

Awake!

July 8, 1997

Who
will
save
the
tiger?
Save
the
tiger?



**WHO WILL SAVE OUR
ANIMALS?**



Tortoise: Zoological Parks Board of NSW

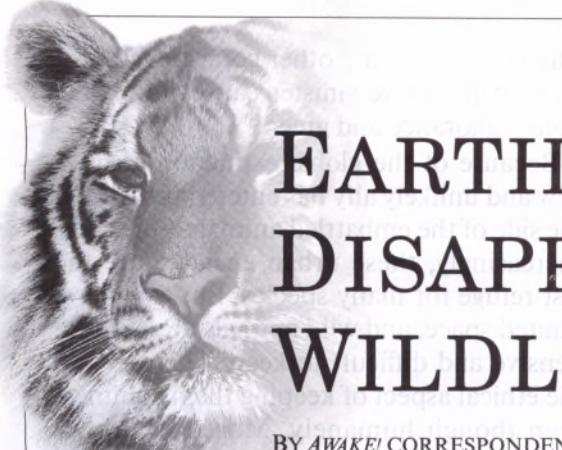
**Why Do Diamonds Cost So Much? 12**

How is a precious diamond produced? The answer helps to explain the cost.

**Are Children Safe With Your Dog? 20**

What can you do to safeguard your child from an aggressive dog? Is it only a dog owner's responsibility?

Earth's Disappearing Wildlife	3
The Zoo—Wildlife's Last Hope?	4
When the Whole Earth Will Be a Sanctuary	9
Matera—City of Unique Cave Dwellings	16
Brunost—A Norwegian Cheese Delicacy	24
The Bible's Viewpoint	
Do Science and the Bible Agree?	26
Watching the World	28
From Our Readers	30
"The Most Notorious Scientific Fraud"	31
"I Had Never Cared to Read Awake!"	32



EARTH'S DISAPPEARING WILDLIFE

BY AWAKE! CORRESPONDENT IN AUSTRALIA

DO YOU not thrill to see and hear wild animals in the flesh—a tiger, a whale, or a gorilla? To nurse a koala? To feel the earth rumble under the pounding hooves of migratory herds stretched out as far as the eye can see? Sadly, however, many people may never enjoy such adventures—unless a museum, a book, or a computer screen rates as an adventure. Why is this?

Because as you read this very article, thousands of plants and animals are being driven inexorably to extinction. Dr. Edward O. Wilson, a biologist at Harvard University, estimates that 27,000 species per year, or three per hour, are becoming extinct. At this rate, up to 20 percent of earth's species could be extinct in 30 years. But the rate of extinction is not constant; it is growing. It is expected that by early in the next century, hundreds of species will disappear each day!

Teetering near the brink is the African black rhinoceros. Poaching slashed its numbers from 65,000 to 2,500 in less than 20 years. Fewer than 5,000 orangutans remain in the shrinking jungles of Borneo and Sumatra. The blight has also struck in earth's waters. One victim is the graceful baiji dolphin of China's Yangtze River. Pollution and

indiscriminate fishing have left a scant one hundred, and they may all be gone within a decade.

"Scientists from various disciplines disagree about many things," says Linda

Is Extinction Natural?

"Isn't extinction part of the natural order of things? The answer is no, at least not on the scale it has occurred in recent times. Over most of the last 300 years the rate of extinction of species was about one per year. At present the human-caused rate of species extinction is at least a thousand times as great as that. . . . The cause of this rapid acceleration in the rate of extinctions is human activity."—*The New York Public Library Desk Reference*.

"I have become fascinated with numerous, extraordinary vanished creatures, and saddened, often angered, by their extinction. For in all but a few cases it has been Man through greed or cruelty, carelessness or indifference that has either directly or indirectly been the cause of these extinctions."—David Day, *The Doomsday Book of Animals*.

"Human activity is causing extinction of species before they have been recorded."—*Biological Conservation*.

Koebner in *Zoo Book*, "but about the urgency to save species and the biological health of the planet, they speak as one: The next fifty years are critical."

Who Is to Blame?

A growing human population has accelerated the extinction rate, but population pressure alone cannot take all the blame. Many creatures—the passenger pigeon, the moa, the great auk, and the thylacine, to name just a few—were wiped out well before human population in itself posed a threat. Dr. J. D. Kelly, director of the Zoological Parks Board of New South Wales, Australia, says of that country's record: "The loss of biodiversity since settlement in 1788 is a national disgrace." This observation undoubt-

edly is true of many other countries. It also hints at the more sinister causes of extinction—ignorance and greed.

Because of the global extinction crisis, a new and unlikely ally has entered the fray on the side of the embattled animals—the zoos. Increasingly, these urban enclaves are the last refuge for many species. But zoos have limited space, and wild animals are both expensive and difficult to keep. There is also the ethical aspect of keeping them confined, even though humanely. Moreover, in the zoo they are totally dependent upon mankind's financial largess and tenuous, often fickle, political and economic systems. So how secure really are these refugees from the wild?

THE ZOO WILDLIFE'S LAST HOPE?

IN RECENT times a quiet revolution has swept through the more progressive zoos of the world. As an outward sign, they have remodeled their exhibits in keeping

with the more humane "landscape immersion" concept—the reproduction of the animals' natural environment, complete with plants, stonework, vines, mists, sounds, and

Awake!

Why Awake! Is Published *Awake!* is 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.

Would you welcome more information? Write Watch Tower at the appropriate address on page 5. Publication of *Awake!* is part of a worldwide Bible educational work supported by voluntary donations.

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even other compatible animals and birds. Though expensive—about \$1.2 billion is spent on improvements for zoos and aquariums annually in the United States alone—changes are considered necessary in view of the zoos' ambitious new role.

The Mission for the Next Century

With biological poverty threatening the planet, the leading zoos of the world have defined conservation, education, and scientific research as their mission for the 21st century. Inspired by the challenge and impelled by its urgency, some zoos have even discarded the name zoo altogether, preferring instead such terms as "wildlife sanctuary" or "conservation park."

Shining the torch in the new direction is the publication *The World Zoo Conservation Strategy*. Described by one writer as "the most important document the zoo community has ever produced," *Strategy* is, in essence, a zoological charter; it "defines the responsibilities and opportunities of the world's zoos and aquaria towards the conservation of the variety of global wildlife." Dispelling any doubts about the new ethos, *Strategy* adds: "The very right of existence of a zoo or aquarium is in fact dependent on what contribution it makes to conservation."

Public education and scientific research, especially into captive breeding, are vital to this new role. Among today's youths are

the zookeepers of tomorrow, who will have the responsibility of preserving the salvaged remnants of a growing list of species extinct in the wild. Will they handle this trust wisely and with dedication? And will mankind in general take a more enlightened view of nature? To this end, *Strategy* encourages each zoo to become an educator, to see itself as part of "a worldwide conscience network."

Zoos Unite in a Global Network

Because of the sheer magnitude of their task, many zoos are uniting to form a global network, presently comprising about 1,000 zoos. International bodies, such as The World Zoo Organization and the International Union for the Conservation of Nature and Natural Resources, knit these zoos together and provide coordination and direction.

Pointing to a compelling reason for such cooperation, the book *Zoo—The Modern Ark* says: "If the silent stalker, inbreeding, was to be kept at bay, a zoo could no longer be content with managing its own little band of, say, Siberian tigers. Rather, all captive Siberian tigers in all the zoos of a continent—or even worldwide—had to be treated as a single population." Yes, hundreds of each species are needed to minimize or eliminate inbreeding—a precursor to infertility and extinction—and this is clearly beyond the capacity of a single zoo. Says *Strategy*: "This great mustering of all available powers will be necessary to give our Earth's

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biosphere . . . the best possible chance of survival. There are many who believe that if we fail to conserve other species we will fail to save ourselves." Of course, this pessimistic attitude does not take into account the Bible's promise of a restored paradise earth.—Revelation 11:18; 21:1-4.

Tools to Help the Zoos Succeed

The extinction crisis has also inspired the creation of some high-tech, internationally accessible aids to captive breeding: studbooks, the *International Zoo Yearbook* (*IZY*), and the computer-based International Species Information System (*ISIS*).

Each zoological studbook lists details on all zoo-dwelling individuals of one particular species, wherever they may be in the world. An international record, it is the key to preserving a healthy genetic pool and keeping at bay that 'silent stalker,' inbreeding. The Berlin Zoo opened the very first zoo studbook when, in 1923, it began breeding the wisent, or European bison, driven to the edge of extinction by World War I.

To facilitate the global distribution of scientific data such as studbooks, *IZY*, and demographics data, *ISIS* went on-line in 1974 in the United States. Its expanding electronic network and its massive, ever-growing data base are helping zoos work together to turn the megazoo concept into a reality.

The biological tools embraced by the zoos include DNA fingerprinting, embryo transplantation, in vitro fertilization, and cryogenics (freezing sperm and embryos). DNA fingerprinting helps zoos identify parentage with 100-percent accuracy, which is essential in controlling inbreeding among species such as herd animals, where parentage is hard to monitor. Embryo transplantation and in vitro fertilization, meantime, accelerate reproduction. One way is by broadening the "parent" base of endangered

species. Their embryos can be inserted into closely related animals—even domestic animals—which then serve as surrogate mothers. This technique has seen a holstein cow give birth to a gaur (wild ox) and a domestic cat give birth to the highly endangered Indian desert cat. It also reduces the cost, risk, and trauma of transporting endangered breeding stock. A pack of embryos or frozen sperm is all that needs to be taken.

With the possibility of some species disappearing totally, a number of zoos have even embarked on the science of cryogenics—freezing sperm and embryos for long-term storage. This frozen zoo offers the prospect of offspring being born decades, perhaps even centuries, after extinction! Though fraught with uncertainties, it has been dubbed "last resort insurance."

Studies in the Wild Help Zoos Make More Babies

A scientific study of animals, including their behavior in natural habitats, is critical to captive breeding and is the inspiration behind "immersion" exhibits. For animals to stay healthy and to breed, zoos must play to their instincts and keep them "happy."

