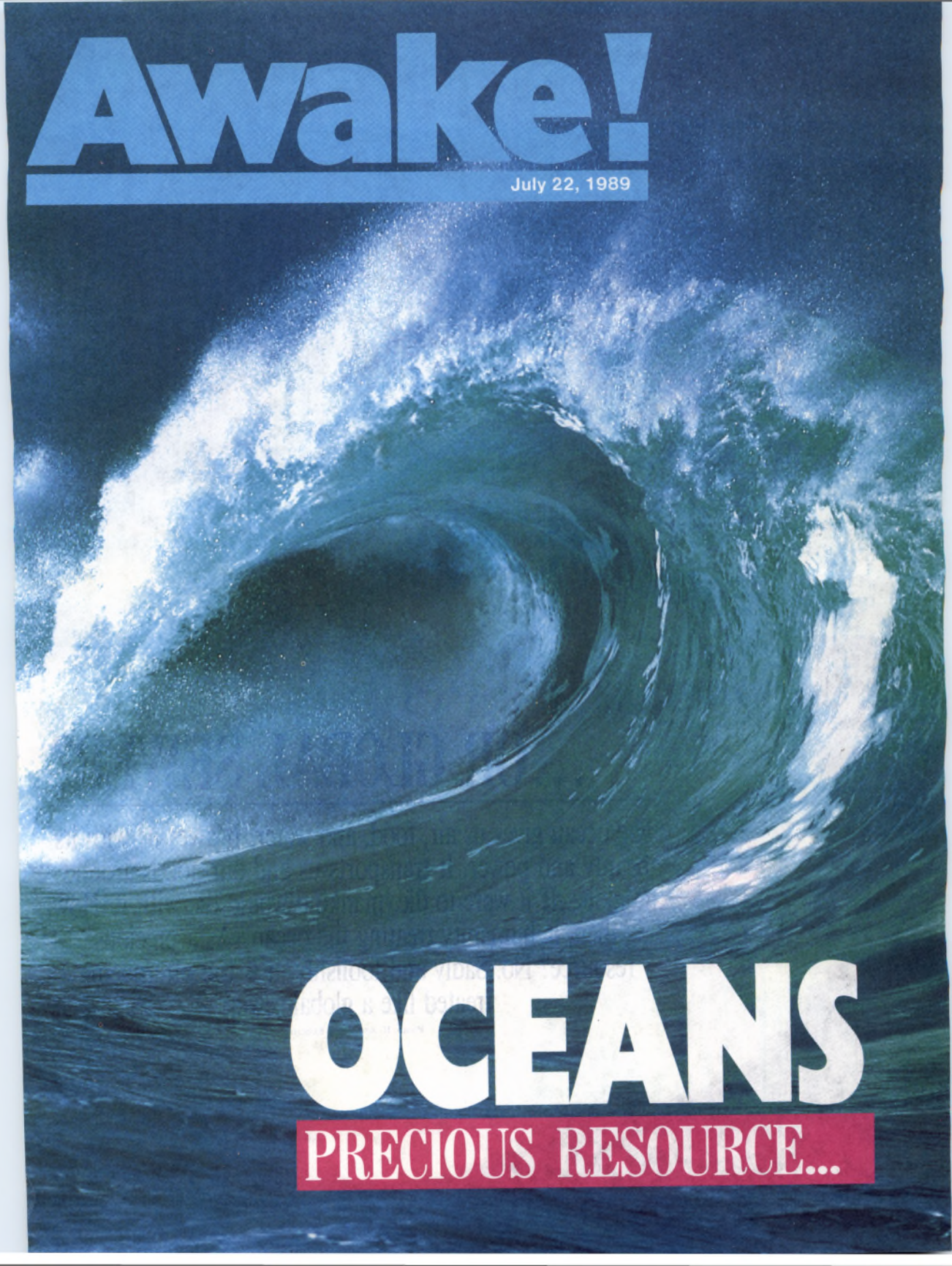
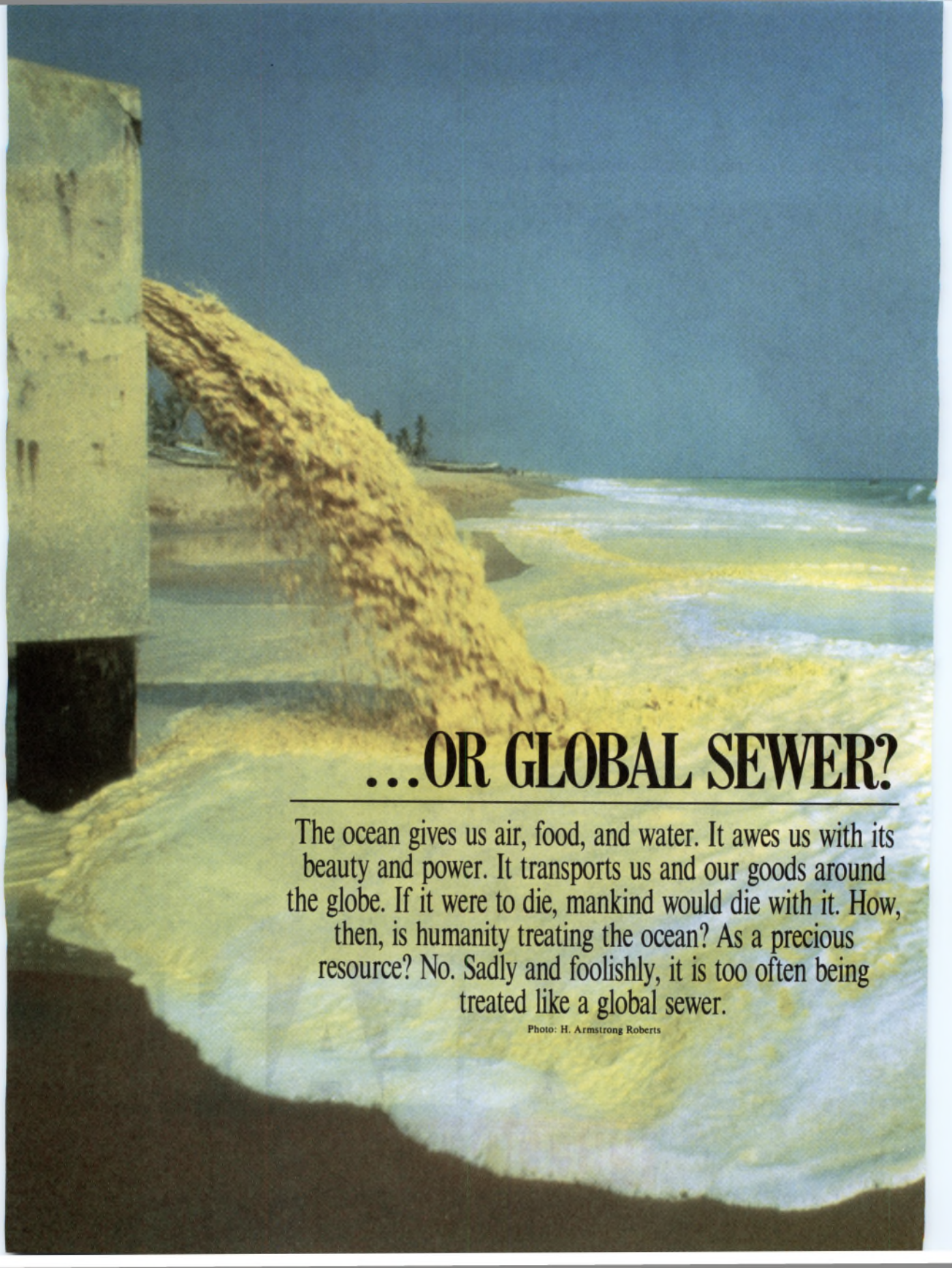
Awake!

July 22, 1989



OCEANS

PRECIOUS RESOURCE...



...OR GLOBAL SEWER?

The ocean gives us air, food, and water. It awes us with its beauty and power. It transports us and our goods around the globe. If it were to die, mankind would die with it. How, then, is humanity treating the ocean? As a precious resource? No. Sadly and foolishly, it is too often being treated like a global sewer.

Photo: H. Armstrong Roberts

OCEANS

PRECIOUS RESOURCE OR GLOBAL SEWER?

Roll on, thou deep and dark blue ocean—roll!
Ten thousand fleets sweep over thee in vain;
Man marks the earth with ruin—his control
Stops with the shore.

From *Childe Harold's Pilgrimage,* by Lord Byron.

THERE was a time when those words were more than just poetic; they were true. But no more. Today the poet's words, so expressive of the ocean's vastness and its seeming invulnerability to puny human efforts to mar it, ring as false and hollow as the idea that man would never fly. Man's control no longer stops with the shore. He has left his mark on the sea, and an ugly mark it is.

Have you ever been to the beach? If you have, no doubt you have fond memories of the experience: the sparkle of the sunlight on the water; the lulling, rhythmic breaking of the waves on the shore; a refreshing swim; playing in the waves. Just thinking about it makes you look forward to the next time, doesn't it? But there may be no next time. And that may be the least of our worries; the ocean does more than please our senses.

For instance, draw a deep breath. According to *The New Encyclopædia Britannica,* you owe much of that breath to the oceans. How so? It says that the waters of this planet, specifically the algae in them, supply some 90 percent of the oxygen we breathe. Others estimate that by themselves the microscopic phytoplankton of the oceans provide up to a third of the planet's oxygen. The oceans also moderate the globe's temperature, support an incredibly rich variety of life, and play a crucial role in global climate and rain cycles. In short, the oceans are a key to life on this planet.

A Global Sewer

But to man they are more than that. They are also a garbage dump. Sewage, chemical wastes from factories, and pesticide-laden runoff from farmland all make their way to the sea by barge, river, and pipeline. Man has long treated the oceans as a giant sewer. But now the sewer has begun

to back up on him. Popular resort beaches around the world have had to shut down in recent years as garbage washed ashore in disgusting array.

Drug paraphernalia and medical debris, such as stained bandages, hypodermic needles, and vials of blood—some contaminated with the AIDS virus—made headlines as they emerged on east-coast beaches in the United States. Balls of raw sewage, dead laboratory rats, a human stomach lining, and even more unsavory items all made their gruesome appearance. Some became quite commonplace.

