

Awake!

April 8, 2001



Cities *Why in Crisis?*

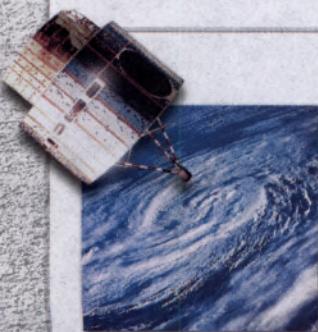
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Cities

Why in Crisis? 3-10

Cities are experiencing explosive growth. However, the strain of coping has thrown many major cities into a state of crisis.



The Art and Science of Weather Forecasting 12

Read about how meteorologists make their predictions.



Glorifying Peace Instead of War 22

Learn why an artist abandoned a successful career.

"Exploding Cities"	3
Cities—Why in Crisis?	4
What Future for Cities?	8
Crossword Puzzle	11
Where Camels and Brumbies Run Wild	16
The Bible's Viewpoint Are Dreams Messages From God?	20
A Closer Look at Your Hair	25
Watching the World	28
From Our Readers	30
Making Barren Land Fruitful	31
Does God Really Exist?	32



"EXPLODING CITIES"

"Humanity is on the move as never before, and most of those who leave home seeking a better life head for a city."

SO SAID the publication *Foreign Affairs* in the introduction to an article entitled "The Exploding Cities of the Developing World." According to that article, many people have been "lured by the bright lights, or driven from the countryside by political and economic turmoil, population pressures, and ecological breakdown."

Just how fast are cities growing? Some estimate that people are flocking to cities at the staggering rate of more than a million a week! In developing lands more than 200 cities now have populations that pass the million mark. Some 20 have reached the ten million mark! And no slowdown is in sight. Take, for example, the city of Lagos, Nigeria. According to a report by Worldwatch Institute, "by 2015, Lagos may be home to nearly 25 million people, rising in rank

from the world's thirteenth largest city to the third largest."

Many experts feel that this does not bode well for the future. Federico Mayor, former director general of the United Nations Educational, Scientific, and Cultural Organization, warns that by the year 2035, "three thousand million more people will be living in the urban settlements that exist today." To care for this staggering population, "we shall have to build a thousand cities of three million inhabitants in the next forty years, twenty-five a year."

Experts also say that rapidly expanding city populations are having a devastating effect on cities around the world. And that includes cities in the prosperous industrialized world. Just what problems are cities facing, and what impact may this have on you? Are any solutions in sight? The following articles explore these critical issues.

CITIES

Why in Crisis?

"Come on! Let us build ourselves a city and also a tower with its top in the heavens, . . . for fear we may be scattered over all the surface of the earth."—Genesis 11:4.

THESE words, spoken over 4,000 years ago, heralded the building of the great city of Babel.

Babel, later called Babylon, was located on the once fertile plains of Shinar in Mesopotamia. Contrary to popular opinion, though, it was not the first city of Bible record. Cities actually got their start before the Flood of Noah's day. The murderer Cain founded the first one on record. (Genesis 4:17) This city, called Enoch, was probably little more than a fortified settlement or village. Babel, on the other hand, was a great city—a prominent center of false worship that featured a spectacular religious tower. However, Babel and its infamous tower stood in utter defiance of God. (Genesis 9:7) So according to the Bible, God intervened and confused the language of the builders, putting an end to their ambitious religious scheme. God "scattered them from there over all the surface of the earth," says Genesis 11:5-9.

Not surprisingly, this led to the spread of

cities. After all, cities afforded protection from enemy attack. Cities provided locations where farmers could store and distribute their produce. The advent of the marketplace also allowed many city dwellers to pursue livelihoods other than farming. Says *The Rise of Cities*: "Once freed from the constraints of a hand-to-mouth existence, city dwellers could turn their hands to a plethora of specialized trades: basketry, potting, spinning, weaving, leather working, carpentry and stoneworking—whatever the market could hold."

Cities served as an efficient distribution center for such goods. Consider the Bible account of a severe famine in Egypt. The prime minister, Joseph, found it expedient to settle the people in cities. Why? Evidently because this made for a more efficient distribution of the remaining food supplies.—Genesis 47:21.

Cities also enhanced communication and interaction between people at a time when transport was slow and limited. This, in turn,

Awake!

Why Awake! Is Published *Awake!* is for the enlightenment of the entire family. It shows how to cope with today's problems. It reports the news, tells about people in many lands, examines religion and science. But it does more. It probes beneath the surface and points to the real meaning behind current events, yet it always stays politically neutral and does not exalt one race above another. Most important, this magazine builds confidence in the Creator's promise of a peaceful and secure new world that is about to replace the present wicked, lawless system of things.

Unless otherwise indicated, *New World Translation of the Holy Scriptures—With References* is used.

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accelerated the rate of social and cultural change. Cities became centers of innovation and promoted technological development. As new ideas flowed freely, innovation in scientific, religious, and philosophical thought emerged.

Unfulfilled Dreams

In modern times, cities continue to offer many of the same advantages. Little wonder, then, that they continue to attract millions—especially in lands where life in the rurals has become unbearably difficult. However, for many people who migrate to cities, the dreams of a better life go unfulfilled. The book *Vital Signs 1998* says: “According to a recent study by the Population Council, the quality of life in many urban centers of the developing world is poorer today than in rural areas.” Why is this so?

Henry G. Cisneros writes in *The Human Face of the Urban Environment*: “When poor people become concentrated in precisely defined geographic areas, their problems grow exponentially.... The increasing concentration of poor, mostly minority people has been accompanied by soaring unemployment, increased and prolonged wel-

fare dependency, profuse public health problems, and, most startling, rising crime.” The book *Mega-city Growth and the Future* similarly observes: “The massive inflow of people often leads to high levels of unemployment and underemployment because the market for labour may be unable to absorb the expanding number of job seekers.”

The growing number of street children is heartrending evidence of the deep poverty that exists in the cities of the developing world. According to some estimates, there are as many as 30 million street children worldwide! Says the book *Mega-city Growth and the Future*: “Poverty and other problems have eroded family ties so that the street children have been forced to fend for themselves.” Such children often eke out a miserable existence by scavenging, begging, or doing menial work at local markets.

“The massive inflow of people often leads to high levels of unemployment and underemployment”



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erecting iron fences to protect their property and privacy. In effect, they live in cages. Some even put up the railings before their house is finished.

Large populations also strain a city's ability to provide such basic services as water and sanitation. It is estimated that in one Asian city, 500,000 public toilets are needed. Yet, a recent survey indicated that only 200 working toilets could be found!

Not to be overlooked either is the devastating effect overpopulation often has on the local environment. Nearby farmlands disappear as city boundaries expand. Former United Nations Educational, Scientific, and Cultural Organization chief Federico Mayor says: "Cities consume enormous amounts of energy, exhaust water supplies, and devour food and materials. . . . Their physical environment is worn out because it can no longer provide the input or absorb the output."

Big-City Problems in Western Lands

The situation in Western lands may be somewhat less dire, yet an urban crisis still exists. For example, the book *The Crisis of America's Cities* says: "American cities today are marked by violence of extraordinary proportions. . . . The prevalence of violence in American cities is so severe that medical journals have begun devoting significant space to it as one of the major public health issues of our day." Of course, violence is a plague in many major cities throughout the world.

