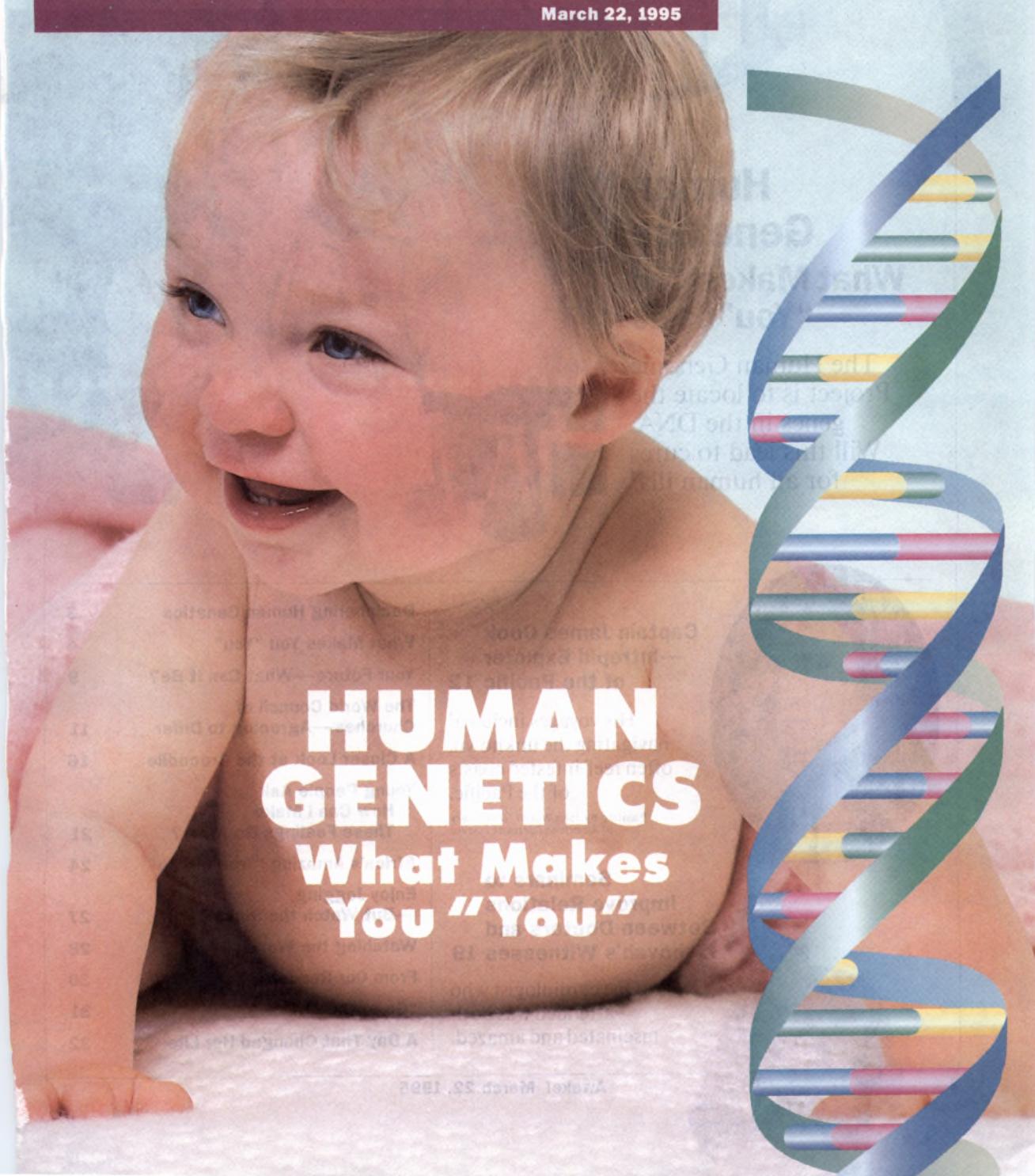


Awake!

March 22, 1995



HUMAN GENETICS

What Makes You "You"

Human Genetics

What Makes You "You" 3-10

The Human Genome Project is to locate the genes in the DNA. Will this lead to cures for all human ills?



Captain James Cook —Intrepid Explorer of the Pacific 12

His voyages included navigating the unknown, often reef-infested coasts of the Pacific.

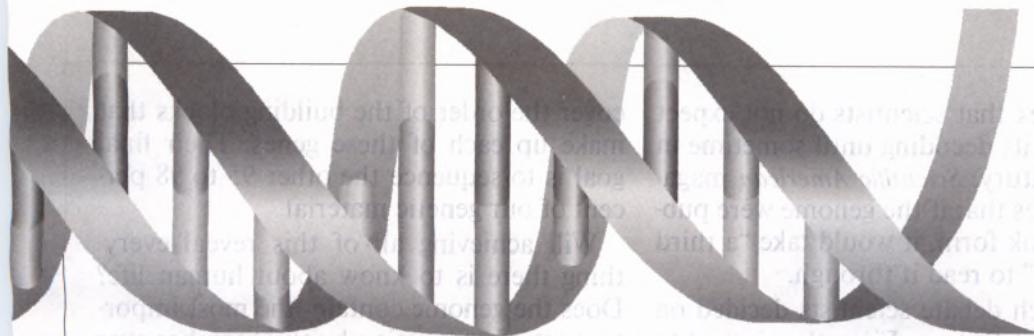
Painting by John Weber/Dictionary of American Portraits/Dover

Seminars to Improve Relations Between Doctors and Jehovah's Witnesses 19

One cardiologist who attended was both fascinated and amazed.



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Deciphering Human Genetics

BY AWAKE! CORRESPONDENT IN BRITAIN

BIOLogy'S first 'big science' project," sixth of "the seven wonders of the modern world"—both of these are descriptions of the Human Genome Project, an international attempt to decipher you! What is a genome? It is the sum total of your genetic makeup, one part inherited from your father and the other part from your mother but now uniquely yours.

Geneticists Sir Walter Bodmer and Robin McKie dub the genome project "the Book of Man." But reading it is no simple task. "A more important set of instruction books will never be found by human beings," claims James Watson, one of the scientists credited with discovering the structure of the now famous DNA molecule. "When finally interpreted," he says, "the genetic messages encoded within our DNA molecules will provide the ultimate answers to the chemical underpinnings of human existence."

As with any big and expensive science

project, the Human Genome Project has both believers and skeptics. "The Genome Project could be the ultimate violation of privacy," warns science writer Joel Davis, "or it could be an extraordinary doorway to renewed life, to health, to healing." But whatever it achieves, he believes that "it will utterly change the field of genetics" and that "it may totally reshape the nature of *Homo sapiens*." Back in 1989, George Cahill, a vice president at the Howard Hughes Medical Institute, was positive. "It's going to tell us everything," he said. "Evolution, disease, everything will be based on what's in that magnificent tape called DNA."

A Mammoth Task

In 1988 an international group of scientists set up HUGO (Human Genome Organization) to coordinate the work of genome researchers in participating countries. With a budget of some \$3.5 billion, HUGO channels their results into a computer data base. Although computers now read thousands of its components every day, the genome

is so complex that scientists do not expect to complete its decoding until sometime in the 21st century. *Scientific American* magazine estimates that if the genome were published in book form, it would take "a third of a lifetime" to read it through.

After much debate scientists decided on the following strategy. First, they intend to map the genome to locate the position of the 100,000 genes. Next, by a process known as sequencing the genome, they hope to dis-

cover the order of the building blocks that make up each of these genes. Their final goal is to sequence the other 95 to 98 percent of our genetic material.

Will achieving all of this reveal everything there is to know about human life? Does the genome contain 'the most important set of instruction books' man has ever found? Will the Human Genome Project spell out cures for all human ills? The following articles consider these questions.



What Makes You "You"

BEFORE the Human Genome Project began, scientists had learned much about our genetic makeup. That is why terms such as "genes," "chromosomes," and "DNA" frequently appear in news reports as the press announces discovery after discovery of what researchers believe make us what we are. The Human Genome Project now attempts to build on these basics and to read our whole genetic code.

Before we consider how scientists go

about this, please read the box "Your Blueprint," on page 6 of this magazine.

Locating the Genes

As mentioned in the preceding article, the first aim of the Human Genome Project has been to discover where our genes are located on our chromosomes. One gene hunter likens this to "searching for a burnt-out light bulb in a house with no address in an unknown street in an anonymous city in a foreign country." *Time* magazine claims that the

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task is "as difficult as locating a phone number without an address or a last name." How, then, do scientists tackle this challenge?

Researchers study families to locate the genes that determine characteristics that are inherited with well-known traits and susceptibilities. For example, they have traced genes for color blindness, hemophilia, and cleft palate to areas on one of our chromosomes. These genetic-linkage maps, as they are called, are very rough—they indicate the gene's location only to within about five-million pairs of bases.

For more precision, scientists intend to compile a physical map. In one method, they break copies of the DNA into randomly sized pieces that they then survey for special marker sequences. Of course, the more pieces there are, the more difficult it is to sort them. If you compare each DNA fragment to a book on a clearly marked library shelf, then locating a gene resembles "finding a quote in a single book rather than having to search through a whole library," explains *New Scientist* magazine. These physical maps narrow the search to within 500,000 base pairs. Toward the end of 1993, a team of scientists led by Dr. Daniel Cohen at the Center for the Study of Human Polymorphism in Paris, France, produced what *Time* magazine called "the first full-fledged—if still rough—map of the human genome."

The project's next goal is to list the exact sequence of the chemical components of

each of our 100,000 genes, as well as the other parts of the genome. But as scientists develop their DNA-reading skills, they find the genome to be more complex than they envisaged.

Reading the Genome

Genes account for a mere 2 to 5 percent of our genome. The rest is often termed "junk DNA." Some researchers once thought these so-called useless sequences accidentally developed during evolution. Now they believe that some of these nongene regions regulate the structure of DNA and contain instructions the chromosomes need in order to copy themselves during cell division.

Researchers have long been interested in what switches a gene on and off. *New Scientist* reports that there could be as many as 10,000 of our genes that code for the production of proteins called transcription factors. Several of these apparently join together and then fit into a groove in the DNA like a key in a lock. Once in place they either spark the nearby gene into action or suppress its function.

Then, there are so-called stuttering genes that contain multiple repeats of parts of the chemical code. One of these normally contains between 11 and 34 repeats of the CAG triplet—a sequence of three nucleotides that identifies a particular amino acid. When it has 37 or more repeats, it provokes a degenerative brain disorder called Huntington's chorea.

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Consider also the effect of the change of a letter in a gene. A wrong letter in the 146-letter sequence of one of the two components of hemoglobin causes sickle-cell anemia. Even so, the body has a proofreading mechanism that checks on the integrity of the DNA when cells divide. One fault in this system reportedly can cause colon cancer. Many other disorders, such as diabetes and heart disease, though not simply the result of a single genetic fault, nevertheless result from the combined action of many faulty genes.

