

Awake!

September 22, 1990



A large blue bulldozer with the number "64F 015" on its side is shown working in a vast, sprawling landfill. The ground is covered in a thick layer of trash, including plastic bags, cardboard boxes, and other discarded materials. Numerous seagulls are scattered across the waste, some flying overhead. The background shows more piles of trash under a clear sky.

**Is Earth Becoming a
Garbage Dump?**



The garbage crisis as seen by world leaders, environmentalists, and concerned citizens is a growing problem that must be reckoned with. It has been called "the crisis of the 90's." Magazines devote columns of space to warning of this global plight. "Buried Alive," headlined the cover page of *Newsweek* magazine. "The Garbage Glut: An Environmental Crisis Reaches Our Doorstep," the magazine announced. "Tons and tons of trash and no place to put it" was the title of *U.S. News & World Report*'s article on garbage. "Garbage, Garbage, Everywhere. Landfills are overflowing, but alternatives are few," *Time* magazine heralded in bold type. "West's Garbage — A Growing Burden for Third World," headlined the Paris *International Herald Tribune*.

The Garbage Glut Will It Bury Us?



IT IS, indeed, a curious paradox. In this generation, man has traveled to the moon and back. The latest state-of-the-art satellites equipped with high-resolution cameras have been rocketed thousands of millions of miles into space, sending back close-up pictures of distant planets. Man has descended into the depths of the oceans and located sunken vessels of ages past and brought back to the surface their treasured possessions of an era long forgotten. Scientists have harnessed the elusive atom, either to benefit man or to wipe whole cities and their inhabitants from the face of the earth. On a few tiny silicon computer chips no larger than a man's fingernail, the text of the entire Bible can be recorded for instant replay. Yet, at the same time, the people with this treasure trove of ability and intelligence cannot take out their own household garbage and dispose of it properly, thereby freeing their generation from the fear of being buried alive in it.

To begin with, consider the waste dilemma of the United States. Reportedly, Americans throw out over 400,000 tons of garbage each day. Not including sludge and construction waste, 160 million tons are tossed out each year—"enough to spread 30 stories high over 1,000 football fields, enough to fill a bumper-to-bumper convoy of garbage trucks halfway to the moon," *Newsweek* magazine reported. More than 90 percent of this garbage is trucked to landfills until mounds of trash may rise hundreds of feet above ground level.

New York City, for example, has access to the largest city dump in the world—2,000 acres on New York's Staten Island. Each day 24,000 tons of garbage are collected and brought round-the-clock by a score of barges to this mountainous landfill. It is estimated that by the year 2000, this garbage pile

'Enough to fill bumper-to-bumper garbage trucks halfway to the moon'

will "tower half again as high as the Statue of Liberty and fill more cubic feet than the largest Great Pyramid of Egypt." It is expected that by the time the landfill closes, within the decade, it will have reached a height of 500 feet. When David Dinkins, newly elected mayor of New York City, took office, he was greeted with this message from the sanitation commissioner: "Hi. Welcome to City Hall. By the way, you have no place to put the trash."

"Every major city in the United States has a landfill problem," said one expert. "America's dumps are simply filling up, and no new

ones are being built," stated *U.S. News & World Report*. "By 1995, half of the existing dumps will be closed. Many do not meet modern environmental standards," the report continued.

It is estimated that in California the average citizen throws away about 2,500 pounds of garbage and trash a year. "In Los Angeles County we generate enough trash to fill Dodger Stadium with garbage every nine days or so," said one environmental expert. Garbage dumps in Los Angeles are expected to reach capacity by 1995. What then? ask its citizens. But the day of reckoning may come sooner than expected, as indicated by one California environmentalist: "We actually have garbage trucks running around town every day without a place to dump."

Chicago is faced with the closing of its 33 dumps by the first half of this decade. Other major cities faced with the garbage plague are simply trucking their refuse across state lines to other landfills. This has touched off a furor in states receiving other people's unwanted garbage. Some 28,000 tons of garbage are transported over America's highways every day while someone is looking for a place to dump it. It is reported that New York, New Jersey, and Pennsylvania export eight million tons of garbage a year. A costly disposal process indeed. "Worse still," writes *Newsweek* magazine, "some truckers who haul meat and

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produce to the East in refrigerated vehicles are carrying maggot-infested garbage back West in the same trucks." Congress is considering banning this practice because of obvious health risks.

The garbage crisis is not a problem for the United States alone. Other nations are also being threatened by the garbage glut. Japan, for example, is trying to come to grips with its problem. It is estimated that by the year 2005, Tokyo and three neighboring towns will have an excess of 3.43 million tons of garbage. They too are faced with exporting it. "Garbage is one Japanese export without a market," said one writer.

While some nations are not yet plagued with the problem of household garbage disposal, many have come face-to-face with the problem of what to do with their industrial waste. Countries, for example, who operate giant incinerators to burn their garbage are confronted with thousands of tons of ash, some of which can be highly toxic. NIMBY (Not in my back yard) is the rising cry from their citizens when confronted with disposal in their neighborhood. What to do with the waste becomes a perplexing question for those concerned. Barges loaded with thousands of tons of toxic waste roam the seas looking for a "back yard" on foreign shores. Many are turned away. They have collided with the determined NIMBY syndrome.

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

The Garbage Glut—Will It Bury Us?	3
Disposable Products Become Indisposable Garbage	6
Nuclear Waste—The Lethal Garbage	8

In recent years, developing countries have become the dumping ground for thousands of tons of unwanted waste. Some of it had simply been dumped in open fields by unscrupulous men. "Europeans and Americans are discovering that protecting their environment can mean polluting other people's

"Garbage is one Japanese export without a market"

"...lands," wrote the magazine *World Press Review*.

The German Tribune of October 1988 reported that Zurich, Switzerland, was exporting its surplus garbage to France and that Canada, the United States, Japan, and Australia had found dumping grounds in the "backyard" of Eastern Europe.

And so it goes. "The garbage crisis is unlike any other we've faced," said one U.S. official. "If there's a drought, people cut back on water. But in this crisis, we simply produce more garbage."

Also in This Issue

Human Rule Weighed in the Balance	11
"We the People"	11
Owls—Designed for Nightlife	15
Berlin—A Mirror of Our World?	18
Young People Ask . . .	
How Can I Make Spiritual Progress?	21
Widening Out to Help Others	24
Meet a Rather Fiery Character	26
Watching the World	28
From Our Readers	30
Tobacco's Most Vulnerable Victims	31

Disposable Products Become Indisposable Garbage

TO BE oblivious to the garbage crisis and what contributes to it is to ignore the practices of this throwaway society. For example, do you find that paper towels in the kitchen are a more attractive option than cloth ones? Do you substitute paper napkins for linen ones at mealtime? If you have babies still in diapers, do you use disposable ones rather than cloth diapers? Have you found that disposable razors and cameras are just too convenient not to buy? Few young people today have ever written with a fountain pen; ballpoint pens, some that are themselves throwaways and others with throwaway cartridges, have long since taken their place. Businesses order ballpoints by the thousands. Advertisers give them away by the millions.

Take-out orders of tea, coffee, colas, milk shakes, and fast-food hamburgers are no longer put in paper cups and on paper trays. Polystyrene containers have made them obsolete. There are plastic knives, forks, and spoons, all to be thrown into the trash after one use. The number and variety of throwaway conveniences are endless. "We have been a throwaway society," said the director of the New York State Division of Solid Waste. "We simply have to change our ways."

What can be said of milk bottles of plastic instead of glass; shoes of plastic instead of

leather and rubber; raincoats of plastic rather than of water-repellent natural fibers? Some readers may wonder how the world was able to function before the age of plastics. Notice, too, the row after row of products in oversize containers, screaming at you from the shelves of supermarkets and wherever else packaged goods are sold. The age of computers—spewing out thousands of millions of pages of paper—adds to an already large paper pile that has become mountain high.

How much inconvenience are we willing to tolerate to see some relief from this mounting garbage problem? Although Americans alone toss into their garbage cans an estimated 4.3 million disposable pens and 5.4 million disposable razors on an average day, it is not likely that this society will step back a half century to the time before the age of plastics and high-tech disposables, even though the price we pay for these conveniences may be staggering.

The same can be said for disposable diapers. "More than 16 billion diapers, containing an estimated 2.8 million tons of excrement and urine, are dumped each year into a dwindling number of landfills around the nation," reported *The New York Times*. More than 4,275,000 tons of discarded diapers may be an eye-opener. "It is a perfect case," said a Washington expert on solid

waste, "where we're using a disposable product that costs more than a re-usable product, is more environmentally dangerous and uses up nonrenewable resources." Are parents willing to tolerate the inconveniences of laundering their baby's diapers or subscribing to a delivery service? To many, a world without disposable diapers is unthinkable.

Disposable diapers have become a symbol to environmentalists of the entire garbage problem. "What is worse," writes *U.S. News & World Report*, "every plastic diaper made since they were first introduced in 1961 is still there; they take about 500 years to break down."

Environmental experts and officials of government, however, say we must change our habits or else be buried alive in our own garbage. Modern throwaway products may be a boon to consumers, but they are a bomb to earth's garbage dumps. No end is in sight for the life of discarded plastics. Contrary to conventional wisdom, the 350 million pounds of paper thrown out each day by Americans and an unknown tonnage worldwide does not break down and disappear in landfills even under tons of garbage for years. Newspapers unearthed in landfills after being buried for over 35 years were as readable as on the day they were published.

