THE BOOK OF THE UNKNOWN

by Harold and Geraldine Woods
illustrated by Joe Mathieu

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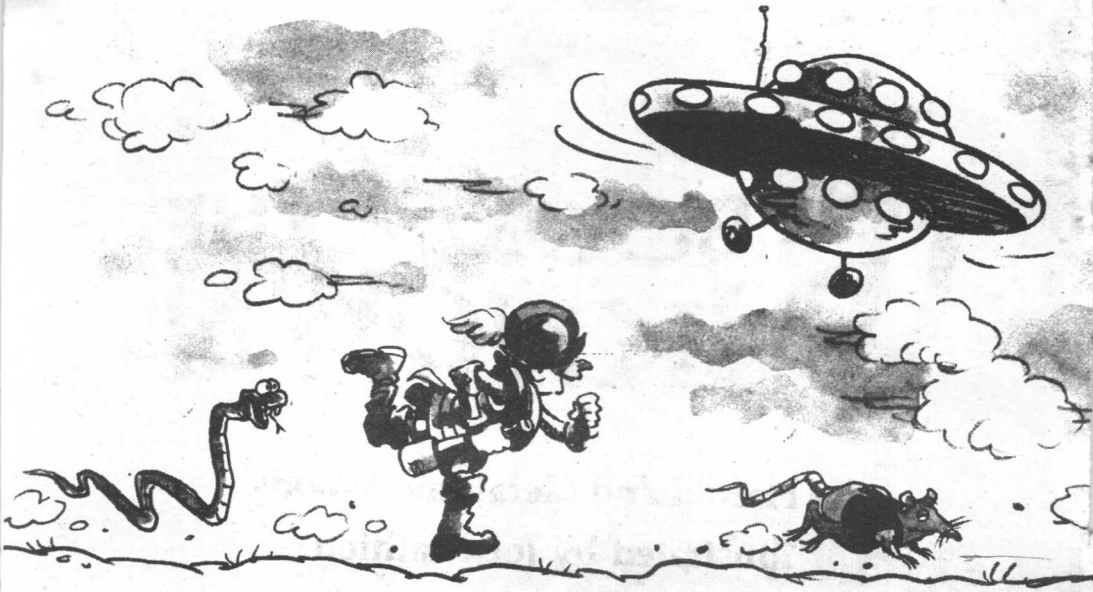

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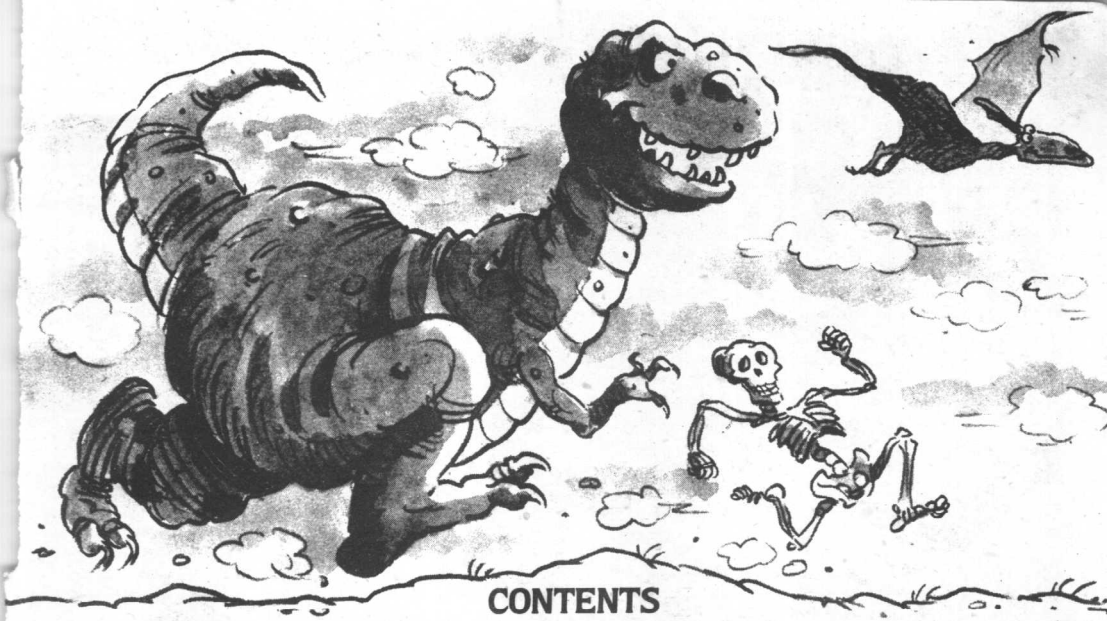

