

# Awake!

SEPTEMBER 8, 2005

## Cooperation **VITAL TO LIFE**



# Awake!

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*Cover: A red-billed oxpecker perched atop a Cape buffalo. This bird eats parasites living on its host and even hisses to warn of possible danger*



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Come see Mount Etna, the highest active volcano in Europe!

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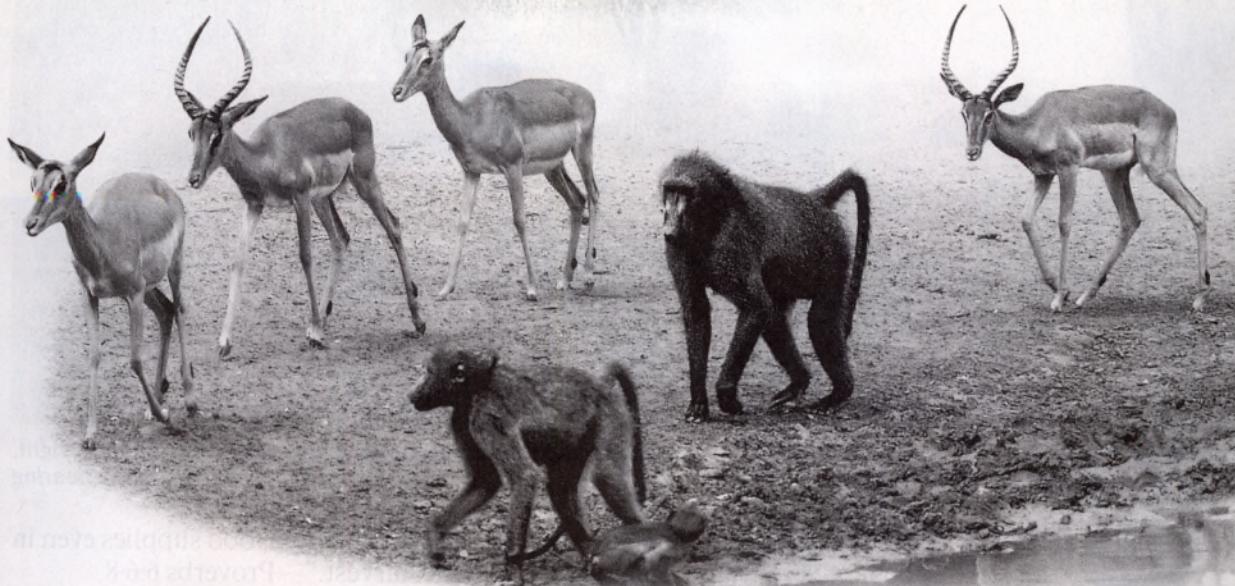
# Cooperation **VITAL TO LIFE** 3-12

Could the cooperation that exists in nature be a foregleam of the harmony that will exist under the rule of God's Kingdom?

*Humpback whales use teamwork to feed*

© Brandon Cole





# THE ROLE OF Cooperation in Nature

*In nature, “staying alive is as much about bonding with your neighbors as it is about growing and reproducing.”*

—“Liaisons of Life.”

THE ocean was calm and quiet. The only disturbance was the din of dozens of seabirds. Their excitement indicated that something was happening below the surface. Suddenly, bubbles appeared, gradually forming a white ring. Moments later, two massive, dark forms appeared in the clear water in the middle of the ring. They were two humpback whales rising from the briny depths, their baleen-lined mouths agape. At the surface, they closed their massive jaws, spouted, and dived to repeat the performance.

Above: Baboons and impalas form a mutual alarm system

The two whales were working as a team corralling and consuming masses of shrimp-like krill. As if performing an underwater ballet, the 40-ton mammals dived below the crustaceans and swam in a tight circle while releasing air from their blowholes. This ingenious maneuver formed a “net” of bubbles around the krill. The whales then ascended vertically through the middle of their “net” and feasted on their prey.

On the plains of Africa, baboons and impalas often work together. “The two species form a mutual alarm system,” says the journal *Scientific American*. The impalas’ good



**A partnership exists between ostriches, with their keen eyesight, and zebras, with acute hearing**

sense of smell complements the baboons' keen eyesight, making it hard for predators to approach undetected. A similar partnership exists between ostriches, which have keen eyesight, and zebras, which have acute hearing.

These are just some of the countless examples of cooperation in the living world around us. Indeed, mutual support can be seen at every level of life, from microbes to man

and between similar and dissimilar species. Thousands of years ago, King Solomon, who was a student of nature, observed the lowly ant. He wrote: "Go to the ant, you lazy one; see its ways and become wise. Although it has no commander, officer or ruler, it prepares its food even in the summer; it

**Ants are a model of cooperation**

has gathered its food supplies even in the harvest."—Proverbs 6:6-8.

Ants are a model of cooperation, industry, and order, often working together to drag home objects much larger than themselves. Some ants will even assist injured or exhausted members of the colony back to their nest. In view of these traits, it is little wonder that Solomon chose ants as a model for us to imitate.

In the following articles, we will see how cooperation is a fundamental theme in the 'book of nature,' making life, including human life, possible. We will also learn about the opposite role humans play in exploiting the natural world, polluting it, and driving its creatures to extinction. Will the Creator allow this trend to continue forever?

## **Awake!®**

**THIS JOURNAL IS PUBLISHED** for the enlightenment of the entire family. It shows how to cope with today's problems. It reports the news, tells about people in many lands, examines religion and science. But it does more. It probes beneath the surface and points to the real meaning behind current events, yet it always stays politically neutral and does not exalt one race above another. Most important, this magazine builds confidence in the Creator's promise of a peaceful and secure new world that is about to replace the present wicked, lawless system of things.

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# WHY Cooperation Is Vital

*"No organism is an island—each one has a relationship to other organisms, directly or indirectly."*  
—*"Symbiosis—An Introduction to Biological Associations."*

THE “web of life”—how fitting that expression is, for life truly is a network of interconnected and interdependent organisms! Humans are very much a part of that web. For evidence, you need not look any further than your own body. Quietly at work in your digestive tract, an army of friendly bacteria help you to stay healthy by destroying harmful invaders and by aiding in digestion and in the production of essential vitamins. In return, you, the host, provide the bacteria with food and a supportive environment.

Similar alliances occur in the animal kingdom, especially with ruminants—animals that chew the cud—such as cattle, deer, and sheep. Their rumen, the first part of their multichambered stomach, hosts a veritable ecosystem of bacteria, funguses, and protozoa. By means of fermentation, these microbes break down cellulose, a fibrous carbohydrate found in vegetation, into various nutrients. Even certain insects that eat cellulose, including members of the beetle, roach, silverfish, termite, and wasp families, employ bacteria in the digestive process.

Such close cooperation among dissimilar organisms is called symbiosis, which means “living together.”\* “Such alliances are fundamental to the development of every living system,” says Tom Wakeford in his book *Liaisons of Life*. Consider soil for a moment, for that is where many of earth’s living systems originate.

\* There are three general categories of symbiosis: *mutualism*, when both organisms benefit; *commensalism*, when one benefits without harming the other; and *parasitism*, when one benefits at the expense of the other. This article draws on examples of mutualism.

**In its rumen, a cow hosts a veritable ecosystem of bacteria, funguses, and protozoa (magnified inset)**



Inset: Melvin Yokoyama and Mario Cobos, Michigan State University

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## **Soil—Practically a Living Organism!**

The Bible states that soil has power. (Genesis 4:12) This is a sound statement, for healthy soil is much more than lifeless dirt. It is a complex medium for growth, bursting with organisms. Just two pounds may contain well over 500 billion bacteria, one billion fungi, and up to 500 million multicellular creatures, from insects to worms. Many of these organisms work together, breaking down organic matter—such as leaf litter and animal waste—while extracting nitrogen, which they convert into forms that plants can absorb. They also change the carbon into carbon dioxide and other compounds that plants need for photosynthesis.

Legumes, such as alfalfa, clover, peas, and soybeans, have a special affinity with bacteria, in that they allow them to “infect” their root systems. But instead of harming the plants, the bacteria stimulate the roots to grow tiny nodules. There the bacteria set up house and grow up to 40 times larger, becoming *bacteroids*. Their job is to “fix” nitrogen into compounds that legumes can use. In return, the bacteria receive food from the plants.

Fungi, or molds, also play a key role in plant growth. In fact, virtually every tree, shrub, and grass has a secret, underground liaison with fungi. These organisms also “infect” roots, where they help plants to absorb water and important minerals, such as iron, phosphorus, potassium, and zinc. In exchange, the fungi, which cannot produce

their own food because they lack chlorophyll, absorb carbohydrates from the plant.

A plant that is highly dependent on fungi is the orchid. In the wild the alliance begins with the orchid’s dustlike seeds, which need help to germinate. Fungi also help the mature plant by compensating for its rather puny root system. Fungus, says Wakeford, “forms a large and dynamic foraging web that ensures the orchid’s nutritional needs are fully met. In turn, [the fungus] may receive small amounts of vitamins and nitrogen compounds from the plant. The orchid’s generosity has well-defined limits, however. The plant keeps the fungus in check with natural fungicides, should it show signs of attempting to stray upward from its normal home inside the roots, to colonize the orchid’s stem.”

With flowering plants, liaisons within the soil are only part of the story; they also make other, more visible alliances.

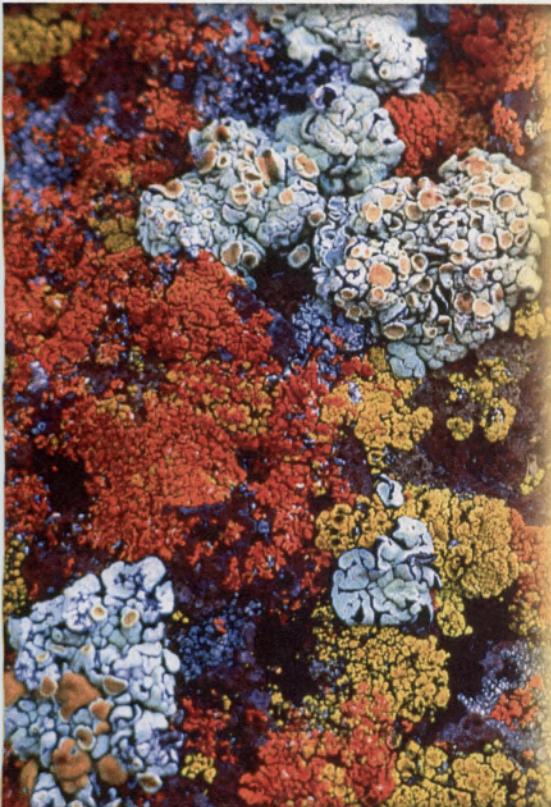
## **Partnerships for Propagation**

When a bee alights on a flower, it enters into a symbiotic partnership with its host. The bee receives nectar and pollen while the flower gets a dusting of pollen from other blossoms of the same kind. This alliance enables flowering plants to reproduce. After being pollinated, flowers cease producing food. How do insects know that the “diner” is now closed? Flowers “tell” them in various ways. They might lose their scent, drop their petals, or change their orientation or color—perhaps becoming duller. This may disappoint us, but it is an act of great “courtesy” to hard-working bees, who can now focus their efforts on plants that are still open for business.