The Recycling Problem

It has been written that there are only four ways to deal with garbage: "Bury it, burn it, recycle it—or don't make as much in the first place." Buried garbage in landfills not only presents a noxious eyesore to those who must live nearby but can become a health hazard as well. As waste decomposes in landfills, it produces a colorless, odorless, flammable gas called methane. If not controlled, methane may migrate underground away from the



landfill, kill vegetation, seep into nearby buildings, and explode if ignited. In some cases death has resulted. Underground water reservoirs, or aquifers, are threatened as hazardous chemicals percolate through the earth and contaminate man's water supply.

The problem with recycling newsprint, in particular, is the tremendous oversupply. "The inventory of waste newspaper is at an all-time record high," said a spokesman for the American Paper Institute. "Mills and paper dealers have in their warehouses over one million tons of newspapers, which represents a third of a year's production. There comes a point when the warehouse space will be completely filled." As a consequence of this paper glut, many cities that were getting \$40 a ton for their paper a year ago are now paying contractors \$25 a ton to haul it away—to be burned or dumped in landfills.

What can be said for plastics? "The plastics industry has been scrambling to support recycling, mostly out of fear that its ubiquitous products will otherwise be banned," said *U.S. News & World Report*. Plastic bottles, for

example, can be turned into fiber for making polyester carpets, fillings for parkas, and a host of other things. The industry, however, does well to be concerned about its market. Some places have already passed legislation banning the use and sale of all polystyrene and PVC (polyvinyl chloride) products in retail food establishments. The ban includes plastic grocery bags, polystyrene cups and meat trays, and the polystyrene containers that hold fast-food hamburgers.

It is estimated that more than 75 percent of municipal solid waste in the United States is recyclable. Because of public indifference, however, and the deficiencies in technology, this potential is not now being achieved. "Recycling is entering a very dangerous period," said one recycling expert. "A lot of govern-

ments are going to have trouble riding out the slump."

Some officials say that burning the garbage in giant municipal incinerators is the answer. But here again, problems exist. Environmentalists warn that incinerating plastics and other trash releases toxic chemicals, including dioxin, into the air. "You can just think of an incinerator as a dioxin factory," said one noted environmentalist. "The incinerators also produce tons of ash often contaminated with lead and cadmium," reported *Newsweek* magazine. A hue and cry can be heard from citizens living near proposed incinerator sites. No one wants them in his neighborhood. They are seen as a hazardous threat to health and environment. So the garbage crisis continues to escalate. Does anyone have the answer?

Nuclear Waste The Lethal Garbage

A N AVALANCHE of household garbage is not the only hazard that threatens to choke the life from this world. It pales into insignificance alongside a far greater and deadlier waste problem. Since man first learned to harness the atom for making nuclear weapons and for generating electricity, scientists have been in a quandary as to the safest possible methods for disposing of the highly radioactive nuclear waste the systems produce.

Thousands of millions of dollars have been spent on efforts to find ways to prevent people and the environment from being contaminated for generations to come by this deadly waste. A formidable task, indeed, since radioactive waste can remain lethal to all living things for thousands of years!

For decades much of this waste was simply dumped into on-site burial pits and seepage basins in the belief that the dangerous materials would become diluted and rendered

harmless—an assumption that has proved catastrophic in its effects, as we shall see. Millions of gallons of high-level radioactive waste were stored in giant underground tanks; other waste was sealed in barrels and stored above ground, another method of disposal that proved dangerous.

So hazardous and lethal is this nuclear waste that scientists considered everything from shooting the waste into outer space to putting it under the polar ice caps. There is now under investigation the feasibility of dropping canisters of waste into the northern Pacific Ocean, where they would be expected to penetrate a hundred feet into the mud below the ocean floor. "We've got stuff on this planet that we're going to have to deal with, either on land, in water or below the waters of the ocean. That's all we've got," said the vice president of the Woods Hole Oceanographic Institution.

For now, as a stopgap solution until a safer and more permanent method of disposal can be found, most of this radioactive material is stored in water-filled pools inside sealed buildings. Ontario, Canada, for example, has 16 nuclear reactors that have already produced more than 7,000 tons of radioactive waste, now stored in such containers. Britain too is faced with the perplexing problem of what to do with her waste. Presently, high-level waste is being kept in aboveground sites, and this policy is expected to continue until leakproof underground sites can be found and tested. France, Germany, and Japan are also trying to come to grips with their nuclear waste problem.

"Official policy in the United States," reported *The New York Times*, "is that the safest method is burial in a 'deep geologic repository,' someplace dry, stable and desolate. But finding the spot is proving tough." Tough indeed! According to scientists, it must be such

Nuclear waste can remain lethal for 250,000 years

a dry and stable place that it can safely house the material for 10,000 years. Although some of this atomic waste can remain lethal for an estimated 250,000 years, experts believe that so much geological change will take place over 10,000 years "that it is pointless to try to plan for longer." "I don't know of any estimation model on the face of the earth that could even talk about a 1,000-year projection," said one noted radiation expert. He added that it was "difficult to talk about a health risk 10,000 years in the future."

Catastrophe!

When scientists unlocked the secrets of the atom, they unleashed a strange new phenomenon with which they were not prepared to cope—the deadly pollution nightmare that was to follow. Even after being warned of the potential danger, government officials deliberately ignored the warnings. As atomic weapons became the priority of the nations with the ability and materials to make them, regard for the health and lives of people and the quality of the environment was abandoned. Sloppy procedures in containing the deadly waste were used. For example: At one atomic weapons plant, "more than 200 [thousand million] gallons of hazardous wastes, enough to inundate Manhattan to a depth of 40 feet, have been poured into unlined pits and lagoons," wrote *U.S. News & World Report* of March 1989. "Toxic seepage has contaminated at least 100 square miles of ground water.

"Inhaling even a speck of plutonium dust can cause cancer"

Some 45 million gallons of high-level radioactive effluent are stored in giant underground tanks, and more than 50 Nagasaki-size bombs could be built from the plutonium that has leaked from these containers," the magazine said. It is estimated that the cleanup of this site will cost as much as 65 thousand million dollars.

Some holding tanks built to contain nuclear waste became so hot from radioactive heat that they cracked. It is estimated that half a million gallons of radioactive waste has leaked into the ground. Drinking water has been contaminated by radioactive strontium-90 to a level a thousand times the allowable limit for drinking water as set by the Environmental Protection Agency. In another atomic weapons plant, "radioactive substances from waste pits holding 11 million gallons of uranium . . . are leaking into an aquifer and have contaminated wells a half-mile south of the facility," reported *The New York Times*. The paper also reported that in Washington State, thousands of millions of gallons of contaminated water were poured into the ground, and a steady stream of radioactive tritium is flowing into the Columbia River.

In Idaho traces of plutonium have escaped from shallow waste pits at the Radioactive Waste Management Complex, reported *The New York Times*. "They are moving through rock layers toward a vast underground water reservoir that supplies thousands of southern Idaho residents." The deadly element has pen-

etrated to a depth of 240 feet, nearly halfway to the aquifer, the paper said.

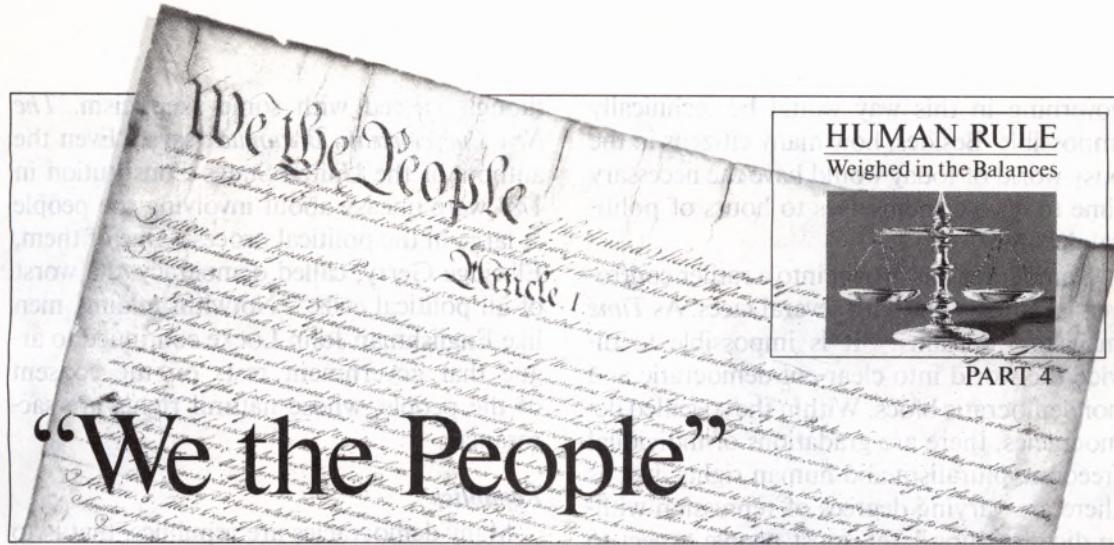
How deadly is this plutonium waste that has poured into the rivers and streams and has belched into the air? "Plutonium remains radioactive for 250,000 years," reported *The New York Times*, "and even microscopic particles can be lethal if they are inhaled or swallowed." "Inhaling even a speck of plutonium dust can cause cancer," said *Newsweek* magazine.