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INTRODUCTION

Many books tell you what we know about the world, but this book is different. It tells you what we *don't* know. In a way it's a book of unanswered questions. Such as . . .

Did Chinese explorers come to America thousands of years before Columbus?

Can some people really read minds?

Are there any monsters on Earth (or creatures on Mars)?

Will we ever be able to talk to animals?

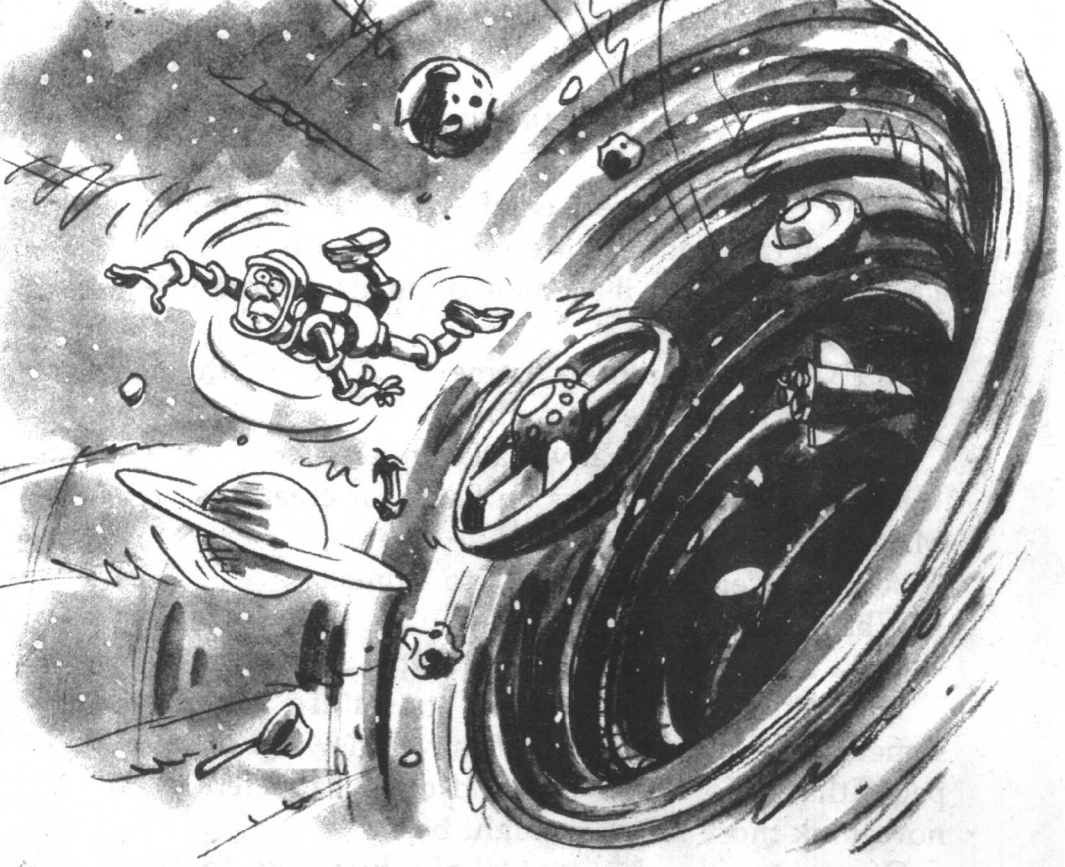
What's inside a black hole?

Did a meteor from space kill all the dinosaurs?