The deterioration of city life is one reason why many cities have become unattractive to employers. Says the book *The Human Face of the Urban Environment*: "Businesses have moved to the suburbs or overseas, shutting down plants, leaving behind 'brown fields'—empty buildings on contaminated lots, with toxic materials buried in the ground, totally unfit for development." As a result, many cities find poor people concentrated in areas "in which environmental problems are

too easily ignored—where sewerage systems break down; where water purification is inadequate; where vermin infest garbage-filled lots and invade dwellings; where little children eat lead paint from the walls in deteriorating apartment buildings . . . where no one seems to care." In such an environment, crime, violence, and despair flourish.

In addition, Western cities are having difficulty providing basic services. Back in 1981, authors Pat Choate and Susan Walter wrote a book with the dramatic title *America in Ruins—The Decaying Infrastructure*. In it they stated: "America's public facilities are wearing out faster than they are being replaced." The authors expressed great alarm over the number of rusting bridges, deteriorating roads, and crumbling sewerage systems in major cities.

Twenty years later, cities such as New York still have ailing infrastructures. An article in *New York Magazine* described the massive Third Water Tunnel project. It has gone on now for some 30 years and is called the single biggest infrastructure project in the Western Hemisphere. It involves an expenditure of some five billion dollars. When finished, the tunnel will deliver one billion gallons of fresh water a day to New York City. "But for all this prodigious digging," says the writer, "the tunnel is meant only to supplement the existing pipes, enabling them to be repaired for the first time since they were laid down in the beginning of the century." According to an article in *The New York Times*, repairing the rest of the city's crumbling infrastructure—its subways, its water mains, its roads, its bridges—will cost an estimated 90 billion dollars.

New York is hardly the only city that has difficulty providing needed services. Actually, a number of large cities have proved to be vulnerable to disruption from a wide range of causes. In February 1998, Auckland, New Zealand, was crippled for over two weeks by

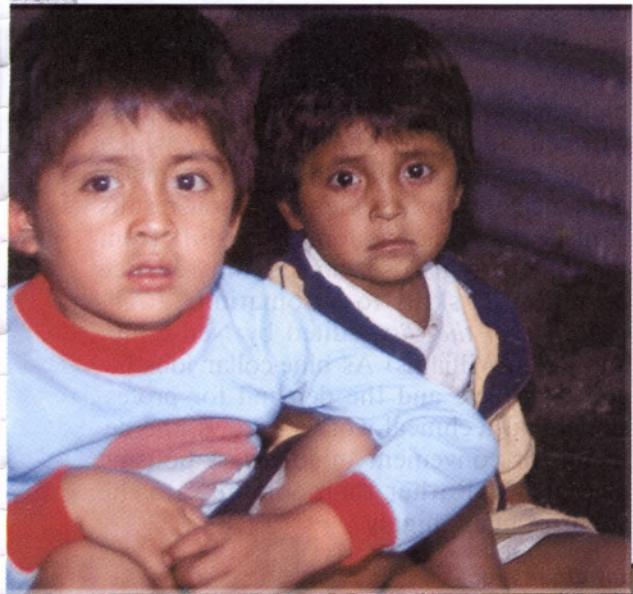
Traffic Jams plague many cities

a devastating power failure. Inhabitants of Melbourne, Australia, went without hot water for 13 days when gas supplies were shut off because of an industrial accident at a production plant.

Then there is the problem shared by virtually all cities—traffic jams. Architect Moshe Safdie says: "A fundamental con-



Millions of street children fend for themselves



flict—a misfit—exists between the scale of cities and the transportation systems that serve them. . . . Older cities have had to adapt their downtowns to traffic volumes unimagined at the time they were built." According to *The New York Times*, in cities such as Cairo, Bangkok, and São Paulo, traffic jams are "the rule."

In spite of all these problems, there seems to be no letup in the ongoing move to the cities. As an article in *The UNESCO Courier* put it, "rightly or wrongly, the city seems to offer progress and freedom, a vision of opportunity, an irresistible lure." But just what does the future hold for the big cities of the world? Are there any realistic solutions to their problems?

For many city dwellers, dreams of a better life go unfulfilled



What **FUTURE** for Cities?

TO LOOK at our cities is to see into our future." So said Ismail Serageldin of the World Bank. But from what we have seen thus far, that future does not look bright.

commendably, serious efforts are being made to improve life in many urban areas. New York City recently completed a refurbishment of Times Square in Manhattan. Previously, it was notorious for its pornography establishments, drug culture, and crime. New retail outlets and theaters now line the streets, luring visitors by the thousands. Naples, Italy, "a brilliant, cultivated city that once ranked with London and Paris," according to *National Geographic* magazine, suffered devastation during World War II. Naples became a virtual symbol of crime and chaos. However, when the city was selected as the site for a 1994 political conference, it enjoyed a rebirth of sorts with a major renovation of the city's center.

Of course, having safer, cleaner cities

comes at a price. Increased safety often means an increased police presence. Another cost might be privacy. Some public areas are under the constant surveillance of TV cameras and plainclothes police officers. As you walk through a park and pass by fountains, sculptures, or flower beds, you may unwittingly be passing by security checkpoints.

Sometimes improvements also come at a high cost to the poor. Consider what some call gentrification—the process by which higher-income families take over formerly poor neighborhoods. Gentrification results from a changing economy—a "shift from manufacturing to services, from reliance on mid-level skills to automation." (*Gentrification of the City*, edited by Neil Smith and Peter Williams) As blue-collar jobs become obsolete and the demand for professional and technical workers grows, the demand for convenient middle-class housing also grows. Rather than commute to the suburbs, many highly

Serious efforts are being made to improve life in many urban areas



SuperStock



paid professionals prefer to refurbish homes in relatively run-down neighborhoods.

Naturally, this results in substantial neighborhood improvement. But as neighborhoods improve, prices go up. The poor often find themselves unable to afford to live in the neighborhoods where they have worked and lived for years!

Death of the City?

Cities may have just begun to feel the forces of change spawned by new technologies. As the Internet grows in popularity as a way to shop and carry on business, this could have dramatic results. The new technologies have already made it easier for some businesses to relocate outside cities—drawing many workers with them.

As shopping and working on-line become mainstream, people may feel less inclined to travel to crowded business districts. The book *Cities in Civilization* suggests: "We might foresee some routine workers, especially part-time workers, working entirely from home or neighbourhood workstations, . . . thus reducing the overall volume of traffic." Architect Moshe Safdie likewise speculates: "In this new environment, we might have a universal scattering of millions of vil-

lages, giving individuals locally the comforts of

village-scale life and electronically the cultural richness of great historic cities."

What Future for Cities?

Many observers believe that technology notwithstanding, cities offer services and advantages that will continue to draw people. Whatever the future may hold, today's cities are in trouble *now!* And no solution is in sight for the massive problems of housing and sanitation for the growing millions of urban poor. Nor has anyone come close to finding a means to eliminate crime, environmental decay, or urban pollution.

Some would argue that governments should simply funnel more money into their cities. But given the track record that many governments have in managing their assets, is it realistic to think that solving the problems of cities is as simple as writing out a check? Decades ago the book *The Death and Life of Great American Cities* said: "There is a wistful myth that if only we had enough money to spend . . . , we could wipe out all our slums . . . But look what we have built with the first several billions: Low-income projects that become worse centers of delinquency, vandalism and general social hopelessness than the slums they were supposed to replace." These words continue to ring true.

But if money is not the solution, what is?

New York City,
U.S.A.



Sydney, Australia



We must remember that cities are made up of people, not just buildings and streets. So in the final analysis, it is people who must change if city life is to improve. "The best economy of a city is the care and culture of men," says Lewis Mumford in *The City in History*. And if drug abuse, prostitution, pollution, environmental decay, social inequality, vandalism, graffiti, and the like are to be eliminated, more is required than an increased police presence or a fresh coat of paint. People must be helped to make dramatic changes in their thinking and behavior.