The immediate and long-range effects of nuclear waste on people are not known. They may never be. Suffice it to say, however, that at one atomic plant, 162 cancer cases have been reported among those living within several miles of the facility. People are afraid to drink the water, and fear abounds. "They're going to have anywhere from six to 200 extra cancer cases," said a university doctor and consultant to the plant workers. "They're all scared. They feel like they've lost control of their environment and their lives."

And so they have. Many centuries ago a faithful prophet of Jehovah said: "I well know, O Jehovah, that to earthling man his way does not belong. It does not belong to man who is walking even to direct his step." (*Jeremiah 10:23*) Certainly history has proved these words true—dramatically so in these last days. The growing garbage crisis is only one of man's many failures to direct his steps wisely.

However, there is no need to despair. Bible prophecy shows clearly that soon this present system of things will be removed and a new world ushered in by the Creator. He will not much longer tolerate what man is doing to the earth and to himself but will "bring to ruin those ruining the earth." (*Revelation 11:18*) After that, under the Creator's direction, humans will learn how to care for the earth properly and how to use its resources wisely.

—*Psalm 37:34; 2 Peter 3:10-13*



U.S. National Archives photo

“We the People”

Democracy: Government by the people, exercised either directly or through elected representatives.

“WE THE PEOPLE of the United States . . . do ordain and establish this Constitution.” These opening words of the preamble to the U.S. Constitution are appropriate, since the founding fathers intended the United States to be a democracy. A word of Greek origin, “democracy” means “rule of the people,” or as Abraham Lincoln, the 16th president of the United States, defined it: “government of the people, by the people, for the people.”

Ancient Greece, often called the cradle of democracy, boasts that democracy was practiced in its city-states, notably in Athens, as far back as the fifth century B.C.E. But democracy then was not what it is today. For one thing, Greek citizens were more directly involved in the ruling process. Every male citizen belonged to an assembly that met throughout the year to discuss current problems. By a simple majority vote, the assembly determined the politics of the city-state, or polis.

Women, slaves, and resident aliens, however, were excluded from enjoying political rights. Thus, Athenian democracy was an

aristocratic form of democracy for only the privileged few. One half to four fifths of the population probably had no voice at all in political matters.

Nevertheless, this arrangement did promote freedom of speech, since voting citizens were granted the right to express their opinions before decisions were made. Political office was open to every male citizen, not restricted to an elite few. A system of controls was designed to prevent misuse of political power on the part of individuals or groups.

“The Athenians themselves were proud of their democracy,” says historian D. B. Heater. “They believed it was a step nearer than the alternative monarchy or aristocracy to the full and perfect life.” Democracy was evidently off to a fine start.

Democracy Has Outgrown Its Cradle

Except for what is practiced on a small scale in New England, U.S.A., town meetings and to a limited extent in some of the cantons of Switzerland, direct, or pure, democracy no longer exists. Considering the sheer size of modern states and their millions of citizens,

governing in this way would be technically impossible. Besides, how many citizens in the busy world of today would have the necessary time to devote themselves to hours of political debate?

Democracy has grown into a rather controversial adult—one with several faces. As *Time* magazine explains: “It is impossible to divide the world into clear-cut democratic and nondemocratic blocs. Within the so-called democracies, there are gradations of individual freedom, pluralism and human rights, just as there are varying degrees of repression within dictatorships.” Yet, most people expect to find certain basic things under democratic governments, things like personal liberty, equality, respect for human rights, and justice by law.

The direct democracy of yesterday has become the representative democracy of today. Legislative bodies, either unicameral, that is, having one chamber, or bicameral, having two, are composed of individuals elected by the people—or otherwise designated—to represent them and to make laws, supposedly for their benefit.

This trend toward representative democracy began in the Middle Ages. By the 17th and 18th centuries, 13th-century institutions, such

“It does not belong to man who is walking even to direct his step.”—Jeremiah 10:23

as the Magna Charta and the Parliament in England, along with political theories about the equality of men, natural rights, and sovereignty of the people, were taking on greater meaning.

By the second half of the 18th century, the term “democracy” had come into general use,

though viewed with some skepticism. *The New Encyclopædia Britannica* says: “Even the authors of the United States Constitution in 1787 were uneasy about involving the people at large in the political process. One of them, Elbridge Gerry, called democracy ‘the worst of all political evils.’” Notwithstanding, men like Englishman John Locke continued to argue that government rests on the consent of the people, whose natural rights are sacrosanct.

Republics

Many democracies are republics, that is to say governments having a chief of state other than a monarch, now usually a president. One of the world’s first republics was ancient Rome, although its democracy was admittedly limited. Nevertheless, the partially democratic republic lasted for over 400 years before giving way to a monarchy and the Roman Empire.

Republics are presently the most common kind of government. Of the 219 governments and international organizations listed in a 1989 reference work, 127 are listed as republics, although not all are representative democracies. In fact, the range of governmental forms of republics is wide.

Some republics are unitary systems, that is to say, controlled by a strong central government. Others are federal systems, meaning that there exists a division of control between two levels of government. As the name indicates, the United States of America has this latter type of system known as federalism. The national government cares for interests of the nation as a whole, while state governments deal with local needs. Within these broad terms, of course, there are many variations.

Some republics hold free elections. Their citizens may also be offered a plurality of political parties and candidates from which to choose.

Those backing democratic human rule must be willing to share responsibility for its deeds

Other republics consider free elections unnecessary, arguing that the democratic will of the people can be carried out by other means, such as by promoting the collective ownership of the means of production. Ancient Greece serves as a precedent, since free elections were unknown there also. Administrators were chosen by lot and generally permitted to serve for only one or two one-year terms. Aristotle was against elections, saying that they introduced the aristocratic element of selecting the "best people." A democracy, however, was supposed to be a government of all the people, not just "the best."

Best Only by Comparison?

Even in ancient Athens, democratic rule was controversial. Plato was skeptical. Democratic rule was considered weak because it lay in the hands of ignorant individuals easily swayed by the emotional words of possible demagogues. Socrates implied that democracy was nothing more than mob rule. And Aristotle, the third of this prominent trio of ancient Greek philosophers, argued, says the book *A History of Political Theory*, that "the more democratic a democracy becomes, the more it tends to be governed by a mob, degenerat[ing] into tyranny."

Other voices have expressed similar misgivings. Jawaharlal Nehru, former prime minister of India, called democracy good, but



then added the qualifying words: "I say this because other systems are worse." And William Ralph Inge, English prelate and writer, once wrote: "Democracy is a form of government which may be rationally defended, not as being good, but as being less bad than any other."

Democracy has several weaknesses. First, for it to succeed, individuals must be willing to place the welfare of the majority ahead of their own interests. This might mean supporting tax measures or other laws that may be personally disagreeable but necessary for the good of the nation as a whole. Such unselfish interest is hard to find, even in democratic "Christian" nations.

Another weakness was detected by Plato. According to *A History of Political Theory*, he attacked "the ignorance and incompetence of politicians, which is the special curse of democracies." Many professional politicians regret the difficulty in finding qualified and talented persons to serve in government. Even elected officials may be little more than political amateurs. And in the era of television, a

candidate's good looks or charisma can win him votes that his administrative abilities never would.

Another obvious disadvantage of democracies is that they are slow-moving. A dictator speaks, and things get done! Progress in a democracy may be slowed down by endless debates. Of course, thoroughly discussing controversial issues can have definite advantages. Yet, as Clement Attlee, former prime minister of Britain, once observed: "Democracy means government by discussion but it is only effective if you can stop people talking."

Even after the talking has stopped, to what extent the decisions made are truly representative of what "the people" want is debatable. Do representatives vote the convictions of the majority of their constituents or, more often, their own? Or do they simply rubber-stamp the official policy of their party?

The democratic principle of having a system of checks and controls to prevent corruption is considered to be a good idea but is scarcely effective. In 1989 *Time* magazine

"There is a way that seems right to a man, but in the end it leads to death."—Proverbs 14:12, "New International Version"

spoke of "governmental decay at all levels," calling a leading democratic government "a bloated, inefficient, helpless giant." The chairman of a task force set up in the mid-1980's to investigate waste in another government was moved to deplore: "The Government is run horribly."

For these and numerous other reasons, democracies can hardly be called ideal govern-

ments. The obvious truth, as pointed out by John Dryden, 17th-century English poet, is that "the most may err as grossly as the few." Henry Miller, American writer, was blunt, but nonetheless accurate, when he quipped: "The blind lead the blind. It's the democratic way."

To Its Grave?

Democratic rule has achieved greater acceptance in this century than ever before. Recent political upheavals in Eastern Europe bear this out. Nevertheless, "liberal democracy is now in serious trouble in the world," wrote journalist James Reston some years ago. Daniel Moynihan warned that "liberal democracy is not an ascendant ideology" and that "democracies seem to disappear." British historian Alexander Tyler said that a democratic government cannot last indefinitely because it "always collapses over loose fiscal policy." Of course, his view is controversial.

At any rate, democracy is an obvious continuation of the trend started in Eden, when humans decided to do things their way, not God's way. It is the ultimate in human rule, since it reaches out to embrace everyone, at least theoretically, in the governing process. But the Latin saying *Vox populi, vox Dei*, "the voice of the people is the voice of God," is untrue. Thus, those backing democratic human rule must be willing to share responsibility for its deeds.—Compare 1 Timothy 5:22.