Male and female cheetahs, for example, remain visually isolated in the wild and communicate only by the scent in their urine and feces. The male's nose tells him when the female is ready to mate, and then he stays with her for just a day or two. When the zoos learned of this behavior, they modified their enclosures to keep the sexes visually apart during all but the brief mating period, and it worked; cubs followed.

While absence makes the cheetah's heart grow fonder, this is not so with the flamingo. It mates only when in flocks too large for most zoos to handle. So a zoo in England experimented—it "doubled" the size of the flock by means of a large mirror. For the first time, the birds actually started their

dramatic courtship ritual! Do these examples give you an inkling of the complexity of earth's wildlife? The zoos certainly have a mighty challenge.

How Realistic Is the Goal to Save the Animals?

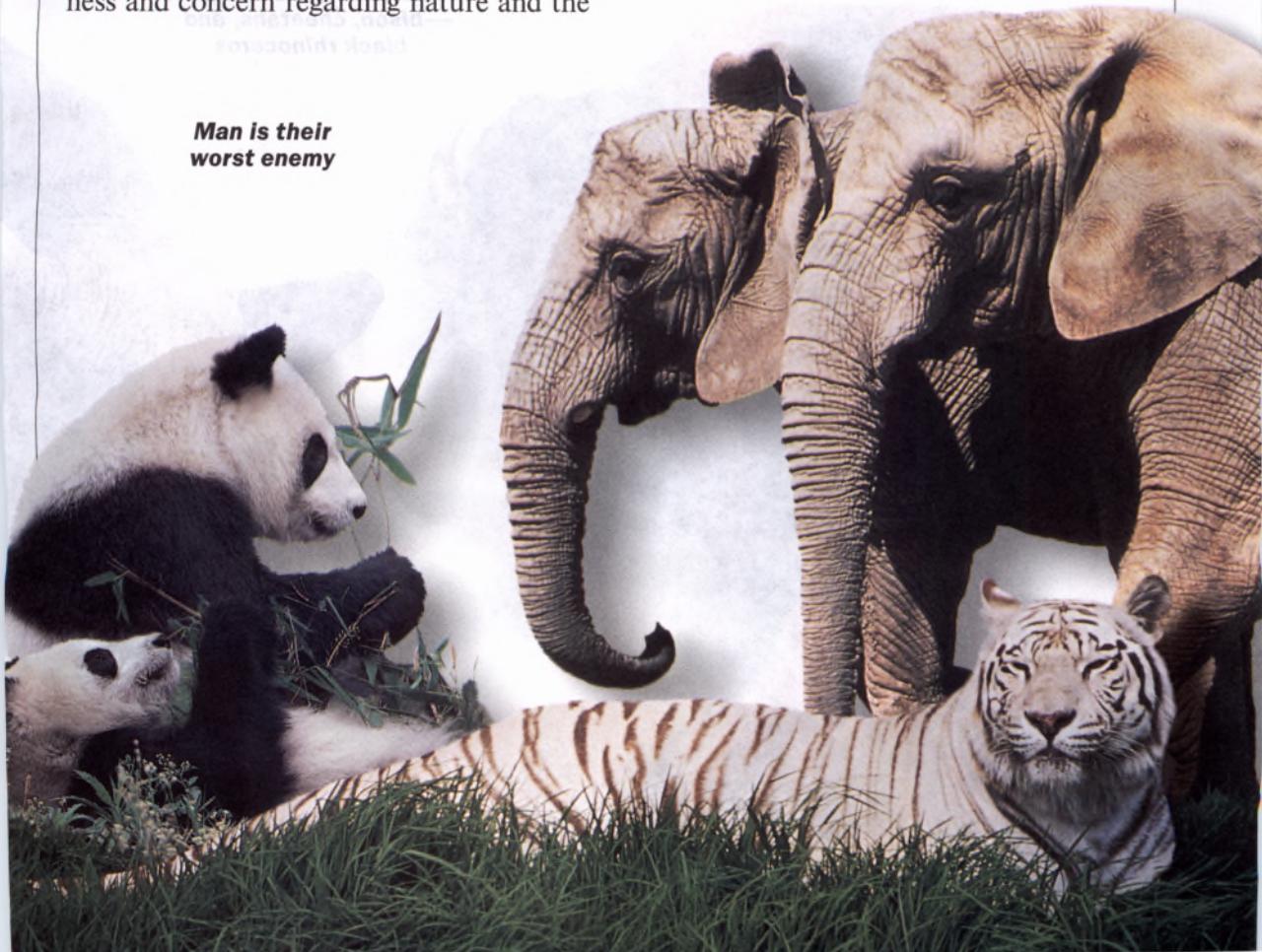
Indicating the potential of the new program, some captive-bred species have already been reintroduced into their native habitats. Among these are the California condor, the European bison, the American bison, the Arabian oryx, the golden lion tamarin, and Przhevalski's horse. Nevertheless, dark clouds hover over long-term prospects.

"Human society is so complex, and the world's problems so numerous," says *Strategy*, "that despite the growth in consciousness and concern regarding nature and the

environment, it has not been possible to halt many of the destructive processes." As a result, "conservationists must be prepared to find a means of weathering the expected critical period," it adds. Naturally, this calls for cooperation at every level of society. Present cooperation, according to one science writer, is "woefully short of what is needed." If the pressures driving extinction merely abate but do not reverse, even the best of efforts may still come to naught. Substantial and complete habitats—not just isolated pockets, which lead to inbreeding—must be created. Only then can zoos confidently release their charges back into the wild. But is such a hope realistic, or is it wishful thinking?

Tiger and Elephants: Zoological Parks Board of NSW

Man is their worst enemy



Straining credibility still further is the capacity of even a global megazoo. "The grim truth," says Professor Edward Wilson, "is that all the zoos in the world today can sustain a maximum of only 2,000 species of mammals, birds, reptiles and amphibians"—the tip of the iceberg. Zoos thus have the unenviable task of deciding which species to cut out for conservation while the rest join the long list of those heading for oblivion.

For experts in the field, this raises an ominous question. In view of the interdependence of all living things, when will biodiversity fall to that critical threshold where it triggers an avalanche of extinctions that may snuff out much of the remaining life

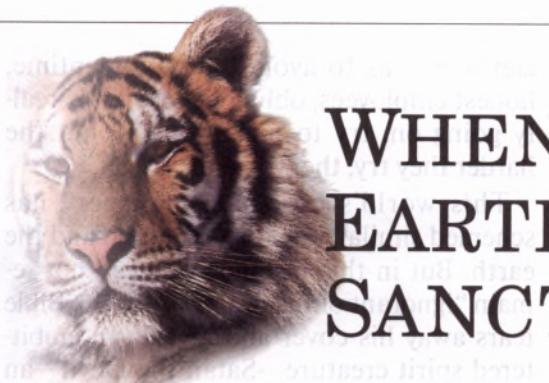
Bison and Cheetahs: Zoological Parks Board of NSW
Rhinoceros: National Parks Board of South Africa

on earth, humankind included? Scientists can only guess. "The elimination of one or two or fifty species will have effects that we cannot predict," says Linda Koebner in *Zoo Book*. "Extinctions are creating change even before we understand the consequences." Meanwhile, says the book *Zoo—The Modern Ark*, "zoos remain among the most crucial garrisons of life in a planetary war of attrition, a war the extent of which cannot be predicted but one for which future generations will hold us utterly responsible."

So is there any basis for hope? Or are future generations doomed to a world of biological monotony, with the abyss of extinction awaiting them?

Some endangered animals
—bison, cheetahs, and
black rhinoceros





WHEN THE WHOLE EARTH WILL BE A SANCTUARY

DO YOU want to see the most dangerous creature in the world? Then look in a mirror! Yes, we, mankind, are earth's worst predator! We even kill each other on a massive scale.

To make the earth safe for wildlife, even in zoos—especially if they become a final refuge—war, mankind's plague, must be eliminated. Only 91 of the Berlin Zoo's 12,000 animals survived World War II. Many other zoos suffered similarly. In the recent war in the Balkans, courageous zoo staff evacuated many animals to safety; but hundreds of others, including deer, big cats, bears, and wolves, were killed. Recently, in the jungles of Cambodia, according to officials quoted in the newspaper *The Australian*, the Khmer Rouge have deliberately slaughtered many rare animals. Why? To exchange their skins and other products for weapons!

Ecological vandalism, such as that perpetrated on the isolated Peron Islands, southwest of Darwin, Australia, is another evil to be conquered if animals are to be safe—inside or outside zoos. Twice in three years, the pelican rookery on these islands has been torched, apparently for no reason other than to kill, in a most cruel way, thousands of young birds that did not yet fly.

In recent decades, however, the greatest loss of species is not borne of malice; it is the side effect of a burgeoning human population desperate for space to live in and land

to cultivate. Because of this relentless encroachment on animal habitats and the accompanying pollution, *The World Zoo Conservation Strategy* warns: "The outlook for the 21st century for the earth's entire natural system is bleak. There is nothing to indicate that the destruction occurring in practically all parts of the world will soon cease."

In view of the growing concern about earth's future, a time when the whole planet will be a sanctuary may sound just too fantastic. Yet, that hope is solidly founded, not on short-sighted humans—who as little as 50 years ago, according to one science writer, had no idea of the present ecological devastation—but on the one who did foresee it, Jehovah God. Over nineteen hundred years ago, he foretold that mankind, in our time, would be caught in the act of "ruining the earth." (Revelation 11:18) Spoken when the earth was scantily populated by humans, that prophecy may have seemed like fantasy to many living then, but how accurate it has proved to be!

Paradoxically, this ruining is occurring at a time when science and technology seem capable of little short of miracles: micro-transmitters and satellites keep tabs on endangered species, rain-forest destruction is measured by the square meter from outer space, and air pollution is measured in parts per million. Yet, with rare exceptions, man

seems incapable of acting on this mountain of data. Perhaps man is like the driver of a runaway train. He has a console crammed with electronic wizardry and monitors telling him everything that is happening, but he cannot stop the train!

Why Are Efforts Failing?

Imagine that in a large factory, the proud, unprincipled manager overhears the owner say that he will not be promoted but, rather, that he will be dismissed in a few months. Embittered and spiteful, he uses lies, bribes, and all sorts of underhanded tricks to get a number of workers to create havoc. They cause machines to fail, production to slow, and products to be faulty—yet in such a

clever way as to avoid blame. Meantime, honest employees, oblivious to what is really going on, try to make repairs; but the harder they try, the worse things get.