A Change in Management

Effecting such sweeping change is clearly beyond the capability of humans. So attempts to solve the problems of today's cities—no matter how well-intentioned they are—will ultimately fail. Students of the Bible do not despair, however, for they see today's urban difficulties as just one more example of man's inability to manage our planet properly. Today's sprawling, chaotic

cities dramatically underscore the words of the Bible at Jeremiah 10:23: "To earthling man his way does not belong. It does not belong to man who is walking even to direct his step." Man's attempts to rule himself have resulted in misery on a grand scale—problems that are simply magnified in our cities.

City dwellers the world over can thus take comfort in the Bible promise recorded at Revelation 11:18, that God will "bring to ruin those ruining the earth." Far from being negative, this points to a positive future for mankind. It promises that God will take over the management of our planet by means of a government, or Kingdom. (Daniel 2:44) No longer will millions live in unimaginable poverty, deprived of proper housing and basic sanitation, deprived of dignity, or deprived of hope. Under the rule of God's government, people will enjoy material prosperity, vibrant health, and fine housing.—Isaiah 33:24; 65:21-23.

This new world is the only realistic solution to the problems of today's cities.

God's new world offers a solution to the problems of today's city dwellers



CROSSWORD PUZZLE

Clues Across

1. Where the Jewish high court assembled [2 words] (Acts 5:27)
8. A Benjamite whose 11 sons are listed among the headmen who resided in Jerusalem (1 Chronicles 8:22-25)
9. The period of time during which Jesus brings certain things in connection with God's purpose to a successful conclusion [2 words] (Revelation 1:10)
10. One of the three weapons that Goliath possessed when he came against David (1 Samuel 17:45)
12. Braced up (Judges 18:11)
14. The father of one of Solomon's 12 deputies, each of whom provided food for Solomon's household for one month of the year (1 Kings 4:7-9)
17. Possessing (Proverbs 1:17)
19. Repurchase (Psalm 49:7)
20. Hosea's wife (Hosea 1:3)
23. Four of these men discovered that the Syrians had fled (2 Kings 7:3-5)
24. What the Persian King Ahasuerus granted at the time of making Esther his queen (Esther 2:18)
25. Stay (Genesis 2:18)
26. Unlawful (Romans 13:13)
27. Relationship of Ruth to Naomi [3 words] (Ruth 2:22)

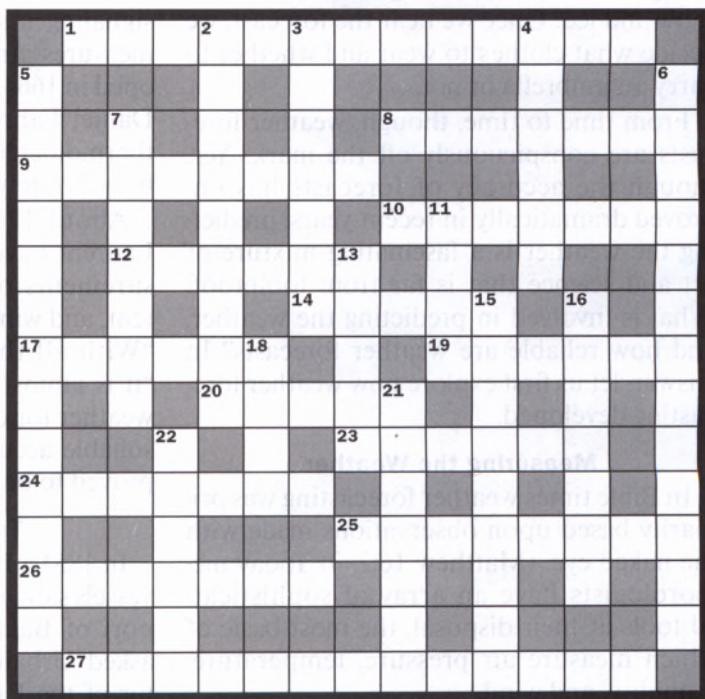
Clues Down

2. Jehovah directed Joshua to do this to the horses of Israel's enemies, thereby

safeguarding Israel from relying on war horses rather than on His protection (Joshua 11:6)

3. Hindered (1 Timothy 3:15)
4. When mild, it turns away rage (Proverbs 15:1)
5. This appears as part of the superscriptions of many psalms [3 words] (Psalm 3)
6. When Job used this expression, he evidently meant that he escaped with practically nothing [4 words] (Job 19:20)
7. Offspring (Job 18:19)
11. One of Benjamin's descendants (1 Chronicles 7:12)
13. His son Eliasaph served as the chieftain of the tribe of Gad while Israel was in the wilderness (Numbers 7:42)
15. A social gathering (Luke 5:29)
16. Explanatory statements (2 Samuel 14:14)
18. The Mosaic Law prohibited eating the fat of this sacrificed animal (Leviticus 7:23)
21. To get back (Acts 9:12)
22. One of the Levites who attested by seal to Nehemiah's "trustworthy arrangement" (Nehemiah 9:38; 10:13)

Crossword Solutions Page 27



THE ART AND SCIENCE OF WEATHER FORECASTING

BY · AWAKE! · WRITER · IN · BRITAIN

ON OCTOBER 15, 1987, A WOMAN CALLED A TV STATION IN BRITAIN AND REPORTED THAT SHE HAD HEARD THAT THERE WAS A STORM ON THE WAY. THE WEATHER FORECASTER REASSURINGLY TOLD HIS AUDIENCE: "DON'T WORRY. THERE ISN'T." THAT NIGHT, HOWEVER, SOUTHERN ENGLAND FELT THE FORCE OF A STORM THAT DESTROYED 15 MILLION TREES, CAUSED 19 DEATHS, AND LEFT A TRAIL OF DAMAGE COSTING OVER \$1.4 BILLION.

EACH morning, millions of us turn on our radios and televisions for the weather forecast. Do the cloudy skies mean rain? Will the early sunshine last? Will rising temperatures bring a thaw to melt snow and ice? Once we hear the forecast, we decide what clothes to wear and whether to carry an umbrella or not.

From time to time, though, weather forecasts are conspicuously off the mark. Yes, though the accuracy of forecasts has improved dramatically in recent years, predicting the weather is a fascinating mixture of art and science that is far from foolproof. What is involved in predicting the weather, and how reliable are weather forecasts? In answer, let us first explore how weather forecasting developed.

Measuring the Weather

In Bible times weather forecasting was primarily based upon observations made with the naked eye. (Matthew 16:2, 3) Today meteorologists have an array of sophisticated tools at their disposal, the most basic of which measure air pressure, temperature, humidity, and wind.

In 1643, Italian physicist Evangelista Torricelli invented the barometer—a simple device that measures air pressure. It was soon noted that air pressure rises and falls as the weather changes, a drop in pressure often signaling a storm. The hygrometer, which measures atmospheric humidity, was developed in 1664. And in 1714, German physicist Daniel Fahrenheit developed the mercury thermometer. Now the temperature could be accurately measured.

About 1765, French scientist Antoine-Laurent Lavoisier proposed that daily measurements of air pressure, moisture content, and wind speed and direction be made. "With all this information," he declared, "it is almost always possible to predict the weather for one or two days ahead with reasonable accuracy." Unfortunately, doing so proved to be anything but simple.

Tracking the Weather

In 1854 a French warship and 38 merchant vessels sank in a fierce storm off the Crimean port of Balaklava. The French authorities asked Urbain-Jean-Joseph Leverrier, director of the Paris Observatory, to investigate.