This fact has taken on increased seriousness since 1914. In that fateful year, divine rule became operative in a unique way. God's Messianic Kingdom now stands poised to take complete control of world affairs. All types of human rule—including democratic forms—are being weighed in the balances. To the extent that we individually advocate them, we are being weighed along with them. —Daniel 2:44; Revelation 19:11-21.



OWLS Designed for Nightlife

OWLS are everywhere—almost. They are found on every continent except Antarctica. They range in size from that of a sparrow to that of an eagle. The littlest are the elf and pygmy owls; much larger are the eagle owls of Eurasia, the great gray owls, the great horned owls, and the strikingly beautiful snowy owls of Arctic regions. Some 140 species are widely distributed in such diversified habitats as grasslands, prairies, deserts, marshes, deep woods, rain forests, and arctic tundra. Their diets are as varied as their habitats: worms, insects, frogs, rodents, small birds, and fish.

With big head, large round orange or yellow eyes, both facing forward and staring out of saucer-shaped disks of radiating feathers, Mr. Owl looks so wise. No wonder he is called the wise old owl. Part of the impression of wisdom comes from the big eyes that stare with such a steady and unwavering gaze. That un-

wavering gaze, however, is not due to any deep meditative powers—his eyes are set in sockets that prevent their rolling or swiveling about. Even so, from ancient times the owl was credited with wisdom—it was the sacred bird of Pallas Athene, the Greek goddess of wisdom.

Not all owls exude such an aura of wisdom. The little elf owl does not have the impressive air of the great horned owl, nor does the burrowing owl. Elf owls live in desert areas and occupy woodpecker holes left in the giant saguaros. They have loud voices for such small birds, and when male and female sing duets—if you can call it singing—it sounds like the yips and chucklings of puppy dogs.

Burrowing owls live in the holes of prairie dogs or ground squirrels and are often seen bobbing up and down on mounds or perched on fence posts. Nestlings threatened in their burrows emit a frantic buzzing that mimics the rattlesnake's warning signal. It discourages entry by unwanted visitors.

Many think that owls cannot see very well in daylight. They also think that owls can see fine in the dark. But they are wrong on both counts.

Owls have very good eyesight. During the day their vision is excellent. At night they also do very well. The nocturnal owls—and most are—have retinas superabundantly packed with rods to enable them to see in the dimmest of light. In such surroundings their eyes gather in the faint light a hundred times better than ours do. But in total darkness, they might as well be blind. One researcher scattered dead mice on the floor in a totally dark room and put owls in it. Those owls did not find a single mouse.

When Ears Become Eyes

However, when a barn owl (page 15) was put in a totally dark room with leaves on the floor and live mice rustling among them, it caught them all. The same feat could have been accomplished by other nocturnal owls, but certainly the barn owl is a specialist. In total darkness its ears become its eyes. Barn owls have a sense of directional hearing that is more accurate than that of any other land animal studied.

When we want to hear a very faint sound, we turn our ear toward its source and may cup a hand behind our ear to collect the sound waves and channel them into our ear openings. The barn owl's face is designed to do this automatically, and extremely faint sounds not perceptible to us are easily heard. World Book's *Science Year 1983* explains: "The barn owl's great sensitivity to sound is largely due to the sound-collecting property of the facial ruff—the wall of stiff, densely packed feathers that makes a heart-shaped outline around the face. . . . Like a hand cupped behind an ear, the large surface of the ruff collects sound and channels it into the ear openings."



Left and above:
Great horned owl
and baby

Right: Burrowing owl

Far right: Elf owl

The design for hearing does not stop with the barn owl's ruff. Another 'cupped hand' is available for channeling the sound to the ear opening. *Science Year 1983* describes it: "The pink flap that lies over the barn owl's ear opening has a structural resemblance to the human outer ear. Feathers on the outside of the earflap and in the ruff behind the ear act like cupped hands to funnel sound into the opening."

This earflap, however, is not just another 'cupped hand' to reinforce the sound-gathering power of the facial ruff. It, along with the ruff, is especially designed to add an entirely new dimension to the barn owl's directional hearing capabilities. The ear openings in the barn owl's skull are symmetrical, that is, the right and left ear openings are placed exactly opposite in the skull. The external ear structures, however, are not symmetrical. Both the right earflap and the external ear opening are lower and directed upward, whereas the left earflap and the external ear opening are higher and directed downward. Hence, the right ear, with its earflap and opening cupped upward, is more sensitive to sounds coming from above, whereas the left ear, with its



Paul A. Berquist

Photos: page 15, Paul A. Berquist; page 16 left, Robert Campbell; page 16 right, John N. Dean



Paul A. Berquist

earflap and opening cupped downward, is more sensitive to sounds from below. If the sound is more intense in the right ear, the owl knows its source is above; if more intense in the left ear, the source is below.

Similarly, if the sound's source is more horizontal than vertical and is heard by the right ear before the left one, it is immediately perceived as coming from the right; if heard first by the left ear, it is perceived as coming from the left. The owl's head is small, so the difference in time of arrival of the sound at one ear as compared to the other is minimal, measured in microseconds (a microsecond is one millionth of a second). The owl's directional response to sound is immediate—within a hundredth of a second, the owl's face turns toward the source. Its ability to process instantaneously these split-second cues is critical to pinpointing the sound's source.

As mentioned before, the owl's eyes are virtually immovable. This is not a mistake in design, however. The owl's neck is so flexible that some owls can turn the head as much as 270 degrees, enabling it to see even directly behind itself. Moreover, that the eyes are immovable is an asset. It means that whenever the owl hears a

sound and turns its head toward the source, its eyes are automatically aimed in that direction. It sees the source of the sound a hundredth of a second after it hears it.

Wings Designed With Silencers

The feathers of most birds make noise as they whir through the air in flight. Not so with owl feathers; they are specially designed for silence. They are soft and downy, with a velvety feel, so wind makes no noise as it passes over them. The flight feathers do not have straight, hard edges like those of most birds, which produce a whirring noise as they fan the air in flight. The barbs on the owl's feathers are uneven in length, leaving soft fringed edges that make no sound as they sweep through the air.

This devotion to silence, however, is abandoned when owls engage in owl talk—hoots, warblings, whistlings, clacking of beaks, and claps of the wings in flight. Some researchers refer to these noises as owl songs, and to owl ears some of the noises may pass for singing, since they do play a role in courtship communication between mated pairs.

Though they may not originally have been created for this purpose, owls are valuable today in controlling insects and rodents. The barn owl especially is considered the farmer's friend, ridding his fields of mice and rats and other pests that eat his crops. In some places owls are encouraged by special "owl doors" to provide easy access to farm buildings. In Malaysia, oil-palm growers put up nesting boxes for barn owls—and that's not charity. The pair that lives there pays rent, annually ridding the farmer of up to 3,000 rats that otherwise would have eaten his crop. And the barn owls add a touch of beauty. They are among the most beautiful of birds, distributed worldwide, and they have one of the most intriguing heart-shaped faces in nature.

When you think of the big yellow eyes that gather in the faintest light, the ears that catch a whisper of sound from any direction, and the flight feathers that slip silently through the air, you must marvel at those nocturnal owls that are created so well designed for nightlife.

BERLIN

A Mirror of Our World?



By *Awake!* correspondent in Germany

NOVEMBER 9, 1989, saw joyful crowds climbing the Berlin Wall and countless East Berliners crossing the checkpoints—unbelievable for most Germans and TV watchers around the world.

Since 1945 Berlin has, in some respects, mirrored the rivalry between the two superpowers, represented as “the king of the north” and “the king of the south.” (Daniel 11:36-45) How did this rivalry develop in Berlin, and why did the borders now open? Will our divided world also change?

During World War II, the Soviet Union, the United States, and Britain united in combating

Nazi Germany. The allies assumed this cooperation would continue postwar. Hence, they agreed to apportion defeated Germany into occupation zones and to share its capital, Berlin, which was to enjoy special status. So in 1945 Germany and Berlin were divided up to be controlled by Soviet, American, British, and French military administrations.

Soon it became apparent that the powers saw and did things differently. The Soviet Union wanted a Communist administration for all Berlin, but the Western powers promoted a pluralistic system in their sectors. In the election of October 1946, four out of every five Berliners voted against the Communists.

In 1948, when the Western powers decided in favor of an economic reconstruction and of having a single democratic state in their occupation zones in West Germany, the Soviets left the Allied Control Council. Thus ended the joint four-power administration. Hope of governing Germany unitedly from Berlin proved short-lived.

The Cold War Begins

Berlin, embraced by the Soviet zone, kept its four-power status. For the Soviets, controlling the city's eastern sector, the Western enclave was a dangerous "alien element." In June 1948 they launched a total land blockade of the Western sectors so as to cut West Berlin's supply lines and force the West to abandon its rights in Berlin. How would the West react?

On June 26, 1948, the greatest airlift in history commenced. In about one year, the United States and Britain organized 279,114 flights, conveying some 2.3 million tons of food, coal, and other goods to the city. "The Berlin blockade was the overture to the Cold War," comments Norman Gelb in his book *The Berlin Wall*. "At the same time, the response to the blockade dramatically confirmed American leadership of the West."