This world's crooked "manager" has schemed similarly against mankind and the earth. But in this instance we need not remain "ignorant of his designs," for the Bible tears away his cover and reveals an embittered spirit creature—Satan the Devil—an angel who became a megalomaniac and craved to be worshiped. (2 Corinthians 2: 11; 4:4) God threw him out of His heavenly family and sentenced him to destruction.—Genesis 3:15; Romans 16:20.

Like the crooked factory manager, this



“father of the lie” also employs an arsenal of underhanded methods to vent his anger. He hates Jehovah God and wants to wreck His creation. (John 8:44) Satan’s most potent tools are lying propaganda, greed, materialism, and hurtful religious teachings. With these he has ‘misled the entire inhabited earth’ and turned humans—earth’s intended custodians—into its most ruthless predators, in effect, disciples of ancient Nimrod, “a mighty hunter in opposition to Jehovah.”—Revelation 12:9, 12; Genesis 1:28; 10:9.

The Only Realistic Hope for an Earthly Sanctuary

However, victory over human and super-human forces of extinction is not impossible. The almighty Creator of all living things can lift us from this terrible vortex, and this he has promised to do by means of his heavenly government. He promises to bring to ruin those predators who are ruining the earth. We pray for this when we say: “Thy kingdom come. Thy will be done in earth, as it is in heaven.”—Matthew 6:9, 10, *King James Version*; Revelation 11:18.

Did you notice that the Kingdom’s coming is linked to God’s will being done on *earth*? This is because God’s Kingdom is God’s government over the earth. And being a kingdom, it has a king—Jesus Christ, the “King of kings and Lord of lords.” (Revelation 19:16) It also has subjects. In fact, Jesus said: “Happy are the mild-tempered ones, since they will inherit the earth.” (Matthew 5:5) Yes, these mild-tempered ones are its earthly subjects, and with the help of God’s Kingdom, they will lovingly care for their inheritance, turning it into a thriving paradise bursting with life. Interestingly, *Strategy* states: “The future of human beings and nature is only ensured if the whole of humankind can live in a new harmony with nature.”

History and imperfect human nature bespeak the impossibility of the “whole of humankind” today ever living in such a “new harmony” with nature, for they leave Jehovah out of the picture. In fact, to prove the futility of human self-rule is one reason why God has allowed this world to go on for so long. But soon, those who yearn for Christ’s rulership will enjoy exquisite peace. Isaiah 11:9 confirms this, and it also points to the reason why these alone will be able to live in a “new harmony” with nature: “They will not do any harm or cause any ruin in all my holy mountain; because the earth will certainly be filled with the knowledge of Jehovah as the waters are covering the very sea.” Yes, divine education is the key. And is that not reasonable, for who else but nature’s Author has such wisdom?

What about those who persist in ignoring Jehovah? “As regards the wicked, they will be cut off from the very earth,” says Proverbs 2:22. Yes, their belligerence or their apathy will cost them their lives in the fast-approaching “great tribulation”—God’s means of meting out justice to all who persist in selfishly exploiting and vandalizing his creation.—Revelation 7:14; 11:18.

Do you want to share in earth’s rehabilitation program? Then please learn what God requires of you by studying the Bible. It alone has the power to attune your thinking to the Creator’s. (2 Timothy 3:16; Hebrews 4:12) Additionally, by applying what you learn, not only will you become a better citizen now but you will also prove that you are indeed the kind of person to whom Jehovah will entrust his fast-approaching “new earth.”—2 Peter 3:13.

The publishers of this magazine or the nearest congregation of Jehovah’s Witnesses will be delighted to assist you with a free home Bible study or additional literature explaining these matters if you so desire.



BY AWAKE!
CORRESPONDENT
IN SPAIN

WHY DO DIAMONDS COST SO MUCH?

A Visit to Antwerp

On a visit to Antwerp, Belgium, a city whose wealth largely depends on diamonds, my interest in these unique stones was aroused. 'What,' I wondered, 'makes a diamond so appealing? What is the secret behind the making of a diamond?'

To answer those questions, I spoke to Dirk Loots, whose family has worked in the diamond trade for three generations. "We call Antwerp a diamond's best friend," he explained, "since this city is one of the world's main diamond centers. So you've come to an ideal place to discover the secrets of the diamond maker."

First of all, he showed me a handful of rough diamonds that he had just bought. Although they were valued at \$350,000, they didn't look that impressive at first sight—more like a handful of glass chips. But a closer look revealed an inner brilliance that betrayed the beauty that the diamond cutter could unlock. I began to understand their appeal.

"Occasionally when I see a large rough diamond, I sense a certain magic, almost like an emotional attachment," Dirk confessed. "Instinctively, I want to buy that stone. It reminds me of Jesus' illustration of the man who found a magnificent pearl, a pearl so

SOMETIMES beauty can be discovered. Other times it must be created. A diamond, however, must be both discovered and created.

Rough diamonds are, without doubt, a beautiful creation of nature. Intense pressure and high temperatures under the earth's crust slowly mold simple carbon into hard, translucent crystals. But these rare stones often defy discovery. Some of the largest man-made holes on earth—dotting Australian, Siberian, and South African landscapes—have been dug in the search for these precious stones. To retrieve a few diamonds that weigh merely one fifth of an ounce, one hundred tons of earth may have to be mined and sifted!

Once a diamond is discovered, skilled craftsmen must painstakingly sculpture its latent beauty before it can grace a ring or a necklace.

Naturally, all this effort and expertise does not come cheap. But most women—and men—feel the expense is worthwhile, especially if the diamond is a gift presented to a spouse or a fiancée as a token of lasting affection. Beauty and romance have made the diamond the most prized crystal on earth.*

* A major reason for the high price of diamonds is control by a monopoly, the Central Selling Organization.

perfect that he was prepared to sell everything he had in order to buy it. I've never gone that far," he smiled, "but I must admit that some fine stones exert a special attraction, even for those of us who spend our lives buying and selling them. Of course, making a gem out of a rough stone, however impressive it may be, is not without its pitfalls."

Smoothing Out a Rough Diamond

I had heard that a priceless stone could be shattered by a careless diamond cutter. I wondered if that happened often. "It is not that rare an occurrence," Dirk admitted. "And this can happen not only when the stone is being cleaved. Even the diamond polisher can occasionally touch a *gletz*, or internal imperfection, and ruin the stone. We always carefully examine the rough stone through polarized light, which shows up problem areas; but no system is foolproof, I'm afraid.

"Although a shattered stone is our worst nightmare, that is not the only difficulty. Sometimes the color of the stone gets darker after cutting and polishing the facets, and its value diminishes. And you must remember that we often have to cut away 60 percent or more of the rough stone in order to make it into a first-class gem."

That seemed to me like a lot of money going to waste, until I grasped all that is involved in the making of a diamond. Dirk showed me a huge heart-shaped diamond that had just been cut and polished. "Do you see how it sparkles?" he asked me. "That 'fire' inside the stone is really nothing more than reflected light.

"What the craftsman has to do is cut all the facets in such a way that the light is trapped inside the stone and then reflected back toward the observer. Some traditional shapes, such as the round cut, do this in the most efficient way. But even fancy designs, such as this heart-shaped one, aim to reflect

the greatest possible amount of light. That is the essential art of the diamond maker. In fact, one well-known diamond manufacturer has chosen as his motto, 'The magic is in the make.'"

"How do you decide which shape to cut the diamond?" I asked Dirk. "We start out by looking very carefully at the original stone that we buy," he said. "And I mean carefully! I remember one large stone that we examined for a month before making the final decision on how it should be cut. Sometimes it is easier because the rough stone lends itself to being cut into a certain shape. In each case the aim is to determine the best shape for that particular stone so that we lose the least possible amount. But every facet we cut—and a typical diamond has more than 50 facets—means a loss in weight."

Dirk then asked me to look carefully at a certain stone. "Do you see the impurity up there on the right of the stone?" he asked, handing me a loupe, a jeweler's magnifying glass. I saw a few jagged lines, like those in a cracked mirror, inside one corner of the gem. "That sort of imperfection greatly reduces the value of the diamond. We could cut it out, of course, but that may mean losing too much of the stone. If the flaw is not noticeable to the naked eye, we can still sell the stone for a lower price."

I was interested to know why such tiny stones are so valuable. Clearly, there are several factors involved.

"The cliché 'a diamond is forever'—although an advertising slogan—is generally true," Dirk said. "Diamonds don't wear out, and their glitter doesn't fade. They are rare, although not as rare as they used to be, and they are beautiful—no doubt about that! But perhaps the most important factor that determines their value is the worldwide demand for diamonds. This depends largely on advertising."

"Why does a woman want a diamond ring?" Dirk mused. "She probably connects diamonds with love and romance. A diamond is something special, something to be eternally treasured, to remind her of a love that hopefully will last as long as the diamond. This idea, or mystique, as some would call it, has been skillfully cultivated. Some \$180,000,000 was spent in 1995 to market this message, a message that keeps people the world over buying diamonds."

The Value of a Diamond

"I suppose that the value of the finished gem depends on its size," I remarked. "It's not quite as simple as that," Dirk replied. "Diamond traders are wont to say that the value of the diamond depends on four factors: *cut, carat, color, and clarity*. Each one has a bearing on the beauty—and hence the value—of the stone.

"Let's start with the cut. A good cut is a work of art, a sculpture in miniature, you could say. Take a closer look at that heart-shaped diamond you were admiring. The shape is not an easy one to manufacture, and it is one that requires sacrificing more of the original stone than other shapes. Notice how all the facets have been positioned symmetrically to enhance the beauty of the gem. We would say that this particular diamond has a very fine cut."

"You were first impressed by its size, and understandably so, since it is a large, 8-carat stone. One carat is equivalent to two tenths of a gram, by the way, so we determine the carat value simply by weighing the stone. Generally speaking, more carats mean a more valuable diamond, but its value will also be affected by color and clarity."