The crisis has struck beaches on the North Sea and the Baltic Sea of northern Europe, the Adriatic and Mediterranean seas of southern Europe, and even along the Soviet shores of the Black Sea and the Pacific Ocean. Beaches have been closed down, as swimmers at such places risked a wide array of illnesses. World-famous ocean explorer Jacques Cousteau wrote recently that bathers at some Mediterranean beaches were braving 30 diseases, ranging from boils to gangrene. He forecast a time when no one would dare to dip a toe in the water.

But mankind's refuse does more than close beaches and inconvenience swimmers. Its damage has spread to deeper waters.

One hundred and twenty-three miles off the coast of New York, U.S.A., New York began to dump its sludge several years ago. Recently, from undersea canyons some 80 miles away, fishermen started bringing up fish with lesions and rotting fins and crabs and lobsters with "burn-spot disease"—holes in their shells that look as if they were made by burning blowtorches. Government officials deny any connection between the dump site and the sick fish, but the fishermen don't see it that way. One dockmaster told *Time* magazine that New Yorkers are "going to get their garbage right back in the fish they're eating."

Experts feel that ocean pollution is fast becoming a global epidemic; nor is it limited to industrial nations. Less developed countries are also under siege, for two reasons. First, the world's oceans are really one big ocean with currents that ignore borders. Second, industrial nations have taken advantage of poorer ones as dump sites for their wastes. In just the past two years, the United States and Europe shipped some three million tons of dangerous waste to Eastern European and African countries. In addition, some foreign contractors build factories in Asia and Africa without incorporating the systems needed to dispose of waste.

The Plastic Plague

With plastic, man is faced with another brainchild run amok. At times it seems that

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A GLOBAL PLAGUE

■ **In 1987, 33 percent of U.S. shellfish beds had to close down because of pollution.**

■ **Sylt, a German resort island in the North Sea, long famous for clean beaches, was besieged last summer by an algae bloom and pollution. A three-foot-thick layer of stinking foam coated the beaches.**

■ **Naturalists looked forward to visiting Laysan, a remote and uninhabited Pacific island a thousand miles from Hawaii. They found the beaches covered with plastic debris and garbage.**

■ **Worldwide, man dumps some six million tons of oil into the oceans every year—most of it on purpose.**

■ **According to the environmental group Greenpeace, the Irish Sea contains more radioactive wastes than all the oceans combined. The contamination may have contributed to a 50-percent rise in leukemia rates along the shore.**

■ **Beaches of every country along the Indian Ocean are plagued by tar balls from oil discharged by tankers.**

■ **Lost or discarded drift nets from the fishing industry entangle and kill some 30,000 northern fur seals every year. Asian vessels alone lose an estimated ten miles of net every night.**

■ **While the Italian government said that 86 percent of its beaches were clean, environmentalists put the number at 34 percent. Some 70 percent of the cities along the coast of the Mediterranean dump raw sewage directly into the sea.**

■ **The 20,000 islands of Southeast Asia have suffered pollution damage from offshore tin mining, blasting, and waste disposal from land and from ships. The price: endangered species, damaged coral reefs, and beaches blighted with grease and tar balls.**

■ **Brazil's *Veja* magazine carried an article called "A Scream for Help," about the pollution of Brazil's shoreline and coastal waters. The culprit: improper sewage disposal and industrialization without necessary precautions.**

technology cannot exist without it. Plastic may seem indispensable; it is also virtually undisposable. When man is through with it, he is hard put to get rid of it. The plastic that holds a six-pack of beer cans together might last anywhere from 450 to 1,000 years.

One popular way to get rid of the stuff, as you might have guessed, is to throw it into the ocean. In fact, a recent report estimated that every year about 26,000 tons of packaging and 150,000 tons of fishing gear are lost or thrown in the ocean. According to *U.S.News & World Report,* "merchant and naval vessels jettison 690,000 plastic containers every day." One expert calculated that even in the middle of the Pacific Ocean, there are about 130,000 fragments of plastic per square mile.

The oceans cannot absorb this plague of

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 importantly, this magazine builds confidence in the Creator's promise of a peaceful and secure new world before the generation that saw the events of 1914 passes away.

Contents: Feature Articles

Also in This Issue

Cover photo: Camerique/H. Armstrong Roberts

plastic. It usually floats along intact until the ocean vomits it up onto some beach, where it continues to blight the earth's beauty. But it also does something much more serious in the process.

Too High a Price

The problem with plastics, as with other pollutants, is their cost in terms of life. Giant sea turtles mistake floating garbage bags for translucent, undulating jellyfish—a favorite meal. The turtles either choke on the bags or swallow them whole. Either way, the plastic kills them.

All kinds of marine life, from whales to dolphins and seals, get tangled up in abandoned fishing lines and nets. Seals playfully thrust their snouts through discarded plastic rings, and then, unable to get them off again or even to open their mouths, they slowly starve to death. Seabirds get caught up in fishing lines and frantically thrash themselves to death trying to get loose again, and these are not isolated cases. Garbage chokes about one million seabirds and a hundred thousand marine mammals every year.

Chemical pollution has also added its share to the death toll. Last summer, dead seals began to wash up onto the shores of the North Sea. Within months, some 12,000 of the North Sea's 18,000 harbor seals were wiped out. What killed them? A virus. But there is more to it than that. The billions of gallons of waste regularly poured into the North Sea and the Baltic played a part too, weakening the immune system of the seals and helping the disease to spread.

While pollution is especially concentrated in the Baltic and North seas, an animal would be hard put to find an unpolluted stretch of ocean these days. In the far reaches of the Arctic and the Antarctic, penguins, narwhals, polar bears, fish, and seals all carry traces of man's chemicals and pesticides in their body tissues. Beluga whale carcasses in Canada's Gulf of St. Lawrence are considered hazardous waste, so loaded are they with toxins. On the Atlantic coast of the United States, some 40 percent of the area's dolphins died in just over a year, washing ashore with blisters, lesions, and patches of skin falling off.

Kicking a Delicate Mechanism

Ocean pollution has another penalty as well. It delivers a deadly kick to complex ecosystems, with frightening results. For instance, the oceans are designed with defenses against befoulment. Estuaries and marshlands at the mouths of rivers are effective filters, removing harmful substances from the water before it flows into the sea. The ocean itself has a tremendous capacity for self-renewal and cleaning out impurities. But man is paving over marshlands, overtaxing estuaries, and at the same time dumping waste into the oceans faster than they can absorb it.

As sewage and runoff flow unchecked into the seas, they overnourish algae, which then blossom into sprawling red and brown tides that deplete the oxygen in the water and kill marine life for miles around. Such tides are increasing the world over.

Man has even polluted in ways previously unheard of. For instance, there is thermal pollution. An inflow of warm wastes that even slightly raises local water temperatures may encourage the growth of organisms that upset the ecosystem.

There is also noise pollution. According to *The New York Times,* man has shattered the quiet of the undersea world with his blasting for seismic studies, his drilling for oil, and his massive ships. The noise damages the sensitive hearing organs of fish, whales, and seals —perhaps even upsetting their ability to com-

H. Armstrong Roberts

Oil spills take thousands of lives

municate with one another. The book *Cosmos* by Carl Sagan claims that whales may once have been able to hear one another's low-frequency sounds across thousands of miles of ocean, as far as the distance between Alaska and the Antarctic. Sagan estimates that the advent of human noise interference has reduced that distance to a few hundred miles. "We have cut the whales off from themselves," he muses.

The oceans also illustrate how intertwined the pollution crises have become. For example, because of the damage man has done to the ozone layer of the earth's atmosphere, more ultraviolet light reaches the seas and kills plankton floating near the surface. Since plankton absorbs carbon dioxide, destroying it contributes to the global warming trend known as the greenhouse effect. Even acid rain comes into the picture as it dumps man's nitrogen in the waters of the world, perhaps stimulating deadly algae blooms. What a tangled, dangerous web man has woven!

But is the picture completely hopeless? What will happen to our oceans? Are they doomed to degenerate into lifeless cesspools of chemicals and garbage?

OCEANS

WHO CAN SAVE THEM?

ONE fall day in 1988, nine men and four women jumped off a New York City bridge—all at once. They plummeted some 70 feet and then hung motionless, dangling from mountaineering ropes, waiting. Their intent? To block the passage of a barge loaded with sludge to dump in the ocean. The outcome was anticlimactic; the barge simply went around the protesters by another route and dumped its refuse as usual. The protesters were finally arrested.

Many others are struggling doggedly, but by legal means, to prevent the

"This far you may come, and no farther."—Job 38:11

death of the world's oceans. Treaties abound, and laws have proliferated. Legislation has been enacted that forbids the dumping of plastics into the ocean. Tankers have been forbidden to dump their oily waste water. Some rivers and shorelines have successfully been cleaned up.

In overview, though, triumphs are rare and failures common. Environmentalists fear that as long as it is cheaper to dump wastes into the ocean, there will be those who dodge the laws, just as the sludge barge mentioned earlier dodged the protesters. Sadly, what often decides these questions is money, the profit motive. Protecting the environment yields little of it and costs plenty.

Is God to Blame?

Yet, *Time* magazine saw the pollution problem as urgent enough to forgo naming a "man of the year." Instead, its January 1989 issue named the beleaguered Earth "Planet of the Year." Interestingly, though, such articles on environmental crises at times take deeply cynical views of the Bible.

The article in *Time* opened by quoting Ecclesiastes 1:4: "One generation passeth away, and another generation cometh: but the earth abideth forever." "No, not forever," the article's author commented. "At the outside limit, the earth will probably last another 4 billion to 5 billion years." The same author later remarked that the command to the first human pair to 'subdue the earth' "could be interpreted as an invitation to use nature as a convenience. Thus the spread of Christianity, which is generally considered to have paved the way for the development of technology, may at the same time have carried the seeds of the wanton exploitation of nature." *Life* magazine even went so far as to list the Bible's promise that "the meek shall inherit the earth" among ridiculous and false predictions.