In recent years the numbers of pollinators, especially bees, have been in steep decline in some areas. This is an ominous trend, for nearly 70 percent of flowering plants rely on insect pollinators. Furthermore, 30 percent of our food comes from bee-pollinated crops.

## **In Our Next Issue**

- **The Global Housing Crisis  
—Is There a Solution?**
- **Chat Rooms—What Should  
I Know About Them?**
- **The Enduring Appeal of Gold**



## A Dual Organism

Those crusty, gray or green blotches you often see on rocks and tree trunks are probably lichens. Some sources say there may be up to 20,000 varieties! Lichens may look like a single organism, but in reality they are a composite of a fungus and an alga.

Why do the two organisms unite? Funguses cannot produce their own food. So by means of microscopic threads, a fungus embraces an alga, which uses photosynthesis to make sugars. Some of these sugars leak out through the walls of the alga and are absorbed by the fungus. The alga, in turn, receives moisture from its host and is protected from excessive sunlight.

With a touch of humor, one scientist summed up lichens as "fungi that have discovered agriculture." And they are good at it, for lichens, says the book *Liaisons of Life*, "cover ten times as much of the earth's surface as tropical rain forests." They live from the Arctic to the Antarctic and even thrive on the backs of insects!

### Ants in the Garden

Certain ants also enjoy a symbiotic alliance with plants. In exchange for nest sites and food, these insects might pollinate their host, disperse its seeds, help provide its nutrients, or protect it against herbivores, whether other insects or mammals. A species of ant that sets up house in the hollow thorns of the acacia tree even destroys threatening vines, which it discovers when patrolling the territory around the tree. The acacia says thank you for this first-rate gardening service by giving the ants servings of sweet nectar.

On the other hand, some ants prefer "animal husbandry," their charges being aphids that secrete sweet honeydew when gently stroked by the ants' antennae. Regarding aphids, the book *Symbiosis* states: "The ants tend these insects like cattle, milking them for food and protecting them from predators." Just as a dairy farmer might put his cows in the barn overnight, ants often carry aphids to the safety of the ants' nest in the evening and return them to the "pasture" in the morning, usually to younger, more nourishing leaves. And we are not talking about just a few aphids. Ants may have

**Bees enable  
flowering plants  
to reproduce**



"herds" that number in the thousands in a single nest!

While still in the caterpillar stage, some species of butterflies are also tended by ants. The large blue butterfly, for example, has a symbiotic relationship with red ants. In fact, it cannot complete its life cycle without their help. As a caterpillar, it rewards its hosts with sugary excretions. Later, when the butterfly emerges from its chrysalis, it leaves the ants' nest safe and unharmed.

### Living Dangerously

If you were a bird, would you bring a live snake into your nest? "Never!" you say. Yet, one species of bird does just that—the screech owl. The snake is called the blind snake. Instead of harming the nestlings, the snake eats ants, flies, and other insects and their larvae or pupae. According to a report in *New Scientist* magazine, chicks raised with

a blind snake in the family "grow faster and are much more likely to survive" than those raised without the company of this living vacuum cleaner.



A bird called the water thick-knee, or water dikkop, does not team up with a mere snake; it likes to build its nest near that of a Nile crocodile—a reptile that preys on certain birds! However, instead of becoming a meal, the water thick-knee serves as a sentry. Should danger approach either its nest or that of the crocodile, the bird will emit warning cries. If the crocodile is away, these cries will bring the reptile charging home.

### Pecked and Sucked Clean

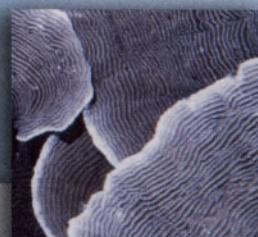
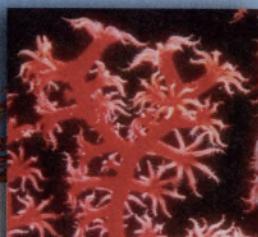
Have you ever seen birds such as cattle egrets or oxpeckers perched on the backs of antelope, cows, giraffes, or oxen, pecking at their skin? Instead of being a nuisance, the birds are actually doing their hosts a big favor

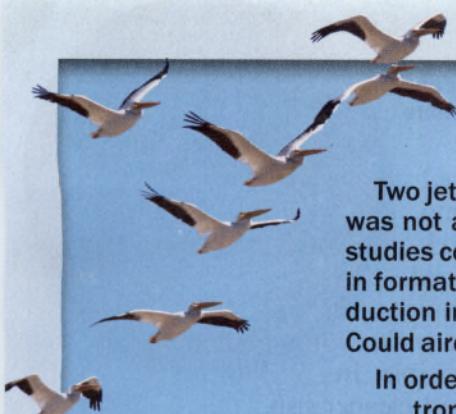
## Coral—A Marvel of Symbiosis

Coral reefs are made up of polyps and algas. Packed into every available spot in polyp cells, algas give corals their brilliant colors. And they often exceed the polyps in weight, sometimes by as much as 3 to 1, making corals more plant than animal! The algas' main function, however, is to photosynthesize organic compounds, 98 percent of which they give to their host as "rent." Polyps need this nutrition not just to survive but also to build reef-forming limestone skeletons.

The algas benefit from the alliance in at least two ways. First, they get food in the form of the polyps' waste products—carbon dioxide, nitrogen compounds, and phosphates. Second, they enjoy the protection of a tough skeleton. Algas also need sunlight; hence, coral reefs grow in clear, well illuminated water.

When coral is subjected to stress, such as a rise in water temperature, the polyps eject the algas and become bleached. Death by starvation may follow. In recent years scientists have observed an alarming increase in coral bleaching around the world.

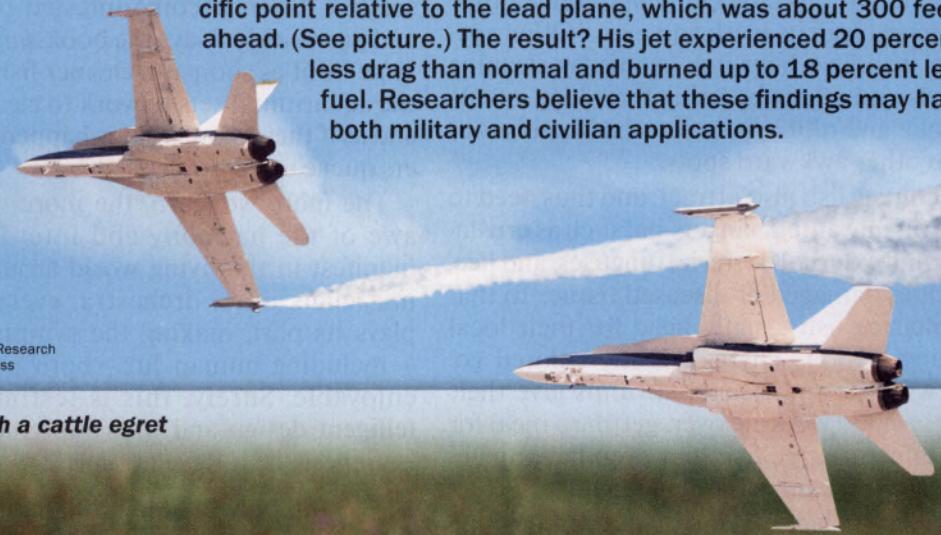




## A Lesson in Cooperation

Two jet aircraft flew across the sky like birds in tight formation. But this was not a routine flight; it was a scientific experiment based on earlier studies conducted on pelicans. Researchers had found that pelicans flying in formation gain extra lift from those ahead, resulting in a 15 percent reduction in heartbeat compared with their heartbeat when flying alone. Could aircraft benefit from the same aerodynamic principles?

In order to find out, engineers fitted a test plane with sophisticated electronics that enabled the pilot to keep his craft within a foot of a specific point relative to the lead plane, which was about 300 feet ahead. (See picture.) The result? His jet experienced 20 percent less drag than normal and burned up to 18 percent less fuel. Researchers believe that these findings may have both military and civilian applications.



Jets: NASA Dryden Flight Research Center; birds: © Joyce Gross

▼ A cow with a cattle egret



by eating lice, ticks, and other parasites that the animals cannot remove on their own. They also eat infected tissue and maggots. Oxpeckers even hiss, alerting their hosts of possible danger.

Because of its aquatic habits, the hippopotamus gets cleaned by both feathered and finned "friends." When a hippo is in the water, fish called black labeos, a species of carp, "vacuum" away alga, dead skin, and parasites—practically anything clinging to the animal. They even clean its teeth and gums! Other species of fish also help out—some by cleaning wounds and others by using their long snouts to probe and nibble between the hippo's toes and in other awkward spots.

Of course, fish also attract, and thus need to be rid of, unwanted hangers-on, such as crustaceans and external bacteria, funguses, and lice, as well as damaged or diseased tissue. To that end, marine fish usually head for their local cleaning station. There, brightly colored gobies, wrasses, and cleaner shrimps give their clients a good working over, getting a meal for their efforts. Large fish may even have an entire team of cleaners servicing them!

Client fish have various ways of signaling their desire to be cleaned. For example, some adopt unusual poses—head down, tail up. Or they might hold their mouth and gills wide open, as if to say: "Come in. I won't bite." The cleaners readily oblige, even if the client

#### **A spotted cleaner shrimp on an anemone**

is a fearsome predator, such as a moray eel or a shark. While being cleaned, some clients change color, perhaps to make parasites more visible. In aquariums without cleaner fish, sea fish "soon become infested by parasites and grow sickly," says the book *Animal Partnerships*. "But as soon as a cleaner fish is put into the aquarium it sets to work to clean them up, and as if they know what is happening the others queue up to be cleaned."

