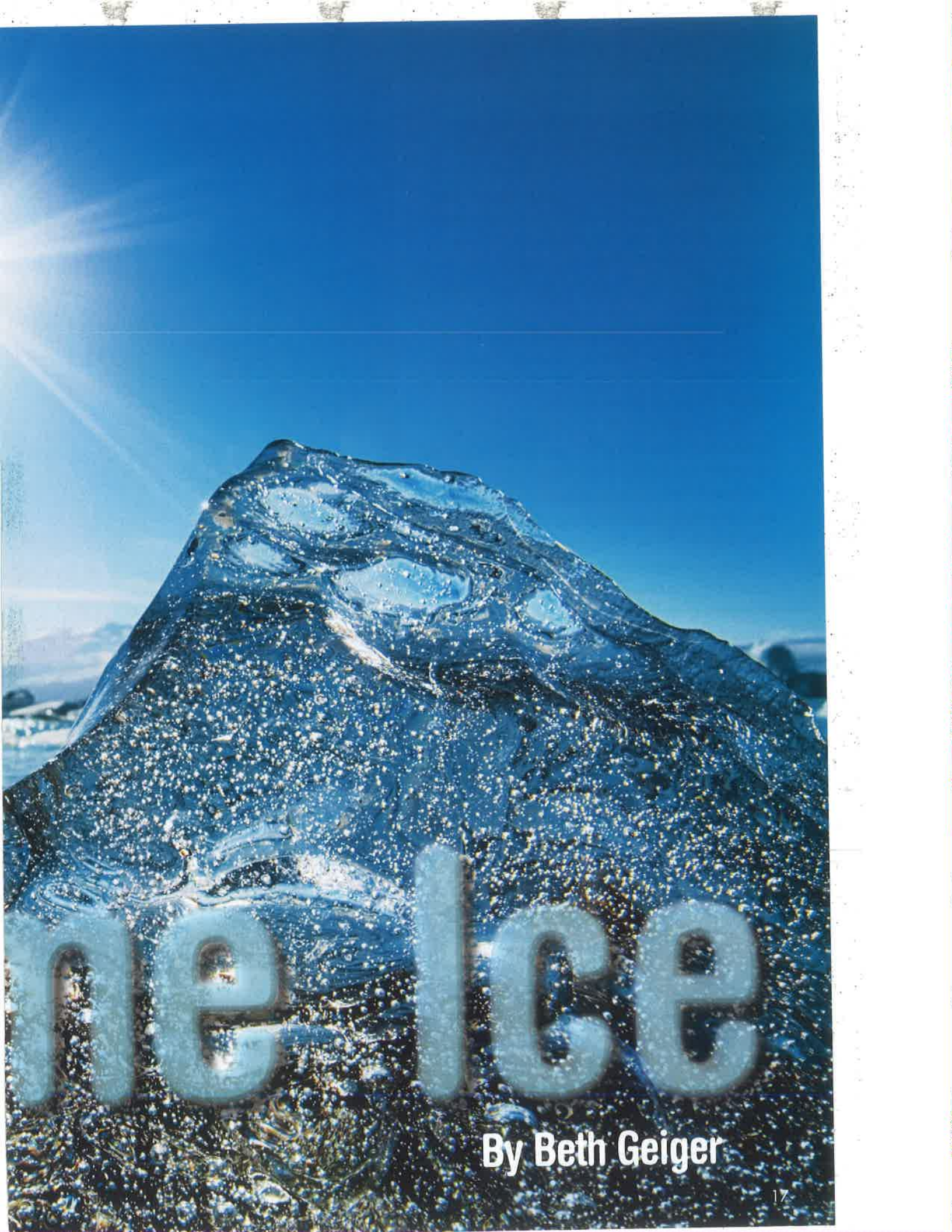
COMPREHENSION STRATEGY:

Ask questions as you read.
Look for their answers.



Follow a scientist along
an ancient river of ice.

Extreme



melting ice

By Beth Geiger