All such statements have a common thread: They are based on the assumptions that either God does not exist or he did not inspire the Bible or he does not have the wisdom and power to direct his creation and fulfill his promises. What do you think? Is there not a certain arrogance in making these assumptions without evidence? Anyone who has witnessed the awesome power and beauty of the ocean in a storm has seen firsthand evidence that the One who created our planet is indeed powerful. His wisdom is evident everywhere in the oceans and in the life that teems in them.

God's command to 'subdue the earth' was not license to destroy it but rather the bestowal of an office of stewardship, a responsibility to care for and cultivate the earth. After all, if

by commanding mankind to 'subdue the earth,' God meant that we should turn it into the pollution-mired mess that it is fast becoming today, then why did he provide Adam and Eve with the paradisaic garden of Eden to use as a model? And why did God tell man "to cultivate it and to take care of it" and eventually spread its boundaries by subduing the "thorns and thistles" growing outside this model garden?—Genesis 2:15; 3:18.

In fact, the Bible long ago made a remarkable prediction that could only apply to our own destructive generation, namely, that Jehovah is going "to bring to ruin those ruining the earth." (Revelation 11:18) Bible prophecy indicates that the time is near.

Yet, some blame God for pollution and point to man himself as the answer, the only hope. Reason suggests the contrary—that man himself is to blame, that the answer is far beyond him. Blaming God is nothing new. Proverbs 19:3 long ago exposed that myopic human viewpoint: "Some people ruin themselves by their own stupid actions and then blame the Lord."—*Today's English Version.*

The stewardship instituted in Eden some six thousand years ago is not obsolete. Anyone today who respects the Creator can show it by respecting his works instead of heedlessly fouling the environment. Each of us can help to keep the oceans clean. (See below.) But sadly, this world system is set up so that anyone who wants to contribute nothing at all to the pollution of the earth and seas would have to become a hermit, isolated in the wilderness. Imitators of Jesus don't have such an option open to them; their ministry does not allow that.—Matthew 28:19, 20.

So the only hope for the complete end to the pollution of the oceans lies not with us but with God. His promises stand in stark contrast with man's failures; he has never failed to fulfill one of them. That is why these words from the Bible can be of such comfort to us: "You are Jehovah alone; you yourself have made the heavens, even the heaven of the heavens, and all their army, the earth and all that is upon it, the seas and all that is in them; and you are preserving all of them alive." —Nehemiah 9:6.

Soon, lasting beauty will be restored to the earth and its oceans. Yes, the "deep and dark blue ocean" will roll on—alive forever. The Creator will make sure of that.

WHAT YOU CAN DO

How you can treat the oceans with respect:

- **When boating and fishing, follow this simple rule: If you brought it out with you, bring it back with you. This applies especially to plastic materials. Try to minimize the loss of fishing line. Properly dispose of engine oil ashore, not at sea.**
- **At the beach, the above rule applies. Try to keep an eye on the plastic items you brought with you—bags for sandwiches, yokes holding soda cans together, plastic utensils, and bottles of lotion. Remember how easily some of these things will blow away if not weighted down. Before leaving, survey the area carefully, and take your garbage with you.**
- **Follow the same procedure when picnicking, fishing, or boating on rivers and lakes and their shores. Remember that polluting a river is wrong in itself. Furthermore, what you dump in a river may end up in the ocean later on to do still more damage.**
- **Obey all local laws on waste disposal and recycling.**
- **When washing clothes and dishes, use no more detergent than the job requires.**
- **Water, like air, is one of the basic essentials for life. Respect it, don't pollute it.**

The GENETIC REVOLUTION

Great Promise With Growing Concern

THE genetic revolution is moving out of the laboratory and into everyday life. Has it already affected you? Consider:

▲ Genetically altered bacteria can now produce in abundance such valuable drugs as insulin, human growth hormone, and a vaccine for hepatitis B.

▲ Clinical trials have begun in the United States on two potential vaccines against AIDS, both created with genetics.

▲ Prenatal testing for numerous inherited diseases is becoming possible, as "markers" for those diseases are found in human DNA. A highly sensitive and very rapid prenatal test for sickle-cell anemia has been introduced.

▲ The actual genes that cause certain hereditary diseases have been pinpointed and, in some cases, reproduced by cloning through genetic engineering.

▲ Flushed with success in finding genes, some scientists are pushing the idea of a genetic "Manhattan Project" to determine the precise coding of all the 100,000 or so genes on the 23 pairs of chromosomes that make up human DNA. The U.S. federal government agreed to support the project. If approved by Congress, it is expected to take 15 years and cost several billion dollars.

▲ In 1987 the U.S. patent office said that it was ready to consider applications for patents on animals that had been altered by genetic engineering technology, setting off a lively debate among scientists and ethicists. In April 1988 such a patent was granted for a mouse.

Large-Scale Drug Production

Perhaps the most immediate payoff of gene-splicing is in the area of drug production. Sales of genetically engineered drugs are expected to exceed a billion dollars per year in the near future. But this success has not come overnight.

Take insulin, for example. One of the early practical results of recombinant-DNA technology was to track down the gene (located on chromosome 11) for human insulin and then splice copies of it into ordinary *E. coli* bacteria. These altered bacteria can produce

large quantities of insulin with the exact structure of the human insulin molecule. Amazing!

It took several years, however, for this technology to move out of the laboratory, through clinical trials, past the U.S. FDA drug approval process, and finally into full-scale production and wide availability. The availability of this insulin does not mean that a cure for diabetes has been found, as any diabetic will tell you. In fact, while the product "may have certain advantages for people newly treated with insulin or allergic to the usual beef/pork insulin [it] is not necessary for the majority of people taking the conventional preparations," according to Dr. Christopher D. Saudek, director of the Johns Hopkins Diabetes Center.

Other hot prospects for genetically engineered drugs include TPA (tissue plasminogen activator) and IL-2 (interleukin-2). TPA helps to dissolve blood clots. It has been approved by the FDA for emergency treatment of heart-attack victims. IL-2 belongs to a family of factors that act primarily between white blood cells. It promotes the growth and development of T cells, which, in turn, help fight disease. Time will tell if these new drugs fulfill their promise.

Genetic Testing for Disease

In 1986 researchers found a link between genetics and cancer. They isolated (on chromosome 13) and cloned a gene that they believe prevents a hereditary eye cancer called retinoblastoma. Suspect genes are also being investigated for possible links to bone cancer and chronic myeloid leukemia.

Evidence is mounting that genes can promote cancer as well as suppress it. Doctors at UCLA (University of California at Los Angeles) have found that a normal cell may have one or two oncogenes (tumor forming), but a cancer cell may have ten times as many. More oncogenes seem to mean more dangerous tumors, so these researchers are now counting oncogenes in their patients to determine how best to treat them.

All of this is tantalizing, but cancer is not the only disease with a genetic component. A report in *Science* listed no less than 21 neurological disorders and the genes or chromosomes that appear to be involved in these diseases. The list includes such killers as Alzheimer's disease, Huntington's disease, and Duchenne's muscular dystrophy; nor does the list stop with neurological problems. Genetic markers have also been found for cystic fibrosis, polycystic kidney disease and many other diseases.

All of this raises the intriguing prospect of genetic testing that could tell us if we, or our children, are at high risk of developing one of over 3,000 known hereditary diseases. But it is not quite that simple. Not all such diseases are caused by a single gene. Where multiple genes and other factors are involved, as appears to be the case in Alzheimer's disease, testing would be difficult. In other cases the actual genes causing the disease have been found and even cloned, but much more often only their general location is known. What has been pinpointed is not the gene itself but a nearby segment of DNA called a genetic marker.

"The map of the human genome as it exists today is very sketchy," reports Jan Hudis, Science Information Editor for the March of Dimes Birth Defects Foundation. He adds that it "could be compared to a satellite photograph taken when a low cloud cover has obscured all but the highest mountain ranges."

The Dilemma of Genetic Testing

The promise of widespread genetic testing is great. "In some cases," notes *The New York Times,* "the discoveries have made it possible to identify healthy carriers of the disease trait who could pass it on to their children or to make prenatal diagnoses of the condition." This is certainly valuable information, but, as the *Times* goes on to point out: "These are

triumphs of science, but they do not imply quick conquests of the diseases." It is one thing to identify a genetically caused disease. Curing it is quite another matter.

There remains the hope that, in time, the actual genes causing more hereditary diseases will be found. Understanding what the genes are supposed to do and what has gone wrong may well lead to therapies as yet unimagined.

In the meantime, parents who undergo genetic testing face hard decisions, perhaps including pressure to abort their unborn offspring. For some of them, abortion will be out of the question, but for others the choice is complicated when markers are tested for and not actual genes. The presence of the marker does not always mean that the gene is present.

"Every year we locate more and more genetic markers for single-gene diseases," notes Jeremy Rifkin, a vocal critic of biotechnology. "Where do you draw the line? There are several thousand recessive traits. Leukemia can kill your child at three, heart disease at thirty, and Alzheimer's at fifty. At what point do you say no? Society might even legislate or compel parents not to pass on certain traits because of the health costs likely to be incurred." It would truly be a sad paradox if a technology meant to save lives and alleviate suffering caused needless deaths of unborn children because someone felt that their genetic traits were "undesirable."

Leave It to the Lawyers

Interestingly, the very success of the new biotechnology has created a whole new set of problems—fights over the money to be made. "Is litigation becoming the premier product of the biotechnology revolution?" asked *Science News,* noting that major drug companies are already suing one another and the smaller gene-splicing companies over rights to IL-2, a genetically engineered human growth hormone, and to other marketable drugs.

Patent disputes over drugs are complex enough, but what happens when people start trying to patent genetically altered animals, as permitted by a U.S. patent office ruling last year? Researchers in San Diego have succeeded in splicing firefly genes into tobacco plants, creating plants that glow in the dark! Other tobacco plants have been given a gene from a bacterium to make a protein toxic to plant-eating caterpillars. Maryland scientists have come up with a transgenic pig—a pig with a growth hormone gene from a cow.