The more we learn, the more we stand in awe of the harmony and interdependence manifest in the living world around us. Like musicians in an orchestra, every organism plays its part, making the symphony of life—including human life—both possible and enjoyable. Surely, this is testimony to intelligent design and to a Supreme Designer!

—Genesis 1:31; Revelation 4:11.

#### **The Only Source of Disharmony**

It is truly sad that humans often manifest a lack of cooperation with the natural world. Unlike animals, which are governed largely by instinct, people are influenced by a variety of factors, ranging from love and other wholesome qualities to hatred and greedy self-interest.

Because humans seem increasingly to be ruled by the latter, many fear for the future of our planet. (2 Timothy 3:1-5) But they fail to take into account the Creator. The outworking of God's purpose for the earth will not only restore a proper balance to nature but also result in unprecedented harmony among *all* creatures, including humans.

#### **A butterfly fish with a small cleaner fish**



# WHEN Global Harmony Will Prevail

HAVE you ever seen a pair of expert ballet dancers, ice skaters, or trapeze artists performing their routines? Their every move is a work of art, reflecting perfect cooperation and coordination. How pleasant it would be if life today were more like that—harmonious and free of friction and conflict. Instead, people are “not open to any agreement,” just as the Bible foretold concerning our time.—2 Timothy 3:1-5.

Yet, in this difficult setting, millions of honesthearted individuals are learning to live in true peace and harmony with one another. How? By accepting the warm invitation re-

corded in the Bible at Isaiah 48:17, 18. It says: “I, Jehovah, am your God, *the One teaching you to benefit yourself*, the One causing you to tread in the way in which you should walk. O if only you would actually pay attention to my commandments! Then your peace would become just like a river, and your righteousness like the waves of the sea.”

When we accept that heartfelt invitation, Jehovah becomes, in a sense, our Benefactor. He shows us how to “walk” in genuine peace and harmony. The alternative—to adopt the theories and philosophies of imperfect humans—is folly. Repeatedly, human history



confirms the fundamental truth stated at Jeremiah 10:23: "To earthling man his way does not belong. It does not belong to man who is walking even to direct his step." Simply put, it is not within our capacity to govern ourselves and establish a sound and universally acceptable moral code. Those prerogatives belong to God.—Isaiah 33:22.

#### Genuine Peace and Harmony

Soon God will bring harmony to our earth. He promises a time when "the earth will certainly be filled with *the knowledge of Jehovah* as the waters are covering the very sea." (Isaiah 11:9) Yes, permanent peace will at last prevail.

In fact, life on earth will experience a new type of harmony, for God will teach his loyal human subjects how to be good caretakers

of their terrestrial home. He will even "conclude a covenant," as it were, with all predatory beasts, causing them to live in peaceful submission to humans.—Hosea 2:18; Genesis 1:26-28; Isaiah 11:6-8.

This hope is not wishful thinking. Indeed, in his Sermon on the Mount alone, Jesus referred to it twice. First, he said: "Happy are the mild-tempered ones, since they will inherit *the earth*." Then, when showing his disciples how to pray, he said: "Our Father . . . , let your will take place, as in heaven, *also upon earth*." (Matthew 5:5; 6:9, 10) At the end of his life, Jesus summed up what that will mean for humans in one beautiful word—"paradise." (Luke 23:43) Indeed, Jesus' shed blood makes the hope of everlasting life in an earthly paradise a certainty!—John 3:16.

***In God's coming Paradise, life on earth will experience a new type of harmony***



# *'I wish I had done this sooner'*

It has been called an addiction and for good reason. A survey in the United States found that boys in the eighth grade (about 13 years of age) were devoting on average about 23 hours a week to gaming. Many adults are hooked too. Consider a Christian named Charles.\* "For me, video games were an escape, a way to relax and get away from it all," he says. "But I was addicted. I was dependent on video games the way people are dependent on a drug or on alcohol."

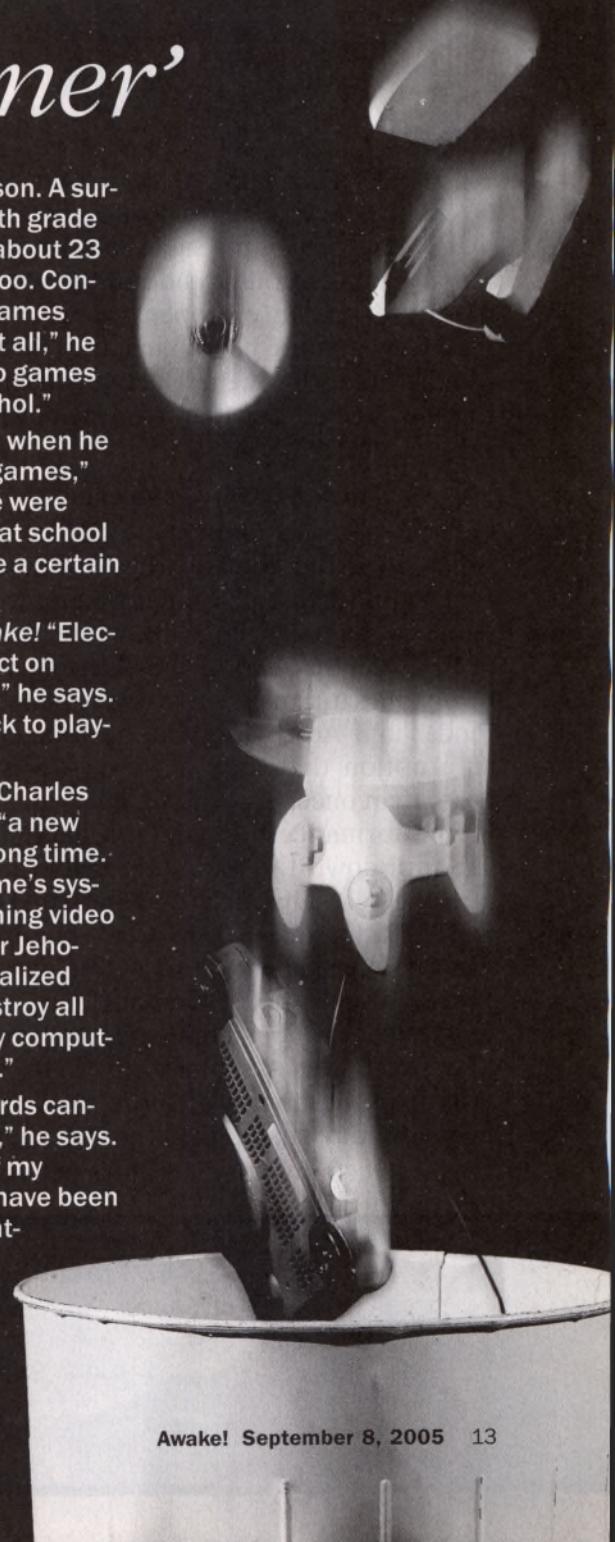
Charles says that he began playing "all the time" when he was about 11. "I wouldn't play demonic or violent games," he says, "but I played to an excessive degree. There were weeks at a time when all I thought about, whether at school or engaging in Christian activities, was how to solve a certain gaming problem."

The cover series of the December 22, 2002, *Awake!* "Electronic Games—Is There a Dark Side?" had an impact on Charles. "After reading it, I tried to limit my playing," he says. "However, after some time passed, I went right back to playing just as I always had."

During courtship and for a while after marriage, Charles was able to curtail his playing. "But then," he says, "a new game came out that I had looked forward to for a long time. I went into debt to buy a computer that had the game's system requirements. This was the most time-consuming video game I had ever played. It robbed me of my time for Jehovah. I was neglecting my wife too." Soon Charles realized that drastic action was necessary. "I decided to destroy all my video games," he says. "I deleted them from my computer and tossed every one of them into the city dump."

Does Charles regret his decision? Not at all! "Words cannot express how relieved I felt after I finally did this," he says. "I feel that a tremendous weight has been lifted off my shoulders. I feel closer to Jehovah than ever, and I have been talking to him regularly in prayer. I also give more attention to my wife. I am so thankful that I was able to conquer my addiction. My only regret is that I did not do this sooner."

\* Name has been changed.



# A VISIT TO THE “MOUNTAIN OF FIRE”

**T**HREE are few places in the world where you are treated to a breathtaking view of the same volcano whether you are in the countryside, by the sea, or in the city. If that city happens to be Catania, then you can only be looking at 11,000-foot Mount Etna, the highest active volcano in Europe, located less than halfway down the eastern coast of Sicily.

## A Long-Observed Volcano

The Arabs who dominated Sicily for a long time called the volcano the Mountain of Fire, and Etna has certainly lived up to that name by regularly spewing white-hot lava from its depths. Two of the oldest surviving testimonies to Etna's activity were penned by Pindar and Aeschylus, who both described an eruption that took place in 475 B.C.E. More than once, the lava has given an amazing performance by making a fiery snake-like trail down the mountain before diving into the sea. This occurred in 396 B.C.E., in 1329 C.E., and in 1669 C.E.—the last of which is considered the most famous of its “modern” eruptions. On that occasion, a tongue of lava about a mile wide and 15 miles long overflowed Catania's city walls, swallowed up the homes of more than 27,000 people, and partially filled the city's harbor.

By all accounts, the volcano's activity in-

tensified in the 20th century, during which there were many eruptions. The most violent, in 1928, destroyed the village of Mascali. Over the past few years, lava and ash emissions have continued to cause problems and anxiety for the local people.

## Profile of “Big Mamma”

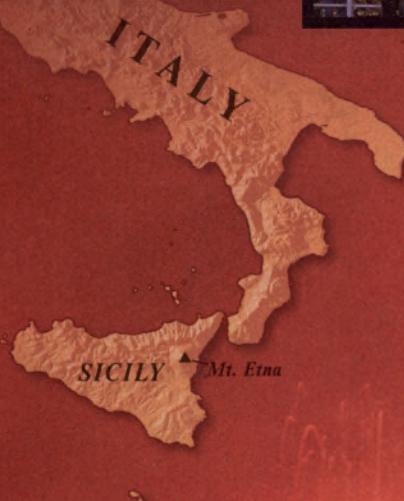
It is claimed that the formation of Etna's main structure was begun at least 170,000 years ago by an emission of magma, or molten rock. About 250 minor cones on the flanks of the volcano's main cone are the product of different phases of its eruptive activity. They look a bit like babies around their mother, and because of this, the volcano has the nickname Big Mamma.