This book is also a book of the future, because someday these questions will have answers. In the pages that follow, you will find out what scientists now think those answers might be.

Of course, the answers might turn out to be wrong. That has often happened in the past. At one time just about everyone thought the world was flat. Now we find this idea completely ridiculous. Perhaps fifty years from now someone will read this book and think, "How could anyone believe *that*?"

This book may also turn out to be about *your* future. The scientists of tomorrow are your age today, and some of them may already be choosing the questions they'd like to answer. Perhaps you'd like to choose one too. Then maybe someday *you'll* change an unanswered question into an answered one.



WHAT ARE BLACK HOLES?

Can you imagine a doorway in the sky? A doorway to tomorrow? Some scientists think there might be such things, hidden inside black holes.

A black hole is created when a large star burns out. Like our sun, stars are incredibly hot furnaces that burn their own matter as fuel. When most of the fuel is used up, the star begins to die.

The death of a star is not a quiet event. First there is a tremendous explosion. As its outer layer is blasted off into space, the dying star shines as brightly as a billion suns.

After the explosion gravity pulls in what's left of the star. As the outside of the star sinks toward the center, the star gets smaller and smaller. The material the star is made of becomes tightly packed together. A star is so dense that a teaspoon of matter from it weighs billions of pounds.

The more the star shrinks, the stronger the gravity inside it becomes. Soon the star is very tiny, and the gravity pulling it in is unbelievably strong. In fact, the gravity is so strong that it even pulls light into the star! Since all the light is pulled in, none can go out. The star is black, the color that exists when there is no light. A black hole is born!

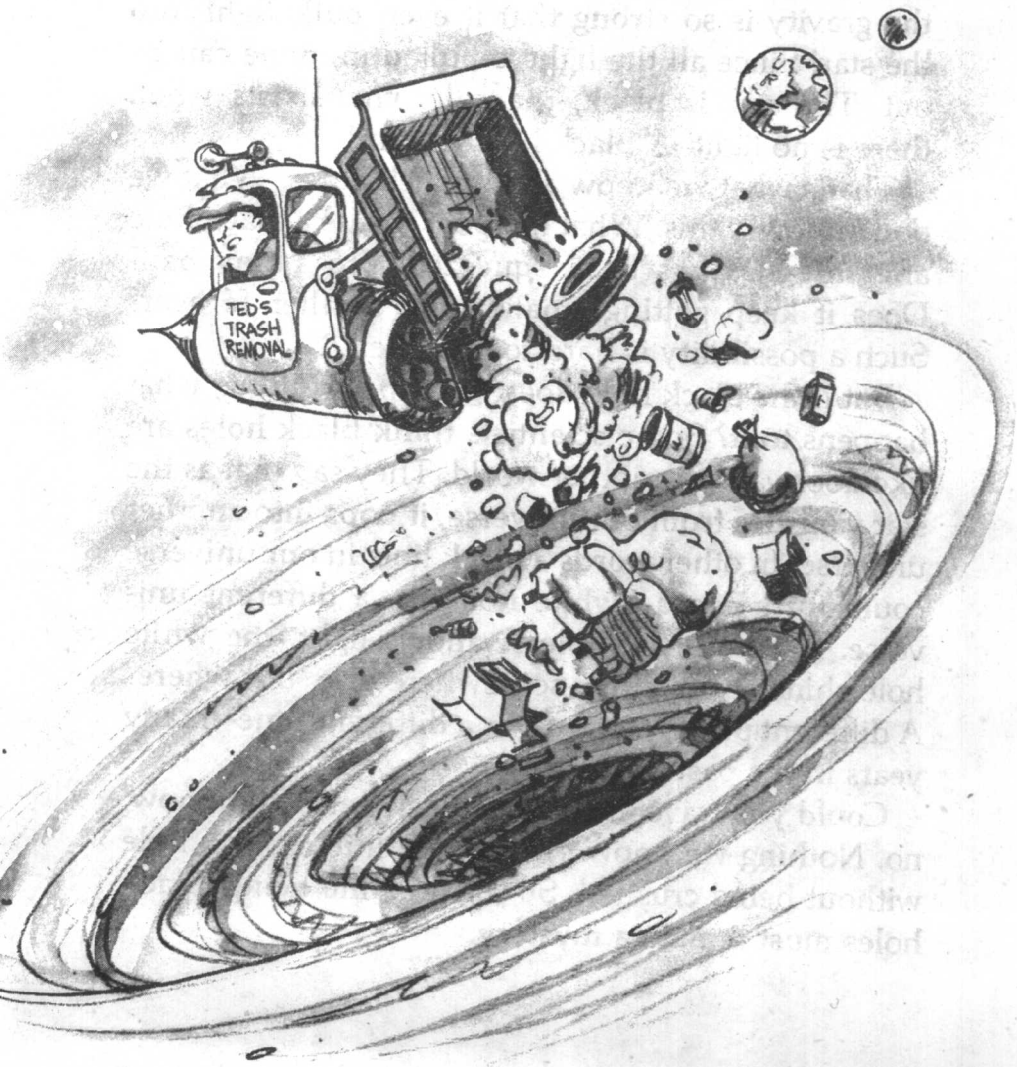
That's what we know about black holes. What we don't know is this: What happens inside a black hole after the star has been squeezed into a tiny ball? Does it keep getting smaller and smaller forever? Such a possibility is hard to imagine.