Concern Over Trends

This tendency to mix up genes from unrelated species has a number of people concerned. Some farmers' groups "see genetic engineering as yet another in [a] long line of technologies that favor large corporate farms over small farms." Animal-rights groups "see it as the ultimate insult to the integrity of animals," states *The New York Times.*

"We do not know what life is," writes Dr. Erwin Chargaff, professor emeritus of biochemistry at the Columbia University medical school, "and yet we manipulate it as if it were an inorganic salt solution." Dr. Chargaff continues: "What I see coming is a gigantic slaughterhouse, a molecular Auschwitz, in which valuable enzymes, hormones, and so on will be extracted instead of gold teeth."

Others are alarmed by what they consider to be unknown dangers involved when genetically altered organisms are turned loose in the environment. In 1985 a California company was fined $13,000 when it released altered bacteria without permission. When California courts finally approved similar releases on two test fields in 1987, vandals promptly uprooted the plants. Public concern was again highlighted in 1987 when a Montana plant pathologist inoculated some elm trees with genetically altered bacteria. The scientist in this case was reprimanded because he chose not to delay his ex-

Who is to decide which genes are good and which are bad?

periment for an Environmental Protection Agency review.

The "Holy Grail"?

Meanwhile, genetic research is accelerating. The U.S. Department of Energy has already begun preliminary investigations aimed at determining the precise sequence of all the three billion chemical bases in human DNA. This is a project of breathtaking scale. A printout of the information in human DNA would fill 200 large telephone books. At the current pace, the project could cost untold billions of dollars and require centuries to complete, but rapid advances in sequencing technology are expected to speed things up, cutting time to 15 years, according to the latest estimate. The Department of Energy requested $40 million for the project, and it hopes to increase funding to $200 million per year. Congressional approval must be given.

What is all this money going to buy? Some scientists have compared detailed knowledge of human DNA to the "Holy Grail" of human genetics. They are convinced that it will be a priceless tool for understanding every human function. But others are not so sure.

"While few investigators question the advantage of sequencing a gene of known interest, there is serious question about the immediate value of knowing the precise nucleotide sequence of the entire genome," observes Jan Hudis, who adds that at this time "only a very small fraction of the total genome is expected to yield information that will have immediate medical value."

It would indeed be a sad irony if funds urgently needed for medical research were drained away for a scientific megaproject of dubious value.

"We Want Perfect Babies"

Where is the genetic revolution headed? Without question, it contains great potential for good in the form of better drugs, better medical care, and improved understanding of how living things work. But there is another side to the revolution.

"We want perfect babies," says Jeremy Rifkin. "We want perfect plants and animals. We want a better economy. There's no evil intent here. The road to the Brave New World is paved with good intentions.

"Step-by-step, we are deciding to engineer parts of the genetic code of living things. Two important questions emerge: If we're going to engineer the genetic code, what criteria does this society establish for determining good and bad, useful and dysfunctional genes? And I would like to know whether there is an institution anyone here would trust with the ultimate authority to decide the genetic blueprints for a living thing?"

These are questions that deserve answers. Who is better equipped than the Creator of DNA to determine what is a good or a bad gene? He is the one who knows the innermost workings of the genetic code, as is shown by David at Psalm 139:13-16: "You kept me screened off in the belly of my mother. I shall laud you because in a fear-inspiring way I am wonderfully made. Your works are wonderful, as my soul is very well aware. My bones were not hidden from you when I was made in secret, when I was woven in the lowest parts of the earth. Your eyes saw even the embryo of me, and in your book all its parts were down in writing, as regards the days when they were formed and there was not yet one among them." Would you not prefer to trust Him with the ultimate authority to decide the genetic blueprints for all living things?

"We Do Not Blame God"

WHEN Pan American's flight 103 was blown out of the sky by terrorists last December with 259 people on board, the Roman Catholic bishop of Galloway, Maurice Taylor, had bitter words for God:

"Father, if You are the God of love, why did You let this happen? Why did You allow the destruction of hundreds of innocent lives? The 10 who were citizens of Lockerbie? The many dozens who had never heard of Lockerbie, but whose lives ended so appallingly in the streets and fields of this part of Scotland? And why do You permit so many people to have to suffer the cruel tragic burden of bereavement?"

Dozens of students from Syracuse University in the United States were among the victims. Mildred Sachuck, housemother at one of its fraternities, said of the terrorists that planted the bomb: "We ought to blow 'em to hell."

One press report said: "Flight attendant Paul Garrett, 41, had planned to open a boutique in Paris after 15 years with the airline. 'The terrible tragedy is that this was going to be his last flight,' said Jan MacMichael, a friend in Millbrae, Calif[ornia]."

The reaction of Paul's parents, Ernest and Nadine Garrett, Jehovah's Witnesses living in Millbrae, was in sharp contrast with the reactions of the Galloway bishop and the Syracuse housemother. The reaction of Paul's parents is reflected in a letter they sent in response to condolences received from a fellow Witness in New York City:

A Worldwide Brotherhood

"How kind of you, Karl, to take time out from your busy schedule to send us such a comforting letter. It is one of many. We have heard from Witnesses in Norway, Italy, France, England, and Cameroon—almost 600 cards, telegrams, and letters, and over 250 phone calls from around the world. Paul knew so many people, having been a flight attendant for so many years with Pan American airlines. Memorial services were held in Paris, San Francisco, and Jacksonville, Florida, with a total attendance of 1,385.

"The local Witnesses in our home congregation and neighboring congregations took over our household and shopped for food, cooked and prepared it, cleaned our home, took turns sleeping in our home, never leaving us alone for a moment for a period of two weeks to be sure that we were okay. Truly, Jehovah's Witnesses worldwide do have 'love among themselves.' —John 13:35.

"The Pan American representative who was assigned to our family to offer comfort and condolences commented: 'I came to comfort you people, but I have been comforted instead. There is something different about these people from other people that I have observed on these occasions.' When asked what she meant, she said: 'These people truly care for one another.'

"We are thankful that we understand the Bible and know that 'time and unforeseen occurrence' do take their toll. (Ecclesiastes 9:11) Understanding this, Karl, we would never unjustly reproach God or blaspheme him for this tragedy, as the Catholic bishop of Galloway did. No, we do not blame God for the death of our son. The bishop, in effect, is saying that Jehovah is not a God of love.—1 John 4:8.

"Nor do we seek vengeance against the terrorists, as does the housemother at a Syracuse fraternity that lost a member in the crash, who said: 'We ought to blow 'em to hell.' Such matters we leave with God, who says: 'Vengeance is mine; I will repay.'—Romans 12:19.

"And last, but not least, is the wonderful hope

Flight attendant Paul Garrett

of the resurrection that will sustain us each day until we see our dear son again. 'If a man dies, can he live again?' asked the man Job long ago. Well, the Bible answered that question at Isaiah 26:19: 'Your dead ones *will* live . . . They will rise up.' We take comfort that our son died faithful as one of Jehovah's Witnesses, having a good name with God, a name that He will remember at the time of resurrection. (Ecclesiastes 7:1, footnote; John 5:28) We certainly feel sorrow over the loss of our son, but having the hope of the resurrection, 'we do not sorrow as the rest do who have no hope.'"—1 Thessalonians 4:13.

Paul is survived by his wife, Dominique. She lives in Paris, France, is one of Jehovah's Witnesses, and feels as do Paul's parents. She also does not blame God for her tragic loss and faces the future with courage and hope.

Do Men Really Want God to Stop Permitting Wickedness?

In ancient times a man named Job was undergoing calamities not of Jehovah's doing, yet he reproached Jehovah with this question: "Is it good for you that you should do wrong?" Jehovah answered him with another question: "Will you pronounce me wicked in order that you may be in the right?" (Job 10:3; 40:8) To instruct Job, God reviewed many of His creations in the heavens and on the earth that reflected His attributes of justice, wisdom, power, and love. (Job, chapters 38–41) Job realized his error and his self-concern, saying: "I make a retraction, and I do repent in dust and ashes."—Job 42:6.

By their own sinning, men bring many calamities upon themselves and others. They preach against God's permission of wickedness while they both permit and practice it. (Compare Romans 2:1, 21-24.) Their wickedness takes many forms—lying, cheating, stealing, oppressing, fornicating, committing adultery, sodomizing, murdering, making guns and bombs, waging wars and revolutions, all liberally sprinkled with self-justifications, hypocrisies, and blasphemies. Some social scientists have even contended that societies, by their prejudices and oppressions of certain groups, have created a soil in which rebellions arise, and desperate ones may inexcusably become rabid terrorists, murdering uninvolved innocents. (Compare Exodus 1:13, 14; 1 Kings 12:12-14, 16, 19; Micah 7:3, 4; Matthew 7:12.) Surely Ecclesiastes 8:9 speaks truth when it says: "Man has dominated man to his injury."

If God did not permit their wickedness, if he intervened with force to prevent it, their chorus of protests that their freedoms were being infringed upon would rise to the high heavens! They actually want him to permit their personal wickedness, but they want to be able to sow it without reaping its consequences.—Galatians 6:7, 8.

Such ones lack the honesty and the humility of Job, who repented when he understood that Jehovah was not the source of his calamities. Society today does not walk with God and thereby reaps the calamities of its course, since "it does not belong to man who is walking even to direct his step." (Jeremiah 10:23) Millenniums of human history prove this true.

But this will change before this generation ends, when Christ's Kingdom replaces this satanic system of things. (Daniel 2:44; Matthew 24:34; 2 Corinthians 4:4; 1 John 5:19) Then, 'no more mourning, no more tears, no more pain, no more death,' for Jehovah God says: "Look! I am making all things new."—Revelation 21:1, 4, 5; 2 Peter 3:13.

AUSTRALIA'S FLEDGLING CAPITAL
Comes of Age

COMPARED with many countries, Australia itself is only a fledgling nation. That is, as far as European settlement of the continent is concerned. Her first two centuries of European presence were only recently completed, with nationwide bicentennial celebrations for the whole of 1988 marking this milestone.

But if two hundred years is not really a very long time, then by comparison, Australia's capital city, Canberra, has barely "left the nest," for its site was named officially only in March 1913. Yet, despite its tender age of 76 years, the picturesque national capital has finally come of age many feel. In 1901 a bill was passed stipulating that the seat of future government "shall be in the State of New South Wales, and be distant not less than one hundred miles from Sydney." Six years later, a section of pastoral land almost 2,000 feet above sea level and measuring 911 square miles was taken from the Monaro district of New South Wales, now known as the Australian Capital Territory.

