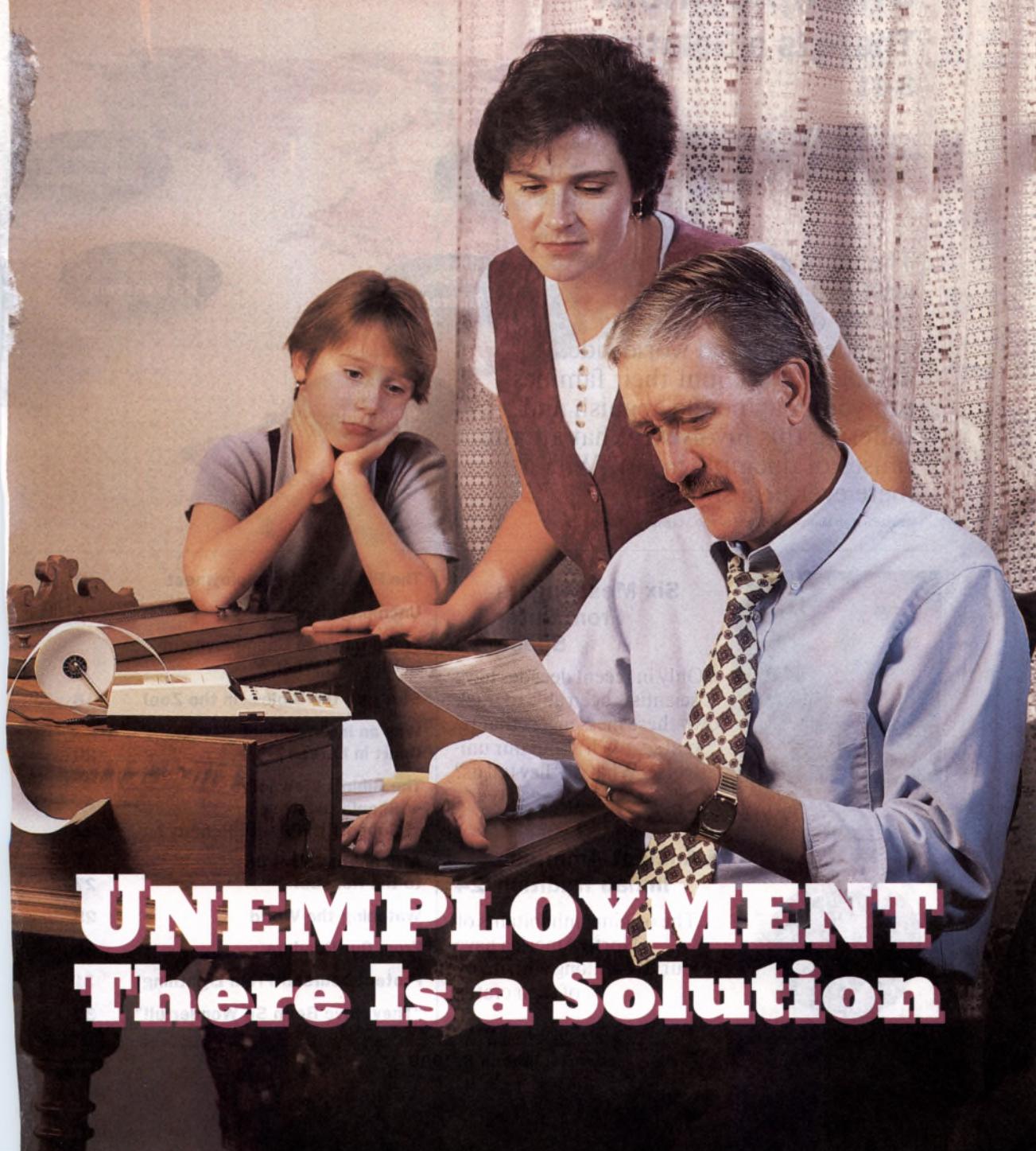


Awake!

March 8, 1996



UNEMPLOYMENT
There Is a Solution

Unemployment There Is a Solution

3-11



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Six Messengers From Outer Space 12

Only in recent decades have scientists been able to track down these messengers that reveal so much about our universe. What do they tell us?



An Ancient American Indian Tradition 24

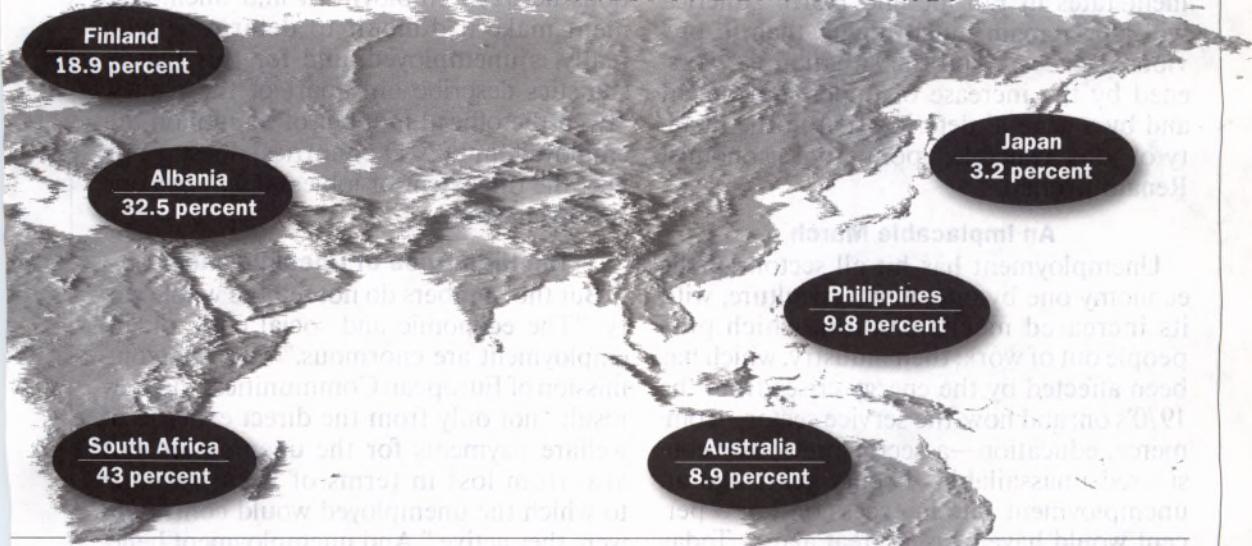
The original inhabitants of North America have survived, along with many of their crafts.

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THE PLAGUE OF UNEMPLOYMENT

BY AWAKE! CORRESPONDENT IN ITALY



It is an emergency in several developed countries—but it also worries developing nations. It has struck where it once seemed nonexistent. It affects hundreds of millions of people—many of whom are mothers and fathers. For two thirds of Italians, it is “threat number one.” It creates new social illnesses. In part, it is at the root of the problems of many young people who become involved in drugs. It disturbs the sleep of millions, and for millions of others, it could be just around the corner . . .

“UNEMPLOYMENT is probably the most widely feared phenomenon of our times,” affirms the Organization for Economic Co-operation and Development (OECD). “The extent and consequences of this phenomenon are known,” writes the Commission of European Communities, but “dealing with it is arduous.” It is “a specter,” says one ex-

pert, that is “returning to haunt the streets of the Old Continent.” In the European Union (EU), the unemployed now number about 20 million, and in October 1994, in Italy alone they officially numbered 2,726,000. As far as European Union commissioner Padraig Flynn is concerned, “tackling unemployment is the most important social and economic challenge we face.” If you are

unemployed or in danger of losing your job, you know the fear it causes.

But unemployment is not just a European problem. It afflicts all American countries. It does not spare Africa, Asia, or Oceania. Eastern European nations have been feeling the pinch in recent years. True, it does not strike in the same way everywhere. But according to some economists, unemployment rates in Europe and North America will long remain much higher than in previous decades.* And the situation is "worsened by the increase of underemployment and by a general deterioration in the quality of jobs available," points out economist Renato Brunetta.

An Implacable March

Unemployment has hit all sectors of the economy one by one: first agriculture, with its increased mechanization, which puts people out of work; then industry, which has been affected by the energy crises from the 1970's on; and now, the service sector—commerce, education—a sector previously considered unassailable. Twenty years ago an unemployment rate in excess of 2 or 3 percent would have caused great alarm. Today an industrialized nation is doing well if unemployment is kept below 5 or 6 percent, and many developed nations have much higher rates.

According to the International Labor Organization (ILO), an unemployed person

is one who is without work, is prepared to work, and is actively looking for work. But what about a person who does not have a permanent full-time job or one who manages to work just a few hours a week? Part-time work is considered differently from one country to another. In certain nations some who in reality are unemployed are officially counted as employed. Ill-defined situations between employment and unemployment make it difficult to determine who really is unemployed, and for this reason statistics describe only part of the reality. "Even the official number of 35 million unemployed [in OECD countries] does not reflect the full extent of joblessness," says one European study.

The High Price of Unemployment

But the numbers do not tell the whole story. "The economic and social costs of unemployment are enormous," says the Commission of European Communities, and they result "not only from the direct expense of welfare payments for the unemployed but also from loss in terms of fiscal revenue to which the unemployed would contribute were they active." And unemployment benefits are becoming increasingly burdensome not only for governments but also for the employed, who are subjected to increased taxes.

Unemployment is not just a matter of facts and figures. Individual dramas are the result, for this plague strikes people—men, women, and youths of every social class. Combined with all the other problems of

* The unemployment rate is the percentage of the total labor force that is unemployed.

Awake!

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these "last days," unemployment can prove to be a tremendous burden. (2 Timothy 3:1-5; Revelation 6:5, 6) Especially if hit by "long-term unemployment," all else being equal, the person who has been out of work for a long time will find it even more difficult to land a job. Sadly, some may never be employed again.*

Psychologists find that among today's unemployed, psychiatric and psychological problems are increasing, as well as emotional instability, frustration, progressive apathy, and loss of self-respect. When a person with children to care for loses a job, it is a terrible personal tragedy. The world has collapsed around them. Security has evaporated. Today, in fact, some experts note the emergence of an "anticipatory anxiety" related to the possibility of losing one's job. This anxiety can seriously affect family relations and can have even more tragic results, as recent suicides of unemployed persons may indicate. Furthermore, the difficulty of breaking into the labor market is among the probable causes of violence and social alienation of young people.