He continues: "For Moscow, the Allied ability to resist Soviet efforts to drive them out of their rogue enclave in the middle of Communist territory confirmed the unshakable conviction that the West was determined to destroy the Soviet system. There was no longer any doubt in the Kremlin that, to survive, the Soviet Union would have to become a military superpower. The struggle for Berlin set the stage for the superpower rivalry between Russia and America which was to become the dominant feature in international affairs during the second half of the twentieth century."

When the blockade stopped, the Western powers determined to stay in Berlin, protecting its status. The gap between East and West seemed unbridgeable when, in 1949, two German states were founded: the Federal Republic of Germany (West) and the German Democratic Republic (East). Berlin now had two civilian administrations and two currencies. During 1952 and 1953, the East German state severed telephone links and cut off street connections and bus routes between East and West Berlin.

Whereas citizens in the West experienced a *Wirtschaftswunder*, an economic boom offering consumers a vast selection of goods, many in the East were left unsatisfied. This became obvious in June 1953, when East Berliners went on strike, demonstrations spreading to all parts of East Germany. Escalation led to violent revolt against the Communist system. The East German government asked Soviet troops for help. Tanks suppressed the upheaval.

Western powers did little more than look on, giving guarantees for their respective Berlin sectors only. Hopes that the division of Germany would prove temporary crumbled. The border between former Soviet and Western zones became a dividing line between East and West.

A Wall of "Peace" and of "Shame"

"The king of the south" made West Berlin into an enticing "western shopwindow," and people from the East, who could easily visit friends and relatives in West Berlin, saw how different life was there. In 1960 about 200,000 Germans fled from East to West, most coming through West Berlin. How would "the king of the north" check the "hemorrhage"? The morning of August 13, 1961, saw East German armed guards and workers erecting "what was quickly designated either the 'Wall

of Shame' or the 'Wall of Peace'—depending on where you stood ideologically," as Norman Gelb puts it. An East German Communist explained: "We had no choice. We were losing so many of our best people."

The Berlin Wall not only stopped the flow of refugees but also split relatives and friends asunder. Twenty-eight months after its construction, West Berliners were granted admission to see relatives in East Berlin on a single-day basis. Following a four-power agreement, the 1970's saw further relaxation, allowing telephone calls and visits between East and West. Nevertheless, about 80 people lost their lives attempting to cross the Berlin Wall.

Before the Wall was breached, Chancellor Kohl stated: "General Secretary Gorbachev's policy of restructuring brings with it, for the first time since the end of World War II, a justifiable hope of overcoming the East-West conflict." How has this manifested itself in Berlin?

Reforms within the realm of "the king of the north" allowed thousands of East Germans to flee to West German embassies in several Eastern European countries in mid-1989. Embassies became overcrowded,

the situation unbearable. September 1989 presented the spectacle of a stream of exhausted refugees being released from the East and garlanded upon arrival in the West. Enthusiasm knew no bounds, emotion no limits.

This exodus fueled debates in East Germany. What was the cause of the outflow? Radical reforms were refused, and in October and November 1989, over a million East Germans peacefully demonstrated in Leipzig, East Berlin, and other cities, shouting: "We are the people." The East German government gave in and, after 28 years, opened the Berlin Wall and the doors to political and economic change. As the German newspaper *Die Zeit* commented: "In 1989 world history was shaken to its very foundations, moved more by people than by powers."

Since the borders were opened, Berliners "no longer live on an island," says the German newspaper *Süddeutsche Zeitung*. The demolition of the Wall started in 1990.

True Peace and Security Near

For a long time, West and East Berlin seemed to mirror not only our divided world but also its problems. For example, though many East Germans enjoyed certain social advantages, the East suffered economic shortages and widespread pollution. West Berlin faced problems of its own, such as student revolt, terrorism, and political scandal. Thus, neither West nor East has an ideology that can solve mankind's global problems.—Proverbs 14:12.

Whatever the nations may be able to accomplish, human efforts to unite our divided world cannot remove selfishness or make the earth a paradise. Only a superhuman force can bring true unity and remove even sickness and death. God's Kingdom will accomplish this huge task.
—Matthew 6:10; Revelation 21:1-5.

IN OUR NEXT ISSUE

*Why Does God
Permit Suffering?*

*When Does
Human Life Begin?*

Add Some Color to Your Life

YOUNG PEOPLE ASK...



How Can I Make Spiritual Progress?

"When I went to church, I was really confused. I didn't understand what they were trying to say, so I stopped going. I don't think that you have to belong to any certain religion in order to have faith in God."—Seventeen-year-old Carrie.

WHY does the church turn off so many youths? In a survey conducted by pollster George Gallup, young people gave the following reasons: 'The sermons are boring.' 'They are not teaching about God or the Bible.' 'They are always asking for money.' 'The churches and churchgoers are not living up to what they profess.' Clearly, the churches have failed to nourish the spirituality of young people.

But do you want "a firm hold on the everlasting life"? (1 Timothy 6:12) Do you want to be respected as a mature Christian, one who can be entrusted with responsibility? Do you want the privilege of being one of "God's fellow workers" in helping others gain everlasting life? (1 Corinthians 3:9) Then you must advance spiritually! By associating with Jehovah's Witnesses, you enjoy advantages that youths in Christendom do not have. You attend meetings at a Kingdom Hall, where solid Bible instruction is imparted. You receive personal attention from your parents by means of a family Bible study. You regularly associate with people who earnestly try to apply the Bible in their lives. Nevertheless, if you are to make spiritual ad-

vancement, much more is required. As the apostle Peter put it, you must put forth "all earnest effort." (2 Peter 1:5) Let's see what doing so involves.

Cultivate a Spiritual Appetite

Jesus said: "Happy are those conscious of their spiritual need." (Matthew 5:3) In the original Greek, this phrase literally referred to "those who are beggars for the spirit." Like a destitute beggar who is painfully aware of his need for physical food, you must be conscious of your need for spiritual food. Said Jesus: "This means everlasting life, their taking in knowledge of you, the only true God, and of . . . Jesus Christ."—John 17:3.

Most youths do little to fill their spiritual needs. The book *The Psychology of Adolescence* says of the average youth: "His knowledge of his religious faith is probably low, although his concern for and interest in religion is quite high." In one study a group of youths were asked a hundred questions about the Bible. The average youth could answer only 17. In another survey, seven out of ten teenagers could not name the four Gospels.

What about you? To what extent have you applied yourself to a serious study of the Bible? Can you refute false teachings, such as the Trinity and the immortality of the soul? Can you prove Scripturally that there is a hope for eternal life both in the heavens and on the earth? Can you establish that we have been living in "the last days" since 1914? (2 Timothy 3:1-5) Or do you "need someone to teach you from the beginning the elementary things of the sacred pronouncements of God"?—Hebrews 5:12.

If such is the case, you need to "form a longing for the unadulterated milk belonging to the word, that through it you may grow to salvation." (1 Peter 2:2) It may take great effort initially. But the more you apply yourself to studying God's Word, the more your appetite for spiritual things will grow.

Nagging Doubts

A 19-year-old named Kevin says: "I really don't know where I stand religiously right now. I'm just really confused about the whole thing." Many youths in Christendom feel this way. But could it be that your spiritual progress has likewise been hindered by nagging doubts?

For example, are you utterly convinced that living according to the Bible's moral standard is the best way to live? Or do you find that you are 'envious of wicked people'? (Psalm 73:3) Are you settled at heart that we are living in the last days? Or are you anxiously planning a career in this system of things? Are you certain that the Bible is God's inspired Word? Or do you sometimes wonder if scientific theories disprove it? If doubts afflict you, remember what the Bible says at James 1:6: "But let him keep on asking in faith, not doubting at all, for he who doubts is like a wave of the sea driven by the wind and blown about." Doubts in connection with one's faith can also be compared to leaks in the hull of a

ship. The bigger the holes, the more likely it is that the ship will sink.

Does this mean that your faith is about to "sink" if you occasionally have unresolved questions? Not necessarily. But if you have nagging doubts, you must work hard at resolving them. For example, if you had doubts about purchasing a new pair of slacks, would you not closely examine the garment, checking its workmanship, fiber content, and price before making a decision? Similarly, most legitimate doubts can be resolved by making a close examination of the Bible or by talking matters over with a mature, knowledgeable Christian.* Says Proverbs 15:14: "The understanding heart is one that searches for knowledge."

Setting Spiritual Goals

The apostle Paul told the young man Timothy: "Ponder over these things; be absorbed in them, that your advancement may be manifest to all persons." Notice, though, that Paul did not burden Timothy with some unrealistically high, unreachable goal. He gave Timothy specific, realistic goals to work on: "Become an example to the faithful ones in speaking, in conduct, in love, in faith, in chasteness."—1 Timothy 4:12-15.

Like Timothy, you need to set spiritual goals that are realistic, attainable. Imagine, for example, that you decide to learn to cook. How futile it would be to attempt to become a master chef overnight! You can, however, master the culinary arts one step at a time—perhaps first learning to prepare vegetables and then moving on to cooking meats, breads, casseroles, or delicious desserts. Similarly, you can more readily reach your long-range goal of spiritual maturity if you approach it by inter-

* The books *The Bible—God's Word or Man's?* and *Life—How Did It Get Here? By Evolution or by Creation?* (published by the Watchtower Bible and Tract Society of New York, Inc.) can help you resolve questions you might have about the inspiration of the Bible.