The name finally decided on for the national capital city was Canberra (pronounced *Can'bra,* with the first syllable accented). Many thought it fitting that this name resembled the Aboriginal word for "meeting place," as it was to be the place where future national parliaments and world dignitaries would meet.

City With a Unique Design

The new national capital was envisioned as a city with a difference. From among 137 entries submitted from all over the world, a winning design was chosen that called for a system of avenues radiating from a central point to be known as Capital Hill. It also required constructing a large man-made lake to enhance the beauty of the city. This would flow through the center of the city and future suburbs, providing parklands, foreshore beautification, water sports, and other aquatic facilities.

This attractive idea was no doubt prompted by the meandering Molonglo River, which conveniently flowed through the elevated plains of that pastoral area and could easily be dammed up. Half a century later, a delightful five-and-a-half-mile-long lake was constructed and named Lake Burley Griffin, after the young Chicago landscape architect whose design for Canberra won the worldwide competition back in 1911.

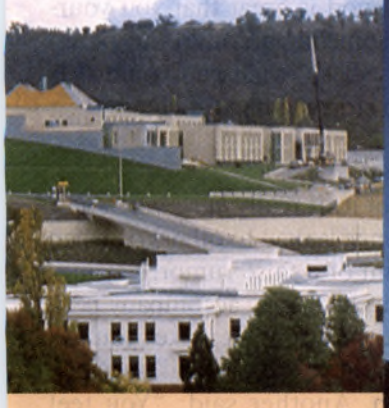
Now that a design had been approved, work quickly got under way to develop Canberra into a capital that would blend the beauty of country and city into one attractive metropolis. The results were so successful that the developing city was affectionately dubbed Australia's Bush Capital.

The original design for a garden capital resulted in masses of native and exotic trees and shrubs, a wooded panorama that ornaments the well-spaced suburbs and satellite towns. Its pop-

ulation now stands at about 270,000, and it claims an almost pollution-free atmosphere as it nestles among more than six million trees of seemingly infinite variety. Parks and recreation areas are abundant in its garden landscape, softening the features of the buildings and avenues with a crown of trees producing a continuous kaleidoscope of changing colors from spring to autumn.

The bush setting has attracted countless native and exotic birds and animals. There are 250 species of birds in the territory, and more than 90 of these live within less than a mile of the city center. Gaily colored parrots and cockatoos nest and feed in trees in the heart of the business center. Native animals, such as kangaroos and wallabies, live in proximity to the city. In fact, a family of kangaroos lives on the grounds of the governor-general's residence.

The new Parliament House—temporary one in right foreground



Observation tower

Additionally, Lake Burley Griffin provides a natural habitat not only for a variety of water birds but also for the unusual Australian platypus, the little furred animal with webbed feet and large duckbill.

"Coming of Age"

To many minds, the maturity of this fledgling capital is directly related to its Parliament House, which in a representative way is really the central reason for the city's existence. It was back in 1914 that an international competition was launched for the design of a national parliament house, but World War I caused this whole venture to be canceled. Then, early in the postwar years, it was decided to build a temporary parliament house to serve until a more permanent structure could be built. This provisional parliament house was officially opened in May 1927 by Britain's Duke of York (who later became King George VI).

In 1965, however, a select committee was formed to plan a new permanent house of parliament. Almost ten years rolled by, and eventually a decision was made that Capital Hill would be the site. A few years later, in 1980, the prime minister turned the first sod, and the building got under way. Since then, another eight years have sped by. But now, at long last and with much fanfare, a striking new Parliament House on Capital Hill was officially opened on May 9, 1988, by the daughter of the late King George VI, Queen Elizabeth II.

The new Parliament House has been hailed as an outstanding architectural achievement. The design competition launched in 1979 drew entries from 28 countries. The building is uniquely designed to complement Walter Burley Griffin's Canberra plan. Of course, such imposing structures do not come without an equally imposing expenditure of money. The cost of the flag mast alone is estimated at 4.4 million Australian dollars.

Judged by all outward appearances, it can now be said that Australia's fledgling bush capital—picturesque Canberra—has finally come of age.

Lake Burley Griffin, high court in background

What Should I Do if People Gossip About Me?

"NINETY-FIVE percent of the people in my high school gossip," says one sophomore in a New York high (secondary) school. The prime topic of gossip? "Other students: their personalities, how they look, who likes whom, and what they say about each other."—*Seventeen* magazine, July 1983.

Often, though, gossip veers toward the negative and results in serious damage to the reputation of others.* And since gossip is so universally practiced among youths as well as adults, the likelihood is great that you yourself are (or will someday become) the victim of hurtful gossip. If so, what can you do? Is there any way to stop the hurtful chatter?

The Pain of Gossip

No doubt about it: It really *hurts* when personal information is leaked to others or when you are the victim of a false rumor. Feelings of anger and vengeance may accompany periods of hurt and depression. "It makes you feel as if you want to hurt the person," said one victim of gossip. Another said: "You feel

* See "Gossip—What's the Harm in It?" appearing in the July 8, 1989, issue of *Awake!*

Sometimes it is possible to track down the source of the rumor and have a face-to-face discussion with the gossiper

crushed; it is like being stabbed in the back. It can make you feel as if you never want to speak to them again. Your trust is gone, and you just can't stop thinking about the problem."

Indeed, gossip has caused many youths to become virtually immobilized by embarrassment. One young girl thus transferred to another school rather than face the youths who shared in spreading an ugly rumor about her. Nevertheless, neither revenge, anger, nor paralyzing embarrassment improves the situation one bit. There are far more effective ways of dealing with contrary talk.

Avoid Overreacting!

Before you do *anything,* remember: "He that is quick to anger will commit foolishness." (Proverbs 14:17) The message? Do not overreact! Hasty actions often create more problems than they solve. Cautions the Bible: "Do not hurry yourself in your spirit to become offended, for the taking of offense is what rests in the bosom of the stupid ones." Why? For one thing, you simply cannot stop people from talking about other people. Being talked about is just a part of life. Solomon further advised: "Do not give your heart to all the words that people may speak . . . For your own heart well knows even many times that you, even you, have called down evil upon others."—Ecclesiastes 7:9, 21, 22.

Solomon was not justifying negative gossip. He was simply recognizing it as a fact of life. As much as you may dislike being talked about, is it not true that you have probably said things about others that would best have been left unsaid?

In her book *Gossip,* Patricia Meyer Spacks observed: "More common is gossip issuing not from purposeful malice but . . . from lack of thought . . . It derives from unconsidered desire to say something without having to ponder too deeply. Without purposeful intent, gossipers bandy words and anecdotes about other people." Realizing this may help temper your indignation.

Strategies for Dealing With Gossip

Proverbs 14:15 says that "the shrewd one considers his steps." This would suggest calmly mapping out a strategy to deal effectively with gossip.

You might begin by considering how serious the gossip is. Perhaps the story circulating about you, while embarrassing or even untrue, is genuinely amusing and really does not besmirch your character. In other words, you would have preferred that the world not know of your locking yourself out of your own house during a rainstorm or of your splitting your gym shorts while doing sit-ups, but now that the word is out, is it really such a disaster? Perhaps the best way to let the rumor die is to display a sense of humor.

Suppose, though, that the rumor is really uncomplimentary or insulting? Is it really likely to cause lasting damage to your reputation—or will it more likely die out soon? If the latter seems true, it may be best simply to ride out the storm. Keeping a 'business as usual' demeanor—rather than going about sulking or looking guilty—will at least prevent your fueling the rumor. Says Proverbs 26:20: "Where there is no wood the fire goes out, and where there is no slanderer contention grows still."

Sometimes, though, the matter is too serious to ignore. Jesus Christ advised his followers what to do when someone caused a personal offense such as by slander: "Go lay bare his fault between you and him alone." (Matthew 18:15) It might be possible then to trace the harmful talk to its source and calmly discuss matters with the individual responsible for starting the rumor.

True, that person may not be a Christian. But if you know that the person is reasonable, perhaps he or she will respond favorably. It may turn out that the whole matter is the result of some serious misunderstanding. If animosity is at the root, perhaps the matter can be ironed out between you.

Often, though, it is very difficult to track down the source of a rumor. And even if you can, the one responsible may not be willing to own up to the indiscretion. What then? Remember that Jesus Christ was the victim of "contrary talk." (Hebrews 12:3) Jesus, however, did not become so upset that he abandoned his preaching work and set out to track down the person who started this troublesome talk. Rather, he said: "Wisdom is proved righteous by its works."—Matthew 11:19.

Jesus knew that those who were fair would observe his fine works and conclude that the hurtful talk was baseless. Similarly, let your conduct be your best defense against gossip. Since your real friends know the truth about you, they will not believe outlandish stories. Still, you can let them know that a lie about you is circulating. Often they can do much to help squelch the rumor by correcting any misinformed ones they encounter.

IN OUR NEXT ISSUE

The House That Greed Built

▪

Can a Homosexual Be a Minister of God?

▪

Living With Down's Syndrome

But what if the story has already been widely circulated? Usually it is not quite as bad as you imagine. Besides, people do not talk indefinitely about any situation. There are always plenty of events in the making that will sooner or later take the spotlight off you. In the meantime, though, do not suffer in silence. Why not share your feelings with a parent or another mature adult? Oftentimes, talking matters out helps put a problem in perspective.

A Learning Experience

Being a victim of gossip also presents you with opportunities to learn some valuable lessons. For example, having personally experienced just how damaging reckless talk can be, why not resolve never to be a party to spreading rumors?

The ordeal of being gossiped about may have revealed flaws in your personality, such as a tendency to seek vengeance. Or it may be that your pride has proved to be more of a problem than the rumor itself. Undue concern for your image may have caused you to 'think more of yourself than it is necessary to think.' (Romans 12:3) Now would be the time to start working on taking yourself a bit less seriously.