But if the black hole doesn't keep shrinking, what happens to it? Some scientists think black holes are like doorways to another world. They say that as the star vanishes from our universe, it pops into another universe. In other words a black hole in our universe could turn into a "white hole" in a different universe. As the black hole swallows light, the white hole shines brilliantly—somewhere else. But where? A different place, perhaps, or a different time—many years in the past or future.

Could you travel through a black hole? Right now, no. Nothing we know of could go into a black hole without being crushed. So for the time being, black holes must remain a mystery.

Putting Black Holes to Use

Black holes are a mystery—but that hasn't stopped scientists from dreaming about them. One scientist suggested that in the future we might tap the power of black holes. They would supply all of Earth's energy needs, with plenty to spare. Another scientist wondered if a black hole could someday be used to swallow earthly waste—a sort of gigantic garbage disposal in the sky!



WHO REALLY DISCOVERED AMERICA?

Move over, Columbus. The starring role of "Discoverer of America" is being handed out again. If recent theories prove true, Chinese, Hindus, Arabs, and many other people are ahead of you in line!

Of course, the real honor has to go to Native Americans, who were living in America as long as forty thousand years ago. But we usually don't call them discoverers. That title is given to the first person to arrive in the Americas *after* the first people settled here.

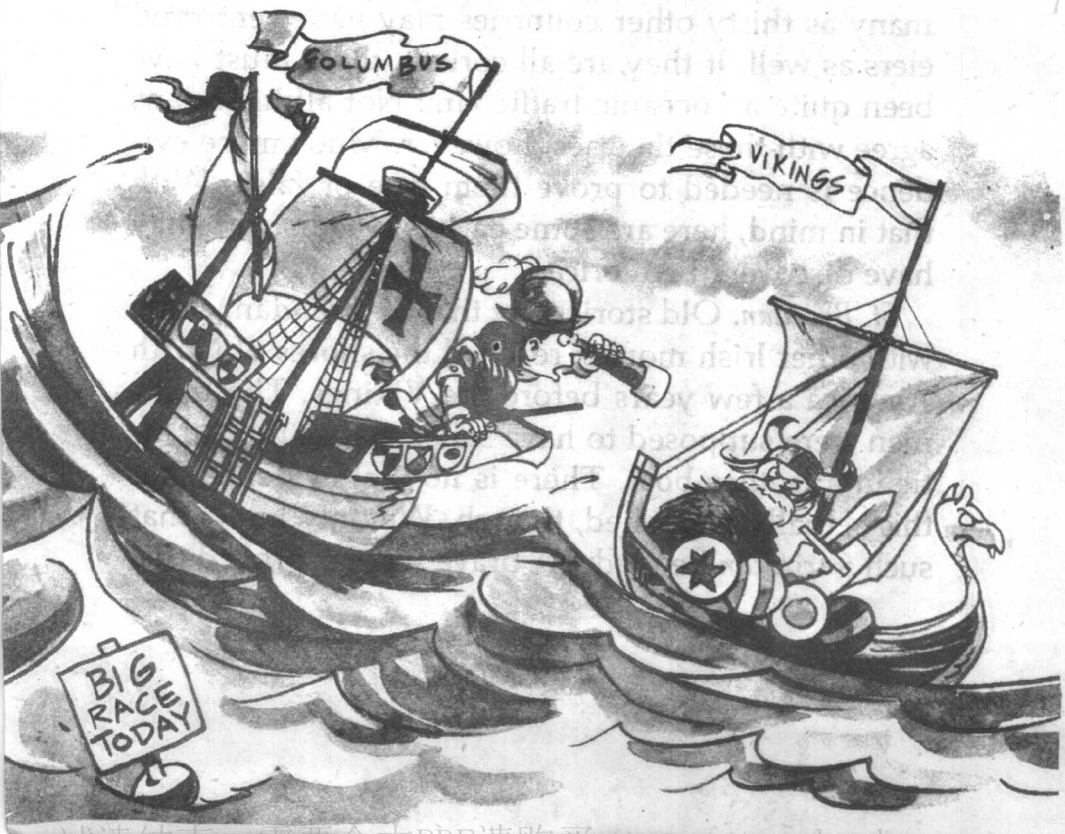