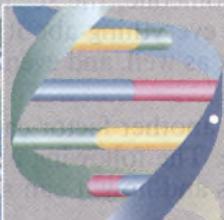
Rewriting the Genome

Doctors look to the Human Genome Project for information that will help them to diagnose and treat man's ills. Already they have developed tests that reveal abnormalities in certain gene sequences. Some worry that unscrupulous people will use genetic testing to carry out a policy of eugenics. Presently most oppose germ-line therapy, which involves altering the genes in sperm and in egg cells. Even couples who contemplate in vitro fertilization of a genetically normal embryo have to face decisions about what happens to those embryos not selected for reimplantation. Additionally, thinking people voice concerns about the consequences to the unborn of a diagnosis that reveals an apparent genetic fault. Fear that genetic mapping of adults will change the way they are employed, promoted, and even insured worries many. Then there is the vexing question of genetic engineering.

"Not satisfied with reading the book of life," comments *The Economist*, "they want to write in it as well." One way doctors may be able to do this is by using retroviruses. A virus can be thought of as a group of genes in a chemical bag. Starting with a virus that affects humans, scientists remove the genes the virus needs to reproduce itself and replace these with a healthy version

Your Blueprint

- Your body is made of some 100 trillion cells, most of which contain the complete blueprint of you. (Your red blood cells, however, have no nucleus and therefore do not contain the blueprint.)
- Your cells are complex structures, rather like cities with industries, energy-storage depots, and definite routes leading in and out. Direction comes from the cell's nucleus.
- Your cell's nucleus, home of your blueprint, can be compared to city hall, where the local government authority generally keeps plans of buildings constructed in the area. To build them, someone has to order materials, line up tools and equipment for the job, and organize the builders.
- Your chromosomes spell out your blueprint. These 23 pairs of tightly spiraling DNA molecules are present in each cell. If all chromosomes in all your body cells were unraveled and joined together, they would stretch to the moon and back some 8,000 times!
- Your DNA has sides joined by pairs of chemical components called bases, like the rungs of a ladder but a ladder twisted into a spiral. The base adenine (A) always joins with thymine (T), cytosine (C) with guanine (G). Split the ladderlike DNA as you would open a zipper, and you reveal the genetic code spelled out in those four letters, A, C, G, and T.



- Your ribosomes, like mobile factories, attach themselves to read the RNA's (ribonucleic acid) coded message. As they do so, they string together different compounds called amino acids, which form the proteins that make you "you."

- Your genes are sections of DNA that provide templates by which to make the body's building blocks, proteins. These genes determine your susceptibility to some diseases. To read your genes, chemical tools called enzymes unzip a stretch of DNA. Other enzymes then "read" their way along the gene, constructing as it goes a complementary series of bases at the rate of 25 a second.



Genetic Profiling

Extract some of the DNA from human tissues and break it into fragments. Insert the fragments into a gel, pass an electric current through, and then soak the resulting blots onto a thin film of nylon. Add a radioactive gene probe, and photograph. The result is a DNA fingerprint.

of the patient's faulty genes. Once injected into the body, the virus penetrates the target cells and replaces the faulty genes with the healthy ones it carries.

Based on the discovery of a gene that can give protection against skin cancer, scientists recently reported a simple treatment. Since only 1 person in 20 carries this gene, the aim is to include it in a cream that will insert this gene into skin cells. There the gene triggers production of an enzyme that doctors believe breaks down cancer-causing toxins that attack the body.

Marvelous as these procedures are, strict controls limit the use of genetic engineering as scientists battle public anxieties over its possible consequences.

Much remains to be discovered about the intricacies of the human genome. Indeed, "there is no single human genome," notes geneticist Christopher Wills. "There are five billion of them, one for virtually every hu-

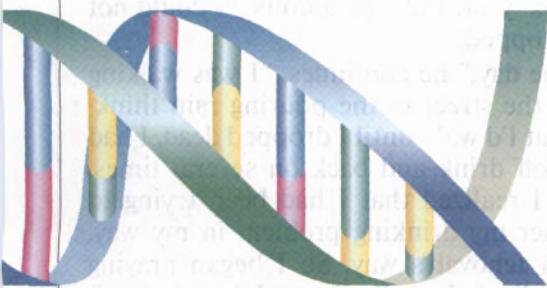
man being on the planet." Your genome reveals much about you. But does it tell all?

Does Your Genome Reveal All?

Some believe that genes are little dictators that make us behave as we do. In fact, recent press reports have announced the discovery of genes that some believe are responsible for schizophrenia, alcoholism, and even homosexuality. Many scientists advise caution on these possible links. For example, author Christopher Wills writes that in some cases gene variants simply "predispose their carriers towards alcoholism." According to *The Times* of London, molecular geneticist Dean Hamer expressed the view that human sexuality was much too complex to be determined by one gene. Indeed, the 1994 *Britannica Book of the Year* reports: "No specific gene was identified as predisposing to homosexuality, however, and the work done thus far would have to be confirmed by others." Moreover, *Scientific American* magazine notes: "Behavioral traits are extraordinarily difficult to define, and practically every claim of a genetic basis can also be explained as an environmental effect."

Interestingly, in the BBC television series *Cracking the Code*, geneticist Dr. David Suzuki expressed the belief that "our personal circumstances, our religion, even our sex can change the way our genes affect us. . . . The way genes affect us depends upon our circumstances." Consequently, he warns: "If you read in the newspapers that scientists have discovered a gene for alcoholism, or criminality, or intelligence, or whatever, take it with a pinch of salt. To tell how a particular gene affects someone, the scientists would need to know everything about that person's environment as well, and even that might not be enough."

Indeed not, for yet another factor can influence what you are. The following article considers what this is and how it can affect you for your good.



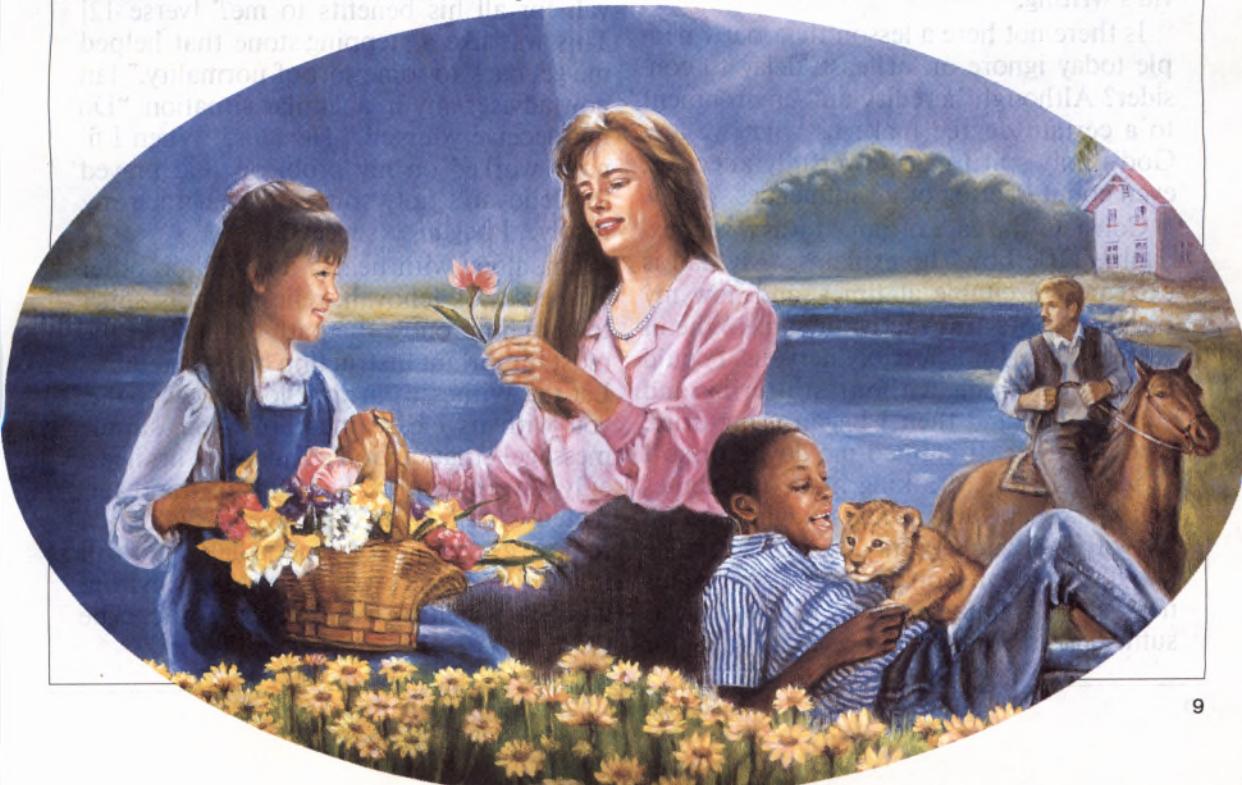
Your Future What Can It Be?

STUDY of the human genome already reveals much about the potential diseases a person may eventually suffer. But what about possible treatment and even the prevention of such illnesses?

The more researchers learn about the genomes of plants, animals, and humans, the greater the possibilities of developing drugs and therapies to treat diseases, asserts *The Times* of London. Nevertheless, as the magazine *Industry Week* reports, scientists offer a word of caution because this process

"could lag 20 to 50 years behind the diagnosis." This situation, according to biochemistry professor Charles Cantor, leaves a person "virtually . . . robbed of hope." But that need not be.

The Bible clearly promises an end to all disease. "[God] will wipe out every tear from their eyes, and death will be no more, neither will mourning nor outcry nor pain be anymore," states Revelation 21:4. Will geneticists make this come true by what *The Christian Century* magazine calls "genetic



co-creation"? The fulfillment of the Bible's promises does not depend on the completion of the Human Genome Project, any "genetic co-creation," or, indeed, a gradual improvement of our environment. Rather, its certainty relies exclusively on God's active force, his holy spirit.

Counteracting Heredity and Environment

Some three thousand years ago, an Israelite king said: "In a fear-inspiring way I am wonderfully made." Although David knew nothing of today's Human Genome Project, he sang this in praise of God: "Your eyes saw even the embryo of me, and in your book all its parts were down in writing." —Psalm 139:14, 16.

How did this ancient king know that his growth as an embryo in his mother's womb followed "written" instructions? David himself admitted: "The spirit of Jehovah it was that spoke by me, and his word was upon my tongue." (2 Samuel 23:2) Yes, the Creator's active force, holy spirit, inspired David's writing.