"Diamonds come in all shapes and colors, as you will have noticed from our packet of rough stones. The first thing we do is sort them according to color, the whiter ones be-

ing the more valuable. Although, there are a few stones that have what we call fancy colors, such as pink, blue, or red; and these fetch higher prices than the white stones do, since they are extremely rare."

"Finally, we have to grade a stone by its clarity. If a stone is classified as flawless, it means that when you look into the stone—even with a loupe—you will not see any imperfections. Thus, a diamond's cut, clarity, and color can be just as important as its weight in carats. To give you an example, in 1995, what may be the largest diamond ever polished (546.67 carats) was put on display. But despite its size—nearly that of a golf ball—this is not the world's most valuable diamond, because of its inferior clarity and its yellow-brown color."

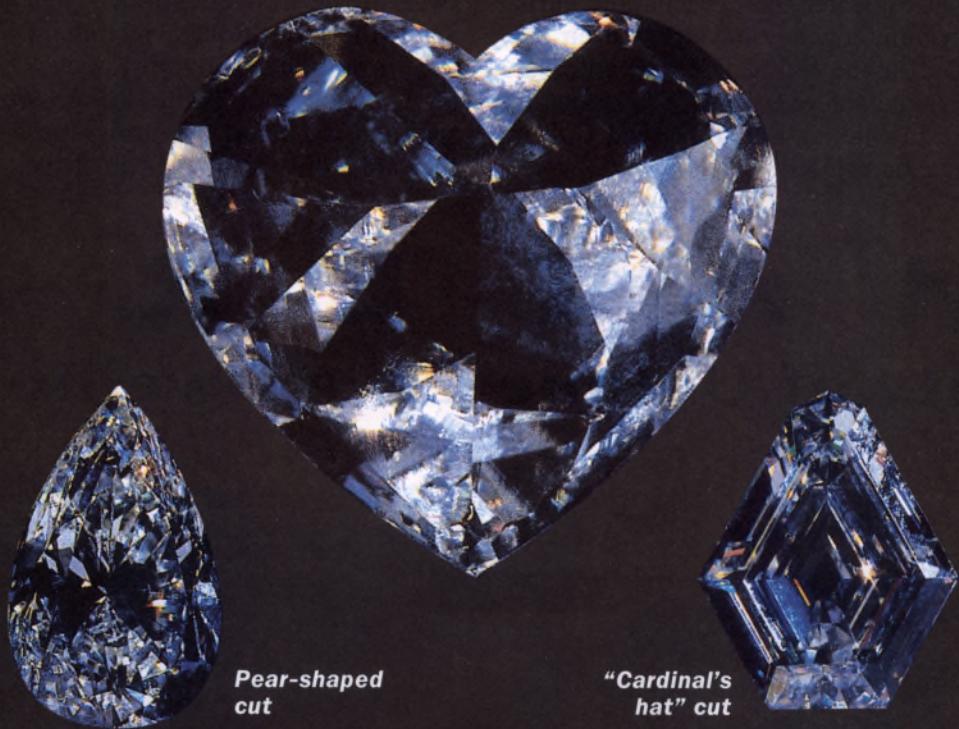
Before leaving Antwerp, I spoke to Hans Wins, who has been involved in the diamond industry for 50 years. I wanted to ask one last question, What makes a diamond so special?

"I don't find the small stones so exciting—they can even be fashioned on a machine," he replied. "But large diamonds fascinate me. Every stone is different—a unique creation squeezed out of carbon by millions of years of volcanic pressure. When you study the stone, you can actually see the growth lines, somewhat like those in the trunk of a tree. An experienced dealer can even tell you which mine it came from."

"A diamond manufacturer looks at such a stone the way a sculptor looks at a block of marble. He already sees in his mind's eye what he can create. In his imagination, he is cutting and polishing and a magnificent gem is emerging. I like to think that when the diamond finds its final setting in a ring or a necklace, it will give that same pleasure to its owner."

When all is said and done, that is why it is worthwhile to make a diamond.

*Heart-shaped diamond of 8 carats
(stones not to scale)*



Pear-shaped cut

"Cardinal's hat" cut



Determining the carat weight of uncut stones



Sorting rough diamonds according to color



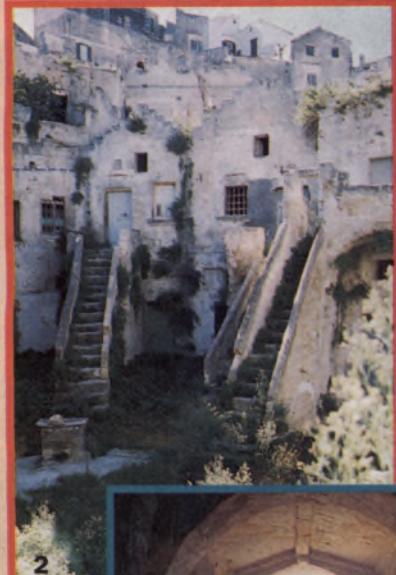
Examining facets to determine if more polishing is needed

ABOUT 50 years ago, some thought that the strange dwellings had become a kind of Dante's "inferno," leading the authorities to decree their evacuation. Partially repopulated, they have now even been included in the World Cultural and Natural Heritage, safeguarded by the United Nations Educational, Scientific, and Cultural Organization (UNESCO).

What are we talking about? And why have they provoked such different reactions in the course of time? The answer to the first question is simple: the Sassi (literally, "Rocks" in Italian) of Matera, in southern Italy, just above the heel of Italy's "boot." But to answer the second, we need to understand what they are and to know a little of their histo-