For a long time we thought that person was Columbus. Now we know that Vikings from Scandinavia sailed to America almost five hundred years before Columbus. According to some scholars, as many as thirty other countries may have sent travelers as well. If they are all correct, there must have been quite an oceanic traffic jam! Not all historians agree with these theories, however. Much more evidence is needed to prove them true or false. With that in mind, here are some early voyagers who may have discovered America.

St. Brendan. Old stories say that St. Brendan, along with other Irish monks, reached the shores of North America a few years before the Vikings. The Irishmen were supposed to have sailed across the Atlantic in a leather boat. There is no real evidence that this actually happened, though. We only know that such a trip *can* be made. A brave scholar proved this

in 1977 by sailing in a leather boat from Ireland to Canada.

Arabs. Arabs from the Middle East may have sailed to the Caribbean islands and the shores of South America over four thousand years ago. According to some historians, they could have traveled in boats made of bundles of long, tough plants called reeds. (A boat made of plants sounds impossible, but it isn't. In some Arab countries reed boats are still used. A group of men sailed one from Morocco to the Bahamas in 1970. It's easier to cross the Atlantic than most people think!)

So the ancient Arabs could have made the trip. But did they? Perhaps. There are many similarities between the customs of the two areas. For example, both peoples built pyramids with giant steps on



their sides. Both made boats in the same way. The styles of clothing, footwear, and pottery were similar. In addition, according to one old manuscript, ancient Arabs visited an island called Saale. There they found beardless men whose breath was like the smoke of burning wood. Some historians think that the Indians of the Caribbean were the men of Saale. They had no beards, and they smoked tobacco long before the Europeans did. Their "burning breath" may have been tobacco smoke!