Is there not here a lesson that many people today ignore or, at least, delay to consider? Although heredity and environment to a certain degree make us what we are, God's holy spirit can powerfully affect us, even counteracting other influences.

Consider the case of Ian. "I was a very excitable little boy," he explains. "My dad is extremely excitable at times, and now my own little boys are exactly the same. When I was younger, I was terribly nervous. I could not say anything without stuttering and stammering, and then I began using drink as the answer. It calmed me down, or so I thought. Really, drinking made my nerves worse." When Ian started studying the Bible with Jehovah's Witnesses, he realized he had to stop relying on alcohol to control his nerves. "I felt that my own willpower was sufficient, and indeed I stopped drinking for

a whole year. But," he admits, "I could not stay stopped."

"One day," he continues, "I was walking along the street in the pouring rain thinking that I'd walk until I dropped dead. I had been off drink and back on several times. Then I realized that I had been trying to conquer my drinking problem in my way, not in Jehovah's way. So I began praying as I walked along, saying to Jehovah, in effect, that I was now going to do things his way, asking him to grant me his holy spirit to strengthen me." That was some ten years ago. How is Ian now?

"I still have to work to control my weakness," he admits, "and I have learned to rely heavily on Jehovah to keep going." To what does Ian attribute his success so far? "I remember my first Bible reading assignment after returning to the congregation of Jehovah's Witnesses. It was Psalm 116, which begins: 'I do love, because Jehovah hears my voice, my entreaties.' Halfway through the psalm, I read: 'What shall I repay to Jehovah for all his benefits to me?' [verse 12] This was like a stepping-stone that helped me get back to some sort of normality." Ian now advises any in a similar situation: "Do not deceive yourself." He adds: "When I finally worked on my problems and prayed for Jehovah's holy spirit to strengthen my resolve, I began to succeed."

Ian, along with nearly five million other Witnesses of Jehovah, relies on holy spirit to help him follow the path outlined in the most important instruction book, the Bible. Let the Witnesses in your locality acquaint you with its clear, uncomplicated, simple message—that of God's Kingdom, his heavenly government in the hands of the resurrected Christ Jesus. This agency will soon remove every trace of genetic flaws and will furnish mankind with a paradise environment in which to live forever. You can be there too!

THE WORLD COUNCIL OF CHURCHES *AGREEING TO DIFFER*

DURING August 3 to 14, 1993, the city of Santiago, Spain, welcomed an unusual group of pilgrims. The city hosted a World Conference on Faith and Order, sponsored by the World Council of Churches. The goal of the delegates was a formidable one—to invigorate the stalled attempt to unify Christendom's churches.

The situation was bluntly depicted as "ecumenical inertia" by Desmond Tutu, Anglican archbishop from South Africa. "We dip our toes in the water, but we lack the courage to take the plunge," he lamented.

Taking the ecumenical plunge will not be easy. Divisions among delegates surfaced even during the opening ceremony in Santiago's Catholic cathedral. The "Hymn to St. James," which was sung during the service, was criticized as glorifying centuries of aggression by Spanish Catholics against Jews, Muslims, and Protestants, even though Catholic archbishop Rouco had encouraged participants to 'enter into the spirit of the pilgrims and seek reconciliation among Christians.'

Is there any framework that can serve to reconcile Catholics, Orthodox, and Protestants? One study group suggested that different churches view the Nicene Creed "as a central expression of the apostolic faith." They hoped that this creed could serve "as a means for discerning unity of faith," even though there may be "a diversity of expressions."

The "diversity of expressions" manifested

itself repeatedly during the conference. Orthodox and Catholic delegates voiced their objections to the recent Anglican decision approving the ordination of women. Another bone of contention is the rivalry between the Orthodox and Catholic churches in former Communist countries. Archbishop Iakovos of the Greek Orthodox Church claimed that it was wrong to speak of "re-evangelizing peoples who have been Christian for centuries" but who have had the misfortune to live for decades under Communist atheism. In fact, a conference report condemned "proselytism" as a barrier to unity, although it did admit the need for a 'clearer understanding of the missionary nature of the church.'

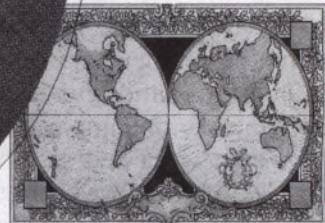
Samuel B. Joshua, bishop of Bombay, gloomily described the unity of the churches as a "utopian concept." After having personally experienced the problems involved in merging six denominations in India, he said the "gains have been superficial" while the burdens "have become unbearable." He believes that Christian unity should not be sought "in terms of doctrines and church order."

But would unity that disregards doctrines be true unity? Could religions that still do not 'understand the missionary nature of the church' be truly following Christ? Paul said true followers of Christ should continue "to think in agreement." (2 Corinthians 13:11) Merely agreeing to differ falls far short of that standard.

•CAPTAIN JAMES COOK•

Intrepid Explorer of the Pacific

BY AWAKE! CORRESPONDENT IN AUSTRALIA



OTHER than in England, Australia, New Zealand, Hawaii, and the Pacific islands, the name Captain James Cook might not even strike a chord of recognition in most people. In the countries listed above, though, almost every schoolboy knows of Captain Cook—in much the same way as American children learn of Christopher Columbus.

Without doubt, however, it is in Australia—the South Pacific's island continent—and in New Zealand that the seafaring explorer is best known, for the name Captain Cook can be seen everywhere. Additionally, the original version of the song "Advance Australia Fair," which in 1974 became the coun-

try's national anthem, literally sings the intrepid captain's praises.

James Cook the Man

James Cook was a country boy, born in Yorkshire, England, in October 1728. Although his early life is obscure, apparently he obtained some education in the still-standing Ayton village school. Later he was apprenticed to a grocer in the fishing port of Staithes. From there, with the sea air in his nostrils, he changed his career to the coal trade and learned to handle ships, working close to the windswept shores of the North Sea.

The coal vessels were not the only prepa-

Painting by John Weber/Dictionary of American Portraits/Dover. Background: The Complete Encyclopedia of Illustration/J. G. Heck

ration Cook had for his later voyages. While ashore, he continued his studies of mathematics and eventually enlisted in the British Navy in 1755. Although seeing some active naval service, he became better known for his maps and charts of Newfoundland, Nova Scotia, and Labrador.

The World Scene of 1769

Great Britain gained ascendancy in 1763 as the foremost colonial and commercial world power. After 200 years of sporadic warfare, she had defeated Spain, Holland, and France. The last of these rivals, France, had met up with staggering defeats. This was a dramatic period. Scientific achievement was rapidly conquering superstition and creating a widespread thirst for knowledge. Navigational methods had also vastly improved. The British Navy and scientific circles were urgently seeking the services of a seaman-scientist to lead an expedition to the Pacific. James Cook was the one chosen for this challenging role.

Cook's Voyages Begin

The instructions Cook received for his first voyage, 1768-71, were for "the making Discoverys of Countries hitherto unknown, and the Attaining a Knowledge of distant Parts which though formerly discover'd have yet been but imperfectly explored." His orders further stated that "there is reason to imagine that a Continent or Land of great extent, may be found to the Southward" and that he was "to proceed to the southward in order to make discovery of the Continent." The first task, though, was to observe the transit of Venus across the face of the Sun in hopes of determining exactly the distance between Earth and Sun. This was to be carried out on Tahiti.

The length of the first voyage was 43 days short of three years. Cook had carried out his orders, and more. It was during this first voyage that he made his famed landing in

Botany Bay, just a few miles south of beautiful Sydney Harbor, which was not discovered until later. He had also completed a circumnavigation of both islands of New Zealand and was the first European to map the east coast of Australia. Of course, he did not discover the imagined great southern continent.

A Second Successful Voyage

On his second expedition, 1772-75, Cook was commissioned to take the two vessels *Resolution* and *Adventure* on a voyage that proved to be another successful circumnavigation, this time of the Antarctic, including some sweeps across the emptiness of the South Pacific. But months of freezing temperatures and biting winds helped convince him that there was no elusive southern continent. His exhausted crew was happy to break contact with the icy seas and return to Tahiti.

Cook's second voyage was an unqualified success and went down in the annals of history. Stated Alan Moorehead in his book *The Fatal Impact*: "At the end of July 1775 they anchored at Plymouth. They had been away three years and eighteen days. They had sailed more than 20,000 leagues [60,000 nautical miles]—three times the circumference of the earth—and Cook had lost no more than four men . . . This voyage had established him as one of the greatest navigators of all times."

Third Voyage Brings Disaster

Expedition number three was to reconnoiter the Pacific coast of Canada and make a search for the supposed Northwest Passage linking the Pacific and Atlantic via the Arctic Ocean. It proved to be Captain Cook's final voyage. He set out from England on July 12, 1776, on the refitted *Resolution*, taking also the ship *Discovery*. On January 18, 1778, he came upon what are now known as the Hawaiian Islands, where he and his

men were received hospitably. They reprovisioned in those beautiful islands, then spent the northern summer of that year in a vain attempt to find a passage to the Atlantic. They then returned to winter in Hawaii.

Historians are undecided as to what caused a seeming change in behavior on Cook's part at this point. There are question marks as to his treatment of the Hawaiians on his return. Some suggest that he now began cruelly to exploit them. Others question whether he violated their cycles of worship. Whatever the real truth of the matter, it was here that he met his death on February 14, 1779.

How did he die? On their return to Kealakekua Bay on January 17, the explorers had been greeted by 10,000 Hawaiians. The islanders were celebrating the festival of makahiki to their god Lono, the god of the land. It seems that Cook was feted as the god Lono, and he and his men were extended extraordinary kindness and hospitality once again. Three weeks later, on February 4, they weighed anchor and set sail. But just four days out, they struck a severe hurricane, and the *Resolution* lost a mast. Cook returned to Hawaii.

To Cook's surprise, this time the reception was hostile. Some believe that the Hawaiians may have now thought things out more rationally and concluded they were being exploited by Cook and his men. Others suggest that Cook's return was inconsistent with his being a "god." Whatever the reason, Cook's perplexed men unfortunately reacted violently. This led to the theft of a boat from the *Discovery*. Cook attempted to retrieve the vessel by trying to take the chief, Kalaniopu'u, as hostage. Confrontation followed, and Cook was stabbed and then beaten to death on the beach.