Scheduling a few minutes of Bible reading each day is one way to nurture your spiritual progress

the radio—you could complete the reading of the Bible within a year.

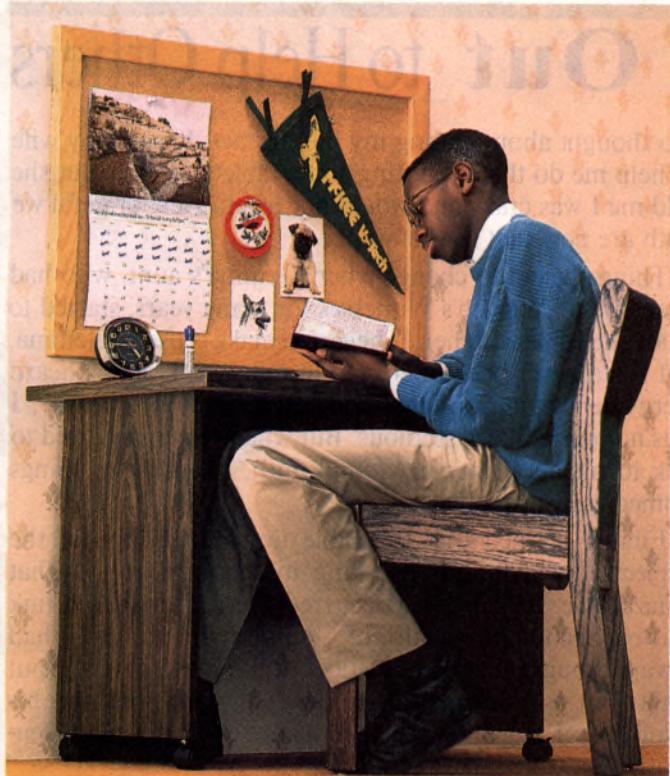
You might set a goal of reading every issue of the *Watchtower* and *Awake!* magazines. The fine information therein is sure to speed up your spiritual progress. If you are not one already, you could also make it your goal to represent a congregation of Jehovah's Witnesses as an unbaptized publisher. This would involve regularly sharing in the door-to-door preaching work and reporting such activity monthly. You can discuss how to qualify for this privilege with your parents or local congregation elders.

Other possible spiritual goals?

Becoming discreet and mature in your thinking. (Hebrews 5:14) Cultivating each of the fruits of the spirit. (Galatians 5:22, 23) Improving the quality of your prayers. (Philippians 4:6) Manifesting more respect for the headship of your parents. (Ephesians 6:1) Becoming more adept at making a defense of your faith. (1 Peter 3:15) These goals are practical and attainable!

Remember, though, it is not enough to set goals. You must stick to them! As former British prime minister Benjamin Disraeli said: "The secret of success is constancy to purpose." Yes, cultivate a spiritual appetite. Set sensible spiritual goals. Show constancy by sticking to them. Spiritual advancement is sure to result.*

* Future articles will develop other aspects of this subject.



mediate goals or steps. These can serve as markers of your spiritual progress. Each time you successfully complete a step, you build your self-confidence. This can spur you on to tackle the next step.

Reaching Your Goals

Let's now look at some goals you might set. Have you, for example, read the Bible all the way through? Yes, the Bible is a big book, but why not break down the reading of it into small portions? (The average person in the United States eats well over 1,400 pounds of food every year. But who would try eating it all at one sitting?) The "noble-minded" Bereans "carefully examined the Scriptures daily." (Acts 17:11) If you follow a daily schedule of reading just 15 minutes a day—about the time it takes to listen to five popular songs on

Widening Out to Help Others

IN 1973, when it all happened, I was a healthy 22-year-old. My life was full of pleasure. I participated in sports and liked physical work. On vacation I would go surfing. I enjoyed driving. But a foolish, impetuous burst of anger brought an abrupt end to all of it.

With my wife, Gemma, I was visiting relatives when some young boys caught our attention. We watched them break off pieces of the garden fence as they came along the road. When they spotted us, they started to throw chunks of wood into the garden and then onto the balcony of the house, where we were standing. One piece hit Pippa, my four-year-old daughter. In a fit of rage, I swung around and hurled the glass tumbler I was holding at the vandals. The balcony was 12 feet from the ground, and somehow I lost my balance. I toppled over, landing on my head, dislocating and fracturing several vertebrae in my neck.

Lying in a hospital bed for nearly a year, I had time to reflect on my condition. The man next to me took his own life, and others I knew there have done so since. The despair and frustration are indescribable. The load I was putting on others and the knowledge that there could be no improvement greatly distressed me. Yes, many times I

too thought about ending my life. In fact, I asked my wife to help me do this by getting some tablets for me. But she told me I was crazy and would not listen. How grateful we both are now that she refused!

Things began to change when Gemma's aunt, who had been one of Jehovah's Witnesses for many years, started to study the Bible with her. It began to make sense to Gemma, but I had never been interested in religion. Things I heard clergymen saying on television turned me off. Anyway, I was not particularly studious. But when Gemma started to talk to me about her newfound faith, I found two things immediately attractive.

First, I learned that the Bible ties in with one of the subjects I had found absorbing in school, history. That amazed me. It had never occurred to me that such a link existed. Second, the justice of God drew me to him. I had always thought that the injustices of life could never be put right. But as I learned about Jehovah's purpose and his Kingdom, I began to see that justice will prevail.—Deuteronomy 32:4; Luke 18:7, 8.

Purpose in Living

After that I made rapid progress in my Bible study. I had found a purpose in living, physically incapable as I was and would remain. I had every reason to be grateful. But my viewpoint soon widened out as I realized I could do so much to help others with the knowledge I was gaining.

How could I progress? That was the gnawing question. Gemma and I were baptized together, and I was studying hard, with the help of many good tutors, to grow spiritually. The turning point came, however, when I read about a Witness in Lebanon.* He was 46 years old and had been completely bedridden for 18 years. Yet, impossible as it seemed to me, he was an elder in the Christian congregation! Up to that time, he had assisted 16 people to become dedicated servants of Jehovah and was conducting seven Bible studies each month. His experience was an inspiration to me.

* See the article published in *The Watchtower* of April 15, 1981, "From Despair to Joy," as told by Estefan Kalajian.

The local housing authority provided a one-story house for my family, completely equipped with mechanical appliances that help me get around. I am blessed with all the physical assistance I need. Our families got together and purchased a van so that my wheelchair could be easily accommodated in it. This enables us as a family to get to the meetings at the Kingdom Hall. Lovingly, the local congregation soon arranged for a Congregation Book Study to be conducted in my home.

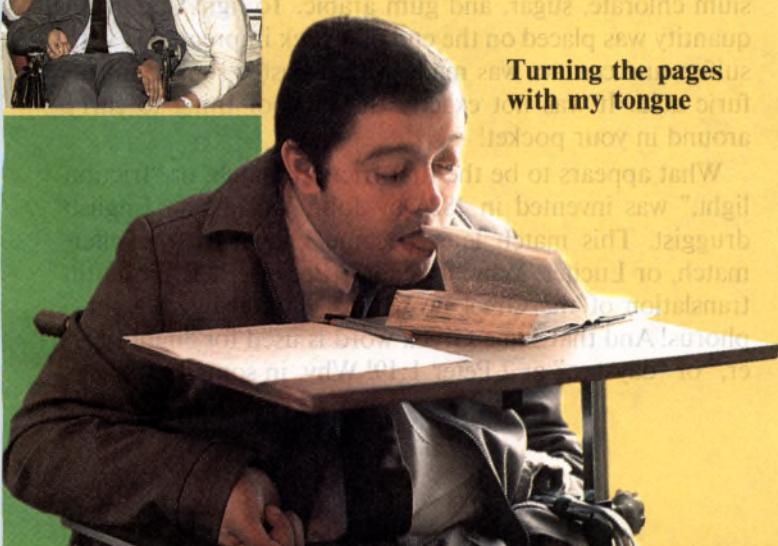
My desire to witness from house to house was satisfied when brothers and sisters in the congregation offered to push my wheelchair. I can talk to the householders but, not having the use of my arms and hands, using the Bible is out of the question. So I refer to scriptures, and my companion then shows the verses from his Bible and offers the Bible study aids I refer to.

Many people, of course, come to visit me at home, and in this way I can conduct Bible studies. I have also mastered the art of writing letters by holding a pen in my mouth, so I can be active in preaching at any time of the day. And I have been able to auxiliary pioneer regularly for three years.