If you went for a car ride or took the picturesque train ride around Etna, you would notice a variety of captivating scenes. These include the Monti Rossi (Red Hills) near Nicolosi, the Silvestri Craters, and the vast depression of the Valle del Bove (Valley of the Ox), which can be seen from Giarre and Zafferana.

The geologic history of the volcano, though not completely understood, goes way back in time. Emissions of magma in a submarine and coastal environment formed the coast to the north of Catania. Part of that coast is known as the Riviera dei Ciclopi, or Cyclopes' Coast, characterized by its black lava cliffs. Directly in front of the cliff at Aci Trezza, bizarre-shaped rock formations, called the Faraglioni, emerge from the sea.

*A drawing of  
Mount Etna from 1843*

All photos: © Tom Pfeiffer,  
map: Mountain High  
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July 26, 2001



September 12, 2004



October 30, 2002



July 28, 2001, with Catania  
in the background

### An Unusual Attachment

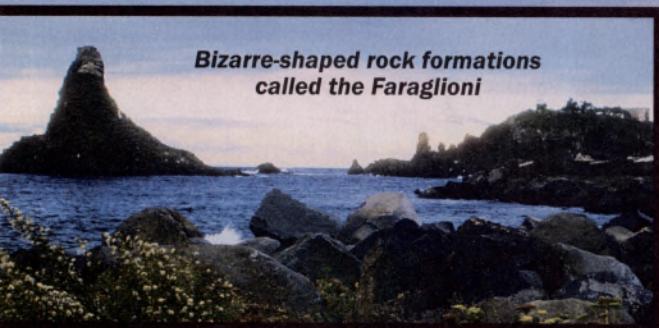
You might wonder if the people who live at the foot of this volcano are afraid that it will erupt at any moment. When Etna is calm, the Etneans, as the local people are called, forget that the volcano even exists. "The beast is calm," wrote 19th-century French author Guy de Maupassant in his *Journey to Sicily*. "It is sleeping over there in the distance." If a plume of smoke appears, Etneans might give the mountain a quick glance. However, if they hear a boom in the middle of the night, find their balconies and roads covered in ash, or find their nostrils and eyes full of ash, things change. Then, they wisely display a respectful fear of Etna—especially when a red river of lava is visible slowly but relentlessly descending from the mountain, devouring everything in its path.

Despite this, the people who live in the area consider Etna to be a "friendly giant."

After all, even though it has caused great damage—destroying urban areas, crops and, more recently, tourist facilities—it has taken very few victims. Following its destructive bursts of activity when it has swept away the fruits of human labor, the tenacious local people just get to work and start over.

The Italian poet Giacomo Leopardi well described the attachment that people who live at the foot of a volcano have to their land. He likened such people to the broom, a bush that often grows in volcanic environments. Its yellow flowers are beautiful and radiant. They hold their heads high and refuse to fall until the torrent of lava reaches them. Once the eruption is over and the rock has cooled, the broom starts to grow again, strong and courageous, as it patiently gets back to work!

**Bizarre-shaped rock formations  
called the Faraglioni**



*The local people refer to Mount Etna as a "friendly giant"*

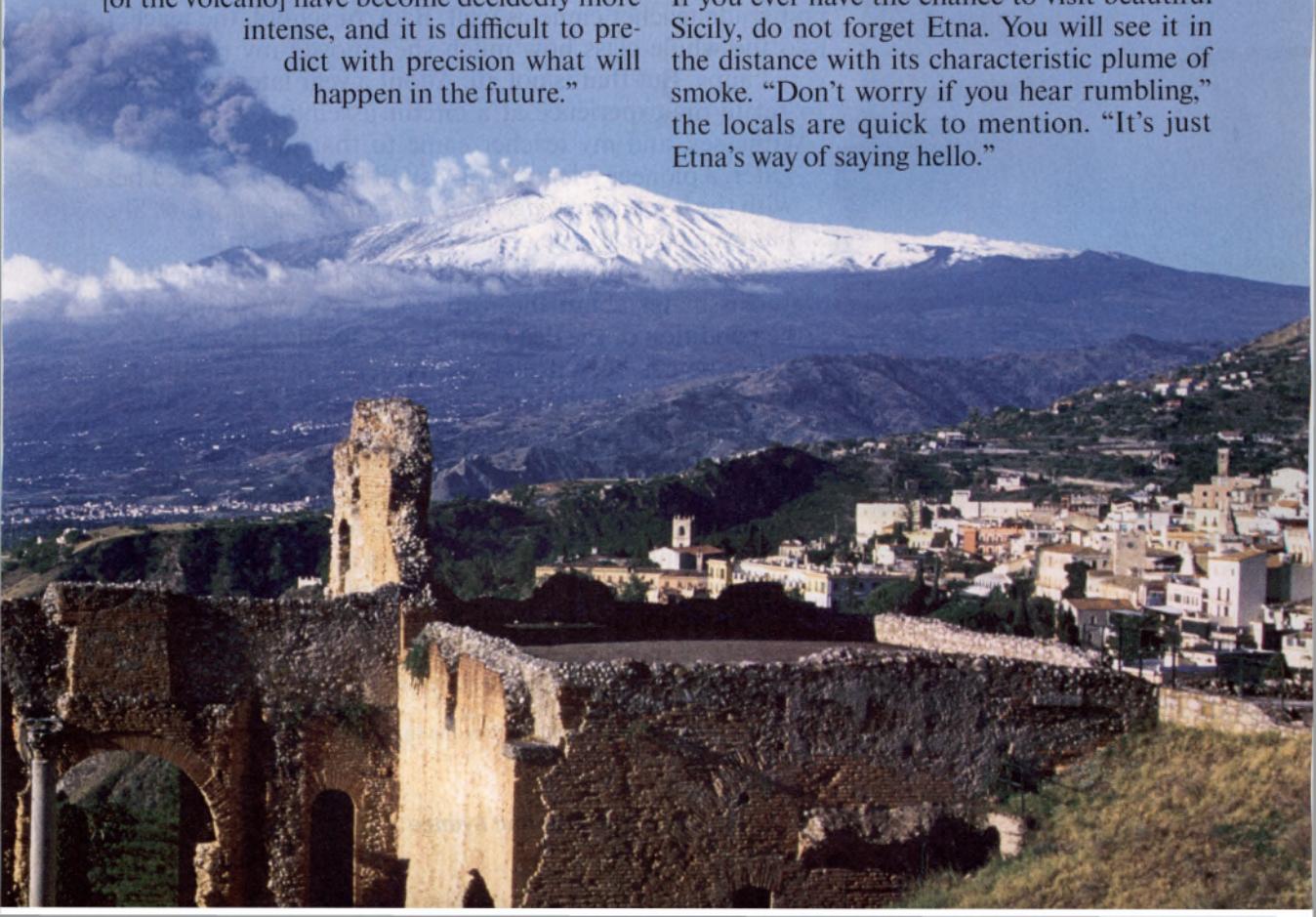
### Etna Is Changing

In the opinion of volcanologists, this "friendly giant" seems to be changing. In the recent past, Etna has not been explosive in character, but now, says *Focus* magazine, "what we have considered a lively but not dangerous volcano is being viewed with increasing suspicion." According to a warning given by French and Italian researchers, Etna "is slowly transforming itself from an effusive volcano, which means one with a slow lava flow and low gas emission, into an explosive volcano." Hence, Paola Del Carlo, a researcher at the Italian National Geophysical and Volcanology Institute of Catania, states that "during the past 30 years, both the effusive and the explosive activity [of the volcano] have become decidedly more intense, and it is difficult to predict with precision what will happen in the future."



### An Extraordinary Spectacle

Despite instilling fear and commanding respect, Etna offers an extraordinary spectacle. When enveloped in white in the winter or clothed in dark brown in the summer or when quietly dominating the coastline, shaking earth and hearts, or lighting up the nights with fire, the volcano testifies to the power of the One who created it. (Psalm 65:6; 95:3, 4) If you ever have the chance to visit beautiful Sicily, do not forget Etna. You will see it in the distance with its characteristic plume of smoke. "Don't worry if you hear rumbling," the locals are quick to mention. "It's just Etna's way of saying hello."





# Youths Who Give a Powerful Witness

**M**any youths among Jehovah's Witnesses boldly speak up about their faith both at school and in the Christian ministry, and they have had great success in doing so. Consider the following examples.\*

"When I was in third grade," says **Kristina**, "the teacher gave each of us a journal in which we were to write about our daily activities. The teacher would read our journals and then write something back to us. I decided to write in my journal about my upcoming talk in the Theocratic Ministry School. The teacher seemed impressed, so I invited her to come to the Kingdom Hall to hear my talk. Not only did she come but my first-grade teacher came as well. Back in school, the teacher told the whole class how much she enjoyed my talk. I was very happy. But that is not all. About a year later, I was able to relate my experience at a circuit assembly of Jehovah's Witnesses, and my teacher came to that meeting as well.

Later, a pioneer friend and I visited her and presented her with the book *Knowledge That Leads to Everlasting Life*. She has even come to one of our district conventions!"

At six years of age, **Sydnee** was adept at boldly speaking to classmates about the truths of God's Word, including the condition of the dead and Jesus' position in relation to God. "She has been a zealous and fearless little minister," her mother says. At the end of her first year at school, Sydnee expressed sadness. "I'm worried about my classmates," she said. "How are they going to learn about Jehovah?" Sydnee had an idea. On the last day of school, she gave each student a gift-wrapped present. It was the publication *My Book of Bible Stories*. Sydnee distributed 26 copies in all, telling the students that they could open their gift at home with their parents. Sydnee treats her classmates as her personal witnessing territory. She even called them on the phone to see how they enjoyed the book. One girl

\* All publications referred to in this article are published by Jehovah's Witnesses.

said that she reads her copy every night with her mother.