By checking meteorologic records, he discovered that the storm had formed two days before the disaster and had swept across Europe from the northwest to the southeast. Had a system of tracking the movements of storms been in place, the vessels could have been given advance warning. A national storm-warning service was thus established in France. Modern meteorology had been born.

NEEDED, though, was a quick way for scientists to receive weather data from other locations. And Samuel Morse's recently invented electric telegraph was just the means to do so. This made it possible for the Paris Observatory to begin publishing the first weather maps

in modern format in 1863. By 1872, Britain's Meteorological Office was doing the same.

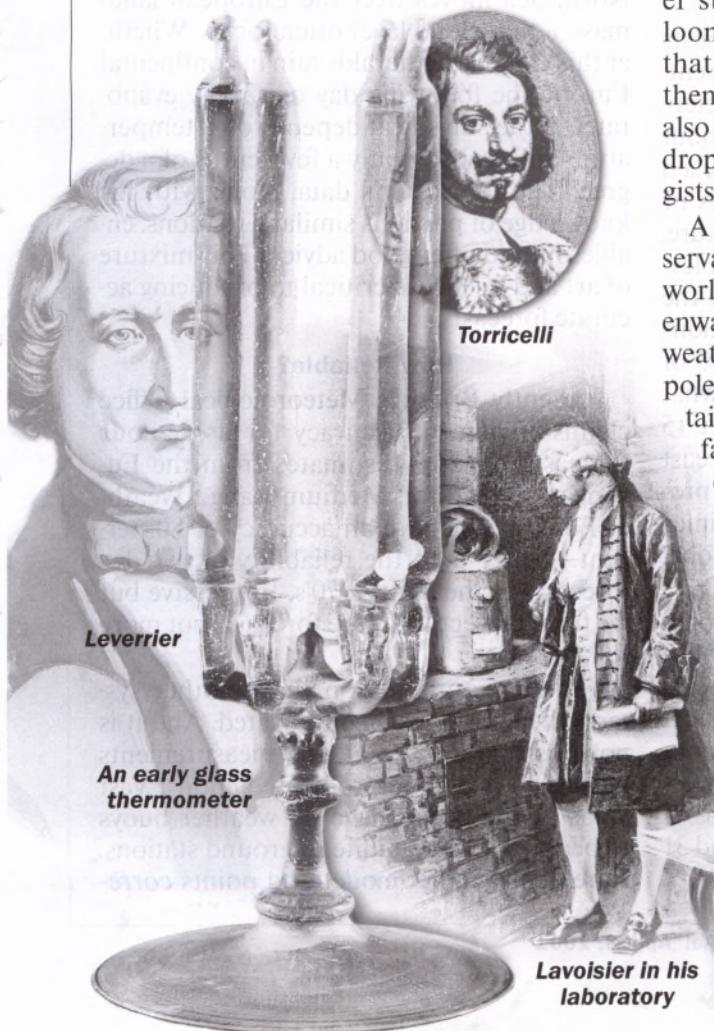
The more that meteorologists acquired data, the more they became aware of the enormous complexity of the weather. New graphic devices were thus developed so that weather maps could convey additional information. Isobars, for example, are lines drawn to link points that have the same barometric pressure. Isotherms connect locations that have the same temperature. Weather maps also use symbols that show wind direction and force, along with lines that depict the meeting of warm and cold air masses.

Sophisticated equipment has also been developed. Nowadays hundreds of weather stations around the world release balloons carrying radiosondes— instruments that measure atmospheric conditions and then radio the information back. Radar is also used. By bouncing radio waves off raindrops and ice particles in clouds, meteorologists can track the movement of storms.

A leap forward in accurate weather observation came in 1960 when TIROS I, the world's first weather satellite, rocketed heavenward equipped with a TV camera. Now weather satellites orbit the earth from pole to pole, whereas geostationary satellites maintain a fixed position above the earth's surface and continuously monitor the part of the globe in their field of view. Both types beam down pictures of the weather, which they view from above.

Forecasting the Weather

While it is one thing to know exactly what the weather is right now, it is quite a different matter to predict what it will be in an hour, a day, or a week. Shortly after World War I, British meteorologist Lewis Richardson reckoned that since the atmosphere follows the laws of physics, he could use mathematics to predict



Pictures of Leverrier, Lavoisier, and Torricelli: Brown Brothers
Thermometer: © G. Tomsich, Science Source/Photo Researchers

the weather. But the formulas were so complicated and the number-crunching process so time-consuming that weather fronts were gone before forecasters could complete their calculations. Besides, Richardson used weather readings taken at six-hour intervals. "An only marginally successful forecast requires that measurements be taken at intervals of thirty minutes at the most," observes French meteorologist René Chaboud.

With the advent of computers, however, it became possible to perform the lengthy calculations speedily. Meteorologists used Richardson's calculations to develop a complex numerical model—a series of mathematical equations that encompass all the known physical laws governing the weather.

To employ these equations, meteorologists divide the earth's surface into a grid. Currently, the global model used by Britain's Meteorological Office has grid points spaced about 50 miles apart. The atmosphere above each square is called a box, and observations of atmospheric wind, air pressure, temperature, and humidity are recorded at 20 different levels of altitude. The computer analyzes the data received from the observation stations throughout the world—more than 3,500 of them—and then produces a forecast of what the world's weather will be for the next 15 minutes. Once this has been done, a forecast of the following 15 minutes is rapidly produced. Repeating this process many times over, a computer can make a six-day global forecast in a mere 15 minutes.

For greater detail and accuracy in local forecasting, the British Meteorological Office employs the Limited Area Model, covering the North Atlantic and European sectors. It uses grid points spaced at intervals of about 30 miles. There is also a model that covers only the British Isles and surrounding seas. It has 262,384 grid points ten miles apart and 31 vertical levels!

The Forecaster's Role

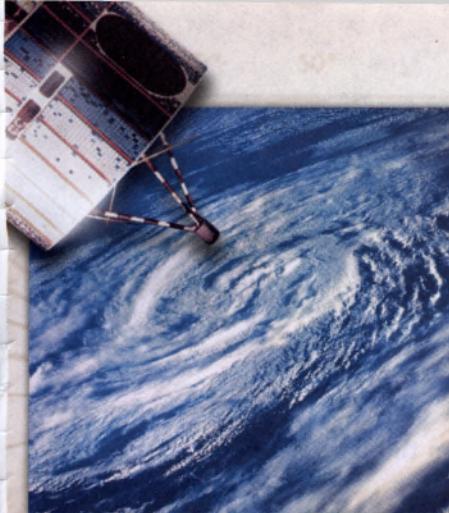
Predicting the weather, however, is not all hard science. As *The World Book Encyclopedia* puts it, "the formulas used by the computers are only approximate descriptions of the behavior of the atmosphere." Furthermore, even an accurate forecast for a large area may not take into account the effect of local terrain on the weather. So some degree of art is also necessary. Here is where a weather forecaster comes in. He uses his experience and judgment to determine what value to place on the data he receives. This allows him to make a more accurate forecast.

For example, when air cooled by the North Sea moves over the European landmass, a thin cloud layer often forms. Whether this cloud layer heralds rain in continental Europe the following day or simply evaporates in the sun's heat depends on a temperature difference of only a few tenths of a degree. The forecaster's data, along with his knowledge of previous similar situations, enables him to offer good advice. This mixture of art and science is critical to producing accurate forecasts.

How Reliable?