The journal of a *Resolution* crew member, midshipman George Gilbert, describes

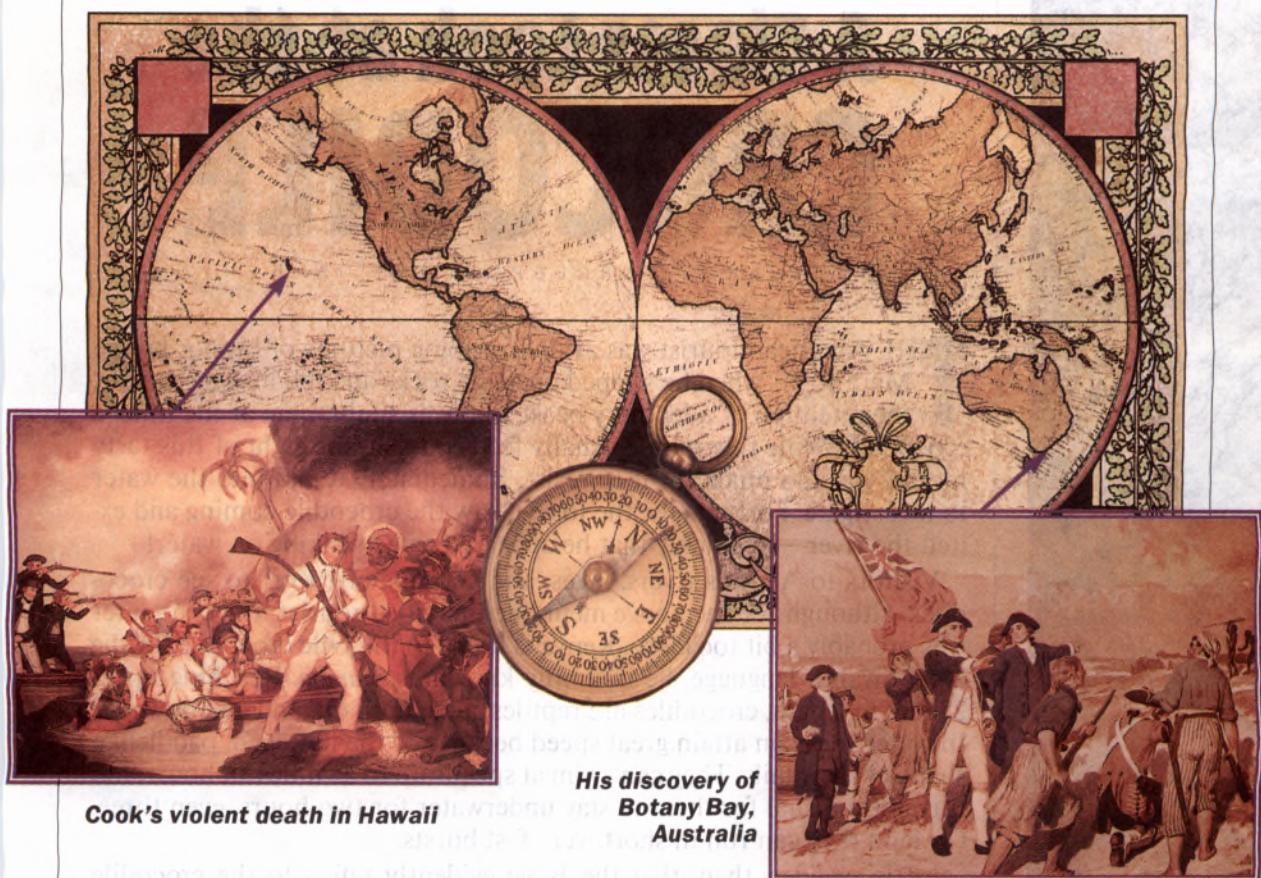
in graphic detail the last few minutes of Cook's life. (Notice the unusual Old English spelling.) "Capt Cook had not sooner got to the water side and waved to the boats to give over fireing, when one of the Cheifs more daring than the rest steeped behind and stabb'd him betwixt the shoulders with an Iron Dagger. Another at that instant gave him a blow with a club on the head by which he fell into the water; they immediately leaped in after and keept Him under for a few minuits, then hauled him out upon the rocks and beat his head against them several times; so that there is no doubt but that he quickly expired."

A Changed Personality Emerges

Apparently Cook's pattern of behavior began to change on the third voyage, and he no longer displayed the same composure and control that he had on his two former journeys to the South Seas. On the third voyage, he had used the lash on 37 percent of his men, nearly twice as many as on the first voyage. This time his treatment of the Polynesian islanders was also less humanitarian. For example, he had calculatingly ordered the burning of homes and the destruction of canoes on the Tahitian island of Eimeo because of the theft of one pregnant goat. He had even resorted to cutting off the ears of islanders who were caught pilfering. Was he sick or tired or simply cruel?

Legacy of the Voyages

Professor Bernard Smith in his book *Captain James Cook and His Times* suggests that "Cook was not a discoverer of new lands in any fundamental sense of the word." This may be true, since most of the areas sighted by Cook were already inhabited. Nevertheless, Grenfell Price states: "His outstanding contributions to geographical knowledge were the completion of the outline map of the Pacific by the discovery of the long eastern shoreline of Australia, the delineation



Cook's violent death in Hawaii

**His discovery of
Botany Bay,
Australia**

tion of New Zealand, the examination of long sections of the coast of North America; the discovery of entirely new islands, such as Hawaii and New Caledonia; and the rediscovery and accurate placing of other island groups. Cook stands as the navigator who virtually discovered . . . the Antarctic continent, while in the Arctic he confirmed Bering's discovery of his Strait." Cook's charts and maps were useful long after his masthead had disappeared over the Pacific horizon.

Sadly though, also left bobbing in Cook's wake were the pollutants of venereal disease, violence with firearms, the decimation of Antarctic wildlife, and the exploitation of Pacific Islanders. Concerning Cook's Ant-

arctic discoveries, Alan Moorehead wrote: "Once again it was Cook's fate to bring disaster in his wake. He had stumbled upon what was probably the largest congregation of wild life that existed in the world, and he was the first man to let the world know of its existence. . . . Cook's intrusion into Tahiti and Australia had been bad enough for the native peoples: for the Antarctic animals it was a holocaust."

Following Cook's comprehensive report and charts, the hunters and whaling fleets moved in for the kill. Moorehead continues: "The killing went on and on until there was virtually nothing left to kill, nothing at any rate that could be easily and profitably killed."

Paintings: By courtesy of Australian International Public Affairs



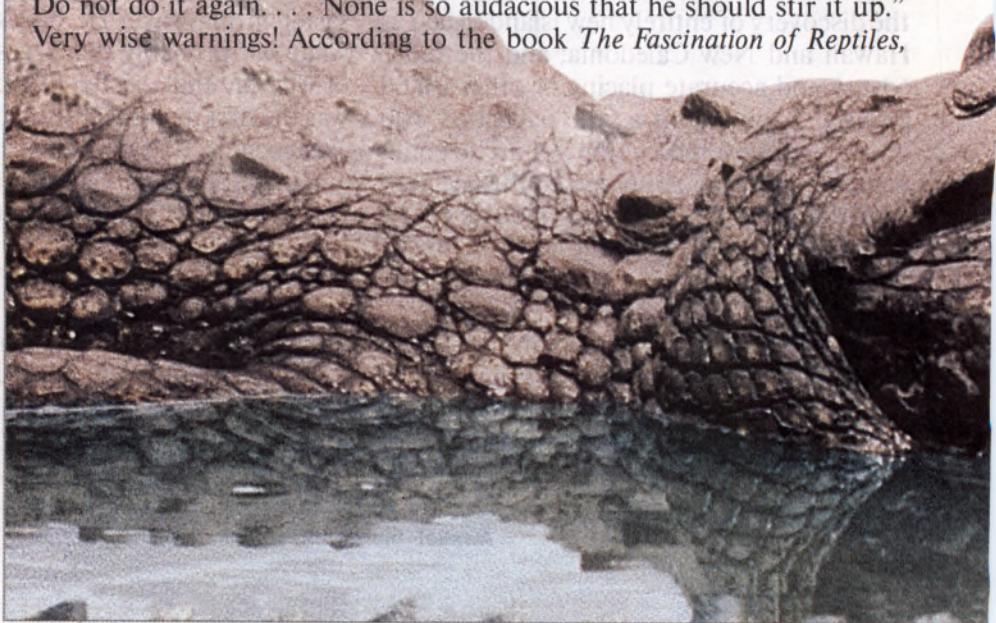
A Closer Look at the CROCODILE

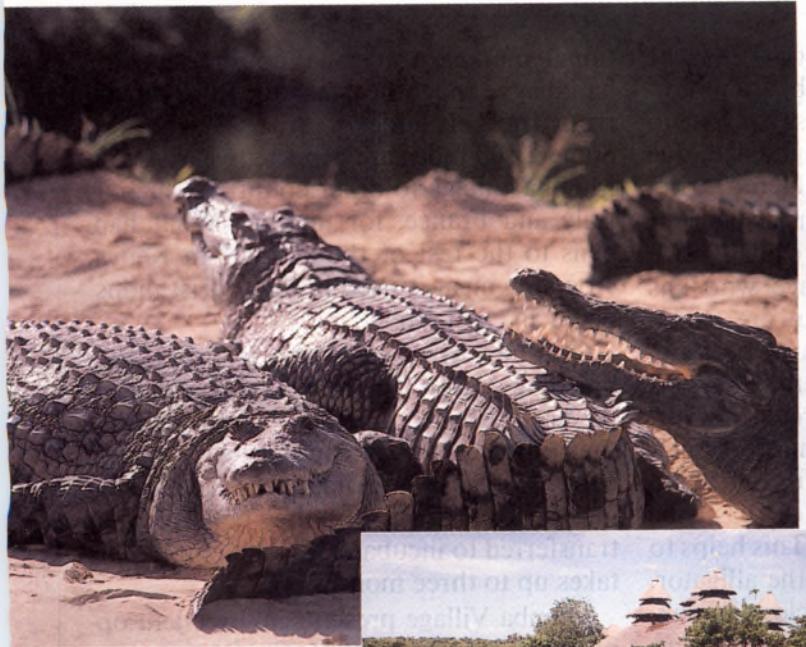
BY AWAKE! CORRESPONDENT IN KENYA

THE American tourist was avidly snapping pictures of hippos by the Mara River when he slipped on some rocks and fell in. This caught the attention of a leathery beast who was sunbathing at the time, a crocodile. While this reptile usually feeds on fish, the sight of this tasty morsel was too much for it to resist. Immediately it slid into the water to investigate. Fortunately, the tourist saw the crocodile coming and exited the river—so quickly that he appeared to be walking on water!