When she was 15, **Ellen** gave her history teacher several issues of *Awake!* "He loved them," Ellen says, "and he has been reading *Awake!* now for two years." Ellen continues: "Recently I gave him the publication *My Book of Bible Stories*, and he told me that his two daughters were enjoying it very much. So I then gave him the book *Learn From the Great Teacher*. Later, he gave me a card. It said: 'Thank you so much for the books. The girls and I are absorbing them. It is very pleasing to see a young person as grounded and focused as you. There is no gift that can compare with the gift of your faith. You have taught me more than I could possibly teach you!' This experience showed me how much people appreciate Bible truth when we make an effort to present it to them."

**Daniel** was six years old when he started his first Bible study. "I had been on studies with my mom," he says, "but I wanted to teach someone myself." Daniel chose Mrs. Ratcliff—an elderly woman with whom he had left Bible literature. "I want to show you my favorite book, *My Book of Bible Stories*," he told her, adding: "I would like to know if I can come every week and read it to you." Mrs. Ratcliff accepted Daniel's offer. "We began studying with Mrs. Ratcliff later that day," says Laura, Daniel's mother. "Daniel and Mrs. Ratcliff took turns reading para-

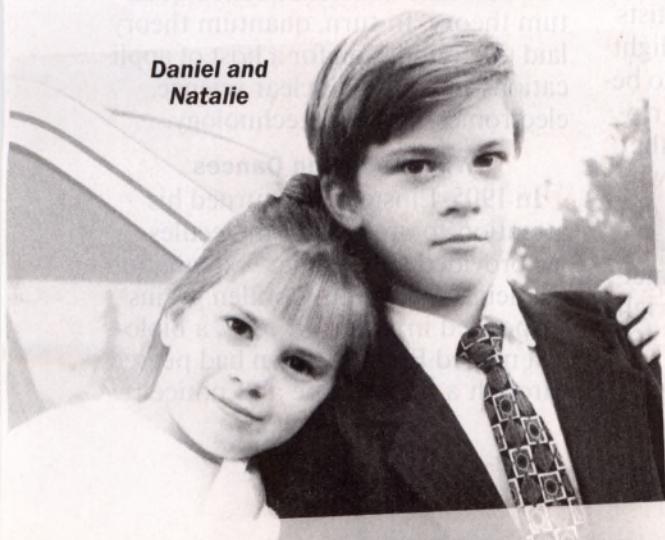


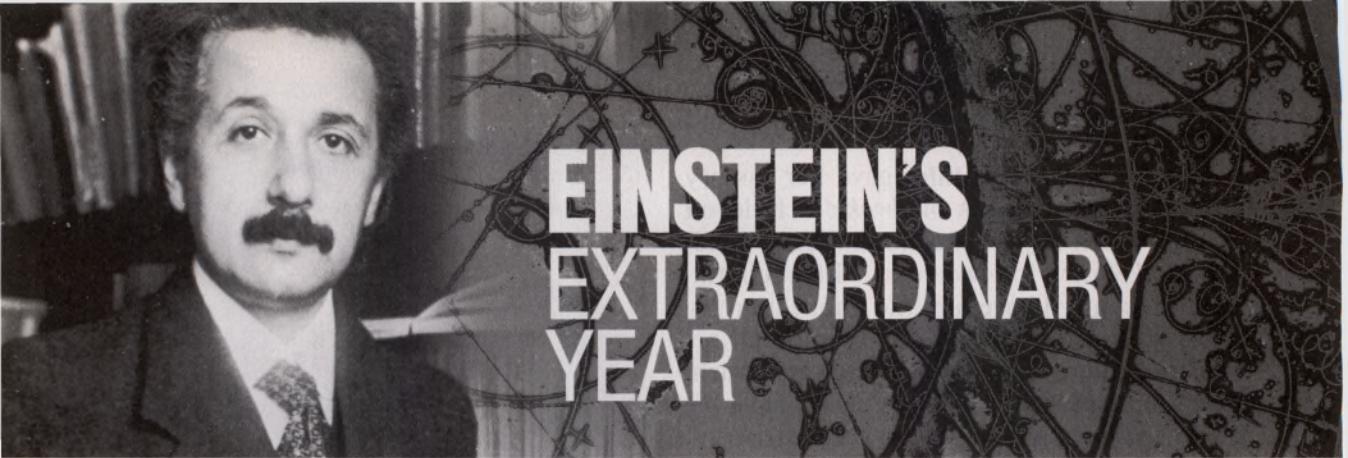
**Ellen**

graphs, and then Daniel had her read selected scriptures cited at the end of the story. I accompanied Daniel, but Mrs. Ratcliff seemed intent on discussing these matters only with him!" In time, Daniel and Mrs. Ratcliff began studying the book *You Can Live Forever in Paradise on Earth*. By then Daniel's younger sister **Natalie** was old enough to read, so she joined in. Mrs. Ratcliff had many questions—some of them quite complex. But Daniel and Natalie used the booklet *Bible Topics for Discussion* and the concordance in the back of the Bible to help them give Scriptural answers. Mrs. Ratcliff, a Catholic all her life, was thrilled with what she was learning. "I wish I had started studying the Bible years ago!" she said at the end of one session. Sadly, Mrs. Ratcliff recently passed away at the age of 91. But studying the Bible enabled her to become acquainted with precious truths, including the Bible hope of a resurrection to a paradise earth. Daniel is now ten years old and conducts two Bible studies. Natalie, now eight, studies the Bible with a young girl her age.

Youths like Kristina, Sydnee, Ellen, Daniel, and Natalie bring joy to their Christian parents. More important, they make Jehovah's heart rejoice, and he will not forget the love such young ones show for his name.—Proverbs 27:11; Hebrews 6:10.

**Daniel and Natalie**





# EINSTEIN'S EXTRAORDINARY YEAR

Einstein: Photo by Topical Press Agency/Getty Images; background: CERN photo, Geneva

In 1905, a 26-year-old patent clerk named Albert Einstein published four scientific papers that altered the way we view our universe—from its tiniest building blocks to its most massive galaxies. Some of these papers also became springboards launching many of the life-altering inventions produced during the past 100 years.

"There is scarcely any important fundamental idea in modern physics," says Nobel laureate in physics Isidor Rabi, "whose origin does not trace back at least in part to Einstein." What exactly did Einstein discover a century ago?

## Unlocking the Secrets of Light

Einstein's paper published in March 1905 uncovered some secrets about the nature of light. Scientists had already discovered that as light travels through space, it seems to behave much like waves of water rippling across a pond. However, the wave theory could not explain why dim blue light generates an electric current when it strikes certain metals, whereas bright

red light fails to do so. Einstein's paper helped to explain this so-called photoelectric effect.

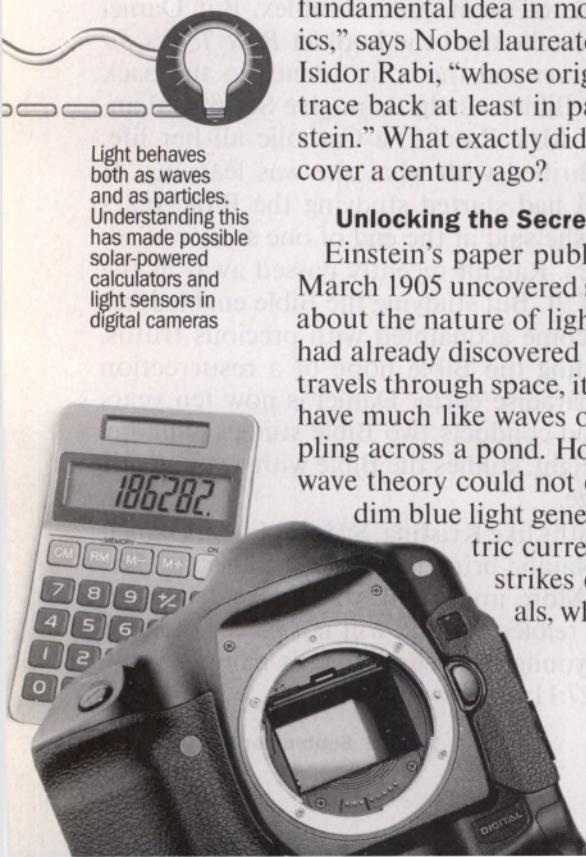
Einstein argued that light can at times be considered to consist of small packets of energy, later called photons. When these photons are of the right energy level, or color, they can dislodge electrons from the atoms of some metals. (Photons of red light are too weak to do the job.) This interaction causes an electric current to flow in the material. Modern inventions such as television camera tubes, solar power cells, and photographic light meters all relate to Einstein's description of the photoelectric effect.

Einstein won the 1921 Nobel Prize for Physics for his way of explaining light. His paper helped lead the way to a new field of science called quantum theory. In turn, quantum theory laid the foundation for a host of applications including nuclear science, electronics, and nanotechnology.

## Why the Pollen Dances

In 1905, Einstein also turned his attention to atoms and molecules. He provided a theoretical explanation of their effect on tiny pollen grains suspended in water. In 1827, a biologist named Robert Brown had peered through a microscope and noticed

Light behaves both as waves and as particles. Understanding this has made possible solar-powered calculators and light sensors in digital cameras



that pollen grains immersed in water jiggle about. He called the dance of the pollen Brownian motion, but he was unable to explain why it happened.

In his May 1905 paper, Einstein suggested how vibrating water molecules caused this Brownian motion. He not only calculated the size of the water molecules but also predicted the specific properties of their atoms. Other scientists built on these predictions, removing doubts concerning the existence of atoms. Modern physics is founded on the idea that matter is made of atoms.

### Time Is Relative

Einstein's special theory of relativity, published in June 1905, disagreed with a fundamental belief of scientists such as Isaac Newton—that the measurement of time is a constant throughout the universe. The implications of Einstein's now generally accepted theory seem quite bizarre.

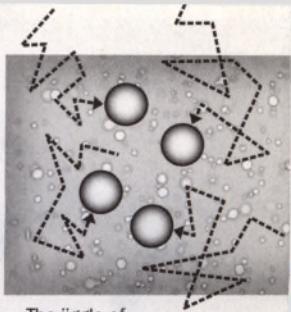
For example, imagine that you and a friend perfectly synchronize your watches. Your friend then flies around the world, while you stay at home. When he returns, the time displayed by his watch will lag a fraction behind the time shown on

your watch. From your perspective, time slowed down for your traveling friend. The difference is, of course, infinitesimal at human speeds. However, when approaching the speed of light, not only does time slow down significantly but objects also become smaller and their mass increases. Einstein's theory maintained that the speed of light, not time, is constant across the universe.