'Prisoners of a Perverse System'

Awake! has interviewed a number of people who have lost their jobs. Fifty-year-old Armando said that for him it meant "seeing the efforts of 30 years' work frustrated, having to start over," and feeling "like a prison-

* The "long-term unemployed" are those who have been out of work for more than 12 months. In the EU about half the unemployed fall into this category.

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er of a perverse system." Francesco 'saw the world collapse on top of him.' Stefano "felt a profound sense of disappointment in the present system of life."

On the other hand, Luciano, fired after working in technical management of an important Italian automobile industry for almost 30 years, "experienced anger and delusion on seeing that his efforts, scruples, and trustworthiness during so many years of work were considered as nothing."

Forecasts and Disappointments

Some economists had anticipated very different scenarios. In 1930 economist John Maynard Keynes optimistically forecast "work for all" within the next 50 years, and for decades full employment has been considered an attainable goal. In 1945 the Charter of the United Nations organization set as a goal the rapid achievement of full employment. Until quite recently it was believed that progress would mean a job and fewer hours at work for all. But things have not turned out that way. The serious recession of the last decade has caused the "worst global employment crisis since the Great Depression of the '30's," says the ILO. In South Africa at least 3.6 million people are out of work, including some 3 million black Africans. Even Japan—with over two million out of work last year—is going through a crisis.

Why is unemployment such a widespread plague? What solutions have been proposed to deal with it?

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UNEMPLOYMENT WHY?

IN SEVERAL countries many people are forced to support themselves by hard physical work for long hours at an exhausting pace, perhaps even doing a dangerous job for little pay. Until recently many in other lands were certain that once hired by a large company or by a state-run department, they would have a secure job until retirement. But today there no longer seem to be businesses or corporations that are able to offer desirable employment and security at any level. Why?

Reasons for the Problem

Thousands of young people cannot even find their first job—whether they have a college degree or not. In Italy, for example, more than a third of the unemployed are people between the ages of 15 and 24. The average age of those who are already working and are trying to keep their jobs increases, and so it is more difficult for young people to get into the labor market. Even among women—who are more and more present in the labor market—there is a high rate of unemployment. Thus, an exceptionally large wave of new workers is now struggling to be absorbed.

From the time of the first industrial machines, technical innovation has reduced the need for workers. In the face of long grueling shifts, laborers hoped that machines would reduce work or even abolish it. Automation has increased production

and has eliminated many dangers, but it has also reduced jobs. Those who become redundant risk long-term unemployment unless they learn new skills.

We risk being submerged by an overabundance of commercial products. Some feel we have already reached the limits of growth. In addition, with fewer employed, there are fewer buyers. The market thus produces more than can be consumed. No longer economically viable, large plants built to handle expected increases in production are being closed down or converted. Trends like these reap victims—those who become unemployed. In economic recession, demand for workers diminishes, and jobs lost during recessions are hardly ever re-created during times of expansion. Clearly, unemployment has more than one cause.

A Social Plague

Since it may strike anyone, unemployment is a social plague. Some countries provide various mechanisms for safeguarding those who are still working—for example, a reduced workweek with reduced pay. This may, however, damage the prospects of others looking for work.

Both the employed and the unemployed protest more and more frequently about job-related problems. But while the unemployed call for new jobs, the ones having a job try to protect their own security—two objectives that are not always compatible.

"Those with a job are often invited to work longer hours. Those who are out stay out. There is the risk that society may split in two... on the one hand, the superemployed and on the other, the alienated unemployed, who are almost completely dependent on the goodwill of the others," says the Italian magazine *Panorama*. In Europe, say experts, the fruits of economic growth have been absorbed principally by those already working, rather than by the jobless.

What is more, unemployment is tied to the state of the local economy, so that in certain nations, such as Germany, Italy, and Spain, huge differences exist between the needs of one area and those of another. Are workers willing to learn new skills or even to move to another area or to another country? This can often be a decisive factor.

Are There Any Solutions in View?

For the most part, hopes are set on an economic upturn. But some people are skeptical and think that such an upturn will

not occur until about the year 2000. For others, recovery has already begun, but it is slow in producing results, as is evident from the recent drop in employment in Italy. Economic recovery does not necessarily mean a reduction in unemployment. While growth is modest, businesses prefer to utilize better the staff they already have rather than to employ others—that is, there is "jobless growth." Further, the number of unemployed often grows faster than the number of new jobs created.

Today national economies are undergoing globalization. Some economists think that the creation of great, new supranational trading areas, such as those of the North American Free Trade Agreement (NAFTA) and Asia-Pacific Economic Cooperation (APEC), may also give impetus to the world economy. However, this trend induces large corporations to establish themselves where labor is cheaper, with the result that industrialized nations lose jobs. At the same time, workers who are not as well-off see their

Demanding more jobs will not solve the unemployment problem

Reuters/Bettmann



already meager earnings diminish. It is no coincidence that in a number of countries, many have demonstrated, even violently, against these trade agreements.

The experts suggest many recipes for fighting unemployment. Some are even contradictory, depending on whether they are suggested by economists, politicians, or workers themselves. There are those who propose offering companies incentives to increase personnel by reducing the tax burden. Some advise massive state intervention. Others suggest distributing work differently and reducing hours. This has

already been done in some large companies, even though during the last century, the workweek has been systematically reduced in all industrialized nations without a reduction in unemployment. "In the long term," maintains economist Renato Brunetta, "every policy turns out to be ineffective, with costs that exceed benefits."

"We should not delude ourselves," concludes the magazine *L'Espresso*, "the problem is difficult." Too difficult to resolve? Is there a solution to the problem of unemployment?

An Ancient Problem

Unemployment is an old problem. For centuries people have on occasion found themselves involuntarily without work. Once the job was finished, tens of thousands of workers used in large construction projects then became unemployed themselves—at least until they were absorbed elsewhere. In the meantime they led a rather precarious existence, to say the least.

During the Middle Ages, "even though a problem of unemployment in the modern sense did not yet exist," the unemployed did. (*La disoccupazione nella storia* [Unemployment in History]) In those days, however, any who did not work were considered, more than anything else, to be good-for-nothings or vagabonds. As late as the 19th century, many British analysts "associated the unemployed primarily with the 'roughs' and vagrants who slept out or walked the streets at night," explains Professor John Burnett. —*Idle Hands*.

The "discovery of unemployment" took place near the end of the 19th century or the beginning of the 20th. Special government commissions were instituted to study

and resolve the problem, such as the Select Committee of the British House of Commons on "Distress From Want of Employment," in 1895. Joblessness had become a social plague.

This new awareness grew dramatically, particularly after the first world war. That conflict, with its frenetic arms production, had practically eliminated unemployment. But beginning in the 1920's, the Western world faced a series of recessions culminating in the Great Depression that began in 1929 and struck all the industrialized economies of the world. After the second world war, many countries experienced a new economic boom, and unemployment dropped. But "the beginnings of today's unemployment problem can be traced back to the mid-1960s," says the Organization for Economic Cooperation and Development. The labor market suffered a new blow caused by the oil crises of the 1970's and the computerized information explosion with its consequent layoffs. Unemployment has begun a relentless ascent, cutting into even those white-collar and managerial sectors once considered secure.



FREEDOM FROM UNEMPLOYMENT

HOW AND WHEN?

LIKE his Creator, man can experience joy in work, which is rightly defined as a "gift of God." (Ecclesiastes 3:12, 13; John 5:17) An interesting job can give us happiness and make us feel useful and wanted. Hardly anyone wants to lose a job, no matter how little he may enjoy it. Besides guaranteeing a wage, paid employment gives structure, purpose, and a sense of identity to one's life. It is no coincidence that usually "the unemployed want a job more than anything."

In Search of a Job

As we have already seen, the situation in the labor market is very complex. As a result, there are many valid methods of looking for a job. Any who are entitled to them can make use of government unemployment benefits where available; and where applicable, they can enroll at unemployment offices and use services offered. Others find a job by creating their own employment. But caution should be exercised. Often the self-employed have to meet heavy initial expenses that may not be easy to pay off. It is also necessary to know and respect fiscal and tax laws—no mean feat in some countries!—Romans 13:1-7; Ephesians 4:28.

To find work, some have made a job of finding a job, dedicating themselves to it with method and perseverance. Others have

written to companies that are looking for personnel, or they have put announcements in local newspapers—some of which print job-request announcements free. *Awake!* has often given useful and practical advice on the subject—for young people and adults alike.*—See boxes, page 11.

You must be adaptable—willing to do all kinds of work, including jobs you do not necessarily like. Experts say that among the first things asked about at job interviews are previous work experience and length of time out of work. Loss of the work rhythm is not a good sign for the potential employer.

A person who wisely spent his time in school acquiring skills has a better chance of finding his first job. "Unemployment," says Alberto Majocchi, teacher of financial sciences, "especially affects unskilled workers."

The Importance of Emotional Support

One important factor is a positive outlook. This can make the difference between finding a job and not finding one. The unemployed greatly appreciate emotional support, which helps them avoid isolating themselves or falling into apathy. It also serves to overcome the loss of self-respect that can

* See *Awake!* of October 22, 1994, pages 16-18; August 8, 1991, pages 6-10; January 22, 1983, pages 17-19; and June 8, 1982, pages 3-8.



"The work of their own hands my chosen ones will use to the full."—Isaiah 65:22

result from comparing oneself with others who have not lost their jobs.