MATERA

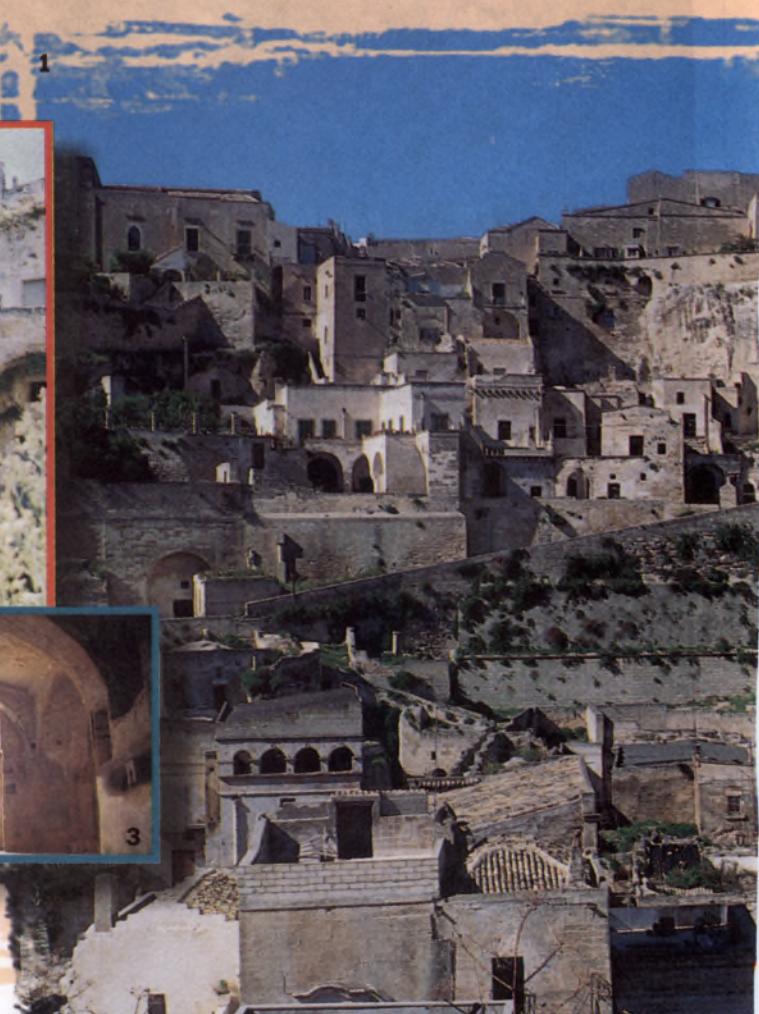
City of Unique Cave Dwellings



1



2

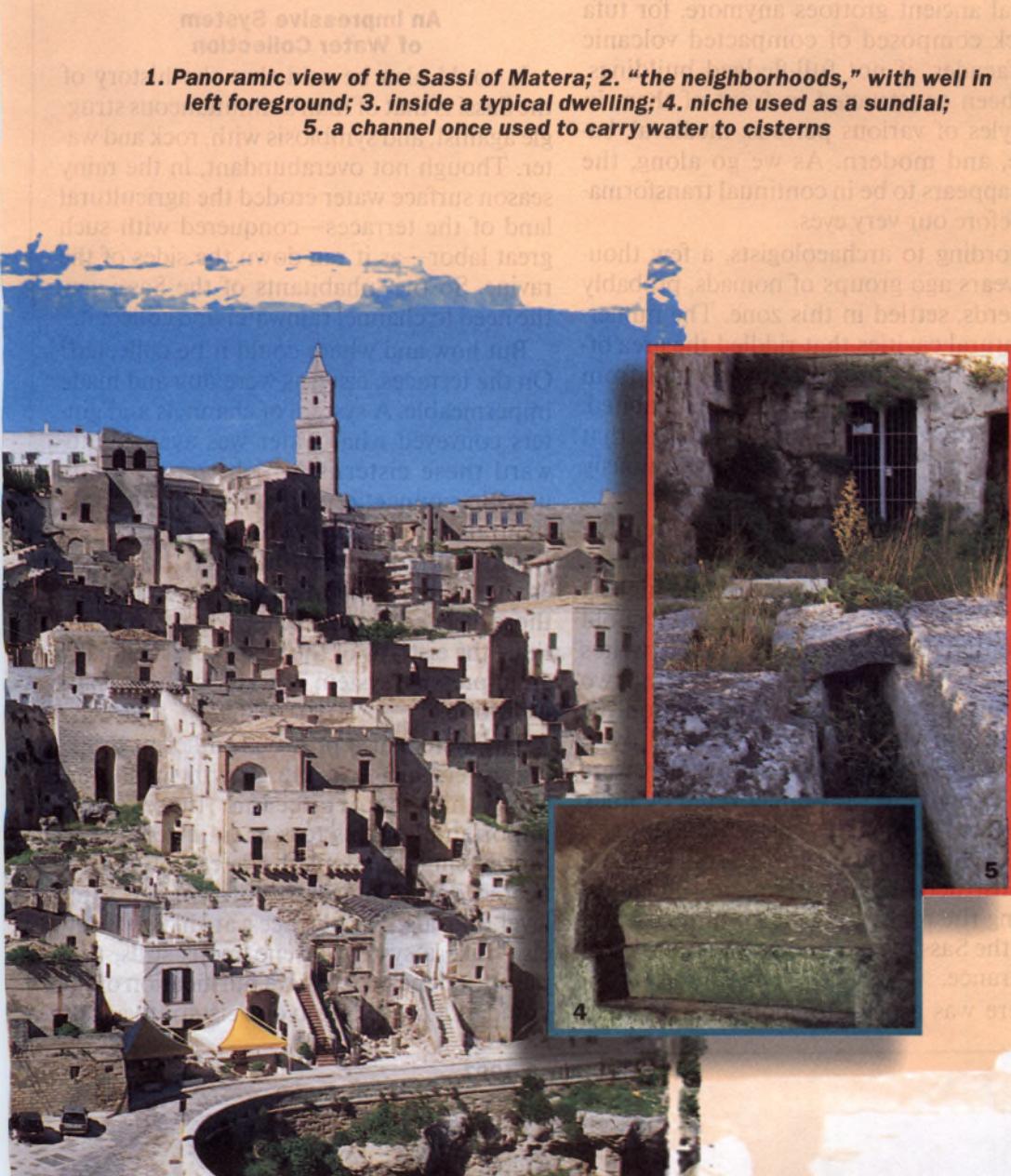


3

ry. Why not accompany us as we visit the Sassi and learn something about them?

"Among the Italian landscapes that generate the most amazement," according to writer Guido Piovene, the Sassi form, in effect, a city endowed with the "attraction of the incredible." In order to get a panoramic view, we make our way to a natural vantage point overlooking a deep gorge. On the opposite side of this ravine, in front of us, is the city

of Matera. In the brilliant summer light, we see houses clinging to the rock; they seem to have grown one on top of the other. As the narrow roads between them wend their way down to the bottom of the gorge, they form a tangled knot somewhat resembling the steps of an immense amphitheater. The many holes in the rock face that we see are, or have been, dwellings. In short, these are the Sassi—cave houses wrought out of rock!



1. Panoramic view of the Sassi of Matera; 2. "the neighborhoods," with well in left foreground; 3. inside a typical dwelling; 4. niche used as a sundial; 5. a channel once used to carry water to cisterns

A Surreal Atmosphere

To get to the Sassi—the ancient city center of Matera—we have to pass through the modern city, with its traffic and its noise. Entering the old city is like passing through a time warp; we emerge into a surreal atmosphere in which the chaos of the present gradually gives way to images of times gone by.

Don't expect to see any cave dwellers emerging. Today, you can hardly see the original ancient grottoes anymore, for tufa (a rock composed of compacted volcanic ash) facades, if not full-fledged buildings, have been constructed in front of them in the styles of various periods: medieval, baroque, and modern. As we go along, the scene appears to be in continual transformation before our very eyes.

According to archaeologists, a few thousand years ago groups of nomads, probably shepherds, settled in this zone. The numerous natural cavities that riddled the area offered shelter from the elements and from predators. Soon, many caves were inhabited. Archaeologists' finds seem to indicate that the area has been populated continuously from that time on.

The Sassi themselves, however, were inhabited gradually. In Greco-Roman times, there was a small settlement on the highest point of a rocky spur, the present-day old city center. In those ancient times, writes Raffaele Giura Longo, the Sassi were "two wild valleys, two basins that opened on the sides of the old city hill above and overlooked a sheer drop into the gorge; they were not inhabited but . . . were covered by thick vegetation." From the early Middle Ages, with the systematic digging of soft tufa and the construction of roads, squares, and houses using the rock obtained from the excavations, the Sassi began to take on their typical appearance.

There was a need for houses and places

to keep animals and to carry on the activities connected with livestock raising, such as the production of cheese. The main activity, however, was agriculture. Vegetable gardens were established on the wide terraces dug out of the side of the deep ravine that the Sassi overlook. Signs of the terraces can still be seen. Most of the social life was centered in the neighborhoods, courtyards surrounded by several dwellings.

An Impressive System of Water Collection

It could also be said that the history of the Sassi is that of man's simultaneous struggle against, and symbiosis with, rock and water. Though not overabundant, in the rainy season surface water eroded the agricultural land of the terraces—conquered with such great labor—as it ran down the sides of the ravine. So the inhabitants of the Sassi saw the need to channel rainwater and collect it.

But how and where could it be collected? On the terraces, cisterns were dug and made impermeable. A system of channels and gutters conveyed what water was available toward these cisterns, which were initially used in connection with agriculture more than anything else. According to architect Pietro Laureano, their number, "far greater than that of the inhabited caves or than those needed for drinking water," testifies that "the cisterns of the Sassi were originally an impressive system of water collection for irrigation."

The system also provided sufficient drinking water, and with the growth in population, this factor became increasingly important. For this reason, an ingenious arrangement was adopted. Cisterns were connected one to another, both on the same level and also on terraces at different levels. "Like a system of enormous stills, they permitted the progressive purification of the liquid as it passed from one cistern to another."

er." The water was then drawn from one of the many wells that studded the Sassi. The mouths of some of these wells can still be seen today. So much water in an otherwise arid area was exceptional.

A House in the Rock

As we go down the stairways and follow the maze of narrow streets, we realize that these ancient neighborhoods are set out on descending levels, so that we often find ourselves walking on the roofs of the houses opening onto the terraces below. In certain places, there are ten levels of dwellings, one above the other. Here, man lives in close contact with the rock. As early as the 13th century, official documents called these neighborhoods "Sassi."

We stop outside a dwelling. The elaborate and relatively modern facade should not fool us, for here a more recent entrance in tufa has been added to the original one. This is a typical Sassi dwelling. After passing the threshold, we go down a series of steps into a large room where most of the domestic activities of the family once took place. We go down more steps into a second room, beyond which there is yet another. Some rooms were old cisterns that had been made livable—the opening above, where water used to enter, was stopped up, and the entrance was built by digging into the side of the terrace. The innermost rooms were once used just to house beasts of burden, while the family lived in the rooms nearest the entrance. Light and air were provided by a large opening above the door. Needless to say, today inhabitants of the Sassi no longer keep beasts of burden inside their homes!

Many of the dwellings are below street level. Why? Because the entrance and some of the cave houses themselves were dug on a slight slope to exploit the sun's rays. In winter, when the sun reaches its lowest point on the horizon, its rays could enter the house, il-

luminating and warming it; in summer the sun's rays got no farther than the entrance, and the inside stayed cool and humid. On the back wall of the cave we are visiting, we see a sculptured niche with several "shelves." It is a sundial, designed to indicate the sun's movement throughout the year. When we come back out, we have a strange sensation. The coolness of the cave had all too soon made us forget the summer heat outside!

Decay and Restoration

Surreal atmosphere apart, the Sassi have suffered various changes. Though for centuries they remained a coherent and relatively efficient urban nucleus, during the 18th century something changed. New buildings and streets obstructed the efficient system of water management, creating problems in the regular elimination of refuse. As a consequence, disease increased. Further, changes in the economy of the area resulted in increasing poverty among the agricultural families of the Sassi, which were becoming more and more crowded.

The progressive decay of this once beautiful area seemed inevitable. So with the idea of resolving the problem once and for all, in the early 1950's, the official decision was made to evacuate the Sassi. For the more than 15,000 residents of Matera who lived here, that meant a real trauma, particularly from the social point of view, as deep ties of friendship that had been forged in the neighborhoods were broken.

Many believe this incredible townscape, however, ought not to be lost. Thus, thanks to an efficient work of restoration, the Sassi are slowly being recovered and rehabinited. Today, many tourists like to experience the atmosphere breathed among the ancient squares and tangled streets of the Sassi. If you should ever come to this part of the world, why not stop by to visit this centuries-old city that grew out of the rock?



BY AWAKE! CORRESPONDENT IN SOUTH AFRICA

ARE CHILDREN SAFE WITH YOUR DOG?

TWO-YEAR-OLD Sydney wandered too close to an aggressive Rottweiler that was tied up. The dog attacked, damaged Sydney's scalp, and almost removed his left ear. He will need a series of skin grafts.

Because more people use dogs for protection, there are increasing reports of dog attacks on children. Some dogs that have been known to bite children are Rottweilers, Doberman pinschers, bullmastiffs, Alsatians (German shepherds), and bullterriers. A survey conducted in South Africa revealed that of the cases examined, the majority of children bitten were attacked by dogs they knew. Nearly half of those were victims of neighbors' dogs, and one quarter were bitten by their own dogs. Stray dogs accounted for only 10 percent of the attacks. Often the victim, perhaps without realizing it, had provoked the dog in some way. Evidently,

many dog attacks can be avoided if dog owners and parents take some basic precautions.

Train the Child

Many dog trainers stress that small children and dogs should not be left alone without adult supervision. Small children do not know how to treat animals. They must be taught. Thus, many people apply the rule that if a responsible adult cannot be present, dogs and small children are kept in separate areas. Trainer Brian Kilcommons observes in the book *Childproofing Your Dog*: "From the stories we hear, the majority of problems occur when adult eyes are elsewhere."

Often, animals need protection from children! Kilcommons was called for help when one family's dog snapped at a child. The distraught father explained that his two-and-a-half-year-old son ran up to the sleeping dog and gave it a sound kick. The dog, obviously

in pain, responded by snapping at the child. In this situation the dog showed commendable restraint in not biting the child. This trainer advises parents: "Do not allow your child to do to a dog what you would not allow done to another child."

Teach your child how to treat animals kindly. Teach him never to tease a dog. Parents need to be alert to spot any possible dangers when children and dogs are together. If you notice the dog trying to get away or hide from a child, stop the child from pursuing it. If the child follows and corners the dog, its only defense is to bark, growl, or even bite. Parents should discipline consistently, so that both dog and child know that the parent means what he says.