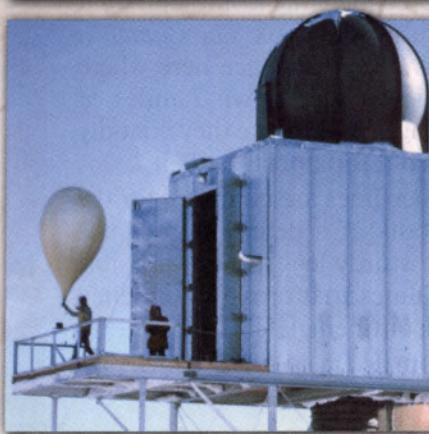
Presently Britain's Meteorological Office claims 86-percent accuracy for its 24-hour forecasts. Five-day estimates from the European Centre for Medium-Range Weather Forecasts achieve an accuracy of 80 percent—better than the reliability of two-day forecasts in the early 1970's. Impressive but far from perfect. Why are forecasts not more reliable?

For the simple reason that weather systems are enormously complicated. And it is not possible to take all the measurements needed to make foolproof predictions. Vast areas of the ocean have no weather buoys to beam data via satellite to ground stations. Rarely do weather-model grid points corre-



Pages 2 and 15; Satellite: NOAA/Department of Commerce;
Hurricane: NASA photo

Commander John Bonniak, NOAA Corps



spond exactly to the location of weather observatories. Besides, scientists still do not understand all the forces of nature that shape our weather.

But improvements are constantly being made in weather forecasting. For example, until recently, forecasting the weather depended mainly on observation of the atmosphere. But with 71 percent of the globe's surface covered by ocean, researchers are now focusing attention on the way energy is stored and transferred from the ocean to the air. Through a system of buoys, the Global Ocean Observing System provides information about slight rises in water temperature in one region that can have dramatic consequences on the weather far away.*

The patriarch Job was asked: "Who can understand the cloud layers, the crashings from [God's] booth?" (Job 36:29) Today man still knows relatively little about the shaping of our weather. Nevertheless, modern weather forecasting is accurate enough to be taken seriously. In other words, the next time the forecaster tells you that rain is likely, you'll probably want to grab an umbrella!

* El Niño and La Niña are the names given to climate phenomena provoked by variations in the temperature of the Pacific Ocean. Please see the article "What Is El Niño?" in the March 22, 2000, issue of *Awake!*



570
76
**Satellites,
weather balloons,
and computers are
some of the tools of
weather forecasters**



Where Camels and Brumbies RUN WILD

BY AWAKE! WRITER IN AUSTRALIA

OUTBACK Australia—what images come to your mind when you hear of this place? A land filled with bouncing kangaroos and flightless emus, dusty red deserts and blistering hot days? To some extent you are right—but it is also a land of surprises.

Did you know that Australia hosts the last untamed camel herds left on earth, the largest mob of wild horses in the world, and a plague of donkeys unparalleled on the planet? The arrival and survival of these hardy animals is a little-known story of resilience and conflict and is a living reminder of times gone by.

Built on the Camel's Back

For the past four decades, some outback cattlemen have echoed the complaint that a cowboy made in the book *The Camel in Australia*: “I have seen evidence here where 5 camels practically tore down 7 miles of boundary fencing . . . One place they not only broke the wires but took posts and all.”

Expensive fence lines are no match for the long legs and bulk of a determined camel. Yet, these same sturdy legs made it possible to build the lifelines that cross the parched interior of this continent.

Imported from India in 1860, camels ac-

Some 200,000 camels roam free in Australia's deserts



Agriculture Western Australia

accompanied explorers Burke and Wills on their epic crossing of Australia from south to north. The exotic creatures became the preferred companions of early adventurers because of their superior strength and stamina. Amazingly fuel-efficient, they carried 700-pound loads for 500 miles on just four gallons of water.

Wonderfully reliable, camels helped in hauling food and equipment to the frontier gold towns, in building the overland telegraph line from Adelaide to Darwin, and in surveying the Trans-Australian Railway connecting Sydney and Perth. Over an area of one and a half million square miles, they blazed a trail that modern machines still find hard to follow.

The domestic camel count peaked at 22,000 by 1922, but as the automobile took over, many camels were turned loose. Free

to roam and reproduce, reportedly more than 200,000 now call the Australian deserts home, and some people estimate that the population will double within six years.

Not all these camels are left to run wild though. A spokesman for the Central Australian Camel Association told *Awake!*: "Australia has the only disease-free camel herds in the world, and so each year a small number are exported to zoos and parks in the United States and Asia." Local tour operators also offer visitors a chance to mount a camel's back and rediscover Australia's wild interior—an interior shared by other liberated beasts of burden.

What Is a Brumby?

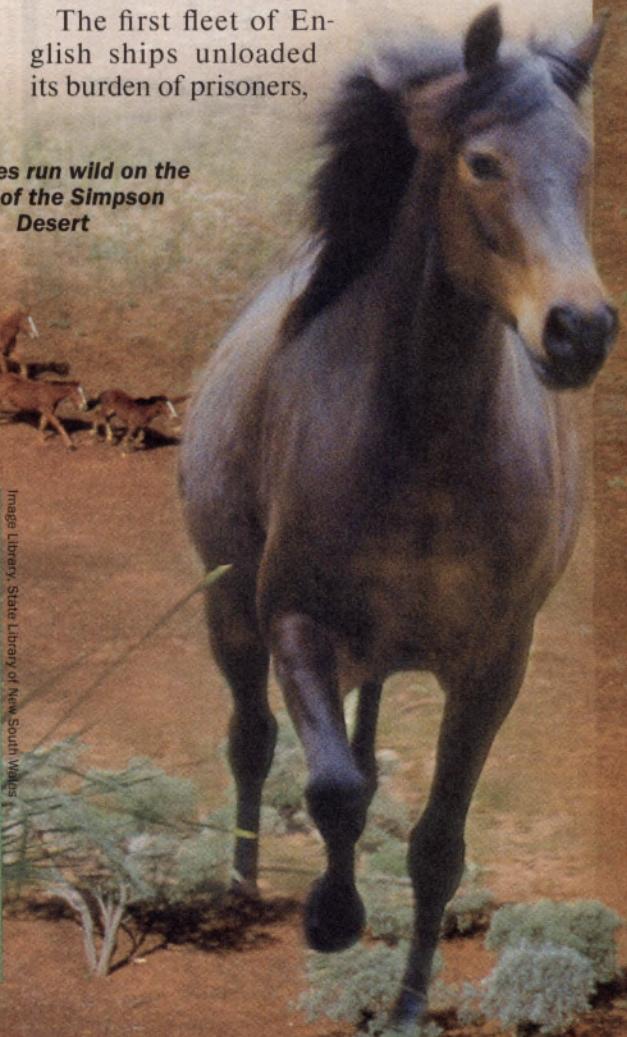
The first fleet of English ships unloaded its burden of prisoners,

Brumbies run wild on the edge of the Simpson Desert

A camel train hauling wool, 1929



Image Library, State Library of New South Wales





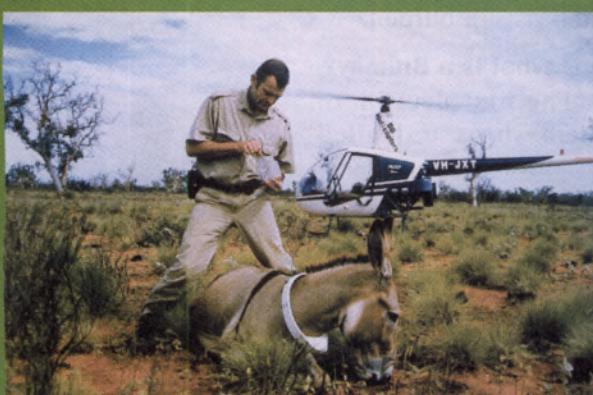
A brumby roundup—outback style

© Esther Beaton
soldiers, and horses on Australian shores in 1788. The history of the horse in this country, like that of its human companions, is both romantic and tragic.