Making ends meet may not be easy. "Worried as I was, I found it difficult to make good use of the time on my hands," says Stefano. "The situation made me so tense," recalls Francesco, "that I began to find fault with some of my dear friends." This is where the support of the family comes in. The lack of income requires adaptation by all members of the family in order to reduce the standard of living. Franco, fired at the age of 43 after working for the same company for 23 years, says: "Right from the time I was fired, my wife was positive and a source of great encouragement." Armando is particularly grateful to his wife for "her great prudence in shopping."—Proverbs 31:10-31; Matthew 6:19-22; John 6:12; 1 Timothy 6:8-10.

Bible principles can help us to keep a positive spirit and not lose sight of the more important values. Those interviewed by *Awake!*, mentioned above, have drawn comforting reassurance from the Bible. This has made them feel closer to God. (Psalm 34:10;

37:25; 55:22; Philippians 4:6, 7) Having an intimate relationship with Jehovah God is of the utmost importance, for he promises: "I will by no means leave you nor by any means forsake you."—Hebrews 13:5.

Whether one is unemployed or not, God's Word encourages one to cultivate qualities useful for everyday living. It is no coincidence that Jehovah's Witnesses are at times sought after and appreciated as honest workers. They follow the Bible's counsel to be diligent and reliable, not lazy.—Proverbs 13:4; 22:29; 1 Thessalonians 4:10-12; 2 Thessalonians 3:10-12.

Freedom From the Specter of Unemployment

Underlying the lack of work, there is a root cause—human selfishness and greed. As the Bible says, "man has dominated man to his injury."—Ecclesiastes 8:9.

The problem of unemployment—and other problems too—will be resolved by the removal of human dominion, now in its "last days." (2 Timothy 3:1-3) There is need of

a world that is really new. Yes, a world in which a righteous human society can live and work under a just and fair rulership, where greed will be no more. (1 Corinthians 6:9, 10; 2 Peter 3:13) That is why Jesus taught people to pray that God's Kingdom come and that His will be done on earth.—Matthew 6:10.

Prophetically describing the elimination of some of mankind's principal problems, God's Word illustrates the effects of that Kingdom: "They will certainly build houses and have occupancy; and they will certainly plant vineyards and eat their fruitage. They will not build and someone else have occupancy; they will not plant and some-

Creating Work at Home

- Baby-sitting, child care
- Selling homegrown vegetables or flowers
- Sewing, altering, and repairing clothing
- Piecework for manufacturers
- Baking and food preparation
- Quilting, crocheting, knitting; making macramé, pottery; other crafts
- Upholstering
- Bookkeeping, typing, home computer services
- Telephone answering service
- Hairdressing
- Taking in boarders
- Addressing and filling envelopes for advertisers
- Washing and waxing cars (customer brings car to your home)
- Pet grooming and exercising
- Lock repair and key making (workshop at home)
- Ads for much of this work can be placed free of charge or at low cost in weekend shopping news or on supermarket notice boards

Creating Work Outside the Home

- House-sitting (when people are on vacation and want their home to be looked after)
- Cleaning: stores; offices; homes and apartments after construction, after fires, after people move out; housework (in homes of others); windows (business and domestic)
- Repairs: appliances of all kinds (libraries contain easy-to-follow books on repairs)
- Handyman jobs: siding houses; building cabinets, doors, porches; painting; fencing; roofing
- Farm work: crops, picking fruit
- Interior landscaping and plant care at: offices, banks, shopping plazas and atriums, lobbies
- Property management: janitors, superintendent (sometimes includes free living quarters)
- Insurance, real estate
- Carpet installation, cleaning
- Newspaper routes (adults and children), other delivery services: ads, bills for municipalities
- Moving, storage
- Landscaping, tree trimming, lawn care, woodcutting
- School-bus driver
- Photography (portraits and public events)
- Bait for fishermen
- Swap work: barter car repairs for electrical work, sewing for plumbing, etc.

one else do the eating. . . . The work of their own hands my chosen ones will use to the full. They will not toil for nothing, nor will they bring to birth for disturbance." (Isaiah 65:21-23) The specter of unemployment will soon disappear for all time. If you would like to know more about God's solution, please contact Jehovah's Witnesses in your area.



Six Messengers From Outer Space

BY AWAKE! CORRESPONDENT IN JAPAN

MESSENGERS from outer space are constantly arriving. They carry with them amazing information about the vast universe around us. These messengers, six in all, travel at the speed of light, 186,000 miles per second. One of them is visible, but the others are all invisible to the human eye. What are they?

The Electromagnetic Spectrum

It has been known for more than 300 years that when light passes through a prism, it emerges in the seven major colors of the rainbow. This shows that ordinary light contains all the seven colors of the rainbow in the order of red, orange, yellow, green, blue, indigo, and violet.

Light is considered to be a flow of massless particles called photons, which also have the properties of waves. The distance from the crest of one wave to the crest of another is called a wavelength and is measured by a unit called an angstrom, abbreviated Å. It is equal to 39 ten-billionths of an inch. Visible light measures between 4,000 and 7,000 angstroms, and light of different wavelengths appears as different colors.—See illustration, page 15.

Photons, however, may have other wavelengths as well. The streams of photons, called electromagnetic radiation, are given

different names depending on their wavelengths. Below 4,000 angstroms, as wavelengths become shorter than those of *visible light*, electromagnetic waves progressively appear as *ultraviolet (UV) radiation*, *X rays*, and *gamma rays*. When longer than 7,000 angstroms, the waves are no longer visible but are in the *infrared to radio* part of the electromagnetic spectrum. And there we have the “six messengers” from outer space. They carry a wealth of information about celestial bodies. Let us now see how they are being tapped for valuable information.

Visible Light—The First Messenger

From the time Galileo turned his telescope toward the sky in 1610 until 1950, astronomers primarily used optical telescopes to study the universe. They were acquainted with just the visible portion of the electromagnetic spectrum. Some celestial objects could only be seen very faintly in optical telescopes, and astronomers recorded the images on photographic film to study them. Now, electronic detectors known as charge-coupled devices, which are 10 to 70 times more sensitive than photographic film, are becoming much more common. The visible messenger provides information on star density, temperature, and chemical elements as well as distance.

To capture light, ever larger telescopes are being built. Since 1976 the largest reflecting telescope in the world has been the 236-inch telescope at the Zelenchukskaya Astrophysical Observatory in the Caucasus, Russia. In April 1992, however, the new Keck* reflecting optical telescope was completed on Mauna Kea in Hawaii. Instead of one single mirror, the Keck telescope has a combination of 36 hexagonal mirror segments. The segments have a combined diameter of 33 feet.

There is a second Keck telescope under construction adjacent to the original, now called Keck I, and the two telescopes may be able to function as an optical interferometer. This involves linking up the two 33-foot telescopes by computer, resulting in a possible resolving power that would equal a single mirror 280 feet in diameter. "Resolving power," or "resolution," refers to the ability to distinguish details.

The Tokyo National Astronomical Observatory has under construction a 27.2-foot optical/infrared telescope, Subaru (the Japanese name for the Pleiades star cluster), on Mauna Kea. It will have a thin mirror supported by 261 actuators that will adjust the shape of the mirror once every second in order to compensate for any deformation of the mirror surface. Construction of other huge telescopes is under way, so we are sure to learn more from messenger number one—visible light.

Radio Waves—The Second Messenger

Radio wave emission from the Milky Way was first discovered in 1931, but it was not until the 1950's that radio astronomers began working with optical astronomers. With the discovery of radio emissions from space, what could not be seen by optical telescopes became observable. Observing radio waves made it possible to see the center of our galaxy.

* Named after a wealthy donor, W. M. Keck.

The wavelength of radio waves is greater than that of visible light, and large antennae are therefore needed to pick up the signal. For use in radio astronomy, antennae 300 feet or more in diameter have been constructed. Since resolution is poor even in instruments of that size, astronomers link up radio telescopes in arrays by computer with a technique called radio interferometry. The greater the distance between the telescopes, the better the definition.

One such linkup includes the Nobeyama Radio Observatory's 148-foot antenna in Japan; the 330-foot antenna in Bonn, Germany; and a 122-foot telescope in the United States. This type of linkup is called very long baseline interferometry (VLBI), and it results in resolution of one thousandth of an arc second, or the capability to distinguish a six-foot-square structure on the moon.* Such VLBI is limited by the diameter of the earth.

The Nobeyama Radio Observatory is going one step further in capturing this messenger by placing a 33-foot radio antenna in space. It is to be launched from Japan in 1996 and will be linked to radio telescopes in Japan, Europe, the United States, and Australia, creating a baseline of 18,750 miles. In other words, this linkup will be like one giant telescope three times as large as the earth itself! It will have resolving power of 0.0004 arc second, which means that it will be able to distinguish a 28-inch object on the moon. Called the VLBI Space Observatory Programme, or VSOP for short, it will be used to map and study galactic nuclei and quasars, where supermassive black holes are thought to be bedded. As the second messenger from the universe, radio waves are performing spectacularly and will continue to provide information about their sources.

* The resolution of the human eye is one arc minute. The resolution of one thousandth of an arc second is 60,000 times greater than that of the eye.

X Rays—The Third Messenger

The first X-ray observations were made in 1949. Since X rays cannot penetrate the earth's atmosphere, astronomers had to wait for the development of rockets and artificial satellites to get information from this messenger. X rays are generated at extremely high temperatures and thus provide information on hot stellar atmospheres, supernova remnants, galaxy clusters, quasars, and theoretical black holes.—See *Awake!*, March 22, 1992, pages 5-9.

In June 1990 the Roentgen satellite was launched and succeeded in mapping the entire X-ray universe. Information recorded indicated four million X-ray sources distributed over the whole sky. However, there is an unknown background glow between these sources. It could be coming from clusters of quasars, which are believed to be the energetic cores of galaxies near what some astronomers call the “edge of the visible universe.” In due time, we can look forward to reaping more information from the X-ray messenger.