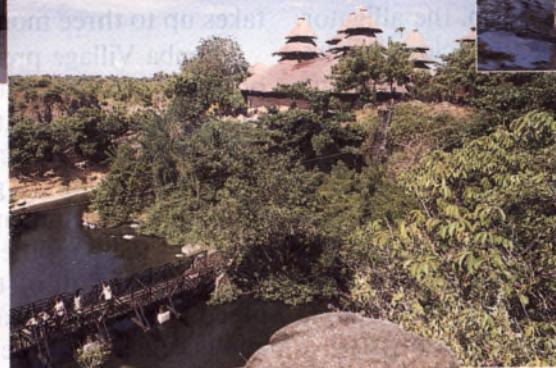
Visitors to Africa's rivers, lakes, and swamps often get to see crocodiles, although for the above-mentioned terrified tourist, the encounter was probably a bit too close. Kenya is home to the Nile crocodile. In the local Swahili language, he is simply known as *mamba*. Reaching up to 23 feet in length, crocodiles are reptiles, agile both on land and in water. In water they can attain great speed because of the flattened, paddlelike shape of their tails. They can swim at speeds up to 25 miles an hour! And it is not unusual for them to stay underwater for two hours, even three. On land they can run in short, very fast bursts.

Little wonder, then, that the Bible evidently refers to the crocodile as an example of a fear-inspiring creation of God called Leviathan. Job 41:8, 10 says: "Put your hand upon [Leviathan]. Remember the battle. Do not do it again.... None is so audacious that he should stir it up." Very wise warnings! According to the book *The Fascination of Reptiles*,





Right: An overview of Mamba Village



Far right: A crocodile at feeding time jumping out of the water to get meat



by Maurice Richardson, crocodiles have even been known to attack outboard motor-boats! Job 41:25 appropriately says: "Due to its rising up the strong get frightened; due to consternation they get bewildered."

Why do people flee in terror at the sight of this scaly beast? Verse 14 explains one reason: "The doors of its face who has opened? Its teeth round about are frightful." Each of the crocodile's jaws, both upper and lower, has up to 24 teeth of various sizes, all being continuously replaced during its lifetime. Interestingly, the crocodile's fourth tooth of the lower jaw fits outside in a groove in the upper jaw and can easily be seen when the jaws are closed. This helps to distinguish it from its cousin, the alligator. The problem is, if you get too close in making this little dental exam, you could very well find yourself examining *all* the crocodile's teeth from the inside!

That is why you may prefer to have a close look at the crocodile from a safe vantage point, and there are a number of places in Kenya where you can do so. Mamba Village, for example, is a place in Mombasa where crocodiles are raised in captivity.

'But why,' you ask, 'would anyone want to farm crocodiles in the first place?' To preserve them from extinction, for one thing. In the wild, crocodiles have a 99-percent mortality rate in the first year of life. It seems that monitor lizards, marabou storks, and even some people have an appetite for crocodile eggs and small hatchlings. However, the mortality rate of a crocodile properly cared for in a crocodile farm drops to less than 10 percent. Within a year, young crocodiles reach a length of five feet—certainly big enough to ward off most threats. It can take up to three years for young crocodiles to reach the same length in the wild.

Crocodile farms also raise these creatures for commercial purposes. On the interna-

tional market, you can find shoes, belts, handbags, and other fashion items made from the soft hide of crocodile bellies. Some 2,000 hides are exported yearly from Mamba Village to other countries, such as Italy and France, for tanning. What happens to the rest of the animal? In Kenya, crocodile meat is used in the tourist industry as an exotic treat.

October through April is crocodile-breeding season. In the wild a female will lay anywhere from 20 to 80 eggs. During that time, females in captivity will deposit about 36 eggs in breeding areas around various ponds. The eggs are then collected and transferred to incubators for hatching. This takes up to three months.

Mamba Village presents an excellent opportunity to observe these fascinating creatures safely. It is situated in a 20-acre quarry that has been redesigned to serve as a crocodile farm, botanical garden, marine aquarium, and entertainment complex. More than 10,000 of these reptiles live here. Of course, you won't see all of them. But in the two breeding areas, you can see over a hundred adults, and in the other areas, there are hundreds of young crocodiles in all stages of growth.

At feeding time the crocodiles put on a real show. Some even jump out of the water to get at meat suspended over the pond. Here you can see the infamous crocodile named Big Daddy that terrorized people in the Tana River area, killing at least five before being captured and taken to the farm. If seeing crocodiles face-to-face makes you nervous, you can get a very good look at them in the video theater.

Your closer look at the crocodile may fascinate or perhaps frighten you. But you will better understand why the Bible said of the crocodile at Job 41:34: "It is king over all majestic wild beasts."



SEMINARS to Improve Relations Between Doctors and Jehovah's Witnesses

CHRISTIANS are forbidden by God's law to ingest blood by any means. (Acts 15:28, 29) Obedience to that law has sometimes led to misunderstandings that have resulted in Christians being denied available and effective alternative medical management of their health problems.

To establish better understanding and to assist doctors to provide treatment without using blood, Jehovah's Witnesses have developed a helpful liaison service. The Governing Body of Jehovah's Witnesses has set up Hospital Information Services (HIS) in Brooklyn, New York, to train selected Witness elders to function on Hospital Liaison Committees (HLCs). Medical research has been done and the results presented in seminars for the HLCs. In turn, this information is presented to doctors and health-care centers. Also, consultation with other experienced doctors can be arranged in an effort to avoid confrontation.

Has this program been a success? Has the information presented been truly helpful? How have doctors reacted to it? The following impressions reported by a medical doctor who attended a recent HLC seminar are informative and reassuring.

"I hope you will find these impressions forthright and useful.

"First of all, let me tell you that it was a privilege to be asked to attend the second Hospital Liaison Committee Seminar presented by Hospital Information Services staff members who came from the headquarters of Jehovah's Witnesses in New

York. My expectations for this meeting were not merely met but far exceeded. The chairman's opening remarks set the tone for the two-day sessions. He emphasized that the HLC is not simply a mechanism for responding to the needs of ailing Witnesses during their hospital stays. The committee affords a golden opportunity to debunk many myths commonly held about Witnesses by the general public and by physicians, hospital administrators, and other medical personnel.

"It is eye-opening to many of these people to learn that Jehovah's Witnesses are not at all like Christian Scientists in their medical beliefs. Witnesses are not exercising a 'right to die' or attempting to put themselves in a position of martyrdom. Nor is the blood issue an organizational dictum but rather a heartfelt personal belief. Such revelations underscore the educational purposes of the HLC. Yes, as remarkable as it may seem, even physicians are educable and have much to learn regarding nonblood medical alternatives. I am constantly amazed by the scope and depth of research provided by this arrangement, much of which is certainly new to me. And the educational functions of the HLC do not end here. They extend on to hospital administrators, to social services, and even to the legal and judiciary officials.

"The committees expend extraordinary efforts in locating, contacting, and enlisting the help of physicians who are cooperative with Witness beliefs. Of course, it goes far beyond the physician

community, as the HLC is building working relationships with hospitals, health-care workers, lawyers, and judges as well. Perhaps the most salient message to be delivered is that Jehovah's Witnesses are reasonable people, not fanatics, and are merely asking for acceptable alternatives to blood. . . . There are significant dangers in the use of blood, and the HLC certainly fulfills a function in exposing these dangers and emphasizing to the medical community the potential risks of blood and blood products.

"I am constantly amazed by the information provided to the HLC by Hospital Information Services and the Watch Tower Society. But as any journeyman would attest, virtually any job can be accomplished if the proper tools are supplied. . . . It was fascinating to hear about the structures that are now in place to respond quickly and effectively to virtually any medical emergency. Each HLC member is trained to acquire essential demographic information, to assess quickly the attitude of physicians and hospitals, and to evaluate accurately the level of emergency and the potential threat of legal action by the hospital in terms of court orders for transfusion.

"We explored ways in which to clarify the needs and wants of Witness patients, how to handle unbelieving relatives, even how to dismiss physicians and transfer the patient to alternative medical facilities more responsive to Witness needs. The HLC interaction with the media was highlighted, and guidelines were provided, again stressing the primary focus that Witnesses are not refusing all medical care, just blood. This might be consid-

ered roughly equivalent to a devout Catholic's refusing abortion but not all surgery.

"The liaison committee members have been trained to handle many common questions raised by both hospitals and physicians, occasionally even Witnesses themselves. This might include issues like the acceptability of immunoglobulins or albumin, the use of cryoprecipitate or medical techniques such as hemodilution, extracorporeal circulation, the cell saver, or hemodialysis.

"I enjoyed a fascinating discussion of the legal considerations involved in understanding and using the law in defense of Witnesses and their religious beliefs. The judicial decisions that form the foundation for defending Witnesses' rights to medical self-determination make for rather fascinating discussion. To some, the work of the Hospital Liaison Committee may seem redundant, even unnecessary; but in truth, this network of support services is essential. Every day I see Witness patients who are unfamiliar with the hospital milieu and perhaps unaware of many nonblood medical alternatives. Moreover, few can be truly acquainted with the breadth of cooperative physicians known to the committee or to the specific legal rights and liabilities each of us has and faces in seeking nonblood medical management.

"Let me digress for a moment to applaud the efforts of HIS. As an interventional cardiologist, I find that there is little time to read the half-dozen journals immediately relevant to my subspecialty, let alone the broader range of internal medicine. It would be an impossible task to sift through the entire haystack of medical literature for those references that might pinpoint some very specific solutions to problems encountered in the non-blood management of my patients. Once again the Society comes to my aid in providing a magnet to pluck the needle of relevant research from that proverbial haystack of journal articles.

"The continuous updates from Brooklyn serve to keep me abreast of any late-breaking developments that might impact on my practice. These are far more thorough and compulsive than any journal-review computer service with which I am acquainted. Of course, so it should be, considering what is at stake."—By Dr. Stephen E. Pope, a cardiologist of the San Francisco Bay area, in California, U.S.A.

- In the United States, some 18,000 doctors are pleased to cooperate by providing Jehovah's Witnesses with bloodless medical care. Worldwide the figure is 50,000.
- In the United States, there are 45 medical centers where bloodless medicine and surgery programs are available. Worldwide the figure is 80.



**Young
People
Ask...**

How Can I Make These Feelings Go Away?

"As offensive as I now find homosexuality, at times I find myself attracted to it. These feelings disturb me, sometimes day and night. I have prayed to Jehovah continually, 'Take away these terrible feelings!' Will they ever go away?"—Dennis.*

A NUMBER of Christian youths—male and female—have made similar desperate pleas for help. They feel inclined toward homosexuality but want no part of the

* Some of the names have been changed.

promiscuity, disease, and moral bankruptcy that characterize that life-style. More important, they want to please God, and in his Word he pointedly condemns homosexuality.—Romans 1:26, 27; Colossians 1:10.

It is often claimed that homosexuals cannot change. This is not true, however. Some early Christians formerly practiced homosexuality, but they changed. (1 Corinthians 6:9-11) Yes, contrary to popular myths, people can and do change. However, while a youth may successfully avoid homosexual *acts*, he or she may find it difficult to eliminate entirely homosexual *desire*. Confessed one young man: "I've tried to change my feelings. I've prayed to Jehovah for help. I read the Bible. I've heard talks on the subject. But I don't know where to turn."