In retrospect, you may also realize that poor judgment on your part contributed to the spread of the rumor. Did you, for example, confide your innermost thoughts to a youth with a reputation for "opening wide his lips"? (Proverbs 13:3) Then perhaps you will choose your confidant a bit more carefully next time. You will also be careful to conduct yourself impeccably so as not to give others any ammunition for gossip.—Compare 1 Peter 2:15.

Yes, handle matters calmly and kindly, and you can rise above foolish rumors—and perhaps even stop them.

RELIGION'S FUTURE IN VIEW OF ITS PAST

Part 14: 622 C.E. onward

Submitting to God's Will

"Of these messengers We have exalted some above others."
*Al-Baqarah (sūrah 2), verse 253, from the Qur'ān**

PEOPLE believing in an omnipotent, loving God recognize the wisdom of submitting to his will. They appreciate the guidance he has provided them through messengers entrusted with divine knowledge. Some of these messengers are recognized by more than one of the major world religions. For example, upwards of 800 million followers of Islam view the Judeo-Christian personalities Adam, Noah, Abraham, Moses, David, and Jesus as major prophets of God. But a seventh, they believe, has been exalted above all other messengers—the prophet Muḥammad.

The name Islam is meaningful, since it denotes submission or surrender—in this context, to the law and will of Allah. A person going this way of submission or surrender is termed a "Muslim," the active participle of the word *islam.* The one to whom Muslims are to be in submission is Allah. Viewed as a personal name, Allah is a contraction of *Al-Ilah,* Arabic words meaning "The God." The name appears in the Qur'ān some 2,700 times.

The Foremost Prophet of Islam

Muḥammad bin Abdullah (the son of Abdullah), the founder of Islam, was born in Mecca, Saudi Arabia, about the year 570 C.E. He was dissatisfied with local polytheistic beliefs and rituals. He apparently felt no affinity for Judaism or for Christianity either. H. M. Baagil, a Muslim author, elaborates: "Because Christianity had deviated a long way from the original teachings of Jesus, Allah then sent as part of His original plan His last Prophet, Muhammad, as revivalist to restore all these changes."

Muḥammad gave rituals and rites an Arabic flavor. Jerusalem and its temple were replaced by Mecca and its sacred shrine, the Kaaba. Saturday for Jews and Sunday for Christians were replaced by Friday as a day of communal prayer. And instead of either Moses or Jesus, Muḥammad now came to be viewed by Muslims as God's foremost prophet.

When about 40, Muḥammad declared that he had been called to be God's messenger. At first he shared his beliefs with relatives and friends, gradually building up a group of followers. The actual beginning of the Islamic era was in 622 C.E., when he emigrated from Mecca to Medina, an event called the *hijrah,* Arabic for "emigration." Thus, Muslim dates are given as A.H. (Anno Hegirae, year of the flight).

Muḥammad tried to reconcile the Jews in Medina to his new religion and to his role as a prophet. But persuasion failed. They opposed him and plotted with his enemies both in Mecca and in Medina. In time the main

* "Qur'ān" (which means "recitation") is the spelling favored by Muslim writers and which we will use here rather than the Western form "Koran."

groups of the Jews were driven out, and one clan, the Qurayẓah, was destroyed by putting its men to death and enslaving the women and children.

Finally, Mecca was taken peacefully in 8 A.H. (630 C.E.), as was most of the Arabian Peninsula. A few decades after Muḥammad's death, a controversy over succession led to such civil strife that, in reaction, the community adopted an almost accommodating stance toward non-Islamic groups and ideas.

More Than Just a Religion

Islam is a total way of life, encompassing the State, its laws, its social institutions, and its culture, and therefore it is not just a religion. This explains why the book *Early Islam* says that for over 600 years, "Islam was the world's most challenging religion, its strongest political force and its most vital culture."

Indeed, within a century after Muḥammad's death, an Arabic empire, larger than the Roman Empire at its peak, stretched from India across North Africa to Spain, helping transmit inventions that enriched Western civilization. It made outstanding contributions in the fields of law, mathematics, astronomy, history, literature, geography, philosophy, architecture, medicine, music, and the social sciences.

Like a Meteor Soon Spent

"The Arab conquests were the direct product of the preaching of Muhammad," says *The Collins Atlas of World History*. Of course, other factors also contributed to Islamic expansion. For example, religious conflicts between the Christians of Byzantium and the Zoroastrians of Persia blinded them both to the Arab advance.

Striving to hold a far-flung empire together by means of religion was nothing new. But "Moslems were convinced that they possessed in the Koran the final and incontrovertible statement of truth," explains author Desmond Stewart. They became complacent, "believing that all that was worth knowing was already known, and that the ideas of non-Moslems were of no account." Changes were "stubbornly resisted."

Consequently, by the 11th century, the empire was already in decline. Stewart likens it to "a meteor streaking across the night sky [whose] . . . vitality soon spent itself." Thus, this religion, which created a sense of brotherhood and offered a comparatively easy way of personal approach to God, actually contributed to bringing down the very empire it had once helped create. As rapid as was its

To Help You Better Understand Islam

The Five Pillars of Islam require that Muslims at least once publicly make the confession of faith known as the *Shahādah*—"There is no god but God; Muḥammad is the prophet of God"; say prayers five times a day; pay zakat, an obligatory tax, now usually collected on a voluntary basis; fast from sunup to sundown during the ninth month, Ramadan; and at least once, if financially able, take the hajj (pilgrimage) to Mecca.

"Jihad" ("holy war" or "holy struggle") is viewed as a sixth pillar by the Khariji sect but not by Muslims in general. Its purpose, says *The New Encyclopædia Britannica*, "is not the conversion of individuals to Islām but rather the gaining of political control over the collective affairs of societies to run them in accordance with the principles of Islām." The Qur'ān allows for such a "holy war," saying: "You shall not kill any man whom Allah has forbidden you to kill, except for a just cause."—Sūrah 17:33.

The main sources of Islamic doctrine and law are the Qur'ān, written over a period of about a quarter century; *sunnah* (traditions); *ijmā'* (consensus of the community); and *qiyās* (individual thought). The Islamic law code, the *Sharī'ah*, dealing with the total religious, political, social, domestic, and private life of Muslims, was systematized during the eighth and ninth centuries C.E.

Mecca, Medina, and Jerusalem, in that order, are Islam's three most sacred places: Mecca because of its Kaaba sanctuary, which tradition says Abraham built; Medina, where Muḥammad's mosque is located; and Jerusalem because from there, tradition says Muḥammad made his ascent into heaven.

The Islamic Empire as it looked at its peak

rise, so sudden was its demise. The empire was dead, but its religion lived on.*

True submission includes obeying God, his laws, and his representatives. Muḥammad succeeded in uniting the Arab tribes in Arabia, founding an Islamic community (Ummah) centered on him and the Qur'ān. It was a religious state wherein submission helped in making them brothers under one leader. Islam allowed the use of the sword in fighting the enemies of the Arab tribes. This sword helped to expand their empire and their religion. When Muḥammad died, violent differences arose. These were in the first instance political, arising out of the question of choosing a *Khalifah,* a leader. It moved many to draw their swords to fight their brothers. The merging of religion with government served to divide the community. "Submission" could not unite the people under one leader.

Tradition says that Muḥammad himself foresaw 72 heretical sects of Islam developing. But today some authorities speak of several hundred.

The two major divisions are the Shia and the Sunni. Each has, however, numerous subdivisions. Of every 100 Muslims, about 83 are Sunni and about 15 Shiite. The others belong to various sectarian groups as diverse as the

* The common view that Islam is strictly an Arab religion is incorrect. Most of today's Muslims are non-Arabs. Indonesia, the most populous Muslim country, has 150 million adherents.

Druze, the Black Muslims, and the Abangans of Indonesia, who mix Islam with Buddhism, Hinduism, and local religions.

A feature of the Shiite minority is its belief that religion and the Qur'ān have esoteric, or hidden, meanings. But it was over the question of succession that the Shiite schism actually arose. The Shiites (a word meaning "partisans," in reference to "the partisans of ʿAlī") hold to a doctrine called legitimism, claiming that the right of rulership is restricted to ʿAlī, Muḥammad's cousin and son-in-law, and to ʿAlī's descendants.

ʿAlī and his descendants were imams, leaders with absolute spiritual authority. There is disagreement on how many imams there have been, but the largest Shiite group, called the Twelver Shia, believe there have been 12. In 878 C.E. the 12th imam became "hidden," that is to say, he disappeared after promising that he would return at the end of the world to establish an Islamic government of justice.

Shiite Muslims annually commemorate the martyrdom of Ḥusayn, Muḥammad's grandson. Comments author Rahman: "Fed from childhood with such representational enactments of this event, a Shīʿī Muslim is likely to develop a deep sense of tragedy and injustice resulting in an ideal of martyrdom."

Evidences of Disunity?

"The introduction of Greek philosophy and logic in the ninth century," comments *The Columbia History of the World,* "gave rise to a distinct Islamic philosophy (*falsafa*) which had a far-reaching impact on the rationalistic and theological outlook of Islam. . . . With the passage of time Islam itself, as a religion and way of life, underwent profound changes affecting its unity."

For example, Sufism, the Western term for Islamic mysticism, surfaced in the eighth and ninth centuries and rapidly developed into a mass religious movement. By the 12th century, Sufi orders, or brotherhoods, were widespread. The Sufi monastery began almost to overshadow the mosque in importance. Practices found in Sufism include autohypnotism induced by concentration techniques or frenzied dancing, the chanting of formulas, belief in miracles, and the worship of saints.

Sufis compromised with local customs and beliefs. Turks retained their shamanistic practices, Africans their medicine men, Indians their Hindu and pre-Hindu saints and deities, and Indonesians—as *The New Encyclopædia Britannica* expresses it—their "pre-Islāmic world view beneath an overlay of Islāmic practices."

A noted sectarian development of more recent times is the Baha'i religion developed from Shiite Islam in mid-19th century Iran. Another is a Sunni sect called the Aḥmadīyah, which developed in late 19th-century India, when Mirza Ghulam Ahmad, a self-proclaimed prophet, professed to be a manifestation of Muḥammad, the returned Jesus, and an incarnation of the Hindu Krishna. He taught that Jesus, after escaping death at Golgotha, fled to India, where he remained active until his death at 120.