Infrared Radiation —The Fourth Messenger

The first infrared observations were made in the 1920's. Since water vapor absorbs infrared radiation, for best results orbiting satellites are used to investigate this messenger. In 1983 the Infrared Astronomical Satellite (IRAS) was used to map the entire infrared sky and discovered 245,389 infrared sources. About 9 percent (22,000) of the objects are apparently distant galaxies.

Optical telescopes cannot see through all the regions of gas and dust in space. Nevertheless, this fourth messenger makes it possible to “see” farther through the dust and is of particular value in observing the center of our galaxy. Scientists plan to orbit an infrared telescope called Space Infrared Telescope Facility, which is 1,000 times more sensitive than IRAS.

Ultraviolet Radiation —The Fifth Messenger

The first astronomical observation of ultraviolet (UV) radiation was made in 1968. The ozone layer prevents most of this radiation from reaching the earth's surface. The Hubble Space Telescope, launched in April 1990, is equipped to observe both visible and ultraviolet radiations and will target 30 quasars out to a distance of ten billion light-years.* In other words, observing the ultraviolet messenger makes it possible to see what the universe was like some ten billion years ago. It is hoped that this messenger will reveal many mysteries of the universe.

Gamma Rays—The Sixth Messenger

Gamma rays are high-energy radiation with extremely short wavelengths. Fortunately, the atmosphere prevents most of these harmful rays from reaching the earth's surface. This messenger is associated with violent events in the universe. On April 5, 1991, the National Aeronautics and Space Administration launched the Gamma Ray Observatory into space. It will observe events surrounding quasars, supernovas, pulsars, theoretical black holes, and other distant objects.

With the advent of the space age, astronomers are now able to observe the entire electromagnetic spectrum, from radio waves to gamma rays. Truly, it is a golden age for astronomers. When we “raise our eyes high up,” we are now able to “see”—with the help of the six messengers from stellar sources—the stupendous wisdom of the Creator of them all. (Isaiah 40:26; Psalm 8:3, 4) As astronomers keep decoding the information carried along by these messengers, we will continue to feel just as Job did more than 3,000 years ago: “Look! These are the fringes of his ways, and what a whisper of a matter has been heard of him!”—Job 26:14.

* One light-year equals 5,880,000,000,000 miles.



With the VSOP space radio telescope, it will be possible to distinguish a 28-inch object on the moon

Visible light
4000 - 7000 Å

Gamma rays

X rays

UV

Infrared

Radio

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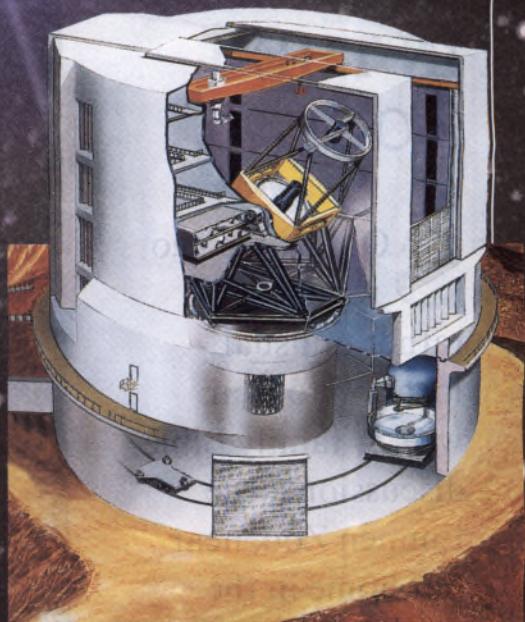
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VSOP: Courtesy of Nobeyama Radio Observatory, Japan



A drawing of the optical/infrared telescope Subaru, now under construction

Subaru: Courtesy of National Astronomical Observatory, Japan

STUDYING THE BIBLE IN THE ZOO!

SOME time ago we chose a rather unusual location for our weekly family Bible discussion—the Emmen Zoo, near our home in the Netherlands. This was for a very good reason, which will soon become clear to you.

Like many Christian families all over the world, we have a weekly Bible study. During this study we often read about animals that are used in the Bible as symbols of

Ostrich: Yotvatah Nature Reserve

PSALMS 71:5—23

From the palm of the one acting unjustly and oppressively.^a

5 For you are my hope,^b O Sovereign Lord Jehovah, my confidence from my youth.^c

6 Upon you I have supported myself from the beliefs. You are the One nevering me even from the inward parts of my mother.^d

In you my praise is constantly.

7 I have become just like a miracle to many people.

But you are my strong refuge.^e

8 My mouth is filled with your praise.^f All day long with your beauty.

9 Do not throw me away in the time of my age. Just when my power is failing, do not leave me.

10 For my enemies have said in regard to me:

And the very ones keeping watch for my soul have jointly planned

to snuff out my life.

11 But you are my strength.

12 You are my shield.

13 You are my honor.

14 You are my salvation.

15 You are my deliverance.

16 You are my strength.

17 You are my shield.

18 You are my honor.

19 Your righteousness is up to the hilt.

As respects the thing that you done.

O God, you are like

an invincible

warrior.

14 Ps 107:7, 9; 20:14; Ps 13:10; Ps 19:22; Isa 50:1; v1

15 Ps 61:6; 28:4; 9; Ps 101:1

16 Ps 17:1; Ps 28:1; Ps 31:1

17 Ps 17:1; Ps 28:1; Ps 31:1

18 Ps 17:1; Ps 28:1; Ps 31:1

19 Ps 17:1; Ps 28:1; Ps 31:1

For I have set them in the sun,
Jehovah is not far off, confidenc

For I have set them in the sun,
I shall come in mightiness.

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To all those who come about me,

to come about me,</p

good and bad qualities. We wondered whether we could get to know the animals better and decided to make it a family effort. Each member of the family was assigned a specific animal and was asked to look up information on this animal in publications such as *Insight on the Scriptures* and the bound volumes of *The Watchtower* and *Awake!*

As we approach the gate of the Emmen Zoo, the eyes of our children, Mari-Claire, Charissa, and Pepijn, sparkle in anticipation. We are going to see the crocodiles, the bears, the zebras, the ants, and maybe even more of the animals we have read about in the Bible. But first of all, let us tell you about this unique zoo.

No Cages, No Bars

The Noorder Dierenpark, as the Emmen Zoo is called in Dutch, is a very special animal park, set up according to modern principles. Here you will find no animals in cages or behind bars. On the contrary, in Emmen everything has been done to bring the animals into an environment that resembles their natural habitat as closely as possible. "It is the visitor, rather

PSALMS 71:24—72:19

Tribute they will pay.^a
The kings of She'ba and of Se'b'a—

A gift they will present.^b
11 And to him all the kings will prostrate themselves;^c

All the nations, for their part, will serve him.^d

12 For he will deliver the poor one crying for help.^e

Also the afflicted one and whoever has no helper.^f

13 He will be sorry for the sorrowful and the poor ones.^g

And the souls of the ones we will save.

From oppression and from violence he will rescue them.^h

14 Their blood will be precious in his eyes.

15 And let him live, and to him let some of the gold be given.

She ba be given to him.

16 His life will be exalted.

17 He will live in the presence of the Most High.

18 He will descend like a lion upon the mown grass.

Like copious showers that wet the earth.

19 In his days the righteous one will flourish.

20 And the abundance of peace under the moon is no more.

21 and he will have subjects from sea to sea.

22 And from the ends of the earth before him the inhabitants of waterless regions will bow down.ⁱ

23 And his very enemies will lick the dust before him.

24 He will be kings of Tar'shish and of the islands.^j

25 CHAP. 72

26 Ps 22:18
27 Ps 22:19
28 Ps 22:20
29 Ps 22:21
30 Ps 22:22
31 Ps 22:23
32 Ps 22:24
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than the animal, who is behind a fence," says a smiling Wijbren Landman, one of the park's biologists.

"The animals are not arranged according to species but according to their place of origin. That's why on the vast African savanna that you see here, as many animals as possible are kept together that live together in the wild." And yes, there we see them—the tallest animals in the world, long-necked giraffes, which can grow to a height of 19 feet. They are together with springbok, impalas, zebras, gnu, waterbuck, and even a few rhinoceroses.

But Wijbren has still more to tell us about the Emmen savanna: "The animals have so much space here that they never feel cornered. Yet, we have also provided some escape routes. Do you see those big stones over there? In between them the springbok can take shelter so that the rhinos can't bother them. And that hill over there enables the animals to get entirely out of each other's range of vision. But most of the time the animals hardly notice each other's presence. This really is not surprising, since they have shared their habitat in Africa for thousands of years."

Thirsty Zebras

"Look! Zebras!" Charissa is all excited. She did some interesting research on zebras. "The stripes distort the shape and unity of the zebras' contour so much that even sharp-eyed natives are often unaware of their presence when just 130 to 160 feet away. The zebras' keen senses of sight and smell as well as their ability to run swiftly—even more than 35 miles per hour—serve as a protection against carnivorous animals. As Psalm 104:11 notes, zebras 'regularly quench their thirst.' That is why they are seldom found more than five miles from water." Then she added: "We too must regu-

larly quench our spiritual thirst by staying close to the congregation, studying the Bible, and attending meetings."

We leave the African savanna behind us and walk in the direction of one of the largest predators on earth, the kodiak bear. This largest of all bears can grow to as long as ten feet and weigh up to 1,700 pounds. For their enclosure here to be as natural as possible, it has been beautifully designed with streams and huge rocks. The kodiak bear is a big brother to the Syrian brown bear, which lived in Israel in Bible times. As Mari-Claire found out, bears subsist on a varied diet. They feed on leaves and roots of plants as well as on fruits, berries, nuts, eggs, insects, fish, rodents, and the like, and they have a special fondness for honey. In ancient Israel when the vegetarian elements of the bear's diet were scarce, shepherds had to be on guard against the depredations of bears. In his youth David had to brave the attack of a bear in order to protect his father's flock.—1 Samuel 17:34-37.