There is no magical or instantaneous cure. Dennis recalls: "I pushed myself into promiscuous heterosexual activity in an effort to become a 'man.' All of this was in vain and only created more pain." Nevertheless, by applying Bible principles, one can cope with such feelings.

Recognizing Wrong Thinking Patterns

First of all, realize that actions are preceded by thoughts. (Isaiah 55:6, 7; James 1:14, 15) Indeed, Dr. Wayne W. Dyer notes: "You cannot have a feeling (emotion) without first having experienced a thought." So at the root of homosexual desires may be a pattern of distorted thinking regarding oneself, the opposite sex, love, and so forth. Before one can 'make one's mind over' and change such thoughts, one must first identify them. (Romans 12:2) Doing so can give one valuable insight into just *why* one is drawn to members of the same sex.

How can a person do so? One way is to pray, as did the psalmist: "Search through me, O God, and know my heart. Examine me, and know my disquieting thoughts,

Develop a healthy view of masculinity by studying Jesus' example

and see whether there is in me any painful way." (Psalm 139:23, 24) It may also help to discuss one's feelings with a discreet and mature Christian. As Proverbs 27:17 puts it, 'iron sharpens iron.' One young man thus confided in a Christian elder who was known for being understanding and compassionate. It was by no means easy for him to trust someone with his secret, but a valuable relationship developed. "I can talk to him about anything," he says. The elder not only listens but, by skillful questioning, helps draw out the young man's feelings and thoughts.—Compare Proverbs 20:5.

If a male has had a rejecting father or an abusive one, he may find that his attraction to the same sex is little more than a futile attempt to fill a need for fatherly love. Having never had a male role model, he may also feel what Dr. Joseph Nicolosi calls "a sense of weakness and incompetence with regard to those attributes associated with masculinity, that is, power, assertion, and strength." If a person takes inventory of the specific traits in which he feels deficient, he may discover to his surprise that these are the very traits that he finds attractive in other men.

Cruel "Lessons" From the Past

Other youths come to realize that their problem is related to past traumas. Recalls one girl: "I was exposed to pornographic material with homosexual themes. I started to develop unnatural desires." A young man states: "I was a victim of incest by my father. As a result, sex with a man seemed normal to me." Such painful experiences

may teach victims to dislike or even fear the opposite sex or to equate love with physical intimacies. One victim thus describes her sexual desires as "an emotional, not a physical, need—a need for tenderness and understanding."

Admittedly, though, the causes of homosexuality are complex, and many cases defy simple explanation.* Regardless of what has caused faulty thinking, however, there is much one can do to correct it.

Making One's Mind Over

The best way is to use God's Word. Take, for example, a young man who finds himself attracted to men who display the masculine qualities he feels he lacks. Or a young woman who is fearful of the opposite sex. One way that both can develop a healthier view of masculinity is to study the example of Jesus. (1 Peter 2:21) He was a perfect model of masculine power balanced by gentleness. (Matthew 19:14; John 19:5) One young man thus finds it helpful to study the book *The Greatest Man Who Ever Lived*.[#] "Getting to know Jesus redefines my image of what a man should be like," he says.

Meditating on Bible texts that deal with such subjects as God's view of sex, love, and same-sex friendships is likewise helpful in correcting one's thinking.—Genesis 1:27, 28; Ruth 1:16, 17; 1 Samuel 18:1; Proverbs 5:18, 19; 1 Corinthians 13:4-8.

It is also important to avoid dwelling on wrong thoughts. Oftentimes these urges are particularly powerful when one is lonely, depressed, or disappointed. (Proverbs 24:10) "The only way to change what we are is to change bad thoughts to good ones," says one Christian woman. When an unchaste

* See "Young People Ask . . ." in our February 8, 1995, issue.

[#] Published by the Watchtower Bible and Tract Society of New York, Inc.

urge comes over her, she reminds herself of God's view of homosexuality. A teenage boy says: "Whenever I have homosexual urges, I meditate on my favorite Bible text." (Compare 2 Corinthians 10:4; Philippians 4:8.) Others have found it helpful to fall asleep to the sound of the various Bible-based Watch Tower Society audiocassettes.

Just as how we think affects the way we act, how we act can affect how we think and feel. So one must also cease behavior and association that trigger or reinforce wrong desire. (1 Corinthians 15:33) One may also need to 'keep on guard' when it comes to public rest rooms, beaches, locker rooms, and other places that could expose one to temptation.—Psalm 119:9.

Masturbation is another unhealthy practice to avoid. For many homosexual men and women, it is an out-of-control compulsion. "I've had trouble with masturbation since I was six years old," confesses one young man. "Sexual fantasizing reinforced my homosexual feelings." Fight this unclean habit!*—Colossians 3:5.

On the other hand, it is also important that one establish healthy patterns of behavior. Some have suggested that if a young man develops masculine traits, he may be less attracted to other men. Of course, a young man may not know how to do this if he never had a strong male role model as a child. He may even be ill at ease with his own body and feel awkward or unmanly. Engaging in physical work, moderate exercise, or relaxing sports activities often helps in this regard. (Compare 1 Timothy 4:8.) But just as the young man Timothy became like a son to the apostle Paul, one may find it particularly helpful to develop a healthy understanding with a bal-

anced older Christian man. (Philippians 2:19-22; 2 Timothy 3:10) By establishing clear behavioral boundaries and cultivating open communication, such a relationship can be warm and trusting, yet free of any erotic overtones.

Above all, one must take a strong spiritual offense. Regular study of the Bible, prayer, and sharing one's faith with others help keep one's mind on a spiritual track. (Psalm 55:22; 119:11; Romans 10:10) At times feelings of unworthiness may make it hard to be around fellow Christians, but the Bible warns against isolating oneself. (Proverbs 18:1) Wholesome association with Christians of both sexes can help one to stay balanced.—Hebrews 10:24, 25.

If you are plagued by homosexual desire, these suggestions may prove helpful. Do not be overly discouraged, though, if the bad feelings persist. God understands your feelings and has compassion for those who struggle to serve him. (1 John 3:19, 20) In the new world, mankind will experience the healing of all the maladies that afflict us. (Revelation 21:3, 4) In the meantime, rely on God and fight against wrong desires. (Galatians 6:9) With time and determined effort, perhaps even the wrong desires themselves can diminish.

(Beginning with our next issue, "Young People Ask . . ." will appear once a month.)

IN OUR NEXT ISSUE

When Sickness Is No More

Conversation Is an Art

Procrastination—The Thief of Time

* Chapters 25 and 26 of the book *Questions Young People Ask—Answers That Work* (published by the Watchtower Bible and Tract Society of New York, Inc.) contain practical suggestions to help a youth overcome this addiction.

Africa's Amazing

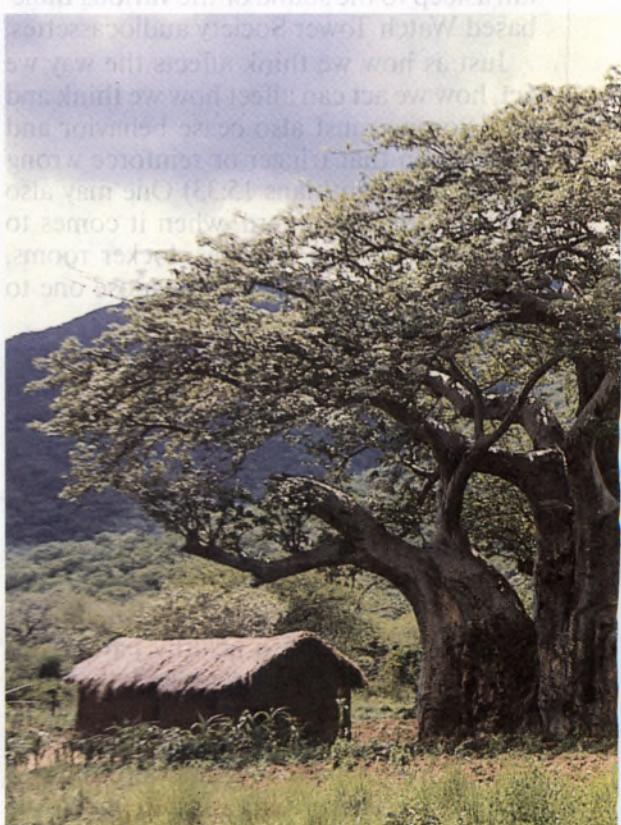
"I DO not believe the like was ever seen in any part of the world." What was it that the Frenchman Michel Adanson saw when visiting Senegal in 1749? It was a *tree!* About 65 feet high, with an enormously wide trunk, 25 feet in diameter. David Livingstone later referred to the tree as a "carrot planted upside down."

Legend has it that "the devil plucked up [the tree], thrust its branches into the earth, and left its roots in the air." Thus, many know the tree as "the upside-down tree." In Latin it is called *Adansonia digitata*, named after its discoverer, but most of us call it the baobab, one of the best-known trees in eastern Africa, although taller cousins can be found in Madagascar and some even in Australia.

The Upside-Down Tree

We had spent many hours driving through the Tanzanian countryside. It was a delight to see picturesque settlements, dwellings with straw roofs, women carrying firewood on their heads, children playing under mango trees, and some herdsmen looking after their cattle. We finally see what Adanson saw back there in the 18th century.