### A Formula That Changed the World

In September 1905, Einstein published another paper, considered to be a mathematical footnote to his special theory of relativity. It contained the formula now synonymous with his work,  $E=mc^2$ . This equation says that the amount of energy released when an atom is split equals the loss of its mass times the speed of light squared.

As a result of the efforts of scientists like Einstein, mankind has learned much about the nature of the universe. Even so, man's present state of knowledge is still similar to that described by ancient Job. Speaking of the Creator's works, he humbly acknowledged: "Look! These are the fringes of his ways, and what a whisper of a matter has been heard of him!"—Job 26:14.



The jiggle of Brownian motion helped prove the existence of atoms



The faster you travel, the slower time moves



Clocks aboard satellites of the Global Positioning System (GPS) do not tick at the same speed as clocks on Earth. Without correcting for this effect of relativity, the GPS signal would be rendered useless

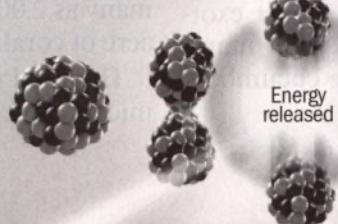
$$E = mc^2$$

equals      times      squared

Energy      mass      speed of light

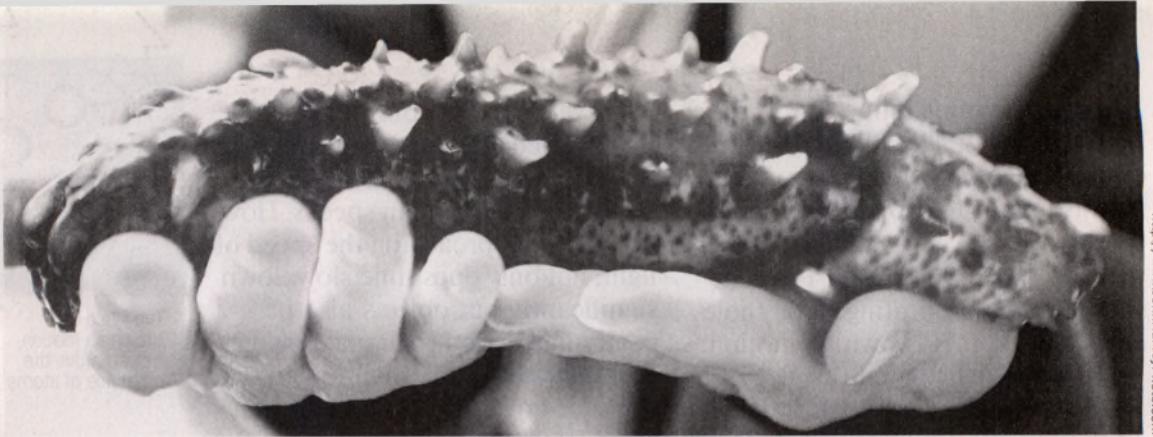
$c^2$  means  $c$  times  $c$ , or  
186,282 miles per second times  
186,282 miles per second

Because  $c^2$  is a fantastically large number ( $34,701,000,000 \text{ mi}^2/\text{sec}^2$ ), a small amount of mass can be converted into an enormous amount of energy. When an atom of uranium is split, it quickly forms two smaller atoms but also loses about 0.1 percent of its mass; that tiny amount converts into a vast release of energy



Just one pound of any substance completely converted into energy equals:

- 11 billion kilowatt hours
  - the power needed to drive a car around the earth 180,000 times
  - the power required to propel the largest oil tanker around the world 400 times
  - the electric power needs of the United States for one day
- The reverse is also true. It takes a tremendous amount of energy to "materialize" just one atom



# Amazing “Vacuum Cleaners” of the Sea

By *Awake!* writer  
in Fiji

They “ooze along the bottom at the speed of an hour-hand, or slurp their way through rich organic mud. They are everywhere from the intertidal zone to the deepest parts of the ocean. Like a miniature herd of gnus trundling across the abyssal plains, they graze on the rich organic snow that has drifted down from above.”

—Philip Lambert, a curator of the Royal British Columbia Museum.

**Y**OU might be surprised that anyone would wax lyrical with respect to the lowly sea cucumber, also known as the holothurian. Why, this creature has been described as “a sort of headless rubbery sausage.” Is there more to the sea cucumber than meets the eye?

#### Prolific Achievers

Sea cucumbers are said to be relatives of starfish and sea urchins. Although seemingly sluglike, they are quite different from true sea slugs, which are marine snails without shells. So far, more than 1,100 holothurian species have been identified. Of these, many—including the edible species—are plain. Others are decked in the most exotic finery. Projections on the skin of many varieties cause them to resemble cucumbers with warts.

Some sea cucumbers are microscopic, while others can reach 15 feet in length. Most, however, measure between 4 and 12 inches. It is estimated that sea cucumbers constitute more than 90 percent of the mass of all creatures living at a depth of 26,000 feet, making them the dominant organism in some ocean trenches. Though the majority of them live on the seabed, a few deep-water species can swim.

Sea cucumbers are found in all the world’s oceans, steadily grazing on organic sludge. Like teams of vacuum cleaners, they clean seabed mud and ooze by swallowing large quantities of sediment, filtering out the organic matter, and leaving clean sand in their wake. As many as 2,000 sea cucumbers may live in one acre of coral reef.

The food of the sea cucumber consists of microscopic organisms and detritus resting

on the seabed or passing by in the current. Up to 30 featherlike tentacles with special nerve endings at their tips are used to sense and seize food particles. Each tentacle, in turn, is "licked-off" before returning to continue the search.

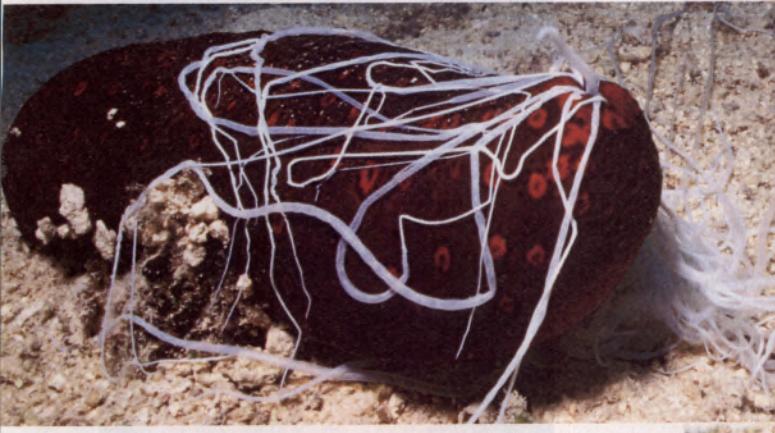
Some varieties of sea cucumbers act as "hosts" that are entertaining "guests." The "guests" are fish and other creatures that live in the gut of the host and emerge at night to feed. These include 27 species of pearl-fish, or cucumber fish, of the Carapidae family. When alarmed, they may be seen scurrying back to their hiding place. On occasion they are known to feed on their landlord's reproductive and respiratory organs. This does not harm the host, however, since the sea cucumber is able to regenerate lost tissue.

#### **Resourceful if Threatened**

Sea cucumbers clearly merit a second glance if you should come across them on your next visit to the ocean. But be warned! If they feel threatened, these "vacuum cleaners" of the sea have a range of bewildering tricks up their sleeves. Some, for example, eject a mass of long sticky threads that entangle or distract predators. The sticky material hardens rapidly, leaving hapless human victims with little choice but to shave off any hair with which the gummy strands have come into contact.

**Warty sea cucumber ▶**

▼ **Sea cucumber ejecting sticky defensive threads**



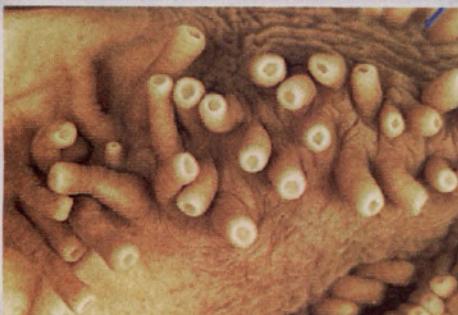
**Sea cucumber with one feeding tentacle in its mouth**



# Peculiarities of Sea Cucumbers



■ **Ossicles** in place of bones give many sea cucumbers their characteristic cucumber-like appearance. When viewed through electron microscopes, the ossicles' fascinating designs are seen to be wheel-, anchor-, and hook-shaped spikes embedded in the surface of their skin, giving it a leathery consistency. These intricate, minute crystals of calcium carbonate have characteristics unique to each species and are therefore useful for identification.

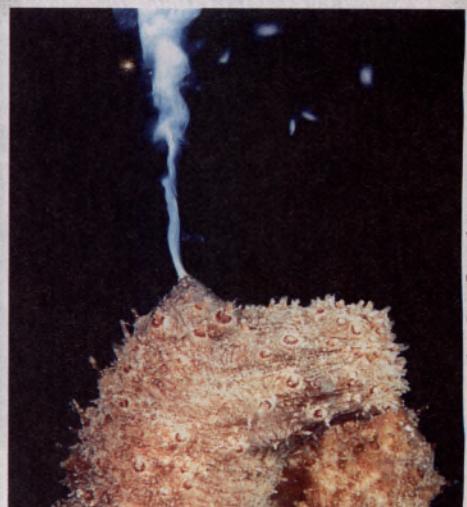


■ **Reproduction** is usually by external fertilization, after which free-swimming embryos settle to the seabed. However, some species have been noted to use a more drastic method. They literally tear themselves apart, dividing transversely into two sections. Amazingly, they then regenerate the missing body parts. This method of asexual reproduction requires considerable reorganization of the tissues in each of the torn pieces.

■ The **respiratory system** of the sea cucumber differs greatly from what we would consider the norm. Water is drawn in through the gut, and oxygen is absorbed into the walls of two respiratory trees. Certain deep-sea species use their entire body surface to collect oxygen. Some even breathe through the skin of their feet.



■ Sea cucumbers move under **hydraulic power**. Hundreds of hollow tube feet, or podiums, controlled by a valved water-vascular system operate in synchronization. By the expansion and contraction of chambers, water is forced into the feet to extend them in the proper order so as to achieve the motion required.