"Out Of Its Nostrils Smoke Goes Forth"

But there are more animals we definitely want to see. The other day in our Bible study, we came across "Leviathan," the crocodile. At first, Pepijn described it as 'a kind of fish, but then a very large one!' As crocodiles are very sensitive to temperature variations, they are accommodated in the Africa House, where a tropical climate is maintained. Upon entering, we are struck by the heat and the humidity, which steam up our glasses. In addition to that, we have to get accustomed to the darkness. Walking across a wooden suspension bridge, we suddenly come face-to-face with a couple of huge crocodiles holding sway over the walkways on either side of the bridge. They lie there so motionless that Pepijn is prompted to say: "They are not real."

Crocodiles are among the largest extant reptiles. Some may reach a length of 20 feet and may weigh as much as 2,000 pounds. The strength of their jaws is stunning—even a relatively small crocodile weighing 100 pounds is able to exert a force equal to over 1,500 pounds. When a crocodile surfaces after a period of submersion, the rapid exhalation of air through its nostrils can produce a spray that in the glare of the morning sun may well be the ‘flash of light’ and the ‘going forth of smoke out of its nostrils’ that the book of Job describes.—Job 41:1, 18-21.

“Cautious As Serpents”

We have hardly left the crocodiles behind us when we perceive in the darkness—fortunately, behind glass panels—a number of specimens of a creature that is used in the Bible as a symbol of both desirable and undesirable qualities. We’re talking about the serpent, the first animal mentioned by name in the Bible. (Genesis 3:1) Jesus used its cautiousness as an example when admonishing his disciples regarding their conduct among wolflike opposers. (Matthew 10:16) But, of course, the serpent is usually identified with “the original serpent,” Satan the Devil, who at 2 Corinthians 11:3 is described as seductive and cunning like a serpent.—Revelation 12:9.

“Go to the Ant, . . . and Become Wise”

An unexpected sight in an animal park is the big anthill we see, which houses three colonies of leaf-cutter ants. These are the gardeners among the ants. We can see the colony behind a glass panel; this enables us to study the living habits of these little creatures. Ants interest us because they are used in the Bible as an example of diligence and instinctive wisdom.—Proverbs 6:6.

Wijbren Landman is an insect specialist. He explains: “An estimated one million times one billion ants toil on earth’s surface, mean-

ing that for every human there are no less than 200,000 ants! Of the 15,000 types that we find scattered over all continents except the polar regions, no two look alike. They all build different kinds of houses, and they eat different kinds of food, but they are all organized in more or less the same way.

“Leaf-cutter ants cultivate edible fungi, just as humans cultivate mushrooms. As you see, this cultivating takes place underground, but the food for the fungi comes from above ground. All day, worker ants busily transport leaves to their nest. They climb up a tree or a shrub and choose a leaf. Then, using their jaws like scissors, they rapidly cut semicircular pieces out of the leaf and in procession carry these to their nest, holding them as a sort of parasol over their heads. This explains their secondary name, parasol ants. The cutting goes on so rapidly that in South and Central America, they completely strip entire shrubs or trees in a matter of hours. No wonder they are not very popular there! In the nest other workers clean the pieces of leaves carefully before they masticate them. Afterward, the resulting pulp is mixed with enzymes and amino acids that the ants excrete. Only then is the pulp ready to be used as food for the fungi, thus ensuring a constant supply for the whole colony.”

Deeply impressed by the wisdom and creativity apparent in the endless diversity of creation, we leave the ant city. It is late in the afternoon, and we must return home. But there is much more for us to see. We have not paid a visit to the owls (Isaiah 13:21), the seals (Exodus 35:23), the hippopotamuses (“Behemoth,” Job 40:15), the ostriches (Jeremiah 50:39), or the many other animals that live here that are mentioned in the Bible. Each one is worthy of study. We definitely will come back to the Emmen Zoo!—Contributed.

WHY AN INTERNATIONAL COURT IN EUROPE?



BY AWAKE! CORRESPONDENT IN THE NETHERLANDS

WHEN the owner of a garage in the northern part of the Netherlands was denied a permit to sell liquid gas, which also implied he was not allowed to convert automobile engines to burn liquid gas, he waged a long legal battle in the various courts to undo the state-imposed restriction. In the meantime, he went bankrupt.

Feeling that he had been denied justice by the courts of the Netherlands, he appealed to the European Court of Human Rights in Strasbourg. In 1985 the European Court decided in his favor. The owner of the garage viewed the decision of the court as a tremendous moral victory because, as the man put it, 'it proved that he had been in the right all along.'

He is one of a number of citizens in European countries who during past decades

have taken their appeals to the European Court of Human Rights. This court stands open to hear not only complaints of individuals within Europe but also complaints of countries against other countries when it is felt that fundamental human rights have not been respected. The increase in the number of court cases before international courts reflects the longing of citizens and some governments for justice.

The European Court of Human Rights

In 1950 several European states, which were united in the Council of Europe and met in Rome, decided to form a treaty whereby they could guarantee their citizens and foreigners who resided under their judicial authority certain rights and freedoms. Later other rights were added, while at the

same time an increasing number of European states joined the European Treaty with a view to the protection of human rights and basic freedoms. Some of these rights have to do with protection of life and prevention of torture, and others have to do with family life as well as freedom of religion, of expression, of opinion, and of assembly and association. Victims of violations of these human rights can lodge a complaint against the state with the secretary-general of the Council of Europe.

Since the inception of the court, more than 20,000 complaints have been lodged. How does the court determine which cases to hear? First, an effort is made toward reconciliation. If that fails and the complaint is recognized as valid, it is taken before the European Court of Human Rights in Strasbourg. Only about 5 percent of the complaints ever reach the court. Up till the end of 1995, the court had passed 554 verdicts. Although the verdict of the court in the case of a complaint by an individual is binding for the state concerned, the situation where a complaint is lodged by a state or states is not a simple matter. In such a case, the likelihood is that the state against whom judgment has been passed will choose a course of political expediency rather than comply with the demands of the treaty. While the International Court of Justice at The Hague handles only disputes between states, the European Court pronounces verdicts also in cases of differences between citizens and states.

Victories in Favor of Freedom of Worship in Europe

In 1993 the European Court of Human Rights arrived at two important decisions in favor of freedom of worship. The first case involved a resident of Greece, Minos Kokkinakis. As one of Jehovah's Witnesses, he had been arrested more than 60 times since 1938, had been made to appear 18 times before

Greek courts, and had spent more than six years in prison.

On May 25, 1993, the European Court decided that the Greek government had violated the religious freedom of the then 84-year-old Minos Kokkinakis and awarded him damages in the amount of \$14,400. The court rejected the argument of the Greek government that Kokkinakis and Jehovah's Witnesses as a whole applied pressure tactics when discussing their religion with others.—For additional information, see *The Watchtower* of September 1, 1993, pages 27-31.

In the second case, the European Court decided in favor of Ingrid Hoffmann of Austria. Because she had become one of Jehovah's Witnesses while married, she was deprived of guardianship over her two children, following her divorce. The lower courts had originally assigned her the guardianship, but the Supreme Court assigned it to her Catholic husband. The court based this action on an Austrian law that says that children must be brought up in the Catholic religion if the parents were Catholic at the time of their getting married unless both agree to change their religion. Her ex-husband asserted that now that she had become one of Jehovah's Witnesses, she was not able to raise the children in a normal, sound manner. On June 23, 1993, the European Court decided that Austria had discriminated against Mrs. Hoffmann on the grounds of her religion and had violated her right to raise her family. She was awarded damages.—For additional information, see *Awake!* of October 8, 1993, page 15.

These decisions affect all people who love freedom of religion and expression. Appeals to international courts can contribute to the protection of fundamental rights of citizens. It is also good to recognize the limitations of judicial organs. In spite of the best intentions in the world, they are not able to guarantee lasting peace and complete respect for human rights.

Should Christians Support the Death Penalty?

IT IS morally and ethically wrong." "It's fair and righteous." These opposing views came from two clergymen, both nominally Christian. They were wrangling over one of today's burning issues—capital punishment. The newspaper article quoting them noted: "When religious leaders debate the death penalty, both sides cite biblical passages to back their positions."

Some argue that capital punishment protects the innocent, promotes justice, and deters serious crime. Others insist that it is immoral—a way of responding to violence with more violence and far inferior to the nobler task of rehabilitating criminals, helping them to become useful members of society.

In the political arena in the United States, this debate is especially intense, and religious leaders have not hesitated to get involved. You may wonder, though, 'Does the Bible have anything to say on the subject of capital punishment?' In fact, it does.

Bestowing "the Sword" on Human Authorities

Shortly after the Flood of Noah's day, Jehovah God affirmed the preciousness of human life and then stated: "Anyone shedding man's blood, by man will his own blood be shed." (Genesis 9:6) Of course, this was not an open license for revenge.

Rather, it meant that duly constituted human authorities would thenceforth be allowed to execute those who took the lives of others.

In ancient Israel the Law that God transmitted through Moses stipulated the death penalty for certain serious offenses. (Leviticus 18:29) However, the Law also provided for impartial judging, eyewitness testimony, and curbs against corruption. (Leviticus 19:15; Deuteronomy 16:18-20; 19:15) The judges were to be devout men and were held accountable to God himself! (Deuteronomy 1:16, 17; 2 Chronicles 19:6-10) Thus there were safeguards against abuses of the death penalty.

Today no government on this earth truly represents divine justice as ancient Israel did. But governments do in many ways act as God's 'ministers,' or agents, in that they preserve a measure of order and stability and provide needed public services. The apostle Paul reminded Christians to be obedient to these "superior authorities" and then added: "If you are doing what is bad, be in fear: for it is not without purpose that it [the government] bears the sword; for it is God's minister, an avenger to express wrath upon the one practicing what is bad."—Romans 13:1-4.



The Bettmann Archive

"The sword" Paul mentioned symbolizes the government's right to punish criminals—even with death. Christians respect that right, but should they seek to have a say in how it is exercised?