Qualifying as a Teacher

In due course I became qualified as a ministerial servant, but how could I ever teach from the platform? During my studies, I had learned to turn the pages of the Bible

**With Gemma and Pippa,
my wife and daughter**



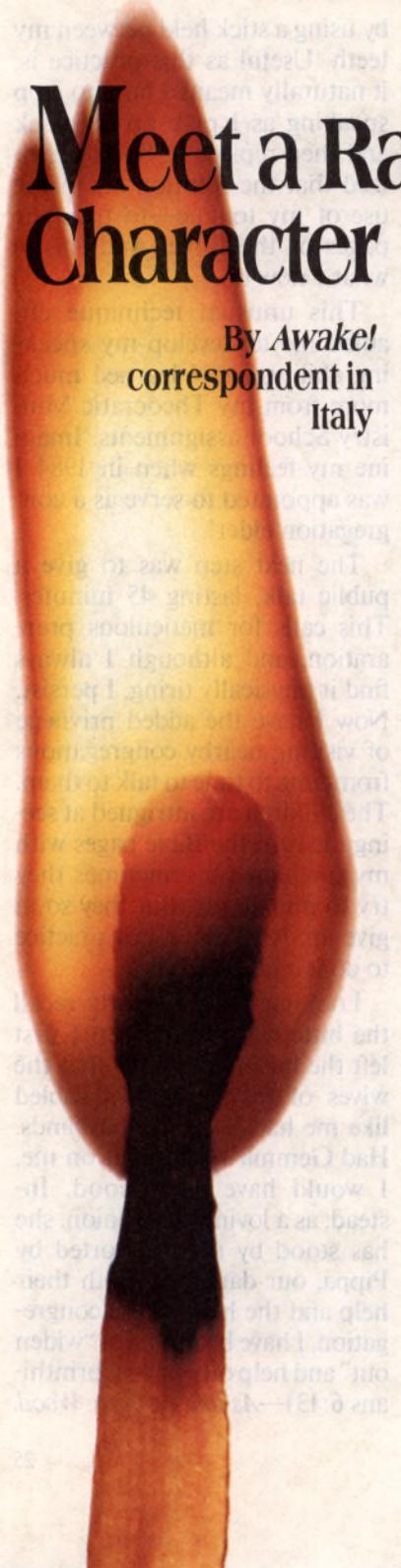
**Turning the pages
with my tongue**

by using a stick held between my teeth. Useful as this practice is, it naturally means I have to stop speaking as I pick up the stick and then replace it. Soon I realized that the solution lay in the use of my tongue—to turn the pages of the Bible! And this is what I now do.

This unusual technique enabled me to develop my speaking ability, and I learned much more from my Theocratic Ministry School assignments. Imagine my feelings when in 1984 I was appointed to serve as a congregation elder!

The next step was to give a public talk, lasting 45 minutes. This calls for meticulous preparation, and although I always find it physically tiring, I persist. Now I have the added privilege of visiting nearby congregations from time to time to talk to them. The children are intrigued at seeing me turn the Bible pages with my tongue, and sometimes they try to imitate me. But they soon give up. It takes a lot of practice to do it efficiently.

Looking back, I clearly recall the bitterness I felt when I first left the hospital. I knew that the wives of many others disabled like me had left their husbands. Had Gemma walked out on me, I would have understood. Instead, as a loving companion, she has stood by me, supported by Pippa, our daughter. With their help and the help of the congregation, I have been able to "widen out" and help others. (2 Corinthians 6:13)—*As told by Tony Wood.*



Meet a Rather Fiery Character

By *Awake!*
correspondent in
Italy

SOMETIMES I think that I am a truly unusual character—thin, dry, and so excitable that I make sparks fly. I'm such a hothead that it takes only a moment to make me fiery. Others know these things and take advantage of me. My tendency to become heated, though, is part of my nature. In fact, people tend to get annoyed if I fail to get fired up. But then there is a reason—I'm a match.

Is it not true that you perhaps sometimes take me for granted and notice me only when I fail to flare up or when the matchbox is empty? However, I would like to see you try to light a fire as they did in ancient times, rubbing together two sticks to light a heap of dry leaves or striking flint against steel, with the risk of bruising your fingers! In either case you would thank the humble match.

Inventing a Match to Light

My family history is full of experiments to find some practical way to light a fire. Even in the 17th century, after the German chemist Hennig Brand had discovered phosphorus, thought was given to the possibility of inventing a device that would make it easy to light fires. It took longer than the scientists expected.

At the beginning of the 19th century, Frenchman Jean Chancel invented an inflammable paste made out of potassium chlorate, sugar, and gum arabic. To light it, a small quantity was placed on the end of a stick impregnated with sulfur, and contact was made with asbestos soaked in sulfuric acid. It was not exactly the kind of thing to carry around in your pocket!

What appears to be the first friction match, or “friction light,” was invented in 1826 by John Walker, an English druggist. This match later became known as a Lucifer-match, or Lucifer. Why “Lucifer”? Because it is the Latin translation of the Greek word for “light-bringer”—phosphorus! And that same Greek word is used for “light bearer,” or “daystar,” at 2 Peter 1:19! Why, in some languages,

such as Spanish and Portuguese, I am still called a *fósforo*!

About the same time as Walker invented his match, "Prometheans" (from Prometheus in Greek mythology, a Titan who stole fire from Olympus and gave it to man) appeared on the scene. They were halfway between Chancel's invention and the modern match. Potassium chlorate, sugar, and gum were mixed and wrapped in a roll of fine paper. At one end there was a small capsule of glass filled with sulfuric acid. When the glass is broken, the acid and the inflammable paste combine, causing ignition. During his travels on the *Beagle* through South America, Charles Darwin caused quite a sensation in Uruguay by biting through the glass capsule of a Promethean, causing ignition. These were not friction matches but were chemical reaction matches.

At about the same time, an Italian chemist, Domenico Ghiglano, was also interested in my family. After several experiments, he prepared an inflammable paste based on antimony sulfide and other elements that were made to solidify on the ends of small sticks. When struck on a rough surface, the paste ignited immediately.

The potassium chlorate and white phosphorus, which in the meantime had become the main components of the paste, were both dangerous and poisonous. Eventually, they were replaced by lead dioxide (or red lead together with manganese dioxide) and by red phosphorus. This also helped to eliminate difficulties in their manufacture and use.

From Tree Trunk to Match

What am I made of today? My short, slender, dry body may be made of fir, pine, or white poplar. My head is mainly phosphorus sulfide, chlorate, iron or zinc oxide, powdered glass, and rubber or glue.

Of course, we matches are quite a varied family, and the boxes we come in are even more so. I am the common kitchen match, but there is also the *cerino*, or wax match (a typical Italian product with the matchstick made of rolled waxed paper). Then there is the Swedish match (made without phosphorus in its head and so sophisticated that he ignites only when struck on the phosphorus strip of his box).

Simply put, our production is divided into three stages: First of all, there is the preparation of my body, the matchstick; then there is the mixing of the inflammable paste; and, lastly, the union of the two elements.

For the first stage, tree trunks have their bark stripped off and are reduced to millions of fine matchsticks with a square or rectangular cross section. On the other hand, to make the wax matches, a long thread of twisted waxed paper is drawn out through a die. Then it is reduced into one-inch lengths by a cutter.

The paste is made from different chemicals, and the heads can vary from one kind of match to another. The final stage is the union of the two parts. We matches are placed head down in a frame, and our heads are skimmed by a roller covered with paste. We are then allowed to dry, and finally we are boxed. The rough surface by which you light us is a layer of glue mixed with glass powder applied to the side of the matchbox. At one time the whole production process was by hand; now, of course, it is mechanized. They turn us out by the millions.

Just a word of caution—don't leave us where children can reach us. They are very curious and like to imitate grown-ups—the next thing you know they are scratching my head on the side of the box, and with my fiery character, a tiny flame can cause a big fire. So please be careful with me!

WATCHING THE WORLD

APPALLING STATISTICS

"The world today has 157 billionaires, perhaps 2 million millionaires, and 100 million homeless," writes Alan Durning, a senior researcher for *World Watch* magazine. "It has half a billion [500,000,000] who eat too much, and an equal number who eat scarcely enough to stay alive. . . . Equity of income distribution is worse today than at any time since records have been kept. The richest billion people consume at least 20 times the goods and services that the poorest billion do. . . . We humans spend \$200 a year for each man, woman and child on the means of warfare, but we cannot seem to find the \$1 it would cost each of us to save 14 million children who die each year from simple diseases like diarrhea." According to a Worldwatch Institute estimate, some 1.2 billion people live in absolute poverty—23.4 percent of the total population of the world.

BEST TIME FOR THIEVES

"The best time for thieves, burglars, drug dealers, and other wrongdoers" to engage in their illegal activities in the Attican district of Greece "is the afternoon hours of Sundays," says the Athenian newspaper *Eleftherotypia*. Why? Because about 3,800 policemen and 500 officials are diverted then to maintain "measures of order and security" at the soccer games and other athletic contests. And if a Sunday happens also to be the one of the "Derby" match, the force is increased by 700 policemen and 100 officials. The paper adds: "The presence of police agents at each athletic match is more indispensable than the presence of athletes."

CLOCK RESET

For 43 years the "Doomsday Clock" of the *Bulletin of the Atomic Scientists* has indicated the state of international security in regard to nuclear war. "The risk of global nuclear war being ignited in Europe is significantly diminished," the magazine stated in April. "Although success is in no way guaranteed, this is the greatest opportunity in four decades to create a safe, sustainable world. In response, we turn back the hands of



the *Bulletin* clock four minutes, to stand at 10 minutes to midnight." However, this is not the farthest back the hands have been turned. Both in 1963 and in 1972, the hands were set at 12 minutes to midnight when treaties were signed between the United States and the Soviet Union, although the Cold War continued. "The conflict was cold only in that World War III did not happen," says the *Bulletin*. "During the past 45 years approximately 125 wars were fought, more than 20 million people killed."