Do not treat the dog as an outcast. When a married couple with a dog have their first baby, the tendency may be to ignore the dog and banish it to the backyard. While it is sensible to take precautions, trainer Richard Stubbs advises: "The dog should not be treated as an outcast. Rather, maintain the dog's routine as far as possible, and give it a reasonable amount of attention."

Consider how your child will respond to strange dogs. If he sees a stranger walking a dog in the street, what will he do? Run up compulsively to pet the dog? Teach him not to do this. He must first ask the owner's permission. Then, if the owner agrees, he can move toward the dog slowly, so as not to frighten it. He should introduce himself by standing a little distance away and speaking calmly to the dog. The friendly dog will approach your child. Dogs walking the streets unattended are best left alone.—See the box "Dog Body Language," page 22.

Train the Dog

Always praise your dog and be positive. Punishment or harsh words do not speed up learning but rather have the opposite effect. It is

good for a dog to learn to come when it is called and also to obey basic commands like "sit!" The dog learns submission to its master, and this gives the owner better control in tricky situations. Simple words and phrases work best. Stick to the same ones. When your dog performs the desired action, give a reward immediately in the form of praise, a pat, or a tidbit. To have the desired reinforcing effect, the reward must be given *immediately* after the act. The next important element is repetition until the behavior is firmly fixed.

If you acquire a dog, either a puppy or an older dog, it may need assistance to get used to children. Children react differently from adults. They are noisier and more impulsive and are likely to rush at a dog, which may give it a fright. It is good to get your pet used to such erratic behavior. When the children are not around, get the dog accustomed to sudden noise. Make the training into a game. Shout a command at the dog, and rush toward it. Then, immediately reward your dog. Make your shouts progressively louder. Make a fuss over your pet. Soon it will enjoy this game.

Small children like to hug dogs, but they should be taught not to do this, since some dogs feel threatened by such close contact. In case children do hug your dog, you can train it to accept this. Give your dog a hug

IN OUR NEXT ISSUE

The Internet—Is It for You?

Why Is It Always My Fault?

**Unhealthy Life-Styles
—How High the Cost?**

for a brief period, then a tidbit and praise. Gradually make your hugs longer. If your dog growls or snarls, get help from a qualified trainer.

The Aggressive Dog

Some dogs seem to be aggressive by nature and may be a danger to members of the household. Male dogs are more likely to manifest these aggressive characteristics.

The dominant dog does not like to be handled, especially around sensitive areas like the face and neck. At other times, though, the dog may approach you, nudge you, or even put its paws on your lap, "asking" for attention. It may guard strategic areas of the home, not even allowing family members access to them. It is often possessive of ob-

jects like toys and may growl or stop chewing when approached while it is busy with them.

To reinforce their leadership, such dogs will ignore known commands deliberately. They may bump into children or expect to go through a doorway first. They may also be inclined to mount people. This, states Brian Kilcommons, is "an act of dominance" and is "not about sex." He warns that this "is always a sign that the dog thinks he is in charge. Trouble is most definitely on its way." The dog may also develop the habit of taking its owner's hand in its mouth to demand attention.

These signs of aggression should not be ignored. The aggression will not simply go away; it is more likely to increase, and children in the home may be in danger. Many trainers recommend having such a dog neutered, irrespective of its sex, as this generally helps reduce aggression.

It is not advisable to challenge an aggressive dog to show it who is boss. Aggressive confrontation and harsh discipline could, in fact, be dangerous. In more subtle ways, the dog can be shown who is in charge.

Every time an aggressive dog approaches you for attention and you give it, you reinforce the dog's belief that it is in charge. So when such a dog demands attention, ignore it. The whole family must cooperate in this treatment. The dog will be bewildered at first and may even bark and look at you winsomely, but resist the temptation to give in. When it has backed off and perhaps goes to lie down in its corner, then is the time to give it a little attention. In this way your dog learns that you are the leader and you decide when attention is given.

Aggressive games like tug-of-war and wrestling can foster the dog's domineering tendencies and should be avoided. Rather, substitute nonaggressive games.

Dog Body Language

The aggressive dog's characteristic behavior reveals unfriendly intentions. By teaching your child to recognize this dog body language, you can help him to avoid dangerous situations.

- The aggressive dog will try to appear larger. The hair on the back of its neck may bristle. The dog may growl or bark with its tail pointing straight up. If the tail wags in a stiff, rapid wag of excitement, it does not signify friendship. This dog should be left alone.
- The fearful dog may crouch with its head and ears down and its tail down or between its legs. If this dog is approached, it may become aggressive out of fear. Leave it alone.
- The relaxed dog stands with head held not too high or low, mouth open, and tail a little below the line of the back, but not hanging down. The wagging tail is a friendly sign. It is generally all right to make friends with this dog.

(Adapted from the book *Childproofing Your Dog*, by Brian Kilcommons and Sarah Wilson.)



Dog Safety

1. Supervise young children and dogs.
2. Teach your child never to tease a dog.
3. Ask the owner's permission before petting a strange dog.
4. Train your dog to obey basic commands.
5. Get your dog used to being hugged.
6. Avoid aggressive games.

It is better for the dog not to sleep in the bedroom. The bedroom is a privileged area, and sleeping there may elevate the dog's perceived status above the children in the house. Rather, put the dog's bed in the kitchen or in an outside kennel. It is often in their bedrooms that owners are first bitten by an aggressive dog.

If your dog does not respond to your efforts, or if while training it, or at any time, you feel threatened, get the help of a competent dog trainer. Your veterinarian may be able to recommend one. Talk to him first about his training methods, and ensure that you are happy about his abilities before you hire him. Trainer Richard Stubbs cautions: "While an aggressive dog may respond to a professional trainer, this is no guarantee that he will be the same with his owner." The dog owner must be sure that he

can maintain control of his dog in critical situations.

A few dogs will remain aggressive even after the best training, and keeping them puts the family at risk. After you have tried your best, you may feel it is better to get rid of the dog rather than risk injury. It is good to consult a vet or a trainer for advice. You may be able to find another home for your dog, but you are naturally obliged to tell the new owner of the problems you have had with the dog.

Trainer Peter Neville advises: "Dominant dogs must only be treated under very careful guidelines and with careful assessment of who will continue to be at risk and by how much. If safety cannot be guaranteed for the person in the family who is most at risk, then the dog is better off rehomed to a carefully selected new owner, or put to sleep."

Children can learn and benefit emotionally from having dogs as pets. By providing responsible supervision, parents help to ensure that all their children's memories of their pets are pleasant ones.



BRUNOST A NORWEGIAN CHEESE DELICACY

BY AWAKE! CORRESPONDENT IN NORWAY

COME with me to a simple Norwegian home. The breakfast table is laid with butter, coarse bread, and various other items. But wait a moment! Something is missing. It does not take long before someone asks: 'Where is the *brunost*?'

Of all the sorts of sandwich fillings, including hundreds of different cheeses, *brunost*, or brown cheese, is in a class by itself. It is found in most Norwegian homes and represents nearly one fourth of all cheese consumed in this country. Every year, Norwegians eat 12,000 tons of *brunost*, which means an average of more than 6 pounds per person. At the same time, about 450 tons of *brunost* are exported to such countries as Australia, Canada, Denmark, Sweden, and the United States.

Many foreigners get their first taste of *brunost* at a Norwegian hotel. This cheese, round-shaped or quadrangular, is nearly always on the breakfast table—inevitably with a handy little cutting tool called an *ostehøvel*. It is used to cut thin slices from the top of the cheese.

But what actually is *brunost*? To find out, we visited a real *seter*, or mountain summer pasture farm, where *brunost* is still made in the traditional way.

Producing *Brunost* the Traditional Way

When we arrived, the goats had just been milked. We were allowed to join the milkmaid as she transformed the goat's milk into tasty cheese.

The goats are milked twice a day, and the milk is poured into a big kettle. There it is heated to about 90 degrees Fahrenheit and rennin, an enzyme that makes milk curdle, is added. The white curd starts separating from the rest of the milk, which is called the whey. Most of the whey is laboriously worked out of the curd, and the curd is gathered in separate wooden tubs to become white Norwegian goat cheese. Since the white cheese is "live," it has to ripen for about three weeks before it is ready for use.

What, then, about the brown cheese, or *brunost*? Well, milk and cream are now added to the pure whey, and this mixture is brought to a boil. It must be stirred constantly. As the mixture boils, much of the moisture evaporates and the whey changes color. After about three hours, it turns into a brown paste. Then, it is taken out of the kettle and the stirring continues while the paste cools. Eventually, it is kneaded and then stuffed into molds. Unlike the white cheese, the *brunost* does not need ripening. The next day, as soon as the brown cheese is taken out of the mold, it is ready to please every lover of brown Norwegian goat cheese.

While the principles of the process are still the same, this outmoded method of cheese making has long been replaced by a large-scale machine production. The mountain dairy farm is displaced by dairies that use vacuum-concentrating equipment and pressure cookers instead of the old open iron kettles.

A Norwegian Invention

How did *brunost* originate? In the summer of 1863, the milk-maid Anne Haav, who lived in Gudbrandsdalen Valley, tried an experiment that became a breakthrough. She made cheese from pure cow's milk and thought of adding cream to the whey before boiling it down. The result was a tasty brown cheese, with full fat content. Later, people also started using goat's milk and a mixture of goat's milk and cow's milk as a basis for the production. In 1933, at a ripe old age, Anne Haav was given the Norwegian king's special medal of merit for her invention.

Today, there are four major types of *brunost*: *Ekte Geitost*, real goat cheese, is made of pure goat's milk. *Gudbrandsdalsost*, the most common, is named after the valley and contains 10 to 12 percent goat's milk and the rest cow's milk. *Fløtemysost*, cream whey cheese, is made of pure cow's milk. *Prim*, a soft, brown whey cheese, is made of cow's milk, but sugar is added. It is boiled down less than the other types. Fat content, firmness, and color—how light or dark the cheese is to be—depend on the ratio of whey, cream, and milk and on the boiling time. What makes the *brunost* so special is actually that it is made from the whey, not from the casein, of the milk. Thus, it contains much milk sugar, which gives it a sweet, caramel-like taste.