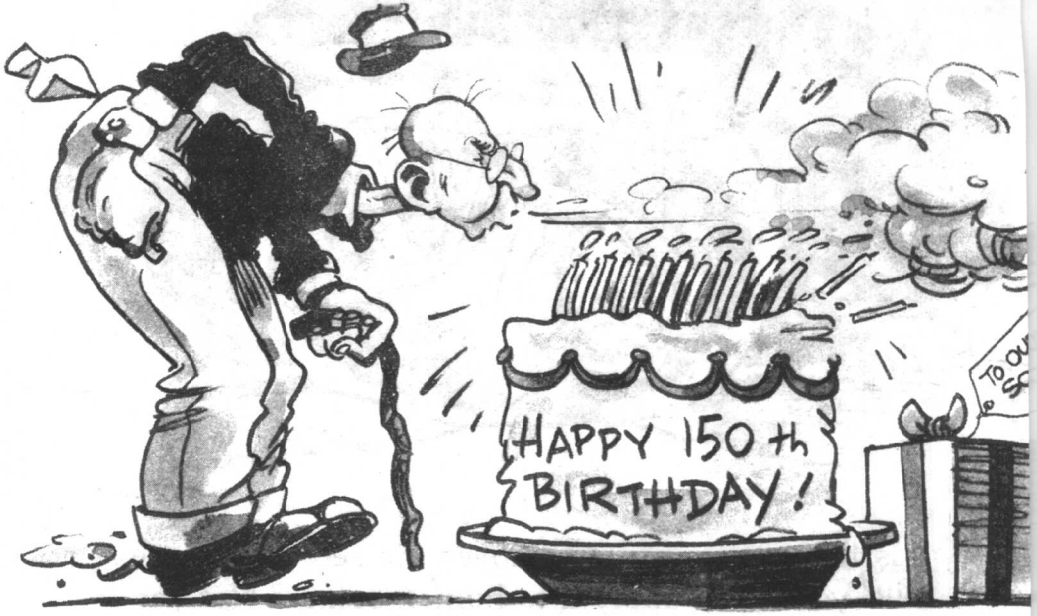
Chinese, Polynesians, Hindus, Vietnamese, Koreans, Japanese. The Pacific Ocean also may have been crossed in ancient times. The list of possible travelers includes Chinese, Polynesians, Hindus, Vietnamese, Koreans, and Japanese. There is some evidence for these trips. Two doughnut-shaped

stones were discovered off the coast of California. Some experts think they were used by ancient Chinese sailors as anchors for their boats. Japanese-style pottery has also been found in Ecuador, and statues with oriental features have been seen in ancient Mexican ruins.

Asians and Americans also have some similar customs and words. The ancient Chinese and Mexicans, for example, believed in dragons. They valued jade more than gold and kept records by tying knots in string. People in western Mexico call chickens by the Japanese name *totori.* Both Hindus and Brazilians call certain rafts *jangadas.*

There is evidence in nature for the possibility that Asians came to America thousands of years ago. Several plants that grow on one side of the ocean have been found growing on the other. For example, there is a type of peanut that originally grew only in America. Yet historians have found evidence that it has been growing in China for the last three thousand years or so. Sweet potatoes were common in Polynesia long before Columbus' time. Yet they are a native American plant. The theory is that travelers to America carried the seeds back home across the ocean.

Before we pick a day to honor St. Brendan or an ancient Chinese explorer, we'll need more evidence. Historians aren't easily satisfied. They usually demand to see the remains of a village or a sunken ship as proof. So the question "Who really discovered America?" will have to stay unanswered for a while.



CAN I LIVE TO BE 150?

Nothing lives forever, right? Wrong. Unbelievable as it may seem, there are some animals that do not die. They are very simple creatures, too small to be seen without the help of a microscope. While most animals, including human beings, have billions of cells in their bodies, these little death defiers have only one. Each cell lives for a certain length of time, and then it splits to form two new animals. The adult animal turns itself into two babies! All of the new cells eventually divide, but none die unless they are killed by accident or disease.