A-BOMB VICTIMS

Exactly how many people have died as a result of the atom bombs dropped on Hiroshima and Nagasaki in 1945? According to a survey recently released by Japan's Health

and Welfare Ministry, 295,956 deaths have been attributable to the bombs as of 1988. Of these, 25,375 people in Hiroshima and 13,298 in Nagasaki were said to have died on the day of the bombing; the rest have died since, many within a few days of the bombing, because of radiation-induced illnesses. Relatives of the deceased have criticized the government for waiting too long to carry out the survey. Additionally, "it does not really deal with all aspects of the bombings or the total number of those who died as a result of them," says Yoshio Saito, vice secretary-general of the Japan Confederation of A- and H-Bomb Sufferers Organizations.

UNIQUE NEW STATE

On Monday, April 23, 1990, Namibia was accepted into the United Nations as the 160th member state. The new state, which gained its independence from South Africa on March 21, 1990, is unique in a number of ways. For one, it is larger than Pakistan, yet has a population of less than two million. Only Greenland and Mongolia are larger than Namibia and have a lower population density. Namibia is also unique in the variety of languages spoken by its relatively small population, a number of them known for their unusual click sounds. "There are too many indigenous African languages and dialects to enumerate," says a Namibian tourist brochure. Yet, the official language is English.

FLOUR "BABIES"

In a novel approach to teach his students responsibility and the

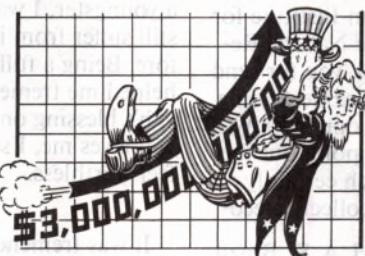
realities of parenthood, a San Francisco high-school teacher has been giving each of his students a five-pound sack of flour as a baby. "You must treat your baby as if it were real twenty-four hours a day for the next three weeks," he tells them. This includes dressing the sack in baby clothes, including diaper, blanket, and bottle, and carrying it and treating it lovingly and carefully at all times. When students are away from their babies, they must find baby-sitters. If a baby is lost or broken, the student ends up with a heavier baby—a ten-pound sack of flour. Students quickly learn how having a baby will affect their lives, and the school has had a low number of teenage pregnancies. Said one student: "It was only a sack of flour that didn't cry or scream, didn't need to be fed or put to sleep, and I still couldn't wait to get rid of it."

A MONUMENT TO EGO

It is three times the size of the palace of Versailles, is 12 stories high, has over 3,875,000 square feet of floor space, sports the second biggest chandelier in Europe with 980 lightbulbs, and has a bomb shelter 300 feet underground. It is "Romania's most visible monument to the excesses of Mr. Ceausescu, who ruled the country for 24 years," says *The Wall Street Journal*, and "one of many headaches [he] bequeathed to the people." The palace was built by some 100,000 workers over the past ten years at a cost of more than \$1,000,000,000. A fourth of old Bucharest was even razed to make way for the grand boulevard Ceausescu ordered to be constructed outside the main entrance—6.5 feet wider than the Champs Élysées. Now no one knows quite what to do with it. "It was all a Pharaonic dream," says Bucharest history professor Stefan Andreescu.

U.S. DEBT

In April 1990, the national debt of the United States reached \$3 trillion (3 with 12 zeros) for the first time, the U.S. Treasury Department reported. The first trillion was reached in 1981. The new



level of debt, spread over the population, amounts to \$12,000 for each man, woman, and child. Assuming no more debt is incurred and interest does not accrue, retiring the national debt at the rate of \$1,000 a second, nonstop, would take nearly a hundred years.

TRASH MUSEUM

While museums usually devote themselves to more aesthetic themes, a museum has opened in the state of New Jersey, U.S.A., that is devoted to garbage. The new museum gives visitors a sense of what it is like to be inside a garbage dump, with a display of discarded items that stretches across the floor, up the walls, and onto the ceiling. All the items came from trash cans, the only rule being that none of it would smell. A biodegradability (degrades in the environment) display helps viewers see what happens to the garbage as years go by. While produce and cardboard boxes have all disappeared in 100 years' time, plastic utensils and soda bottles remain. Other exhibits stress conservation and recycling. It is hoped that the museum will especially make young people aware of the world's mounting garbage disposal problems.

WEIGHT-CONTROL FACTOR

Not only what a person eats but also with how many others he eats is now seen as a factor in weight control. Researchers at Georgia State University, U.S.A., have discovered that the larger the number of people eating at a meal, the more each individual tends to eat. "This suggests that social factors may provide powerful eating cues, and that people trying to lose weight should be extra careful when eating with others," notes the *University of California, Berkeley Wellness Letter*.

WORLD ILLITERACY

"A billion [1,000,000,000] people in the world can't read—not even their own names, for the most part," says *Asiaweek* magazine. "And illiteracy is not on the wane, as most educated folk fondly imagine." India leads the world with 290 million people who cannot read or write, while China follows with 250 million. In many countries, boys are more likely to receive an education than are girls. The global ratio is 1 male in 5 who cannot read, compared to 1 in 3 for females.

ANIMALS FAVORED

Community groups unsuccessfully pleaded with California officials battling the Mediterranean fruit fly to stop spraying the insecticide Malathion in populated areas, reports *Time* magazine. The officials insisted that the spraying posed no threat to humans. But when the U.S. Fish and Wildlife Service warned that the spray could harm a 3-inch-long nocturnal rodent called the Stephens' kangaroo rat, an endangered species, the officials agreed not to spray the 5-square-mile area where the rats are found. "Rats rate, people don't," says *Time*.

FROM OUR READERS

Rain Forests Under Siege I decided to send the issue about rain forests (March 22, 1990) to the Brazilian Institute for the Environment and Renewable Natural Resources. They replied: "We thank you for sending us a copy of the *Awake!* magazine dealing with deforestation. We take this opportunity to commend your initiative and to point out the high level of the magazine, which certainly will contribute to developing a collective ecological awareness."

C. H. A. S., Brazil

Former Racist I can't tell you how much I enjoyed Virgil Dugué's story, "I Tried to Change the World." (March 22, 1990) It made me realize the effects of racism and how cruel it can be.

J. N., United States

New York City Subway After reading the article "Riding the 'Hole in the Ground,'" I was compelled to say, "Thanks." (April 22, 1990) As a daily subway rider, it's hard to view the train system for what it really is—fascinating. This morning as I headed for work, I descended the stairs and boarded the train with a very different outlook.

M. H., United States

Battered Wives I am a reforming wife beater, and the November 22, 1988, *Awake!* really helped me to see how ugly wife beating is. After reading the magazine, I broke down and cried. I pray that our family can put this in our past.

D. S., United States

Insecurity I am writing in reference to the article "Young People Ask . . . Why Do I Feel So Insecure?" (April 22, 1990) I am 33 years old, and the article helped me so much. When I was a child, my mother committed suicide. My father was an alcoholic and abused me

verbally, physically, and sexually. He constantly downgraded us and made us feel useless. So as a youngster, I was very insecure. On occasion, I still suffer from insecurity, but nothing like before. Being a full-time evangelizer has also helped me tremendously, for I have seen Jehovah's blessing on me in this work. And if Jehovah loves me, I say to myself, I don't need to feel worthless.

C. R., United States

It was tremendously encouraging to know that other young people nurture these same feelings. Because the examples were clear and detailed, I was able to make a comparison with my own situation. The article also pointed out that a sense of security doesn't develop immediately and that there would probably be setbacks. This is gentle advice. When I see these calming words, my heart swells, and I have a hard time holding the tears back.

C. T., Japan

World Without Guns Your recent articles on guns (May 22, 1990) disturbed me. The statement "the more guns, the more shootings" was reinforced by a series of examples and quotes that misrepresent the true situation. For example, you state that Switzerland has the highest per capita gun ownership in Europe. But nowhere in the articles is it mentioned that Switzerland also has one of the lowest crime and murder rates in the world! To blame guns for the problems wicked men cause seems to have missed the point.

K. C., United States

We appreciate these comments. Some clarification might have been given regarding some of the more controversial statistics cited in our articles. Nevertheless, "Awake!" was not taking a stand on the political issue of gun control but was advocating a future "world without guns" under God's Kingdom. Until then, Christians are guided by the principles at Isaiah 2:4 and Matthew 26:52.—ED.



Tobacco's Most Vulnerable Victims

THE Surgeon General's Report of 1989 indicates that the younger a person is when he starts smoking, the more likely he is to die of lung cancer. "Smokers who start after age 25 have lung cancer rates 5 times of the non-smoker; smokers starting between 20 and 24 years of age have rates 9 times higher. Smokers starting between 15 and 19 have rates 14 times higher and those

starting before age 15 have cancer rates 19 times higher than non-smokers."

In many cases smoking is just the beginning of the drug trip. Youngsters between the ages of 12 and 17 who smoke were found to be 10 times more likely to be using marijuana and 14 times more likely to be using cocaine, hallucinogens, or heroin. Many studies indicate that over 90 percent of

alcoholics and heroin addicts are heavy smokers.

A recent Gallup poll showed that 64 percent of teenagers favored a ban on cigarettes for those under 21 and that "the only significant opposition to such laws in legislatures comes from adults who make money selling cigarettes to young people."

—*Psychiatric, Mental Health, and Behavioral Medicine News Update*, March-April 1990, page 1.



Topscos' Most Valuable Assets

gale, Worcester, April 1980, page 1
Bespoke medical practice/one-offs/
—A-Ambulance/Western Health Care/
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