Other sea cucumbers produce a toxin named holothurin. This substance is lethal to many kinds of fish. Though dangerous to the eyes and likely to cause a skin rash, it otherwise appears to be harmless to humans. For generations, islanders have used this substance to poison, kill, or stupefy fish for the table, and it is an effective shark repellent. Research indicates that toxins produced by sea cucumbers may have potential for development as pharmaceuticals in the treatment of cancer and infections. Various extracts prepared from sea cucumbers have been used by practitioners of alternative medicine in treating arthritis, rebuilding cartilage, and lowering blood pressure. The animals are also processed to produce vitamin and mineral supplements.

But the sea cucumber has one more surprise held back for the most threatening of situations, a reaction that takes the issue of self-defense to a new dimension. As you try to move it, the sea cucumber auto-eviscerates—that is, it literally splits its sides and disembowels itself. Appalled at this shocking overreaction, you wonder what you did to cause such a ghastly end to the poor creature! But relax. Likely, you did not take its life. Rather, you were witness to an extraordinary escape device. This resilient animal will grow a new set of internal organs within weeks!

#### Still in Demand

The ancient occupation of fishing for sea cucumbers is still alive and well in both tem-

perate and tropical waters. In fact, some divers will risk life and limb to increase their catch. The bulk of it is destined for China and other parts of the Orient—just as it has been for centuries. Production of dried sea cucumbers involves boiling them in salt water and then gutting, smoking, and sun-drying them for market. Today, sea cucumbers are also available frozen.

Will a sea cucumber find its way to your dinner table? Perhaps it will. Despite its being called a cucumber, however, you are unlikely to find it in your salad. Once cooked, the sea cucumber is gelatinous and almost transparent. It is used as a thickening and flavoring agent for soups. In Fiji, local varieties are prepared with coconut cream in traditional island style, and the result is fishy, tasty, and chewy.

Still, these unobtrusive, quiet achievers are much more than just a tasty dish. We are indeed indebted to sea cucumbers for their ceaseless janitorial activities in maintaining the health of our seas. Call them what you will—holothurians or sea cucumbers—these amazing “vacuum cleaners” of the sea give silent praise to the One who created them!

—Psalm 104:24, 25.

*Sea cucumber prepared in the traditional island style, with coconut cream*



## The Bible's Viewpoint

# SHOULD YOU PRAY TO THE VIRGIN MARY?

MARY is a familiar figure to most people who know anything about Christianity. The Scriptures relate that Almighty God particularly blessed this young woman by choosing her to be the mother of Jesus. Jesus' birth was unique in that Mary was a virgin when she conceived him. Certain churches of Christendom have long reserved a special veneration for Mary. In 431 C.E., the Council of Ephesus proclaimed her "Mother of God," and today many people are taught to pray to her.\*

Sincere worshippers know that they must address their prayers to the right person. What does the Bible teach in this regard? Should Christians pray to the Virgin Mary?

### "Teach Us How to Pray"

The Gospel account of Luke records that one of Jesus' disciples requested of him: "Lord, teach us how to pray." In response, Jesus began: "Whenever you pray, say, 'Father, let your name be sanctified.'" During his Sermon on the Mount, Jesus likewise instructed his followers to pray: "Our Father in the heavens, let your name be sanctified."—Luke 11:1, 2; Matthew 6:9.

The first thing we learn, then, is that prayer, or worshipful address, should be directed to Jesus' Father, who is Jehovah. Nowhere does the Bible authorize us to pray to anyone else. This

\* The idea that Mary is the mother of God is based on the unscriptural Trinity doctrine, which says that Jesus is God.



is appropriate since, as Moses was told when he received the Ten Commandments, Jehovah is “a God exacting exclusive devotion.”—Exodus 20:5.

### What About the Rosary?

Many who pray to Mary have been taught that blessings can be gained by the repetition of set formulas—prayers such as the Hail Mary, Our Father, and others. For Catholics, “the most widespread form of Marian devotion [that is, devotion to Mary] is without doubt the rosary,” says the book *Symbols of Catholicism*. The rosary is a religious exercise in honor of the Virgin Mary. The term also refers to the string of beads used to count prayers. “Five sets of ten beads, separated by an individual bead,” explains the same book, “are an invitation to fifty recitations of ‘Hail Mary’, five of ‘Our Father’, and five of ‘Glory be to the Father.’” Does God listen with favor to the devout recitation of the rosary?

Again, the instructions that Jesus gave to his disciples provide us with an authoritative answer. “When praying, do not say the same things over and over again, just as the people of the nations do,” he said, “for they imagine they will get a hearing for their use of many words.” (Matthew 6:7) So Jesus specifically told his followers to avoid repeating set formulas in their prayers.

‘But didn’t Jesus teach his disciples to repeat the Our Father, which is part of the rosary?’ someone may ask. It is to be acknowledged that Jesus provided a model prayer, which has come to be known as the Our Father, or the Lord’s Prayer. We should note, however, that he did so immediately after giving the above warning against saying “the same things over and over again.” That Jesus did not intend for the model prayer to be repeated by rote is also evident from differences in his expressions in the two recorded instances in which he taught his disciples to pray. (Matthew 6:9-15; Luke 11:2-4) The ideas Jesus expressed on those occasions were similar, but his words were not the same.

This leads us to the conclusion that Jesus was simply providing models or examples of how his followers can pray and of what they can appropriately pray for. Most important, his words indicated who should be the recipient of prayer.

### Respect for Mary

The fact that the Scriptures do not teach Christians to pray to Mary in no way implies a lack of respect for the role she played in the outworking of God’s purposes. The blessings that come through her Son will be to the eternal benefit of all obedient mankind. “All generations will pronounce me happy,” Mary herself stated. And her cousin Elizabeth said that Mary was “blessed . . . among women.” Indeed, she was. It was a wonderful privilege for Mary to be chosen to bear the Messiah.—Luke 1:42, 48, 49.

However, Mary is not the only woman whom the Scriptures call blessed. Because of the actions that Jael took for the benefit of the ancient nation of Israel, she too was said to have been “most blessed among women.” (Judges 5:24) Faithful Jael, Mary, and many other godly women mentioned in the Bible are certainly worthy of our imitation—but not of our veneration.

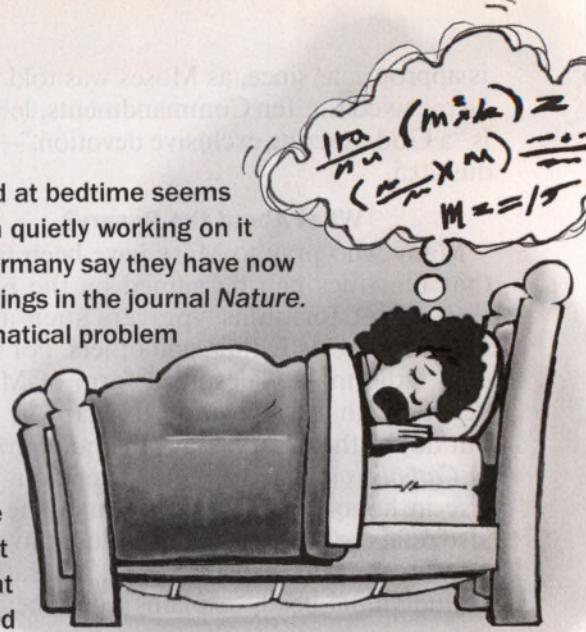
Mary was a faithful follower of Jesus. She was present on various occasions during his earthly ministry and also at his death. After Jesus’ resurrection she was “persisting in prayer” with Jesus’ brothers. This gives us reason to believe that along with them she too was anointed with holy spirit at Pentecost 33 C.E. and thus shared the hope of being part of the bride class that will reign in heaven with Christ.—Matthew 19:28; Acts 1:14; 2:1-4; Revelation 21:2, 9.

None of this, though, authorizes us to pray to Mary. Heartfelt prayer is an essential part of worship, and Christians are encouraged to “persevere in prayer.” (Romans 12:12) However, all such worshipful devotion should be directed to Jehovah alone, through Jesus Christ.—Matthew 4:10; 1 Timothy 2:5.

# Watching the World

## Sleep Helps Us to Solve Problems

"Many people have found that a problem unresolved at bedtime seems much simpler in the morning, as if the brain had been quietly working on it overnight," notes *The Times* of London. Scientists in Germany say they have now uncovered evidence that this is so, publishing their findings in the journal *Nature*. They taught 66 volunteers two rules to solve a mathematical problem but did not reveal a third rule that led to a shortcut to the correct answer. Some of the volunteers were then allowed to sleep, while others were kept awake all night or all day. "Sleep worked wonders," reports *The Daily Telegraph* of London, commenting on the same study. Those who slept "were twice as likely to work out the third rule as those kept awake." To make sure that the results were not due to the sleep group being rested and refreshed, the scientists carried out a second experiment. The two groups were presented the problem in the morning after they had slept or at night after they had been awake all day. This time there was no difference in the performance of the groups, showing that "the effect is not that of having a fresh brain but of having a brain that has reorganized itself during sleep," states *The Times*. "Thus," concludes researcher Dr. Ullrich Wagner, "sleep acts as a creative learning process."



## Self-Imposed Gambling Ban

"It is estimated that the number of gambling addicts in France is between 300,000 and 500,000," declares the French daily *Le Figaro*. There is, though, an increasing awareness among problem gamblers of the need to break the habit. The newspaper states that 28,000 people in France have voluntarily banned themselves from legal gambling by asking the police to bar them from gambling establishments for a period of at least five years. The French police report that each year they

receive between 2,000 and 3,000 requests of this kind and that the number has increased sixfold in ten years. Many pathological gamblers would like to have their addiction considered to be "as real a public health problem as tobacco, alcohol, and drug abuse are," says *Le Figaro*.

## Ginger Eases Morning Sickness

"Ginger root provides relief from morning sickness in the first months of pregnancy," says the *Australian* newspaper. Research conducted by the University of South Australia found that taking

approximately one gram of ginger a day reduced morning sickness among newly pregnant women. Ginger is a traditional treatment for morning sickness in many places. However, its effectiveness was not established scientifically. The study found that ginger works just as well as a daily dose of vitamin B<sub>6</sub>, another commonly prescribed remedy.