For thousands of Norwegians, *brunost* is not just a delicacy but a necessary part of their daily diet.



With kind courtesy of TINE Norwegian Dairies

Making Your Own *Brunost*

Making tasty *brunost* is an art that requires much experience. The details in the manufacturing of the various types of *brunost* are, of course, trade secrets. But perhaps you want to do some experimenting and make your own *brunost*? This recipe, with a total of two gallons of milk and cream as a basis, will give about one and a half pounds of *brunost* and one pound of white cheese as a by-product.

1. Heat five quarts of milk to about 90 degrees Fahrenheit, add rennin, and wait for about half an hour. Now the milk will start coagulating.
2. Cut the separating curd into cubes, and stir cautiously. This is to release the whey from the curd. It might be an advantage to heat the milk further.
3. Take away the curd by straining the whey. The curd might be used as cottage cheese or pressed and molded into white cheese.
4. The whey mixture that is boiled down usually consists of about two thirds whey and one third milk and cream. That means that you now have to add some two quarts of cream and/or milk. Use one pint of cream to get an ordinary cheese with full fat content. A smaller proportion of cream will give a leaner cheese.
5. Let the mixture boil steadily while you keep stirring. It takes several hours before the whey is sufficiently boiled down. Then it will be quite firm. A measure of this might be that you can see the bottom of the kettle when stirring. The more the whey is boiled, the firmer and darker the cheese will become.
6. Take the brown paste out of the kettle, and stir it thoroughly while it cools. This is important, to avoid a grainy cheese.
7. When nearly cold, the paste is so firm that it can be kneaded and stuffed into a mold. Let it stand overnight.

As an accompaniment, the *brunost* tastes best in thin slices and is preferred on fresh bread or waffles.

Do Science and the Bible Agree?

FROM airplanes and atom bombs to genetically manipulated cells and the cloning of sheep, our 20th century has been an age dominated by science. Scientists have landed men on the moon, eradicated smallpox, revolutionized agriculture, and brought instant, worldwide communication to billions. So, it is not surprising that when scientists speak, people listen. But what, if anything, do scientists have to say about the Bible? And what, in turn, does the Bible tell us about science?

Are Miracles Unscientific?

"Scientifically minded people believe in a 'cause-and-effect' relationship. They feel there is a perfectly natural explanation for everything," states a contemporary encyclopedia. Students of the Bible also accept established scientific principles. They recognize, however, that the Bible often discusses miraculous events that cannot be explained scientifically according to present knowledge. Examples are the sun standing still in Joshua's day and Jesus' walking on water. (Joshua 10: 12, 13; Matthew 14:23-34) However, these miracles are presented as resulting from God's power acting in a supernatural way.

This point is crucial. If the Bible asserted that people can walk on water without divine assistance or that the sun's apparent motion across the sky can be interrupted for no reason, it might seem to contradict scientific facts. However, when it attributes such events to God's power, it does not so much contradict science as lead the discussion into an area where science cannot yet follow.

Does the Bible Contradict Science?

On the other hand, what of those instances where the Bible discusses ordinary events in people's lives or speaks in passing of plants, animals, or natural phenomena? Interestingly, there is no proved example of the Bible contradicting known scientific facts in such cases when the context of the remarks is taken into account.

For instance, the Bible often uses poetic language that reflects the perceptions of people living thousands of years ago. When the book of Job speaks of Jehovah beating or forging the skies "hard like a molten mirror," it well describes the skies as a metal mirror that gives off a bright reflection. (Job 37:18) There is no need to take the illustration literally, any more than



NASA

you would the illustration of the earth having "socket pedestals" or a "cornerstone."—Job 38:4-7.

This is important because numerous commentators have taken such illustrations at face value. (See 2 Samuel 22:8; Psalm 78:23, 24.) They have concluded that the Bible teaches something like the following, quoted from *The Anchor Bible Dictionary*.

"The earth on which humanity dwells is seen as a round, solid object, perhaps a disk, floating upon a limitless expanse of water. Paralleling this lower body of water is a second, similarly limitless, above, from which water descends in the form of rain through holes and channels piercing the heavenly reservoir. The moon, sun, and other luminaries are fixed in a curved structure which arches over the earth. This structure is the familiar 'firmament' (rāqīa') of the priestly account."

Clearly, this picture disagrees with modern science. But is this a fair assessment of the Bible's teaching regarding the heavens? Not at all. *The International Standard Bible Encyclopaedia* states that such descriptions of the Hebrew universe are "in reality based more upon the ideas prevalent in Europe during the Dark Ages than upon any actual statements in the O[ld] T[estament]." Where did those medieval ideas come from? As David C. Lindberg explains in *The Beginnings of Western Science*, they were largely based on the cosmology of the ancient Greek philosopher Aristotle, whose works were the basis of much medieval learning.

It would have been pointless and distracting for God to couch the Bible in language that would appeal to a 20th-century scientist. Instead of scientific formulas, the Bible comes alive with vivid illustrations taken from the everyday life of the people who first wrote them down—images that crackle with timeless power even today.—Job 38:8-38; Isaiah 40:12-23.

Knowledge From a Higher Source

Interestingly, however, some Biblical references do appear to reflect scientific knowledge that was not available to people living at that time. Job describes God as "stretching out the north over the empty place, hanging the earth upon nothing." (Job 26:7) The idea of the earth being suspended "upon nothing" was far different from the myths of most ancient peoples, who placed it upon elephants or sea turtles. The Mosaic Law contains requirements for hygiene far in advance of the medical knowledge of the time. Regulations for the quarantine of people suspected of having leprosy and the prohibition against touching dead people doubtless saved many Israelite

Job's comment that the earth is 'hanging upon nothing' indicates knowledge not available to his contemporaries

lives. (Leviticus 13; Numbers 19:11-16) In sharp contrast, the medical practices of the Assyrians are described as "a mixture of religion, divination, and demonology" and included treatments with dog dung and human urine.

As one might expect from a book inspired by the Creator, the Bible contains scientifically accurate information clearly ahead of its time, though it never gets bogged down in scientific explanations that would have been meaningless or confusing to ancient people. The Bible contains nothing that contradicts known scientific facts. On the other hand, the Bible contains much that disagrees with unproved theories, such as the theory of evolution.

WATCHING THE WORLD

Fatal Diseases in Australia

"The number of Australians dying from AIDS-related illnesses has dropped for the first time since records were kept on the virus," reports the *Herald Sun* of Melbourne. Based on recently released data from the Australian Bureau of Statistics, the findings show that 666 persons died in 1995 as a result of AIDS—a 13-percent drop. The overall national death rate fell by 4 percent, with cancer and heart disease still the front runners for cause of death. However, an increasing number of Australians are now dying of Alzheimer's and other diseases related to dementia. According to the national secretary for Alzheimer's Association Australia, "the predicted rapid rise in the number of dementia sufferers would put an enormous strain on existing facilities aimed at helping people with the disease and those who care for them."

Opinions About the Future

With the approach of the 21st century, there is a surge of opinions about the future. In a poll conducted by *Newsweek* in the United States, people were asked about their expectations for the next century. About 64 percent of those surveyed predict that astronauts will walk on the planet Mars. About 55 percent expect humans eventually to inhabit other places in the universe. Seventy percent think that scientists will find a cure for AIDS, and 72 percent predict that a cure for cancer will be developed. On

a more pessimistic note, 73 percent of those interviewed foresee a wider gap between the rich and the poor, and 48 percent anticipate more wars than in the past 100 years. About 70 percent think that man will not be able to eliminate world hunger.

A Horrendous Trauma

According to the *FDA Consumer*, the incidence and severity of burn injuries in the United States has declined significantly during the last 20 years. The



survival rate of burn victims has also improved. A Food and Drug Administration official, Charles Durfor, noted that "thirty to forty years ago, many burn patients didn't live. Advances in treatment have created a whole new patient population that not only lives, but has an improving quality of life." Every year, more than 50,000 Americans suffer burns that require hospitalization. According to the American Burn Association, about 5,500 victims die. "A serious burn is one of the most horrendous traumas the body can suffer," says the *FDA Consumer*.

"Honest" Fraud

Insurance companies in Argentina are losing about \$200 million every year because of

fraudulent practices on the part of their clients. As a result, automobile insurance costs up to 30 percent more than in most other countries. According to the newspaper *Ambito Financiero*, "almost half the frauds committed are the work of what could be called 'honest citizens.'" About 40 percent of policyholders are said to have abused their insurance company in one way or another. The newspaper concludes that such fraudulent activity represents a form of vengeance by unsatisfied consumers who feel that they have been defrauded by their insurance companies.

A Dying Sea

The Dead Sea is shrinking. "Already the lowest body of water on Earth (1,344 feet below the mean level of the world's oceans), the surface of the Dead Sea is steadily dropping," says *U.S. News & World Report*. Why? Apart from the effects of evaporation, several irrigation systems and dams divert water from the Jordan River, the Dead Sea's principal source of water. Also, "chemical factories that pump the Dead Sea's waters into evaporation ponds to extract minerals have accelerated the shrinkage." Since the mid-1950's, the surface of the Dead Sea has dropped about 60 feet. One corrective measure that is currently under debate is the construction of a 120-mile canal that would bring water from the Red Sea. The water would have to be pumped up 410 vertical feet and then dropped down 1,750 vertical feet into the Dead Sea.

Broken Vows

In Germany fewer marriage mates are living up to their wedding vows. The result, reports the *Nassauische Neue Presse*, is a climbing divorce rate and an increasing number of children who suffer. In 1995 almost 170,000 marriages broke up, affecting some 142,300 children. This represents a 5-percent increase in children affected over the previous year. The newspaper noted that of the marriages solemnized during 1950, 1 in 10 failed within 25 years. Of the couples who married in 1957, about 1 in 8 split up within 25 years. The rate for marriages in 1965 that ended within a 25-year period is 1 in 5. Among those who married since 1970, 1 out of every 3 couples ended up divorced.