Vital in the quest to tame the new frontier, horses carried early pioneers to the four corners of the continent. Strays and runaways soon established feral, or wild, herds, and these horses became known as brumbies. The word "brumby" may have come from the Queensland Aboriginal word *baroomby*, meaning "wild."

The wild, free spirit of the brumby fired the imagination of poets like A. B. (Banjo) Paterson, and his ballad "The Man From Snowy River" secured the brumby's place in the hearts of many Australians. The brumby's ranks gained in number after World War I when demand for the Waler—a horse bred specifically for the Australian Light Horse Brigade and used by the Indian army—declined and the mounts were set free. Now an estimated 300,000 feral horses roam the continent.

As they roam, their hooves pound the fragile topsoil like a blacksmith's hammer and tear at the banks of watering holes. When drought strikes, they starve or die of thirst. In a land already straining under the



▼ Agriculture Western Australia

Fitting a radio transmitter to a Judas donkey



weight of its cattle herds, these brumbies have become an intolerable burden. Thus, thousands are culled each year. Some are processed for human consumption; others, sold as pet food.

For sheer weight of numbers, though, it is the brumby's cousin, the donkey, that has truly run wild. More prolific than the feral horse and distributed over a wider area than the camel, it has become a victim of its own success.

The Judas Solution

Like the horse, donkeys were first imported in the late 1700's to pull loads or plow fields, and they quickly made themselves at home. They were released into the wild en masse during the 1920's, and their population densities reached 30 times that of natural herds of wild asses.

Designed for desert life, donkeys, like the camel, inhibit perspiration when dehydrated and survive water loss equal to 30 percent of their body weight. (A loss of 12 to 15 percent would kill many other mammals.) They prefer to dine on lush pasture but are able to thrive on coarse plants that cattle will not touch. By the 1970's, more than 750,000 donkeys swept across half the continent. This swelling tide became a threat to the ecology and the cattle industry; action had to be taken.

Systematically culled from 1978 to 1993, over 500,000 donkeys were destroyed in northwestern Australia alone. Currently 300

donkeys are fitted with radio transmitters in what is called the Judas program. Released to join their herd, these donkeys are tracked by helicopter, and their companions are hu-

manely culled. As the Judas donkey befriends another group, these too are located and liquidated.

"This is a long-term problem," an agricultural protection officer in Western Australia told *Awake!* "If small seed populations are left, then within a very short time, donkey numbers will be back to where they were in the 1970's," he warned. "People often don't understand why these animals are culled and left where they fall. But people don't realize just how inaccessible these areas are. There are no roads out here, and most of the area can be reached only by helicopter. It is human intervention that caused the problem, so we have to try to limit the damage as humanely as possible."

Tough and Prolific

You could now be forgiven for imagining that the center of Australia is a giant traffic jam of unwanted pack animals. But Australia's backyard is very large. These animals roam over an area the size of Europe and nearly as remote as the moon—with terrain that is similar to both places. Just tracking the herds is a challenge, let alone controlling them.

Unlike many endangered native species, these tough and prolific animals are carving out a permanent niche in the landscape. Free from natural predators and isolated from disease, they run wild in outback Australia!

IN OUR NEXT ISSUE

**Religion in Russia
—What Is Its Future?**

**Why Should I Get to Know
My Grandparents?**

**Though Deaf and Blind,
I Found Security**

Are Dreams Messages From God?

REPORTEDLY, inventor Elias Howe's idea for the design of the sewing machine was based on a dream. The composer Mozart said that many of the themes for his music came to him in dreams. The chemist Friedrich August Kekule von Stradonitz likewise claimed to have discovered the shape of the benzene molecule in a dream. Such occurrences are hardly unique. Throughout history many cultures have attributed dreams to the supernatural. Some believe that the dreaming and waking worlds are equally real.

The Bible contains several accounts in which dreams are described as an important source of information—a form of divine communication. (Judges 7:13, 14; 1 Kings 3:5) For example, God communicated with Abraham, Jacob, and Joseph in dreams. (Genesis 28:10-19; 31:10-13; 37:5-11) Babylonian King Nebuchadnezzar received prophetic dreams from God. (Daniel 2:1, 28-45) So might there be good reason to be-

lieve that even today some dreams are messages from God?

Dreams From God

In the Bible, God-inspired dreams were always induced for a specific reason. True, at times the dreamer could not immediately understand the meaning of the dream. In many cases, however, the "Revealer of secrets" himself provided the explanation so that there would be no doubt as to the meaning of the dream. (Daniel 2:28, 29; Amos 3:7) Dreams from God did not have the vague illogic that often characterizes normal dreams.

At times, dreams were used by God to protect key individuals in the outworking of his purpose. The recipients of such dreams were not necessarily servants of God. For example, the astrologers who visited the young child Jesus did not return to see murderous Herod as he had requested. Why? They received a warning in a dream.

(Matthew 2:7-12) This gave Jesus' adoptive father, Joseph, enough time to flee to Egypt with his family, in response to the direction that he too had received in a dream. This saved the life of young Jesus.—Matthew 2:13-15.

Centuries earlier, an Egyptian pharaoh had dreams of seven healthy ears of grain and seven fat-fleshed cows contrasted with seven sickly ears of grain and seven emaciated cows. Joseph, with divine help, interpreted the dreams correctly: Egypt would enjoy seven years of abundance followed by seven years of famine. Knowing this in advance allowed the Egyptians to prepare and stockpile food. This proved instrumental in preserving the descendants of Abraham and in bringing them to Egypt.—Genesis, chapter 41; 45:5-8.

King Nebuchadnezzar of Babylon likewise had a dream. It foretold the rise and fall of the future world powers that would have a direct impact on God's people. (Daniel 2:31-43) Later, he had another dream that predicted his personal fall into madness and subsequent recovery. This prophetic dream had a larger fulfillment, pinpointing the establishment of the Messianic Kingdom, through which God would accomplish his will.—Daniel 4:10-37.

What About Today?

Yes, God did communicate with some people through dreams. But the Bible indicates that this was quite rare. Dreams were never the principal form of divine communication. There were many faithful servants of God who never received messages from God in dreams. God's use of dreams to communicate with man can be compared to His parting of the Red Sea. We know that he did it once, but that is certainly not his usual way of dealing with his people.—Exodus 14:21.

The apostle Paul acknowledged that in his day God's spirit was operating on his servants in many extraordinary ways. Paul said: "To one there is given through the spirit speech of wisdom, to another speech of knowledge according to the same spirit, to another faith by the same spirit, to another gifts of healings by that one spirit, to yet another operations of powerful works, to another prophesying, to another discernment of inspired utterances, to another different tongues, and to another interpretation of tongues." (1 Corinthians 12:8-10) Although divinely inspired dreams are not specifically mentioned, a number of Christians evidently received divinely inspired dreams as one of the gifts of the spirit in fulfillment of Joel 2:28.—Acts 16:9, 10.

However, the apostle said regarding these special gifts: "Whether there are gifts of prophesying, they will be done away with; whether there are tongues, they will cease; whether there is knowledge, it will be done away with." (1 Corinthians 13:8) Evidently included among the gifts that would be "done away with" were the various forms of divine communication. After the death of the apostles, God ceased to impart these special gifts to his servants.