"There they are!" shouts Margit. Massive, majestic, the baobab appears here and there in the drier parts of tropical Africa. It is native to the savanna, along the coast, and even on the slopes of Mount Kilimanjaro. "It does not resemble any other tree I have ever seen," adds one of our associates. Grayish and enormous, the baobab is a plant with bark two to four inches thick. "It real-



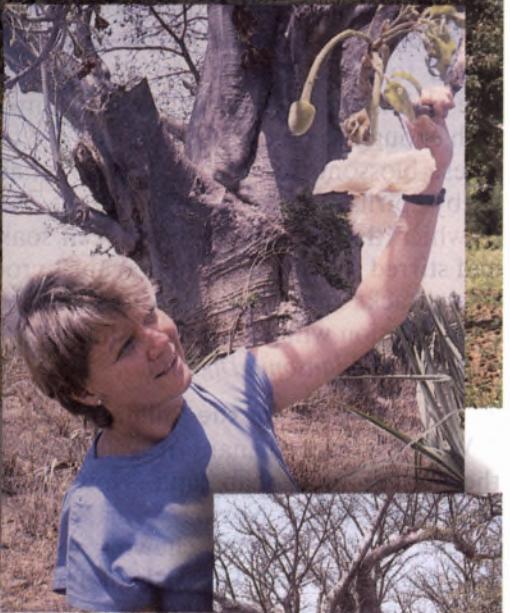
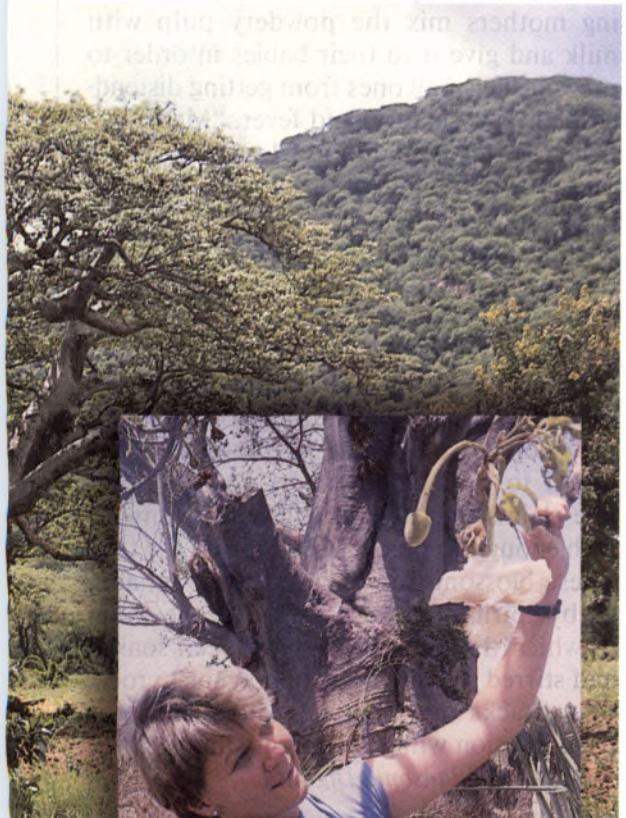
**The baobab, tree
of many uses**



**Seeds, used as sweets
and roasted for coffee**

“Tree of Life”

BY AWAKE!
CORRESPONDENT IN
TANZANIA



Its blooms are large

Leafless during the dry season



ly looks like a tree planted upside down!” Most of the year, during the six to seven months of the dry season, the tree has no leaves whatsoever. How does the tree survive? Why don’t we ask someone who may know.

Making our way in baobab land, we finally get to talk to Shem, a native. “You see,” says the man, “this is a bottle tree.” A bottle tree? “Yes, during the short rainy season, the spongy fibers of the tree suck up a large quantity of water, which is stored in the trunk for the dry season.” The publication *Baobab—Adansonia Digitata* notes: “The top of the trunk is usually hollowed, rainwater and dew collect here and may be the only water available for miles around. . . . The trunk has a high water content. It is estimated that a tree of about 200 cubic metres [7,000 cubic feet] will contain up to 140,000 liters [37,000 gallons] of water. . . . Manageable blocks of the trunk can also be cut out and water squeezed out for drinking.” Shem jokes: “It is a huge tree, but the heart is soft.” By now more villagers have approached and are eagerly listening to the conversation. “Did you know that the baobab is the tree of life?” asks Emmanuel.

The “Tree of Life”

To many natives the tree is a gift from God. Why? “First of all it can live very long. Perhaps one thousand years or even longer,” continues a villager. “It serves us with food, water, clothes, roofing material, glue, medicine, shelter, necklaces, and even sweets for the children.” What about firewood? “No, the bark is too moist from the water stored

in it. We usually look for other trees for that purpose." Says young Daniel: "But we use the bark for making our strings and ropes." Far more than that, it is used for nets, mats, cloth, hats, canoes, trays, boxes, baskets, and paper. Ash from the bark can be used as fertilizer, and many make soap out of it. "The young shoots and leaves are eaten," adds one of the young mothers, carrying a baby on her back. "We also roast the seeds and use them for coffee. Seed pulp is used in making beer, and oil can be extracted too."

During the short rainy season, the tree puts forth beautiful white flowers. But they do not smell as good as they look! They begin to open from the late afternoon to soon after sunset and are fully open by the following morning. During the night, the fruit bats are thus invited to pollinate. The natives mix the flower pollen with water and use it as glue. The long (16 inches) fruit hang down on stalks. We touch the greenish fruit, and it feels like velvet. It looks like a monkey's tail. "Aha, that is why the tree is also called the monkey-bread tree!" Shall we cut the fruit and look inside? Why not!

"Cream-of-Tartar Tree"

The fruit has a white, tart pulp around the seeds, very rich in vitamin C, vitamin B₁, and calcium. In baking, the pulp can be used as a substitute for cream of tartar. That is also the reason why some call it the cream-of-tartar tree. Shem says: "We sometimes make drinks from the pulp. It tastes like lemon." That is why other people call it the lemon tree. What else is it used for?

Shem replies: "We use almost all parts of the tree. The shell of the fruit we use as a fishing float, water dipper, and soup bowl, and we also use it to make a good rat trap. When our cattle are troubled by insects, we simply burn the fruit pulp, and the smoke serves as a repellent. Sometimes we mix the pulp flour with milk and get an excellent

yogurt." What about medicine? "Of course, the tree is our pharmacy," laughs Shem.

The Baobab Pharmacy

What do you use it for? "Everything!" Because of its many uses, no wonder that many local people respect the tree, fear it, yes, even worship it. We find out that nursing mothers mix the powdery pulp with milk and give it to their babies in order to prevent the small ones from getting distended bellies, dysentery, and fever. "Medicine" from the tree is sold in local markets and is said to cure inflammations, toothaches, and other ailments. Locally it is used to treat anemia, diarrhea, influenza, asthma, kidney problems, respiratory problems, and even tumors.

This extraordinary tree is naturally surrounded by myths and legends. Some feel that "the farm on which [the baobab] stands may not be sold, since its presence is believed to be a good omen. . . . Another tale claims that a Lion will devour anyone rash enough to pluck a flower from the tree. These blossoms are believed to be inhabited by spirits. It is also said that the water in which the tree's seeds have been soaked and stirred acts as protection against crocodile attacks and that he who drinks the bark infusion will grow mighty and strong."

—Baobab—*Adansonia Digitata*.

Sweets for the Children

We have learned many new things from the natives in baobab land. Now, in Dar es Salaam, we see Navina, Suma, and Kevin. Guess what they are chewing and sucking? Baobab seeds! The red-colored seeds are sold as sweets along the roadside, and it seems these children love them. "Is it sour?" "A little bit, but we like it!" say the children with one voice. "Please have some! Taste!" Yes, why not taste something from Africa's "tree of life"?



Enjoy Jogging But Watch the Risks!

THE 18-year-old needed "longer and longer distances to satisfy his craving for running," reports the German newspaper *Süddeutsche Zeitung*. At 2:00 a.m. and again at 6:00 a.m., he would run "a couple of dozen kilometers before getting back into bed, reposed and contented." This is by no means a unique case, since research scientists in various lands are currently dealing with joggers who are addicted to endorphin. How can such an addiction develop?

Researchers have discovered that with continuous and protracted physical exertion, endorphin is formed in muscle nerves. The endorphins are endogenous (coming from within) opiates that produce a feeling of euphoria—providing fanatical joggers at times with a high. Claims Wildor Hollmann, president of an international association studying sports medicine: "Whether these morphine derivatives can lead to addiction or not was long a matter of some dispute. Now it is a proved fact." Hence, there seems to be inherent danger in running or jogging exceedingly long distances and, of course, in performing any other forms of extreme exertion.

May there be any other health hazard associated with high-performance sports activities? Yes. You may remember the story of the Greek

messenger who ran from Marathon to Athens some 2,500 years ago. According to legend, he collapsed and died on the spot after bringing news into Athens of the Greek victory over the Persians. Researchers see in this story an example of endorphins in the muscles. They say that long periods of strenuous activity can lead to death by sudden cardiac arrest because endorphins lower the perception of pain. For example, under normal circumstances severe chest pains cause a runner to stop running, which, according to experts, in most cases allows the heart to reestablish its customary rhythm. But during extreme physical effort, endorphins lower the perception of pain, making signals transmitted by the body indiscernible to the runner. This can have disastrous consequences.

On the other hand, balanced physical exercise is wholesome, and endorphins released at such times seem to have a positive effect. One woman who regularly goes jogging explains: "I used to take medicine, but now when I'm in a rotten mood, I go for a run." A brisk walk or a run may indeed help a person to dispel or at least come to terms with depression. Endorphins seem to play a role in such instances. Physical exercise becomes dangerous only when it is carried too far.

—Compare 1 Timothy 4:8. www.jw.org/jw/2015/03/pdfs/awake_en.pdf

WATCHING THE WORLD

Neglecting the "Great Commission"

For many years Christendom has referred to Jesus' command to his followers to make disciples of people of all the nations as the "Great Commission." However, according to a recent poll conducted by the Institute for Research in Social Science at the University of North Carolina, U.S.A., fewer and fewer "Christians" in the United States even view this commission as very important. Outside the Southern states, which are traditionally more religious, only 32 percent of those who consider themselves Christian felt that converting others to their faith was a "very important" responsibility of their church. In the South, that figure was only 52 percent.

Where There's Smoke There's Fire

Of the many well-known hazards of smoking, there is one that all too often escapes notice: fire. According to the U.S. National Fire Protection Association, lighted tobacco products caused some 187,000 fires in the United States in 1991 alone, killing 951 persons (not including firefighters). Thus, 25 percent of all the deaths by fire in residences that year were traceable to smoking—more fatalities than resulted from fires by any other cause. Smoking-related fires also caused 3,381 injuries and \$552 million in property damage during the same year. The most commonly ignited household materials were found to be upholstered furniture, mattresses, and bedding.

TV Violence Measured

A controversial new study claims that despite all the furor over violence on American TV—and despite many promises by TV networks to curb it—the violence on TV has actually increased in the past two years. The study was conducted by the Center for Media and Public Affairs and reached its conclusions by monitoring a single day's programming on ten



stations and comparing the content with the programming on the same date two years earlier. It found that acts of violence, defined as deliberate acts of physical force that result in physical harm or destruction of property, increased by 41 percent over the two-year period. Acts of serious violence were defined as life-threatening or likely to cause serious injury, and the number of these soared by 67 percent. "The average rate of violent incidents increased from 10 to almost 15 scenes per channel per hour," reports *TV Guide*.

Global Malnutrition

Globally, there is both good news and bad news about malnutrition. According to *Global Child Health News & Review*, the percentage of all children under five years old who suffer from malnutrition fell from

42 percent in 1975 to 34 percent in 1990. However, the absolute number of malnourished children has grown. Some 193 million children under five in developing countries are moderately or severely underweight, and about a third of those are severely malnourished. The paper notes that when a child is mildly malnourished, the risk of death by disease is doubled. The risk is tripled for a moderately malnourished child. For a child who is severely malnourished, the risk of death by disease is 11 times higher. In industrialized lands, the paper reports, the most common form of malnutrition in children is obesity. In North America, for instance, children get as much as 50 percent of their energy supply from fats—which is "double the recommended proportion."