"The Sword" Misused

Human governments have certainly wielded "the sword" for the sake of justice many times. But it must be admitted that they have also been guilty of misusing it. (Ecclesiastes 8:9) The government of ancient Rome was guilty of wielding "the sword" of judicial execution against innocent servants of God. John the Baptizer, James, and even Jesus Christ were among its victims.—Matthew 14:8-11; Mark 15:15; Acts 12:1, 2.

In modern times something similar has happened. Innocent servants of Jehovah have been executed in various countries—by firing squad, by guillotine, by hanging, by gas chamber—all of it "legally" carried out by governments trying to suppress Christianity. All powers that abuse their authority will render an account to God. What terrible bloodguilt they bear!—Revelation 6:9, 10.

True Christians shudder at the thought of bearing bloodguilt before Jehovah God. Thus, while they respect a government's right to wield "the sword," they are keenly aware of how it has been misused. It has served as a tool for persecution and has also at times been wielded with prejudicial harshness against some and inappropriate leniency toward others.* So how do Christians react to the debate over capital punishment? Do they get involved and push for change?

Christian Neutrality

Unlike those clergymen mentioned at the outset, true Christians try to keep in mind an

* For instance, the U.S. prison system has been criticized for executing under 2 percent of its death-row criminals each year. More of them die from natural causes than from execution. There have also been charges of prejudice—as statistics suggest that a murderer is more likely to receive a death sentence if the victim was white than if the victim was black.

important principle: Jesus Christ told his followers to be "no part of the world."—John 15:19; 17:16.

Can a Christian obey that injunction and still join the debate over the death penalty? Evidently not. This is, after all, a social and political issue. In the United States, candidates for political office commonly use their stand on the death penalty—whether for or against—as an important plank in their campaign platform. They debate the subject ardently and use the emotional intensity that this subject usually provokes as a lever to sway voters to their cause.

Perhaps the question for a Christian to ponder is this: Would Jesus have involved himself in the controversy over how this world's governments wield "the sword"? Remember, when his countrymen tried to get him involved in politics, Jesus "withdrew again into the mountain all alone." (John 6:15) It seems far more likely, then, that he would have left this matter where God put it—in the hands of the governments.

Likewise today, one would expect Christians to be careful not to jump into arguments on this subject. They would recognize the right of governments to do as they wish. But as Christian ministers who are no part of the world, they would neither avow support for capital punishment nor promote its abolition.

Rather, they keep in mind the words of Ecclesiastes 8:4: "The word of the king is the power of control; and who may say to him: 'What are you doing?'" Yes, the world's 'kings,' or political rulers, have been granted the power to carry out their own will. No Christian has the authority to call them to task. But Jehovah can. And he will. The Bible allows us to look forward to the day when God will bring about final justice for every crime and every abuse of "the sword" in this old world.—Jeremiah 25:31-33; Revelation 19:11-21.

An Ancient American Indian Tradition

NO MATTER where you go in the world, you will find that each place has its own traditional art forms. Paintings, figurines, wood carvings, pottery, or other objects can usually be found in gift and curio shops. Have you ever purchased any of these to decorate your home? If so, why not check and see where the article was actually made. Do not be surprised if you find that it was manufactured in another country.

For centuries craftsmen have carved their initials on the bottom of their wares to show whose creations they were. Today, however, you will most likely find a sticker or a stamp indicating that the item is mass-produced, not handcrafted. These mass-produced look-alikes are becoming more popular, and traditional handmade artwork is harder to find. However, can the traditional, locally produced pieces still be found?

Visiting an American Indian Reservation

Indeed they can, we discovered, when we went to visit some American Indian friends who still do their own traditional artwork. They belong to the Santa Clara Pueblo Indian tribe, known especially for their polished black pottery—some of the most beautiful pottery in the world. Their traditional wares are far different from the mass-produced items found in many shops in the southwestern United States.

Our friends, Joe and Anita, have been making pottery the traditional way for many years. Anita started making pottery with her mother when she was six years old. One of

Anita's pieces is in the Smithsonian Institution in Washington, D.C., in its display of American Indian Arts.

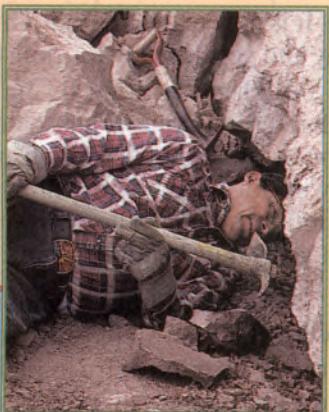
We arrived at Joe and Anita's home just as they were getting ready to start a new batch of pottery. So now we would be able to see firsthand how it is done. We have made some pottery ourselves in the past. But we did it the modern way with molds, slip, and a kiln. What we were about to witness was the ancient way, passed on from generation to generation. No modern technology in this process. Everything is done from scratch.

Gathering the Ingredients

First, Joe and Anita had to gather the ingredients. We went off in their pickup truck to a hillside where they find the clay. Located on the reservation, this clay is available only to tribe members, of whom there are about 2,400 in the Santa Clara Pueblo. Most of them make their pottery in the traditional way that dates back to about the 1500's. As we pulled up to the hillside, Joe grabbed his pick and headed for a vein of clay.

The vein extends horizontally at the bottom of the hill. Joe had to lie on his side and pick away at the vein, pulling out chunks of clay about the size of bricks. This can be risky, for the deeper you go, the greater the chances are for a cave-in. After Joe finished getting between 125 and 150 pounds of what he referred to as very good-quality clay, we were ready to leave. But I couldn't help but ask why they did not get several hundred pounds of the clay at one time and

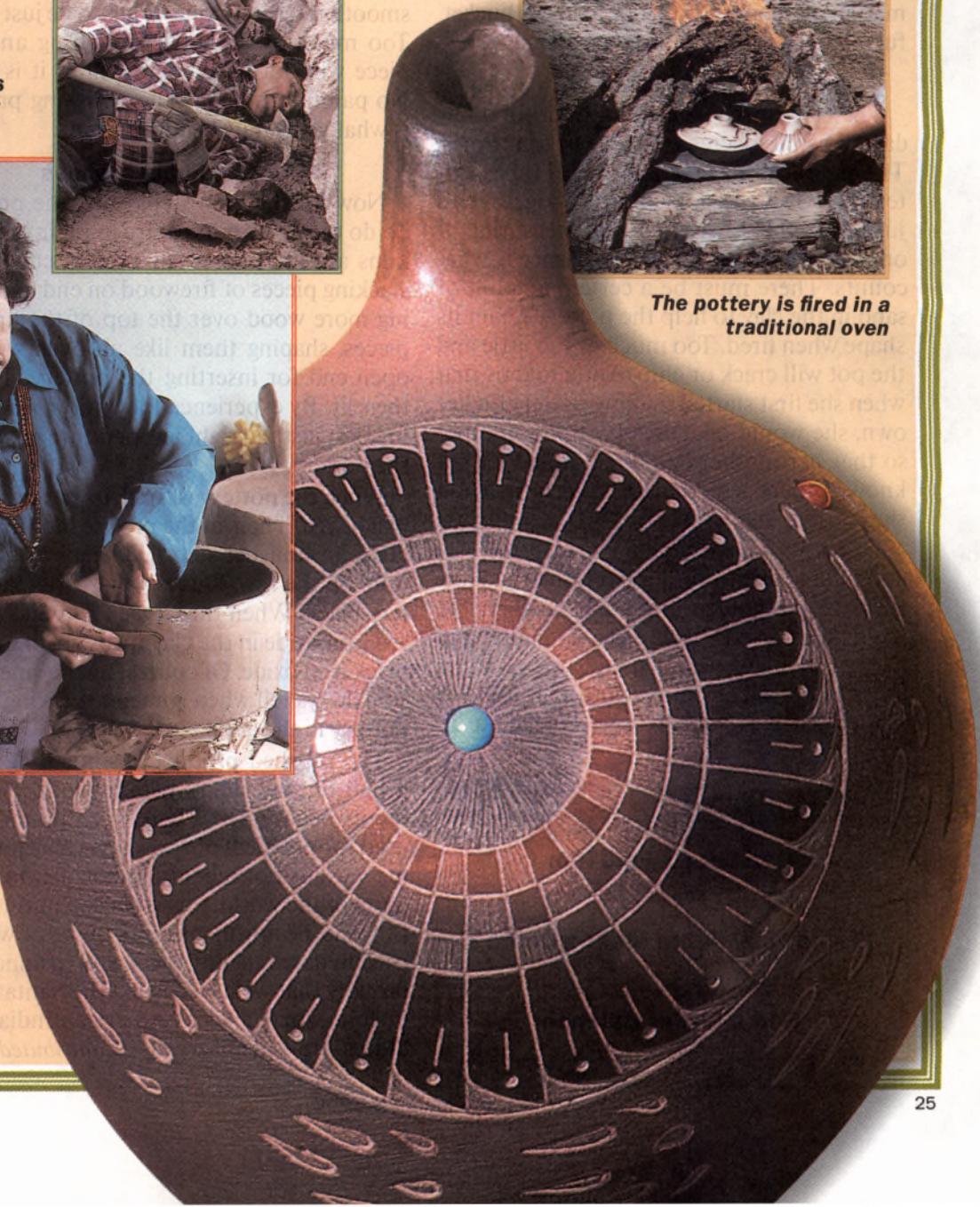
Brick-sized chunks of clay are dug out



The clay is shaped by hand



The pottery is fired in a traditional oven



save themselves a few trips back. Anita told us: "That is not the Indian way." They only take from the land what they will use at the time. Much could be wasted if the clay was allowed to sit around and get hard.

Next, it was off to another hillside to get white sand. This was much easier—just a matter of scooping up one or two bucketfuls. Then we returned to their home.

The Process

The clay is first soaked in water for a few days. Then it is screened three or four times. The sand is also screened several times. After that, Joe will mix the two together to just the right consistency. No measuring of one or the other is done. Experience is what counts. There must be a certain amount of sand in the clay to help the pottery retain its shape when fired. Too much or too little and the pot will crack or chip. Anita told us that when she first started making pottery on her own, she would take the clay to her mother so that her mother could feel it and let her know if there was enough sand in it. Soon she learned to tell by herself.