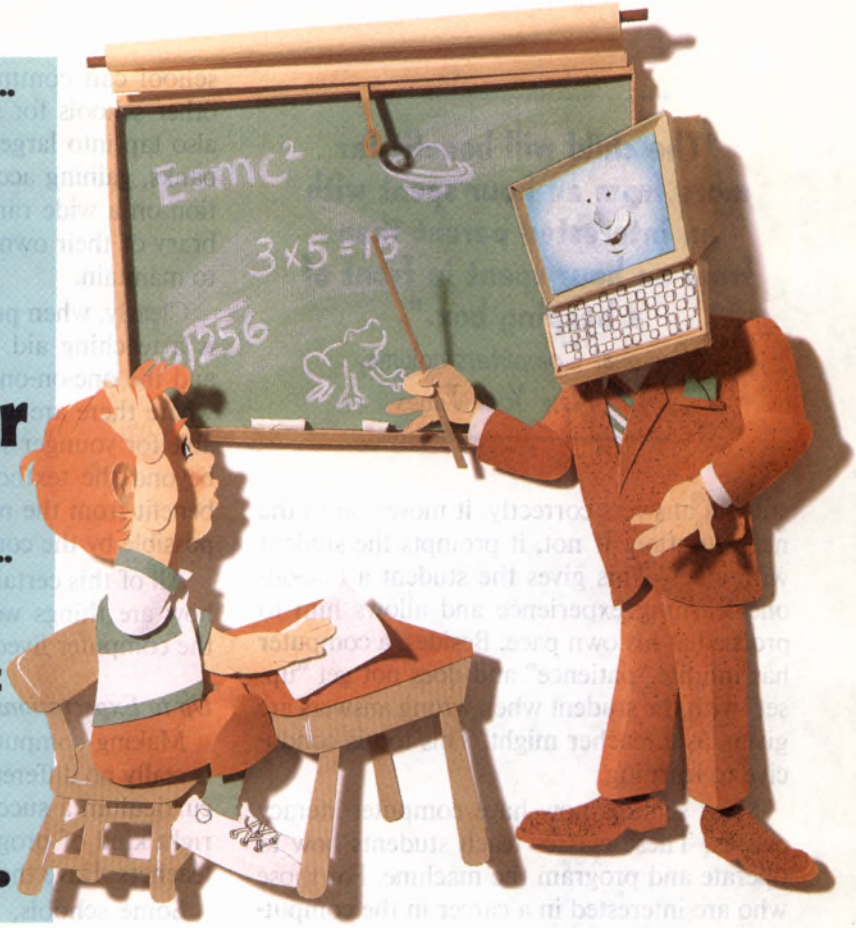
In his commentaries on the Qur'ān, Muslim author S. Abul A'la Maududi says: "At the time of the revelation of Al-Baqarah [the sūrah quoted at the head of this article], all sorts of hypocrites had begun to appear." These included "'Muslims,' *munāfiqīn* (hypocrites) . . . who were intellectually convinced of the truth of Islam but did not have enough moral courage to give up their former traditions."

So from the very start, many followers evidently failed to submit to Allah in the way Muḥammad intended. But others did. To ward off the challenge they presented, Christendom was not above "Resorting to the Sword," as will be described in our issue of August 8.

Does Johnny Need a Computer Now?

What role is the computer playing in the education of our children?

How good a teacher is it?



JOHNNY'S mother sat listening soberly to his teacher. The teacher told her that Johnny was not doing very well in school.

"Well," asked the mother, "what do you suggest?"

"Have you thought of a home computer?" responded the teacher.

Advertisements depicting a scene like the one described above have done much in making many anxious parents believe that to assure the proper education—and future job prospects—of their children, they must see to it that their children learn everything they can about computers. Furthermore, computers are appearing in classrooms at a rapidly increasing rate.

Certainly the computer has the potential to teach and to develop creativity and problem-solving abilities in ways that were previously not thought possible.

For instance, one computer program allows the student not only to dissect a frog but also to reassemble it. If the student performs the "operation" correctly, he is rewarded by seeing the frog come to life and hop off the screen. Other programs simulate the motion of the planets, portray the geography of the earth, or enable the student to fly a plane, drive a car, or perform chemical experiments.

Another way in which the computer is used is generally called computer-assisted learning. The computer asks a question. If the

"The child will benefit far more from an hour spent with an interested parent than from an hour spent in front of a beeping box."
Personal Computers column,
The New York Times

student answers correctly, it moves on to the next question. If not, it prompts the student with clues. This gives the student a one-on-one learning experience and allows him to proceed at his own pace. Besides, a computer has infinite "patience" and does not get "upset" with the student when wrong answers are given, as a teacher might. This too is conducive to learning.

Most schools now have computer-literacy classes. These classes teach students how to operate and program the machine. For those who are interested in a career in the computer field, this could be very important. Proponents of this type of curriculum strongly feel that all students should have some knowledge of computers. Job prospects, real or imagined, also give such classes strong appeal.

Writing and research are other useful applications of school computers. Teachers in writing classes often find that students using computers as word processors are more willing to rewrite and edit their own material —an essential part of good writing—because they always have in front of them a finished, neat-looking product.

The computer can also open up a vast source of information for the student. Using the appropriate equipment, students in one school can communicate with students in other schools for special projects. They can also tap into large central libraries and data banks, gaining access to up-to-date information on a wide range of subjects that the library of their own school could never afford to maintain.

Clearly, when properly used, the computer is a teaching aid. The hands-on experience and the one-on-one situations made possible where there are enough computers are valuable for younger students. Older ones can go beyond the textbook-based curriculum and benefit from the new ways of learning made possible by the computer.

All of this certainly sounds wonderful. But how are things working out in reality? Has the computer lived up to expectations?

Up to Expectations?

Making computers in education a success is really no different from making any school curriculum a success. What is needed is the right kind of programs taught by competent teachers. Have these criteria been met?

Some schools, in their rush to purchase computer technology, went ahead and bought computers without carefully considering how they were going to be used and what the needs of the students were. The result is that many schools are stuck with the unpleasant task of finding worthwhile uses for their computers.

This state of affairs is reflected in how school computers are currently being used. While there are fascinating programs and ingenious ways of teaching, surveys have found that such programs constitute only a minimum of the total being used in schools. Most of the programs used in the classrooms are either for practice and drill or for teaching computer literacy.

Practice and drill, of course, have their

place in school. But it is hard to refute the logic in the question raised by a schoolteacher and computer-literacy instructor: "Why spend $2,000, or $1,200, or even $600 for an electronic workbook when a plain old $2.95 workbook with lots of drill and practice sheets will do just as well?" Furthermore, some educators feel that such applications defeat the whole purpose of using computers in classrooms because they reduce learning to seeking right and wrong answers rather than stimulating thinking and creativity.

As for the need of computer literacy, many feel this is a clever gimmick of the computer makers and related industries. Because of advertisements like the one cited earlier, and perhaps because of their own fear of this new machine, many parents feel that their children will be failures if they do not have a working knowledge of computers. In reality, few future jobs require computer literacy, that is, knowledge of programming, computer languages, and so forth. Rather, computers will be used as tools, much as calculators or electric typewriters are commonly used today. Certainly it is an asset to know how to use these machines, but no one worries about not knowing how they work unless one is interested in a vocation in this area. The prevailing view is that computer literacy should be taught but only as an option.

Since computers are relative newcomers to the classroom, they often appear as unfathomable to teachers without the technical background as they do to the students. Thus, resistance to change, school officials find, is a major obstacle in raising the level of computer instruction.

"Many teachers feel uncomfortable with computers," said a school principal. "They know that computers are here and that they ought to be interested. But staff training is still the biggest problem." To reeducate the teachers takes time and money. However, school authorities are hopeful that as teachers gain more experience and more computer-literate teachers join their forces, more effective use can be found for this tool.

What Parents Need to Do

So does Johnny really need a computer now? The answer may well depend on you, the parent. If your concern is that your child will be a failure if he does not have a computer, then perhaps the foregoing will allow you to see the picture in a more balanced way.

Educators generally agree that schoolchildren should have some exposure to computers. To this end, most public schools today have some type of program to teach students about computers, introducing them to the basic elements of the hardware—the computer, keyboard, disk drive, printer, and so on—and to elementary programming. The schools usually provide the necessary equipment in computer classes, and students are given hands-on experience. Those interested in the computer field can choose special classes in later years in the same way that other students may choose art, accounting, secretarial, or other courses.

There are, of course, some schools in which computers are used more extensively and innovative programs are utilized to teach a variety of subjects. But because such curriculum is still relatively new, no one is quite sure if it is better than conventional methods of education.

Perhaps the words of a high school junior in a *New York Times* article serve to summarize the situation. He writes: "Computers have a place in education as tools, but they are not a form of social insurance against incompetence and woolly thinking." Emphasizing the importance of teaching students how to think, he concludes: "There is no technological short-cut to that goal."

WATCHING THE WORLD

MIRACLE WATER?

"The pope and the bishop of Lourdes have different opinions on the value and significance of the water of Lourdes, and they expressed them the same day," observed the Italian newspaper *La Stampa* recently. During a Mass held in honor of the Madonna of Lourdes, France, the pope declared that water issuing from the spring is "a genuine instrument of the marvelous, most copious and supernatural action that Mary performs," adding, "The water of the spring of Lourdes, with its miraculous power," compares to that of the pool of Siloam that Jesus once used when he healed a man. Yet, that same day, the bishop of Lourdes, apparently concerned about commercial trafficking in the water, stated: "It is not magic water. In fact, calling it 'miracle water' is misleading." Italy's *Panorama* magazine notes that the water "is not bacteriologically pure, and in fact the stratum from which it springs runs a grave risk of contamination." But for the traffickers of Lourdes, the water "is like oil for Texas or Iran. It's the main resource," says *Panorama.*

A GAME OF DEATH

Israeli youths have conceived "a bizarre variant of Russian roulette," reports *The New York Times,* in which 11- and 12-year-old boys take turns running in front of speeding cars. In the game's original version, children lay in the path of an oncoming vehicle. The *last* one to jump out of danger wins. Variations include leaping in front of trains and racing out to pick up a briefcase or other object left in a vehicle's path. The reason? "To demonstrate their bravery," cited one youth, while another said it was a way "to tempt death." According to the *Times,* some authorities believe that "the volatile nature of life here, the constant threat of war or terrorist attack," has produced a nation of frustrated youths who are finding a release in this game of death. By early April, at least one 11-year-old had been killed and another injured.