Black Sea or "Dead" Sea?

"The Black Sea has become the most polluted sea in the world and is undergoing an agonizing death." So reports the Russian newspaper *Rossiiskaya Gazeta*, noting that during the past 30 years, the Black Sea "has become a sewer for half of Europe—a place for the disposal of huge amounts of phosphorus compounds, mercury, DDT, oil, and other poisonous refuse from the 160 million people residing on its coasts." The pollution has brought on some alarming symptoms. Of the 26 varieties of fish that fishermen formerly caught in the Black Sea in the 1960's, only 5 remain. The sea's dolphin (mammal) population, once a robust 1,000,000, has plummeted to 200,000. Many of the remaining dolphins

are infected with swine fever because so many hog farms discharge sewage into the Danube Delta.

Marijuana and Memory Loss

"In a world first," reports *The Sydney Morning Herald* of Australia, "Sydney researchers have demonstrated what many people have long suspected—that memory loss and lack of concentration caused by smoking marijuana persists long after people stop using the drug." The research, conducted at Macquarie University, confirmed that the damage marijuana causes is proportional to the amount smoked and the duration of the practice. The news gets worse: "These impairments may not be reversible." The study showed that former users suffered the same "cognitive impairments" as those who still smoked marijuana. More than memory is affected, especially for those who have used the drug for five years or more. Such individuals were found to be slower in processing information and less able to focus their attention and avoid distractions. The report concludes that, according to the combined evidence, smoking marijuana actually changes the brain's physiology.

Teenagers and Porn Videos

An alarming 77 percent of high-school boys and 24 percent of high-school girls in Japan have watched pornographic videos, according to a survey conducted by Japan's Management and Coordination Agency. Even among junior-high-school boys as young as 13 or 14 years of age, 25 percent have seen such videos. And the effects? "The survey indicates," reported the *Mainichi Daily News*, "that

those students who have seen adult videos have a poorly developed sense of conscience over sex crimes and low appreciation of the feelings of victims of such crimes." Were the parents aware of the situation? The same survey revealed that only 12 percent of the parents of the students surveyed knew or suspected that their children were viewing pornographic videos.

Miracle or Microbes?

"One of the most celebrated miracles of the Catholic church may have been more microbial than divine," reported *New Scientist* magazine recently. The supposed "miracle of Bolsena" occurred back in 1263, when a Bohemian priest reached for the sacramental wafer in a celebration of Mass. As the story goes, he was wondering if



the wafer would truly turn into the body of Christ as the Catholic Church teaches. Then, to his amazement, he saw that the wafer was oozing what appeared to be blood! However, scientists have long speculated that the phenomenon was caused by a bright-red, dripping fungus that thrives on starchy foods in warm climates. Johanna Cullen of George Mason University in Virginia, U.S.A., recently duplicated the likely medieval conditions and grew a culture of the suspected bacteria on a sacramental wafer. It soon turned blood red.

AIDS From Blood?

What are the chances of getting AIDS from a blood transfusion or from blood products? According to the newspaper *The Star* of Johannesburg, 600,000 people worldwide—or 15 percent of all of those infected—have been infected with the AIDS virus from blood or blood products since AIDS was identified. At present, testing blood for HIV is time-consuming and expensive. Some conclude that blood should be subjected to at least seven different tests. Often, developing countries do not have the finances or training to use these tests. Even in affluent countries, where the tests are employed, there are mistakes. Paul Strengers, medical head of the Dutch blood-transfusion service, admits: "We cannot say any blood product is 100 percent safe concerning the HIV virus or hepatitis."

An Infrequent Visitor

A comet that was observed in March 1993 by astronomers in Australia and France was officially recognized by the International Astronomical Union the following January and dubbed McNaught-Russel. But Chinese astronomers may well have observed it first—some 14 centuries ago! According to *New Scientist* magazine, an astronomer calculated that this comet takes an unusually long time to orbit the sun: 1,419 years. Interestingly, ancient records show that Chinese astronomers observed a wandering "star" that may well have been this same comet. They recorded their sighting on the third year of a period called Keen Tih, during the second moon, on a day called Woo Woo—or April 4, 574 C.E. The comet is due to make its next visit to our neighborhood of the solar system about the year 3412.

FROM OUR READERS

Toys I just finished reading the fine article "Parents—Choose Your Child's Toys Wisely." (September 8, 1994) As a parent, I deeply appreciated the information. However, I would like to add a cautionary suggestion. Please warn readers of the potential that small children may drown in pails or buckets in which there is even a small amount of liquid.

E. V., United States

The reminder is appreciated.—ED.

My son and I were in the middle of a discussion regarding his desire to have me purchase a toy that I felt was inappropriate for him. As a young one, he found it difficult to agree with my reasoning. As we spoke, we opened the mail, which included the latest *Awake!* We were both surprised to see the title "Do You Know What Your Child Is Playing With?" He was impressed by the articles and began to understand my reasoning.

W. F., United States

Thank you for the articles. I am almost 13 years old and enjoy outdoor activities, arts and crafts, and playing the piano. When I was younger, I created toys of my own. I like doing these things better than video games because they give me a feeling of accomplishment. I hope these articles helped other children realize how much fun these things can be.

C. S., United States

Hippopotamus Thank you for publishing the item "Hippopotamus to the Rescue!" (October 8, 1994) I was so moved when I read about the way the hippopotamus rescued that impala. Until now, all a hippo was to me was an enormous body in the water that opens an enormous mouth to display enormous teeth. I wouldn't have said that I liked those beasts, but this article has changed my opinion.

Y. H., Japan

Israeli Soldier's Story I have just finished the article "Trained to Kill, Now I Offer Life." (September 8, 1994) Many times I have been moved to write you to express my appreciation, but never have I felt as compelled to do so as now. Often I have wondered about the Jewish response to the good news of Jehovah's Kingdom. Now you have provided the exceptionally heartwarming story of Rami Oved. What a joy to read about the triumph of God's Word over every obstacle!

J. S., United States

The story touched my heart, inasmuch as my family is also of Jewish descent. It is hard on many people when they choose the Bible's truth over their families, but it seems especially hard on Jews, since their families consider you as being dead to them. My parents' families mellowed, though, when they realized that my parents wouldn't give up the truth for anyone!

F. K., United States

Eye Operation I read the article "Radial Keratotomy—What Is It?" with great interest. (September 22, 1994) Since I will be undergoing this operation in a few months, I appreciated the clarifying information very much. It was more complete than that supplied by my ophthalmologist.

G. C., Italy

Suffering Children Your series "What Hope for the Children?" (May 8, 1994) was realistic and very well-done. Reading of the terrible experiences and the deadly diseases, as well as the terrible living conditions that many children suffer, has made me grieve in my heart. But I was delighted to read about the real hope for the children that is to be realized when God's Kingdom rules mankind.

D. G., Papua New Guinea



"Go to the Ant"

"UNUSUAL ANTS"—that strange headline appeared a few years ago in a newspaper article regarding a quickly built Kingdom Hall of Jehovah's Witnesses. What inspired the headline? It is not difficult to understand when you look at an aerial photograph of such a construction site. A subtitle in the same newspaper article explained: "Five hundred Witnesses of Jehovah on a construction site—a surrealistic ant-hill."

The comparison is apt, perhaps more so than the reporter realized. Granted, from far above, a few hundred people scrambling around a construction site may resemble ants on an anthill. But in this case the resemblance is more than superficial. Why is this? Jehovah's Witnesses take seriously the Bible's counsel at Proverbs 6:6, which says: "Go to the ant . . . ; see its ways and become wise." How can one become wise by observing ants?

For one thing, ants get a lot done. The Bible encyclopedia *Insight on the Scriptures* notes: "Not only is their instinctive preparing for the future notable but also their persistence and determination, often car-



A quickly built Kingdom Hall in Aurillac, France

rying or tenaciously dragging objects weighing twice their own weight, doing everything possible to fulfill their particular task, and refusing to turn back even though they may fall, slide, or roll down some steep precipice."*

Similarly, while Jehovah's Witnesses do not lug around twice their body weight in construction materials, they do often amaze their neighbors by how much they accomplish on their construction projects in a relatively short time. It is not uncommon to see their Kingdom Halls spring up from the foundation and be finished in the course of just two or three days!

How do they get all of this done? By imitating the ant in another key respect. *Insight on the Scriptures* says of ants: "Remarkably cooperative, they keep their nests very clean and show concern for their fellow workers, at times assisting injured or exhausted ants back to the nest." The above-noted reporter seemed struck by a similar cooperative spirit among the Witnesses, describing "a tremendous effort accomplished with a smile in a relaxed atmosphere by about 80 professionals representing every branch of the building trade and supported by 400 volunteers."

Nonetheless, all the hard work and cooperation that Jehovah's Witnesses put into building their Kingdom Halls is only a foretaste of what occurs inside those halls in the years that follow. There they continue to work hard and cooperate together, organizing their teaching and preaching work and presenting meetings that are upbuilding and educational. Even more important, they endeavor to show the same kind of loving concern for one another that Jesus showed his followers when he was on earth.—John 13:34, 35.

Line drawings: Pharaoh's ant. Lydekker

* Published by the Watchtower Bible and Tract Society of New York, Inc.

A Day That Changed Her Life

A YOUNG woman from Arizona, U.S.A., said that she had been a churchgoer but had become disillusioned with religion. She finally told God in prayer: "I'm not going to any more churches. I'm going to live my life the best I know how, and I will try to be a good person."

The woman explained what happened later: "My aunt telephoned and said that she would be in the area to attend a special assembly day of Jehovah's Witnesses. She asked whether she and my cousins could spend the night at my apartment. And she asked: 'Would you like to go with us?' I remember my reply: 'Why not? I have nothing better to do.' My interest in religion was nearly dead.

"I was always told to be cautious of Jehovah's Witnesses. So during the assembly, I remember being very observant. Yet, there was no mystery regarding what was being said about God's original purpose to have a paradise earth and that God's purpose hadn't changed. I sat there with

this warm feeling as I observed families sitting together and displaying such a spirit of unity. I bowed my head and quietly asked God: 'Is this the truth? Is this what I've been searching for?'

"As I left that day, I watched people hugging and kissing good-bye with smiles that lit up the place. I could see in their faces that there wasn't a doubt in their mind or heart about their belief and about who Jehovah is and what he has done for them. From that day on, I started to attend the Kingdom Hall of Jehovah's Witnesses and haven't stopped since. The following special assembly day, in 1988, I publicly symbolized my dedication to Jehovah by water baptism and became a part of this beautiful family."

A warm family feeling pervades the large gatherings of Jehovah's Witnesses, as seen here in Russia