Today experts are still trying to understand the process of dreaming and whether it has a practical function. The Bible sheds no light on such issues. However, to those who insist on seeking divine communications in their dreams, the Bible does provide a warning. At Zechariah 10:2, it states: "The practitioners of divination, . . . valueless dreams are what they keep speaking." God also warns against looking for omens. (Deuteronomy 18:10-12) In light of these warnings, Christians today do not expect to receive divine guidance in their dreams. Rather, they view dreams simply as something experienced during sleep.

Glorifying PEACE Instead of War

AS TOLD BY DOROTHY HORLE

In 1919, I was born into an Italian Catholic family in Wilmington, Delaware, U.S.A. My parents never attended church services, but they did send my two sisters and me. I was impressed by imposing churches with their splendid architecture, statues, and pomp.

AS THE years went by, I lost interest in Catholicism. The church put no emphasis on the Bible, which my father revered and read regularly. I was troubled by church bulletins naming donors and the amounts that they contributed. There were also many rumors about wayward priests. By age 15, I was no longer a practicing Catholic. This gave me more time to pursue training in art.

A Career in Art

In 1940, when I was 21 years old, I married William Horle, a young man who enjoyed drawing anything related to the military—airplanes, soldiers, guns, ships. Bill was pleased that I was an artist, and he bought me my first set of oil paints. I began to learn the techniques of the old masters.

After about two years of marriage, Bill

With General L. C. Shepherd, Jr., in 1954

Defense Dept. photo (Marine Corps)



took up the hobby of creating military miniatures out of lead. Toy soldiers? By no means! He desired to produce genuine works of art. Other craftsmen worked in plastic, wood, or plaster, but lead fit in nicely with Bill's training as a machinist.

He would design a figure, construct a mold, and then cast the figure in lead. In time, he became quite skillful in assembling cast parts, soldering, filing, and polishing. He later shifted from plaster-of-Paris molds to molds made of dental compound. That allowed him to work in finer detail.

After each solid metal piece was finished, it was my job to complete it. Through exhaustive research, we found descriptions of old military uniforms—down to the buttons, braiding, rank badges, and colors.

With the help of magnification, I would apply oils and paints formulated to adhere to metal. This helped bring our figurines to life. Out of our small cellar in Philadelphia, Pennsylvania, we created American Indians, Civil War soldiers, U.S. Marines, Napoleonic horses and riders, Egyptian Mamluks, Algerian Zouaves, and others.

Then Bill received an invitation from the U.S. Marine Corps to create a representation of the first horse-mounted marine detachment in Peking (now Beijing), China, prior to 1939. We worked unceasingly on it, and in 1954 we presented it to the Smith-

sonian Institution in Washington, D.C. Some years later, President Lyndon Johnson asked if it could be moved to the White House. Of course, we consented.

We never sold our figurines, but Bill gave away hundreds. We were favorably mentioned in many books on model soldiers. Our work was displayed at the World's Fair in 1965 at Flushing Meadow, in Queens, New York. Museums asked for our models. Bruce Catton, a U.S. Civil War historian, used several of our dioramas and figurines to illustrate his books.

Questions About Life Grew

About the time I turned 40, though, things began to change for me. I began to wonder about God. On a Christmas Day, five Catholic children burned to death in a house fire while their parents were in church. I pondered, 'How could God allow that to happen on his birthday?' I saw a book that recounted the atrocities of the Jewish Holocaust. These and other terrible events in the world prompted me to ask, 'Where is God? He isn't doing what he is supposed to do!'

From my father's early example, I felt that the answer must be in the Bible. So I went to the Catholic rectory near our home in Philadelphia and made an appointment with a priest to discuss the Bible.

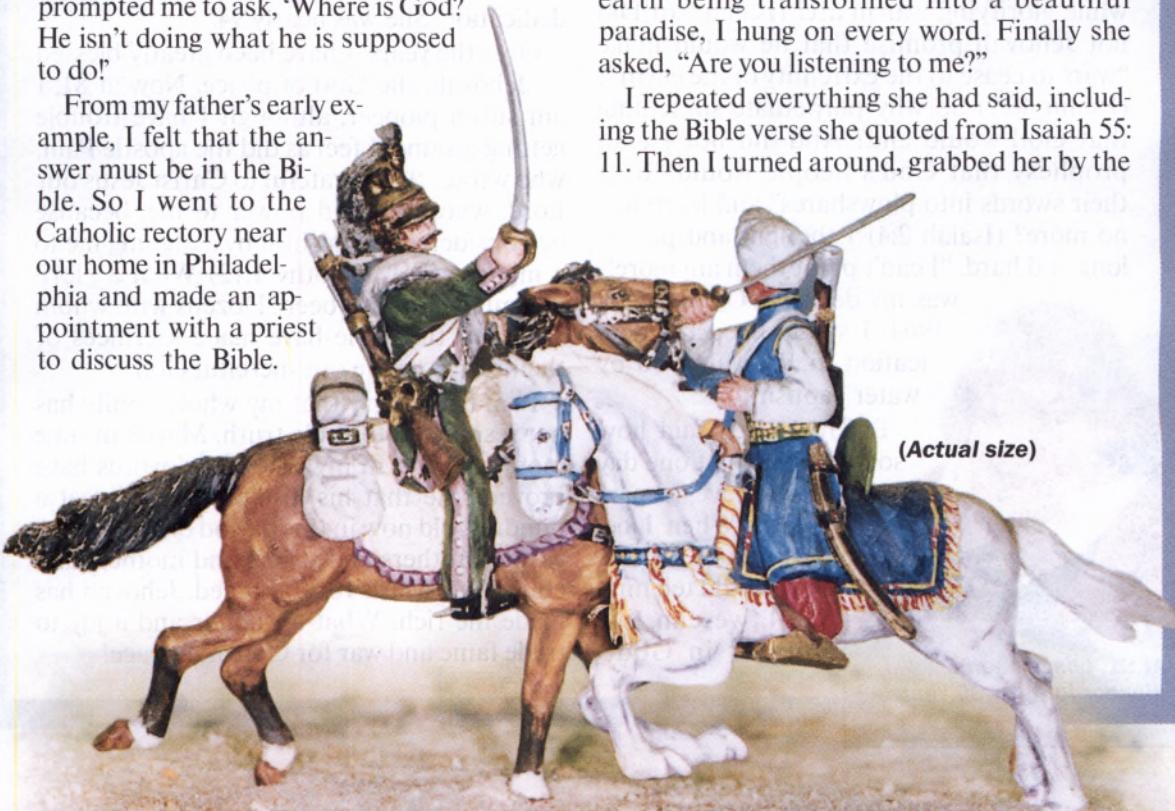
I waited and waited, but he did not appear. Every week for four weeks, I made that trip to the rectory but never had one discussion with the priest.

One evening, in sad desperation, I looked up to the heavens and prayed: "I don't know who you are. I don't know which religion you're associated with, but I know you're there. Please let me know you!" A short time later, Jehovah's Witnesses came to my door.

Occasionally, I had seen the Witnesses parking their cars, climbing out, and going to different doors. Although I knew nothing about them or why they called, I had been intrigued by their mission.

That day in 1961 when the Witnesses called, I was depressed because I wasn't getting anywhere in my search for God. As I scrubbed the front door of my house, a middle-aged woman by the name of Marge Brion climbed the porch steps and greeted me. I never turned around to acknowledge her presence. But as she spoke about the earth being transformed into a beautiful paradise, I hung on every word. Finally she asked, "Are you listening to me?"

I repeated everything she had said, including the Bible verse she quoted from Isaiah 55: 11. Then I turned around, grabbed her by the



(Actual size)

arm, and said, "Come on in!" She gave me my first Bible and the Bible study aid *From Paradise Lost to Paradise Regained*. She also offered me a regular Bible discussion—the very kind of study I had hoped that the Catholic Church would give me.