BIBLE PRINTING

The number of languages in which at least part of the Bible has been printed increased last year by 23, bringing the total to 1,907. Complete Bibles can now be found in 310 languages, 7 more than previously. Included among the new languages are Karo Batak,

ekeGusii, Cuzco Quechua, Malawi chi'Tonga, otjiHerero, ruKwangali, and Tigre.

While Bibles are printed in many lands, Korea has become the world's largest Bible exporter —shipping 4.3 million volumes in 119 languages to 91 other countries last year, asserts the *Korea Times.* The nation's Bible exports have grown annually by 20 percent, and the Bible distribution rate within Korea is the highest in the world. Korea expects to catch up with the United States within two years as to total number of Bibles manufactured in a single country.

WORTH QUITTING

According to a report published in *Cancer Research,* the risk of lung cancer for women who smoke jumps by more than 1,000 percent! However, research shows that women lower the risk dramatically simply by quitting the smoking habit. How much? The report indicates that within a relatively short time, the risk drops nearly to the level of those who have not smoked in 10 to 15 years.

ITALY'S JUVENILE VIOLENCE

Rome has become a city where "violence is now a spine-chilling habit," laments the Rome daily *La Repubblica.* "The city, as the researchers seem to say, has grown accustomed to living with violence and is no longer able to express its revulsion at violent ways." The newspaper also notes that a recent survey on juvenile violence in Italy provides a glimpse into the makeup of today's young delinquent. It revealed him to be someone with "an exaggerated concern for his own image and honor, little consideration for handicapped persons, and a marked aversion toward institutions and those who represent them."

BAD DIVORCE

Over two years ago, a 15-year-old Australian youth "divorced" his parents on the grounds of "irreconcilable differences." (See

Awake!, March 22, 1987.) Now, at the age of 17, according to Sydney's *Sunday Telegraph,* Damien admits that "he was just a kid abusing the system and his parents to get his own way." He said: "I was feeling sorry for myself and wanted some attention." But the *Telegraph* says that his mother blames state community services and social workers for "putting before Damien rights that he shouldn't have had." After returning home, the youth admitted concerning his leaving: "It was an unwise thing to do . . . Now it's hard to believe what I did."

INFANT HOMICIDE

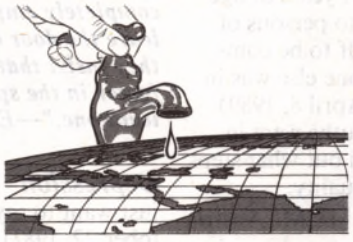
A research team at Johns Hopkins University, in Baltimore, Maryland, U.S.A., recently published a report revealing that 'murder has become the leading cause of death among infants in the United States.' The number of babies murdered is higher than the number of infants killed in car accidents. The report states that 1,250 babies under one year of age were killed from 1980 to 1985. They were victims of all kinds of mistreatment, from strangulation to drowning, as well as death from the use of firearms. The same report showed that older children in the United States face another danger—self-destruction. The suicide rate for children between the ages of 10 and 14 doubled between 1980 and 1985.

A BALANCED MEDIA DIET

A steady diet of television may adversely affect a child's imagination, says a recent study published by two California psychologists. They argue that as a result of too much television, children "may use their imagination less and may have fewer occasions that stimulate their verbal precision and active mental processing." Similarly, the author of a Canadian study reported that "television also interfered with the acquisition of fluent reading skills among children in early grades" and that adult television viewers solve problems more slowly and lack perseverance when compared with those who do not watch television. According to Canada's *Equinox* magazine, psychologists advise parents to "encourage their children to read more, . . . discuss television programmes with their children," and strive for a "balanced media diet."

MIDEAST WATER SHORTAGE

"Water has always run scarce in the sere [withered] lands of the Bible," notes *U.S.News & World Report.* "Now, the flow is growing dangerously thin, adding to tensions in a region that is already unstable." The Washington-based Center for Strategic and International Studies predicts that "by the year 2000, water, not oil, will be the dominant resource issue of the



Middle East." Factors contributing to the water shortage are: the economic boom in Persian Gulf nations, the decade of drought in East Africa, and Egypt's population explosion. While dam construction may increase water supplies to one country, it decreases the supply to nations farther downstream. A number of solutions are now under discussion, but they depend upon cooperation between Turks, Arabs, and Jews in the nations involved. "That remains the essential requirement rare at every level in the Middle East," says *U.S.News & World Report,* "scarcer than money, scarcer even than water."

THE WEAPONS BUSINESS

In the Federal Republic of Germany, officially licensed exports of guns, submarines, ammunition, and military electronics amount to 30,000 million DM per year, or 5 percent of the country's total exports. However, Germany is only the fifth-largest exporter of military items, preceded by the United States, the Soviet Union, France, and Great Britain. Where does the equipment go? According to the Institute of Politics and Security in Hamburg, 60 percent of all armaments exported by Germany between 1973 and 1980 went to countries involved in wars or internal revolts. "Employing some 300,000 people, no other industry is so shrouded from the public gaze as is the armaments industry," comments German newspaper *Süddeutsche Zeitung.*

SHANGHAI SURPRISE

Residents of Shanghai, China's largest city, are now required by law to donate blood or be subject to a fine. The law stipulates that males between the ages of 20 and 55 and females between 20 and 50 who are in good health must donate blood at least once within a 5-year period. Shanghai military staff and university students must also comply. According to the New China News Agency, the Shanghai government instituted such measures to ensure that its hospitals maintain a sufficient supply of blood. Most of the blood supplied to local hospitals last year was imported from foreign countries.

FROM OUR READERS

Gambling I got hooked on gambling at the age of 23. It made my life very miserable for years. Nothing seemed to be able to help me stop. However, I chanced upon your magazine. (September 8, 1987) It helped me to quit the dirty habit. Thank you.

T. M. E., Zambia

Preemies I am confined to home, caring for my mother, who recently suffered a stroke. Thus, I cannot do a great deal in the door-to-door preaching work. However, I shared the February 22, 1989, issue with a visiting nurse. She thanked me profusely for it. She works in a neonatal unit and shared the articles with three or four of her coworkers. They all thoroughly enjoyed them. One of them said, "These are some of the problems we are facing, but I have never seen them in print before."

V. G., United States

Same-Sex Crushes I am 14 years of age and have felt myself attracted to persons of the same sex. I imagined myself to be completely abnormal and that no one else was in such a dilemma. The article (April 8, 1989) helped me to see that other youths were in the same situation and pointed out what steps to take so as to avoid homosexuality.

H. M., Austria

When I was eight or nine years old, I engaged in sexual play with my best friend. At that time I thought it was harmless. But as I got older, I saw how wrong and shameful it was, and I felt very guilty. I am very thankful that this topic was discussed. It has helped to relieve a lot of long-lasting guilt to know that "Jehovah forgives in a large way." I will continue to exercise self-control.

E. G., United States

AIDS In your March 8, 1989, issue, you publish a letter from a reader that suggests a probability of "mosquito-transmitted AIDS." Your editorial comment did not challenge this statement. However, a widely distributed brochure by the U.S. surgeon general says, "You won't get AIDS from a mosquito bite . . . or other insects, either." Some readers of that issue of *Awake!* may thus now be unnecessarily scared of mosquitoes as AIDS carriers.

P. G., United States

Most AIDS researchers agree that it is possible for a mosquito to harbor the virus by taking blood from an infected victim. However, there is no evidence that the AIDS virus replicates within the insect, as do yellow fever and other insect-borne viruses. Thus, the mosquito seems incapable of transmiting AIDS. Nevertheless, that the matter is not conclusively settled is indicated by a report in "Science" magazine (July 1987), which asks: "Can the AIDS virus be transmitted by insects? The answer seems to be no but not a completely emphatic no. Scientists want to leave the door of possibility slightly ajar. But they insist that if insect transmission is a factor in the spread of AIDS, it is an insignificant one."—ED.

Depression I am now 20 years old, and I just want to say thanks for your articles. (October 22, 1987) I have been through some rough times, and the articles have helped me out a lot.

C. W., United States

Courtship Your article (February 22, 1989) impressed on my mind the seriousness and the responsibility of courtship. I am now courting, and I hope it will culminate in a successful marriage.

G. V., Mexico

Health Hazards Even in "No Smoking"

THE Journal of the American Medical Association (*JAMA*), February 10, 1989, reported: "The National Academy of Sciences reviewed the data on passive smoking . . . , specifically addressing the environment of airline flights." The recommendation: "A ban on smoking in all domestic commercial flights for four major reasons: to minimize irritation, to reduce health risks, to reduce fire hazards, and to bring air cabin quality into line with standards for other closed environments."

The academy's in-depth study revealed: "Exposures to nicotine measured during the flights using personal exposure monitors were found to be variable, with some nonsmoking areas attaining levels comparable to those in smoking sections. Attendants assigned to work in nonsmoking areas were not protected from smoke exposure."

The study showed that "air levels of nicotine were highly variable, with some nonsmoking areas attaining levels greater than those in some smoking sections" and reminded readers that "the adverse health effects on nonsmokers of passive, or involuntary, smoking include lung cancer and respiratory disease."

This same issue of *JAMA* reported on a study that established the addictive power of nicotine, saying: "Persons seeking treatment for drug dependence tended to rate urges for cigarettes and difficulty in quitting cigarettes as high as or higher than for their main problem substances [alcohol, cocaine, heroin]."

Canada banned smoking on flights of two hours or less in 1987. Both major Canadian airlines went further, banning smoking on all their North American flights. In the United States, federal law has banned smoking on short flights, and "one US airline has voluntarily banned smoking on flights of any length within the United States, except flights to and from Hawaii." As more airlines adopt similar no smoking policies they will assist toward reducing the hazards of flying.

Health Hazards Even in "No Smoking"