## Blood Transfusions Increase Mortality Rate

A study published in *JAMA* (Journal of the American Medical Association) found that patients with an acute

coronary syndrome who were routinely given blood transfusions had an increased risk of dying compared with those who did not receive transfusions. "The increased risk of death associated with transfusion was present after adjustment for demographic characteristics and in-hospital events such as bleeding and invasive procedures," states the report. The doctors who conducted the study sum up their findings by saying: "We caution against the routine use of blood transfusion to maintain arbitrary hematocrit levels in stable patients with ischemic heart disease."

### Division Among Anglicans

Philip Jensen, the Anglican dean of Sydney and one of Australia's most prom-

inent prelates, recently denounced the Archbishop of Canterbury as "a theological prostitute who was taking his salary under false pretences," reports the Australian newspaper *The Age*. Jensen condemned the leader of his church for holding liberal views on the issue of homosexuality. Notes *The Age*: "The Anglican Church worldwide is deeply divided over homosexuality, with many African and Asian branches severing relationships with the church in Canada for blessing homosexual unions and in the US for appointing an openly gay bishop."

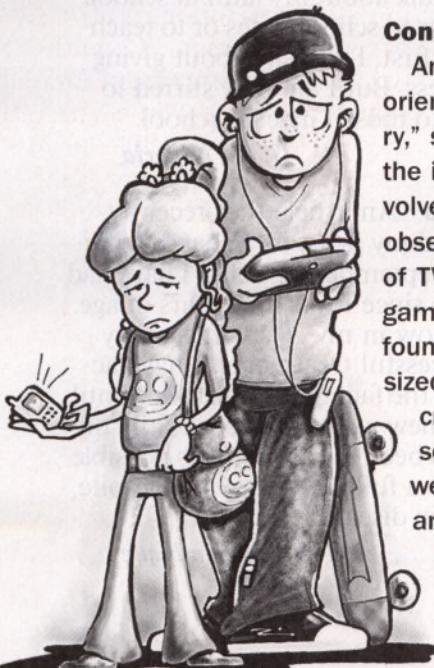
### A Billion Children Suffering

According to the United Nations Children's Fund, more than half the world's

children—over a billion—are suffering from extreme deprivation, reports *The New York Times*. Much of the progress made during the past 15 years has been offset by wars, AIDS, and poverty. Since 1990, wars—55 of them civil wars—have claimed an estimated 3.6 million lives, nearly half of them children. In many of these conflicts, children are abducted by rebels, raped, or used in fighting. Malnutrition is rampant; health care is often nonexistent. The number of children orphaned as a result of AIDS reached 15 million in 2003. Over two million children were employed in the sex industry. And, says the report, while annual military spending has reached \$956 billion, combating poverty would only cost between \$40 and \$70 billion.

### Consumerism and Children

American children and adolescents today are "the most brand-oriented, consumer-involved and materialistic generation in history," says Juliet Schor, a Boston College sociologist who has studied the impact of consumerism on children. Symptoms of consumer involvement include "high concern about appearance and clothes, an obsession with celebrity and wealth, watching increasing amounts of TV and spending more and more time on-line and playing video games," states Canada's *Globe and Mail* newspaper. Professor Schor found that children who obsess about things they want to buy fantasized more about becoming rich. "They also became increasingly self-critical and unhappy with how their lives compared with the representations on TV and in ads." On the other hand, children who were not as materialistic were found to have less depression and anxiety, fewer psychosomatic complaints, more self-esteem, and better relationships with their parents, reports the *Globe*.



## From Our Readers

**Young People Ask** Thank you for the wonderful article "Young People Ask . . . How Can I Cope With Failure?" (November 22, 2004) Like Ana, I felt that I had let God down and could not gain his forgiveness. But as the article explained, Jehovah forgave David and stayed close to him despite his weaknesses. How nice it is to know that even if we fall, Jehovah will help us to get up again!



*G. C., Italy*

What helped me most was Galatians 6:4. I realized that I am always comparing myself with the best students in my class. This article made me understand that I am doing harm to myself.

*C. C., France*

**Terrorist Attack** The article "Coping With the Trauma of a Terrorist Attack" really hit me. (November 8, 2004) The experiences included were wonderful. I learned that we can be strengthened by recalling scriptures and by having the sure hope of Paradise. It is important to have as many scriptures as possible embedded in our heart.

*I. A., Japan*

I am really impressed that even though they were injured, the brothers thought of the Bible and the hope that Jehovah gives us. I would love to visit Spain someday and tell the brothers how upbuilt I was.

*L. G., United States*

**Parents** Thanks for the advice given in the series "What Makes a Good Father?" (August 22, 2004) We now realize how to direct our baby's heart toward spiritual matters so that Jehovah's principles can be inculcated in him from infancy. Such articles seem to be written just for us. They always meet our spiritual needs on time.

*K. and M. P., Poland*

**Teen Pregnancy** Thank you for the series "Teen Pregnancy—A Global Tragedy." (October 8, 2004) Before I finished reading it, my tears began to fall. The article accurately described what my sister is going through. I am grateful that Jehovah provided this timely series to help me better understand her feelings.

*M. S., Indonesia*

One can feel the warmth and sympathy of the elders shown in the illustration on page 10. This picture really exalts Jehovah's unsurpassed love and mercy! Thank you for teaching us to imitate our God in how we treat those who have committed a serious sin but are repentant.

*T. K., Ukraine*

**Witnessing at School** The article "Youths Who Speak Up for Their Faith" really impressed me. (September 8, 2004) The experiences of Holly, Jessica, and Melissa have helped me to talk about my faith in school, whether to schoolmates or to teachers. At first, I was shy about giving a witness. But I am now stirred to speak to those I meet at school.

*G. O., Nigeria*

**Vitiligo** An article that recently touched my heart is "What Is Vitiligo?" (September 22, 2004) I have had vitiligo since I was nine years of age. I am now in my 30's. After many unsuccessful treatments, I have accepted the fact that I must wait until God's new world for a cure. Still, my life has been rewarding! It is possible to have a full and happy life despite this skin disease!

*M. S., Mozambique*

# "This Video Saves Lives!"

In 1999, Jehovah's Witnesses produced a video especially for youths entitled *Young People Ask—How Can I Make Real Friends?* To date, it has been released in more than 30 languages. "This video has had an impact on all of us!" a congregation overseer in the Ukraine writes. "Some watched it five times, still others watched it as many as seven! Later, many young ones enjoyed discussing the highlights. A number of them were in tears. We all felt Jehovah's love and sincere care for young people. Now I appreciate the needs of young people more, and I want to help them more, to be a closer friend to them."

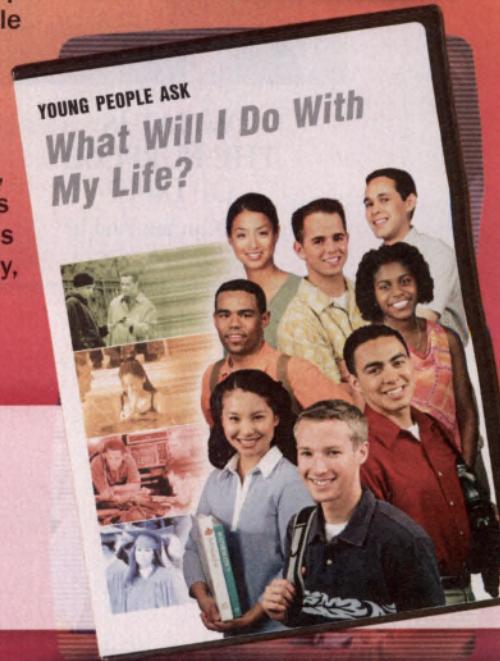
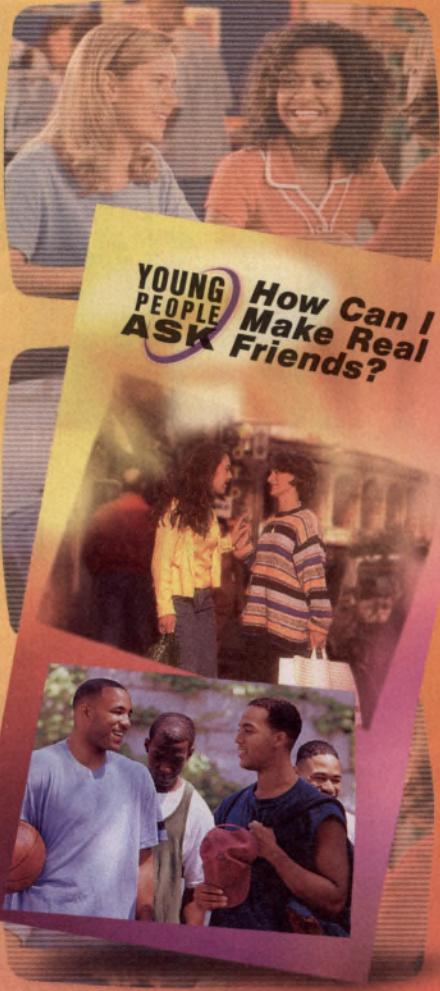
Youths from all over the world were moved by this video. For example, 17-year-old Leticia from Uruguay (pictured left) writes: "I was overcome with emotion, not only

because of the information presented but also because of seeing how Jehovah and his organization take an interest in us young ones. I cannot find words to express my gratitude for this valuable video. Simply put, thank you very much!"

An adult Witness in the United States watched the video many times and was able to use it to help a young girl who was living a double life. She writes: "Annette was involved in drinking and bad associations, and she had even experimented with drugs.\* But the video had a strong impact on her. In a short time, she abandoned her bad associates and wrong practices. Six months later she was baptized. Really, this video saves lives!"

\* Name has been changed.

In 2004, Jehovah's Witnesses released another video for youths. It is entitled *Young People Ask—What Will I Do With My Life?* It is hoped that by means of this video on DVD, many young people will be encouraged to put the worship of Jehovah God first in their lives.—Matthew 6:33.





# What is the purpose of life?



**WHAT IS  
THE PURPOSE  
OF LIFE?**

How Can You Find It?

■ Philosophers, theologians, and laymen have struggled for millenniums with the above question. Their efforts have been in vain. Many, therefore, have concluded that the question cannot be answered. Yet, there is an answer. Though profound, it is not complicated.

The answer is found in the Bible. A key to enjoying a happy, meaningful life is to learn why God has permitted so much suffering and injustice and then develop a proper relationship with him. But how can this be done? The 32-page brochure *What Is the Purpose of Life? How Can You Find It?* has assisted many to do this very thing.