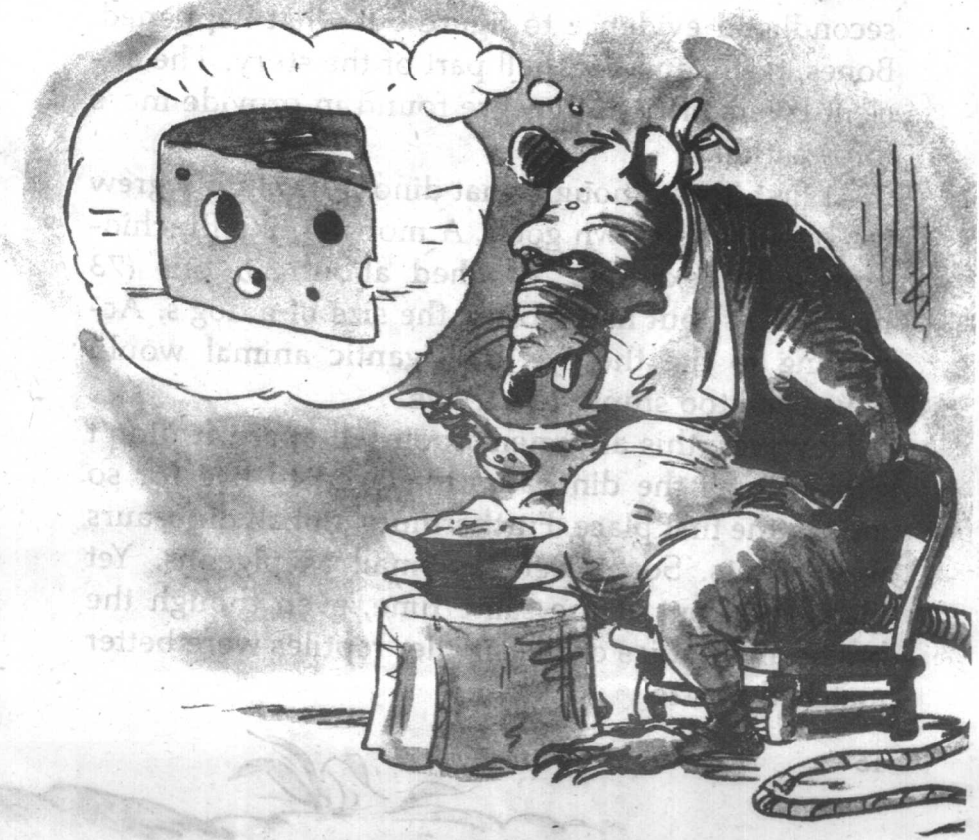
There are other cells that avoid aging. Cells from old mice have been transplanted into young mice over and over again each time the body they are in wears out. In their new bodies the old cells seem to begin life over again. They divide and grow just like young cells.

Is there any way to discover the secret of these cells' youth and apply it to human beings? Not yet. But scientists are still searching, and they may be closer than ever to finding an answer. Of course, some ways to increase your chances of living longer, like good food and exercise, have been known for years. Progress against killer diseases has already raised the human life expectancy to more than seventy years, compared with less than fifty years at the turn of the century. Now scientists are studying other ways to combat aging.

One researcher found that keeping fish at below-normal temperatures helps them live longer. Rats, kept on a special diet their whole life, increased their life span by 25 percent. Some scientists removed a part of the brain called the pituitary from elderly mice. The mice acted younger, though their life span remained the same. This suggests that there might be a chemical produced by the pituitary that causes aging. In fact, one researcher thinks he has found such a chemical in the pituitaries of cattle. He calls it DECO.

None of these experiments is likely to help elderly human beings, however. Most people would probably not accept being chilled in order to live longer. And it would take a lot of willpower to stay on a diet every day of your life! Nor is it practical to remove human pituitaries. The pituitary produces chemicals the body needs for good health. In the experiment with mice these chemicals had to be removed from other animals and injected into the mice without pituitaries. This could never be done with people.

Still, if a chemical that causes aging does exist, we might be able to counteract it someday. That might keep people young well into their sixties and seventies. Then we can work on the final life process—death itself!



WHY DID THE DINOSAURS DIE OUT?

Dinosaurs lived on Earth for over 140 million years. Then, about 65 million years ago, they died out. That's long before the first human beings appeared—only 50,000 years ago.

What puzzles people today is *why* all the dinosaurs died. Since there were no human beings around to witness the event, scientists can only use secondhand evidence to figure out what happened. Bones, teeth, and eggs tell part of the story. The ancient layers of rock they are found in provide more information.

At first it was thought that dinosaurs simply grew too big for their own good. A monster like Brachiosaurus, for example, weighed about 80 tons (73 metric tons) but had a brain the size of a dog's. According to the theory, the gigantic animal would have been too stupid to survive.

However, this argument soon fell apart. It didn't explain how the dinosaurs managed to live for so long in the first place. Furthermore, not all dinosaurs were giants. Some were as small as pigeons. Yet many died out at the same time, even though the brains and bodies of the smaller reptiles were better matched in size.