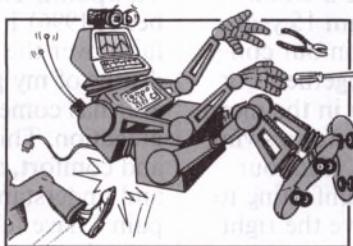
Panacea Found?

According to one study, "a diet low in fat and rich in fruits and vegetables has been found for the first time to lower blood pressure quickly and as effectively as drugs," reports *The New York Times*. Dr. Denise Simon-Morton, leader of the Prevention Scientific Research Group at the National Heart, Lung and Blood Institute, says that the study suggests that "one diet may do it all"—help prevent heart disease, high blood pressure, and many cancers. The study tested the effects of dietary changes in hundreds of adults at six medical centers around the country. Participants were separated into three groups. One group was given a diet similar to the "average" American diet. The second was given a diet high in fruits and vegetables, but all other items remained the same. The third got a diet high in fruits, vegetables, and low-fat dairy products

that was also low in total fat, cholesterol, and saturated fat. The second and third groups both had blood-pressure reductions that were medically significant, but the third group's diet showed the best results. For participants with hypertension, the results were as good as or better than those achieved using medication. The two diets included nine to ten standard servings of fruits and vegetables each day.

Humans Make Comeback in Japan

"A broad shift is underway in Japanese industry," notes the newsmagazine *Far Eastern Economic Review*. "For two decades, Japanese factories have pursued



efficiency by replacing man with machine. Now man is making a comeback. A few giant manufacturers are actually yanking robots off assembly lines and replacing them with humans." Why? Because humans have something the robots do not—flexibility. When it comes time to make a model change, humans can switch over quickly, while it may take months to reprogram the robots. "Before, we ended up using people as robots," says Tomiaki Mizukami, a factory president of NEC. "But now we must use their intelligence. Using robots was good, but now we're discovering that using people is ac-

tually faster." For example, it was found that workers at NEC can assemble phones 45 percent more efficiently than the robots can. People also take up less space than the machines, and simpler machinery translates into fewer mechanics and lower maintenance costs. "After two or three years of experimenting with less automation, manufacturers are claiming sizable cost savings and productivity gains," says the magazine.

"New" Pyramids to View

For years tourists have flocked to see the Great Pyramid at Giza, built by King Khufu—also known as Cheops. But few have seen the monuments left behind by his father, Snefru. That's because the latter were off-limits, concealed on an army base in Dahshur. But that has changed. Egypt's supreme Council of Antiquities has now opened up the area to the public. Of the 11 pyramids there, 3 were built by Snefru—he built 5 altogether—and include the Red Pyramid, the first one built with smooth sides. Previously built pyramids were stepped. Perhaps more intriguing is the Bent Pyramid, so-called because its steep lower incline changes suddenly on the upper half. The steep incline has apparently discouraged stone robbers, which may be why this pyramid has the best-preserved outer casing of any of Egypt's pyramids. While previous kings were fully deified only at death, Snefru "declared himself to be the living sun god Re," notes *Time* magazine. "Snefru ended up in the Red Pyramid, entombed in a magnificent three-room burial chamber that is considered the finest of the Old Kingdom."

FROM OUR READERS

Accountability Thank you for the outstanding series "Are We Accountable for Our Actions?" (September 22, 1996) I've found these articles to be remarkably effective in stimulating good discussions with lawyers, insurance agents, business executives, publishers, local government officials, and others I have spoken to in our city's business district. I showed a city parking official the article "It's Not My Fault." She snatched the journal out of my hands, remarking that "few people admit to their own errors anymore." She said she wanted everyone on the staff to read it.

B. S., United States

Good Times Thanks for the article "Young People Ask . . . How Can I Have a Good Time?" (September 22, 1996) I am 15 years old, and there are many youths in our congregation. We often do things together. For instance, we might go preaching in the morning and then in the afternoon go for a swim. It's great fun! Sometimes others from our congregation join in. And it's comforting to our parents to know that we have the right kind of association.

I. W., Germany

Sickle-Cell Anemia I have read and re-read the article "Sickle-Cell Anemia—Knowledge is the Best Defense." (October 8, 1996) It describes my situation! I have been living with this illness for 18 years now. Tears came to my eyes as I read it. I was happy to see that you thought of those suffering from this ailment.

R. S., Italy

I have sickle-cell anemia. I didn't know so many others had it too. The article helped me understand why I have pain and how important it is to drink lots of liquids. My mom gave copies of the article to my teachers so they will understand my disease.

A. H., United States

I lost my younger brother to sickle-cell anemia. In Nigeria, 60,000 persons die annually from it. So the article came to grips with a real problem. Every Nigerian family should read this article. It was informative and was presented from a fresh perspective.

F. A., Nigeria

I cannot hold back from expressing how I feel about the article on sickle-cell anemia. I have endured the disease for 26 years now without this information. Thank you so much for it.

D. C., Zambia

Love That Binds I want to thank you, dear brothers, for printing the article "The Bible's Viewpoint: The Love That Binds." (October 8, 1996) I have faced many tests of my faith over the years, including the sudden deaths of my parents. But the hardest test ever has come from someone within the congregation. This article has given me strength and comfort, as I see that Jehovah knows and understands my tears and the hurt and pain I have felt in my heart. I learned that even the apostle Paul suffered similar hurts. I trust that in time Jehovah will heal my wounds.

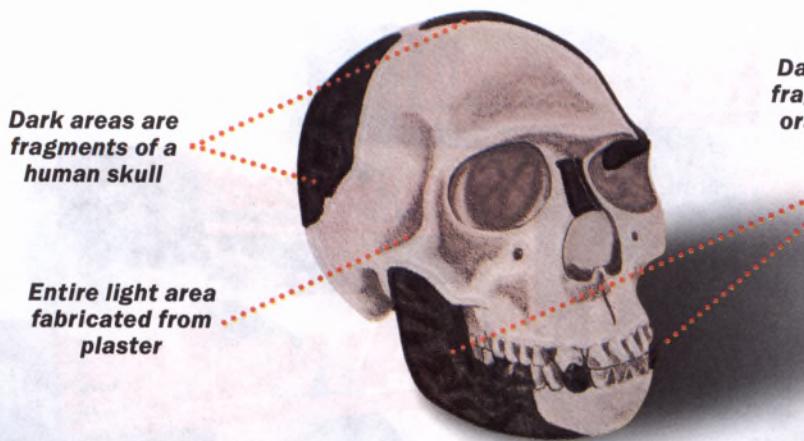
S. B., Canada

In this wicked system, it is easy to lose one's focus on spiritual things. The article was very encouraging and motivating to me. Lately, I have been very stressed by the everyday anxieties of life. This article helped me appreciate the importance of relying on Jesus' love, rather than on our imperfect emotions.

A. M., United States

I suffer from depression caused by a chemical imbalance. The article has helped me take another step in dealing with my depression.

B. U., United States



"The Most Notorious Scientific Fraud"

BY AWAKE! CORRESPONDENT IN BRITAIN

Piltdown man, discovered in 1912, was "the most notorious scientific fraud of the century," says *The Times* of London. It was exposed as such in 1953 after scientific tests proved that far from being a missing link in some supposed evolutionary chain of human ascent, the skull was that of a modern man and the lower jaw belonged to an orangutan. Who had perpetrated such a clever hoax?

For years the finger of suspicion pointed to Charles Dawson, the lawyer and amateur geologist who found the remains. Others thought to be implicated were Sir Arthur Keith, an ardent evolutionist and former president of the Royal College of Surgeons; British author Sir Arthur Conan Doyle; and French priest Pierre Teilhard de Chardin. Conclusive proof was lacking, however, and Dawson was eventually deemed responsible.

Now, the real culprit has been named. He is Martin A. C. Hinton, a former curator of zoology at London's Natural History Museum, who died in 1961. Nine years ago a canvas trunk that had belonged to Hinton came to light in the museum. Inside were elephant teeth, pieces of a fossil hippopotamus, and other bones, which have been closely analyzed. All were found to be stained with iron and manganese in the same proportions as the Piltdown bones. But the clinching factor was the discovery of chromium in the teeth, also used in the staining process.

Presenting the facts, Professor Brian Gardiner, of King's College, London, said: "Hinton was known as a practical joker. . . . [His] motive is shown by some letters." Gardiner concluded: "I'm 100 per cent certain that it was him." The evidence suggests that Hinton sought revenge on Arthur Smith Woodward, his superior, who had not given him the acknowledgment or the money he felt he deserved. Woodward was successfully duped, and until his death five years before the exposure of the fake, he remained convinced that Piltdown man was genuine. The only question that remains unanswered is, Why did Hinton not own up as soon as Woodward publicly endorsed the fraud? It would seem that because Piltdown man gained acceptance so rapidly throughout the scientific world, Hinton felt that he had no alternative but to live with his lie.

With such eminent men endorsing the Piltdown skull, the public was also taken in. Museums worldwide prominently featured copies and photographs of the skull, while books and periodicals quickly spread the news. The harmful effects of Hinton's practical joke are incalculable. How apt the Bible's comment: "Like an idiot throwing firebrands, arrows, and death, such is a man who deceives another and says 'I was just joking, you know!'"—Proverbs 26:18, 19, Byington.

Réveillez-vous!

Amkeni!

January 8, 1996

做醒！

危機四伏
的地球
挽救有希望嗎？

¡Despertad!

8 de enero de 1996

Awake!

January 8, 1996

OUR
THREATENED
PLANET
CAN IT BE
SAVED?

"I Had Never Cared to Read Awake!"

Those are the words of a student at San Jose State University, California, who is enrolled in an Environmental Studies course. She continues: "I had the impression that the magazine was going to preach to me—'Go to church' or, 'Become a Jehovah's Witness.' Yet, when I read this issue (January 8, 1996, 'Our Threatened Planet—Can It Be Saved?'), to my surprise it was very factual! The articles include a resourceful diagram of 'Some of the World's Major Environmental Problems,' which maps places suffering from deforestation, toxic wastes, atmospheric pollution,

water scarcity, species endangered, and land degradation.

JB "I still do not have children, yet I worry if they will have safe air to breath, parks to play in, or water to survive. . . . I commend you for these articles."

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in the fleet, who need to be leaving soon.