Using his bare feet, Joe kneaded the clay and sand together until it felt just right. Now they were ready to make the pottery. No molds were used. Each piece is unique and shaped by hand. Anita spends many hours shaping her piece before putting it aside to dry. When it is half dry and stiffened a lit-

tle to what is called leather hard, it can be etched or hand carved with patterns or lines. It is then allowed to dry completely, which may take up to a week, depending on the humidity. It is now ready to sand. This smooths the clay and gets it ready for polishing.

The polishing is done by hand with a smooth riverbed stone. It has to be just right. Too much or too little polishing and the piece will not have a shine after it is fired. No painting is done. The polishing process is what gives it its beautiful shine.

A Unique Firing Process

Now for the final step: firing the pottery. To do this, they build a fire in their yard. No kilns are used here! An oven is created by stacking pieces of firewood on end and placing more wood over the top of the upright pieces, shaping them like an oven with an open end for inserting the pottery. This is then lit. By experience they know when the fire is at just the right temperature to slide in the pottery.

When the pottery is fired, its natural color will be red. Then, at the precise moment, Joe takes an unusual step. He heaps horse manure on the fire! This is what turns the pottery black. When the oxygen is reduced, the red iron oxide in the clay turns chemically to black iron oxide. Of course, by the smell you can always tell when someone is firing black pottery in the area!

The finished product is something to be proud of, and many people worldwide enjoy its beauty. Originally, such pottery was used for practical purposes, such as for storing various household ingredients. In some parts of the world, it is still used in this way. But one beautiful piece of pottery will be used to decorate our home and to announce proudly that we have visited the Santa Clara Pueblo, where ancient American Indian traditions are still observed.—Contributed.

IN OUR NEXT ISSUE

God Let Us Find Him

Would You Like to Meet a Cobra?

God's Gift of Balance



African Dung Beetles to the Rescue!

BY AWAKE! CORRESPONDENT IN SOUTH AFRICA

TWO centuries ago, when cattle were first introduced into Australia, who could foresee the serious problems that would result to the country?

As time went by, pastures became studded with cow dung, preventing the growth of grass in places or making the grass inedible for cattle. The heaps of dung eventually became vast breeding sites for pesky flies. In fact, according to a report in the journal *Africa—Environment & Wildlife*, by the 1970's the problem had reached "an economic and ecological crisis of monster proportions." It was calculated that "more than two million hectares [five million acres] of pasture lands were being lost to production each year . . . , large quantities of nitrogen were not being returned to the soil because of unburied dung, and fly populations were reaching epidemic proportions."

What had gone wrong? In Africa the dung beetles would normally clear the fields quickly and efficiently. The buried dung would fertilize the soil and make it more porous, thus improving plant growth. In this way, harmful fly species would be kept under control and parasite eggs

would be destroyed, preventing the spread of bacterial disease.

However, what the early settlers of Australia did not realize was that the Australian dung beetles work only on small, hard, pelletlike droppings of the indigenous animals and cannot cope with the large, soft droppings of cattle.

What was to be done? Import dung beetles from other countries! The African variety, for example (of which there are about 2,000 species), copes with enormous quantities of soft dung, such as that dropped by elephants. For these beetles, disposal of cowpats presents no problem at all. But what a great number of beetles are required to perform the task! *Africa—Environment & Wildlife* reports that at one national park, "7 000 beetles have been recorded at a single pile of elephant dung," and at another park, "22 746 . . . were collected from a 7 kg [15 lb] pile of elephant dung in 12 hours." Just imagine the vast quantities of beetles required to tackle Australia's catastrophic problem!

Happily, the situation is improving significantly at present—thanks to the African dung beetles.

WATCHING THE WORLD

Earthquakes Unpredictable

For many years scientists felt it should be possible to predict earthquakes. They looked at changing water-table levels, subtle motions in the earth's crust, radon gas escaping from wells, and other telltale signs. "Many of the nation's leading seismologists now think that earthquakes are inherently unpredictable," notes an article in *The New York Times*. "They say that the search for ways to warn people days, hours or minutes before an earthquake appears to be futile. . . . While recent research suggests that some earthquakes may produce precursory signals involving shifts in the earth's crust, those signals are so small, faint and hidden from view that detecting them in any practical sense may be impossible." Some people are now calling for the government to take the funds away from earthquake research and use them on reducing the resulting hazards. Scientists, though, do agree that more knowledge of how the ground moves and how buildings react in earthquakes is needed.

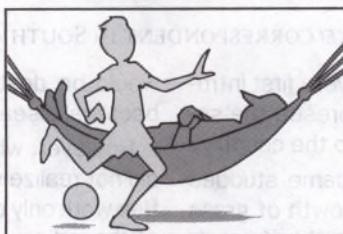
Surviving Immersion in Cold Water

Scientists investigating why people falling into icy water die so quickly have found that the body's natural response to cold shock is to hyperventilate. "The sudden intake of breath is followed by an influx of water—and drowning," says *New Scientist* magazine. Hyperventilation cannot be prevented. So survival depends on keeping the head above water until the response to gulp air subsides, usu-

ally within two or three minutes.

Sports and Longevity

Germans spend the equivalent of \$25 billion per year on sports, or over \$300 per person. This money is paid for "outfits, equipment, training, hiring sports grounds, and club fees," reports the *Nassauische Neue Presse*. More than three million people exercise at fitness studios, and millions more go jogging. Might sports enthusiasts therefore live longer or better than stay-at-homes? Not necessarily. The book *Physiologie des Menschen* (Human Physiology)



states: "To generalize that sports are the best medicine is definitely not correct." Why? Because more than 1.5 million Germans visit the doctor each year with sports-related injuries incurred during recreation on weekends and on vacations. The book advises that exercise and sports are good for health only "as long as the improvement in well-being is not impaired by accidents or chronic sporting injuries."

No Obligation to Tell the Truth

Recent U.S. court trials have caught worldwide public attention and astounded viewers. "While prosecutors have an obligation to present the truth, de-

fense lawyers operate in a different hall of mirrors," says *The New York Times*. "The job of a defense lawyer is to get the client an acquittal, a hung jury (by instilling reasonable doubt in the mind of even a single juror) or a conviction on the least serious charges." "They have no obligation to insure that a not-guilty verdict is correct," says Stephen Gillers, teacher of legal ethics at New York University law school. "We tell the jury that the trial is a search for truth, and we never tell them that defense lawyers are obligated to fool them." When "faced with facts that glaringly implicate the client, lawyers must often create stories for the jury to tell itself in order to look past those facts and vote for an acquittal," states the *Times*. What happens when lawyers know their client is guilty but the client still insists on taking his chances with the jury? "Then lawyers will go into court like Uriah Heep, full of false humility, and proclaim their deep belief in the integrity of their client's story while knowing it is 100 percent false," says Gillers.

New Values

Russian youths as well as Russian society as a whole are undergoing a crisis of values. A recent survey taken in St. Petersburg, Russia, found that the attitude of youths gives emphasis to "the values common to humanity—that is, health, life, family, and love as well as personal values, such as success, career, comfort, and material security," reports the Russian newspaper *Sankt-Peterburgskie Vedomosti*. Other dominating values center

on parents, money, welfare, happiness, friendship, and knowledge. Interestingly, having a good reputation and enjoying personal freedoms occupy two of the last places in the minds of youths. What is in last place? Honesty. The report concludes: "If lying is all around them, then in the minds of the growing generation [honesty] is valueless."

Unfruitful Decade

British churches declared this to be the "Decade of Evangelism." Now, halfway through, what has been accomplished? Says spokesman Michael Green in the *Church Times*: "We have hardly begun to shape the gospel to meet the questions ordinary people are raising. I see little sign of churches operating beyond their walls and getting out with the good news among the community. . . . We have scarcely begun to make any impact on unchurched modern youth, and that comprises about 86 per cent of all our young people in the country." Why the lack of success? "We persuade ourselves that our lifestyle will do it without a word being said. We are frightened of putting anyone off," says Green.

Bold Holdups

In Canada, 1 bank in 7 was raided by thieves in 1994—more raids per branch than in any other country. However, in Italy, where 1 in 13 bank branch offices was attacked, the robbers did seem to be more brazen than elsewhere. Few Italian bank thieves bothered to disguise themselves or even use weapons. Some simply threatened the bank tellers verbally and were given cash. A couple of robbers even resorted to

hypnotism, reports *The Economist*. Bank robbers in Italy are also very persistent: 165 bank branches were raided twice, 27 three times, and 9 four times during the course of the year. The average amount taken in a robbery in 1994? Sixty-one million lire (\$37,803, U.S.), the lowest figure since 1987.

Crocodile News

The recently unearthed fossilized jaws of an ancient crocodile "may represent the first known herbivorous member" of the crocodile family, reports *Nature* magazine. Instead of the long pointed teeth of the modern crocodile, so feared by humans



today, this ancient forebear had flattened teeth reportedly better suited to chewing grass. Indications are that this creature—discovered by Chinese and Canadian researchers in Hupeh Province in China on a hill near the southern bank of the Yangtze River—was also a land dweller, not an amphibian. Its size? It measured about three feet in length.

Increasing Stress

A recent study in Rio de Janeiro, Brazil, found that over 35 percent of people seeking medical attention were suffering from various forms of mental disturbance, reports *Veja*. The magazine asked Dr. Jorge Alberto Costa e Silva, mental-health

director for the World Health Organization (WHO): "How can these figures be explained? Did the world get worse or did people become psychologically weaker?" His response: "We live in a time of extremely fast changes, which end up causing anxiety and stress at levels never before seen in mankind's history." One common source of stress, he claims, is the prevalent violence in Rio de Janeiro. This often leads to posttraumatic stress, which, he explains, "affects people when they in one way or another have been in a life-endangering situation. During the day they manifest insecurity in relation to everything. At night they have nightmares in which the episode that put their lives in danger is relived."

Health Gap

The health gap is widening between rich and poor nations. The World Health Organization (WHO) estimates that the average life expectancy of people who live in developed countries and were born there is 76 years—compared with 54 years for those in less-developed countries. In 1950, infant mortality in poor countries was three times higher than it was in rich countries; now it is 15 times higher. By the late 1980's, in poor countries the death rate due to maternal complications was 100 times greater than in rich nations. Contributing to the problem, states WHO, is the fact that fewer than half the people living in poor countries have access to clean water and sanitation. According to the United Nations, the number of "least developed countries" increased from 27 in 1975 to 48 in 1995. Worldwide there are 1.3 billion poor people, and their number is increasing.

FROM OUR READERS

Sleep Thank you for the article "Why Your Body Needs Sleep." (June 8, 1995) I must say that it opened my eyes. As a medical student, I lose many valuable hours of sleep trying to keep up with my studies. I have suffered some of the effects mentioned in the article. I will try to develop better sleep patterns.

L. H., Trinidad

Grandparents I cried tears of joy when I read the series "Do You Appreciate Grandparents?" (July 8, 1995) I had been going through a hard time with my in-laws, so your article could not have come at a better time. It made me realize that I had not been treating them with the proper respect they deserve. I proceeded to make the necessary changes, and we are all happier.

A. T., Canada

When we had to put my father in a nursing home, we resolved to visit him three times a week. We've kept that promise for two years. Small everyday news from home is so important to him! It takes a firm resolve to keep this up, but grandchildren as well as grandparents benefit.

P. L., United States

As a Catholic, I was impressed by the fact that the articles did not focus on creed or religion but were impartial. You have boldly addressed a need that has practically been ignored.

A. B., Costa Rica

Family Tragedy I read with tears the article "Thank You for Bringing Me Home, Mom." (July 8, 1995) I too lost my husband in an accident in 1982. I was left crippled—with six children and a mother to take care of. Reading the article was like reading my own story. Jehovah gives us the courage to go on.

C. R., United States

This story really touched my heart. I am 16 years old, and I have always wondered how

I would cope if such problems ever arose. Todd's experience has helped me appreciate that Jehovah is always there for us as long as we rely on him.

N. F., Dominica

The story was told so well that I almost cried. The trials of the Boddy family made my little discouragements seem so unimportant. Although our situations are different, seeing how Jehovah sustained them has helped me to continue pressing on.

V. S., Philippines

My husband of 33 years, a faithful Witness who has served as an elder for many years, has Pick's disease—a long, heartbreaking illness that gradually takes its toll on the victim and his family. Mrs. Boddy's strength in spite of the loss of her husband, as well as her years of selfless, devoted care for her son, impressed me deeply. May Jehovah bless her and her sons.

E. N., United States

Bad Breath I have to thank you for your informative article "What Can You Do About Bad Breath?" (July 8, 1995) That was my problem! It is true that having bad breath makes you feel depressed. I visited the dentist twice, but still the odor persisted. I applied the suggestions in the article, and they are working. Please continue helping people around the globe.

R. O. I., Nigeria

Costa Rica The article "Costa Rica—Small Country, Abundant Variety" (July 8, 1995) arrived just a few days before my trip; I took it along for reference. It is indeed a land filled with wonder and excitement! Everywhere we went, people would smile and wave to us. Just imagine the new world when everyone *everywhere* will be as friendly!

T. N., United States

Protect Yourself From LIGHTNING!

BY AWAKE! CORRESPONDENT IN SWEDEN

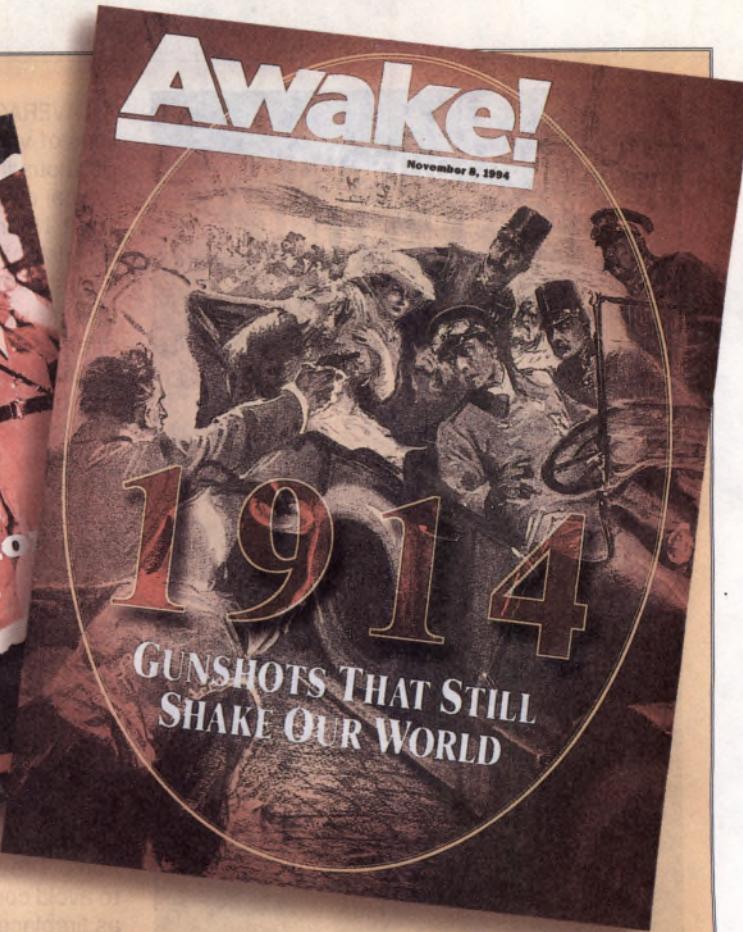
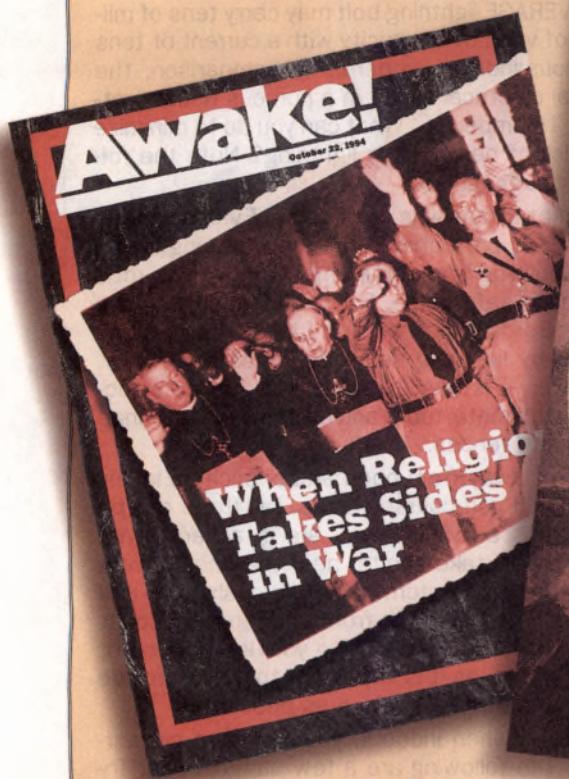


AN AVERAGE lightning bolt may carry tens of millions of volts of electricity with a current of tens of thousands of amperes. In comparison, the typical electrical circuit in a home is usually rated at 15 amperes.* What can you do to minimize the risk of being hit by lightning? Note the following suggestions.

- If at all possible, go indoors. Even a car can offer good protection. What about being inside a tall building? A tall building with lightning rods can be a safe place. For example, the Empire State Building in New York City survives being struck by lightning some 25 times each year. However, it is best to avoid ungrounded structures with metal roofs and places near antennae and metal fences.
- Get away from open areas, such as lakes, fields, and golf courses. Lone, tall trees can be dangerous as well. If you are in an area with many trees, take shelter near the ones lowest in height. If the storm is dangerously near and you cannot move away from an open area, squat down on the ground and hug your knees. Do not lie down flat, as it is important that you provide as small a striking surface as possible.
- Even when indoors, you can take precautions. The following are a few suggestions: Try to avoid contact with electrical conductors, such as fireplaces and metal plumbing. It may be wise to stay out of the shower or the bathtub, and also try not to use the phone. Unplug computers, televisions, and other appliances, since they could be damaged if the house is struck.
- If someone is struck by lightning, it is vital to administer cardiopulmonary resuscitation (CPR) at once. Professor Victor Scuka, who works at the High Voltage Research Department of the University of Uppsala, Sweden, says that in many cases victims have been resuscitated with CPR, even when they appeared to be dead. "But the treatment," he warns, "must be administered immediately to avoid brain damage."

If you are caught in a lightning storm, consider following the precautions just mentioned. Then you are unlikely to become a casualty of this awe-inspiring spectacle.

* An ampere is a unit of electrical flow, the rate of current being used. Volts indicate the force of the current. See *Awake!* of February 22, 1985, pages 26-7.



"They Have Been So Wonderful!"

"I have always enjoyed reading *The Watchtower* and *Awake!*, but in recent years they have been so wonderful that it is difficult to find the adjectives to describe them. I wanted to express my appreciation for the information presented in the October 22 and November 8, 1994, issues of *Awake!* under the titles "When Religion Takes Sides in War" and "Sarajevo—From 1914 to 1994." The Bosnia-Serbia-Croatia civil war is a complex and tragic situation but one that is very close to my heart as a Croatian. I particularly appreciated the way you traced the history of the conflict and its deep roots back to 1054. This illuminated the role of religion and its relentless efforts that have led to

more divisions and hatred among these national groups. Unfortunately, the world today can only see the worst in these inherently good people. Thank you again for making an incomprehensible situation understandable. [Signed] M. K."

Awake! has established a reputation for careful research and objective reporting. But it is also a magazine that gives hope for a peaceful future based on God's promise to bring the earth under his Kingdom rulership.

Right: Culver Pictures