With two sessions a week, I made rapid progress in my study of the Bible. In a short time, it was clear that I had found the truth. Learning the name of God, Jehovah, was a very emotional experience for me. (Psalm 83:18) Imagine—this was the God I had longed to know from childhood! I also learned that his Son, Jesus Christ, is not a mystical part of a triune godhead. (John 14:28) Before long, I was attending Christian meetings of Jehovah's Witnesses and longing to be a full-time proclaimer of the Bible's message.

Making Important Choices

Now my biggest test was before me. Would I break up the artistic team of William and Dorothy Horle? How could I serve the God of peace and his Son, the Prince of Peace, while glorifying war in art? (Isaiah 9:6) Did not Jehovah promise that he would make "wars to cease to the extremity of the earth"? (Psalm 46:9) So why perpetuate something that God would end? And did not Isaiah prophesy that God's people would "beat their swords into plowshares" and learn war no more? (Isaiah 2:4) I thought and prayed long and hard. "I can't paint them anymore!"

was my decision. On April 25, 1964, I symbolized my dedication to Jehovah God by water baptism.

Bill had often said how sorry he was that one day we would have to part in death. When I began to study the Bible, I would tell him: "Bill, we can live forever in God's

new world!" (Isaiah 25:8; Revelation 21:4, 5) He thought that I was crazy. When I explained why I could no longer in good conscience paint military figurines, he became angry and threatened to leave me. Later he did.

Bill produced military figurines by himself for many years. But he didn't move far away, and he was always supportive of me and our son, Craig, who had been born in 1942. In 1988, Bill returned, and we remained together for ten years until his death.

In the meantime, in 1966, I realized my goal of becoming a pioneer. Since then, I have never looked back. I had the privilege of studying the Bible with my older sister. She accepted its teachings, and she remains an active Witness to this day. My father listened to the Bible's message and within two weeks began attending meetings at the Kingdom Hall. At 75 years of age, he was baptized, and he continued faithful to God until his death at 81. My mother also accepted Jehovah as her God, although she died before making her dedication. She was nearly 94.

Over the years, I have been greatly blessed by Jehovah, the God of peace. Now at 81, I am still a pioneer, although I have trouble getting around. I feel as did the apostle Paul, who wrote: "I am grateful to Christ Jesus our Lord, who imparted power to me, because he considered me faithful by assigning me to a ministry." (1 Timothy 1:12) What a glorious ministry it has been! Dozens with whom I studied the Bible have made sacrifices of their own to serve our merciful God.

I am truly sorry that my whole family has not responded to Bible truth. Maybe in time more will. But in my case Jesus' words have proved true that his disciples would "get a hundredfold now in this period of time, houses and brothers and sisters and mothers and children." (Mark 10:30) Indeed, Jehovah has made me rich. What an honor and a joy to trade fame and war for God and peace!



At 81, I have been a pioneer for over 30 years



A CLOSER LOOK AT YOUR HAIR

TN EVERY age and culture," notes one reference work, "hair expresses some part of the person beneath it." Small wonder, then, that most people are keenly interested in keeping their hair healthy and attractive.

Awake! asked four experienced hairstylists some common questions about the composition and care of the hair. As it turns out, there is more to your hair than meets the eye.

Hair Growth and Hair Loss

Q: *What is hair made of?*

A: Hair contains keratin, a fibrous protein. Each hair grows out of an indentation in the scalp called a follicle. At the bottom of each follicle is the papilla, which contains a rich blood supply. The papilla produces hair cells that progress up the follicle and harden into hair.

Q: *It is widely believed that hair grows faster when cut. Is this true?*

A: No. Some people imagine that hair is fed by the body in the same way the limbs of a tree are nourished by the trunk. But once hair grows out of the scalp, it is a dead substance. Trimming the hair, therefore, does not affect its growth.



- **Eating nutritious meals and drinking plenty of water may help cure a dry scalp**



Q: Why does hair turn gray?

A: The inner layer of the hair contains a pigment that gives hair its color. As the pigment cells die, the hair turns gray; it's part of the aging process. Premature graying might be caused by genetics or illness. It is a myth, however, that hair will turn gray overnight. Pigment is deposited below the scalp. So time is required for the gray hair to grow (about one half inch a month) and appear on the surface of the head.



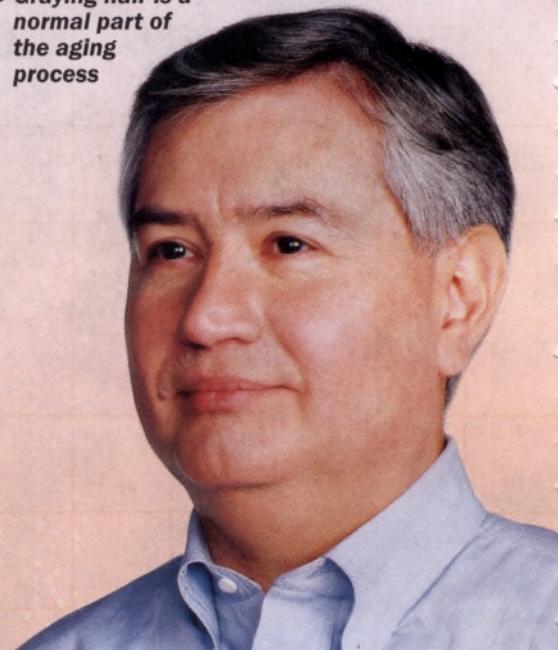
- **Shampooing too often can rob your scalp of protective oils**

Q: What are the reasons for hair loss?

A: Hair loss is part of the natural cycle of hair. On average, everyone sheds an estimated 50 to 80 hairs daily. But male pattern baldness has a hereditary basis and seems to be caused by a hormonal imbalance, resulting in permanent hair loss. Abnormal loss of hair is called alopecia.*

* For more information, see the article "Alopecia—Living in Silence With Hair Loss," in the April 22, 1991, issue of *Awake!*

- **Graying hair is a normal part of the aging process**



Q: Some say that hair is a mirror of a person's health. Have you observed this?

A: Yes. Below the scalp, blood feeds the hair. So healthy hair may reflect a well-nourished blood supply. However, a person who eats poorly or overindulges in alcoholic beverages may find that his hair becomes limp and weak, since his blood supply cannot properly nourish his hair. Hair loss or weak hair can even be an early sign of illness or pregnancy.

Keeping Your Scalp and Hair Healthy

Q: Describe how to shampoo the hair and scalp.

A: Experience has shown that the majority of people with dry scalp problems shampoo their scalp too often. Of course, the oil in your hair attracts dirt and skin debris and can plug the oil ducts leading to the follicles. So regular shampooing is necessary. But these natural oils also protect your skin against harmful bacteria and seal in needed moisture. By shampooing too often, you are robbing your scalp of this protective layer and creating problems like dry scalp. Most experts recommend shampooing whenever one's scalp or hair is soiled. People with oily hair should shampoo more often than those with normal or dry hair.

When shampooing, massage your scalp. This rids the scalp of dead cells and promotes proper circulation of the blood, which feeds your hair. Remember to rinse thoroughly! If you didn't rinse your hands after washing them with soap, your skin would dry and crack. Similarly, if shampoo is not properly rinsed off, the scalp can become dry and flaky.

Q: How can a dry scalp be treated?

A: Drink lots of water, and eat nutritious meals. This hydrates your skin and nourishes the blood supply. Use a mild shampoo, and massage your scalp regularly. Some people also use leave-in conditioners and lotions to moisturize the scalp.

Styling Your Hair

Q: What should a person keep in mind when visiting a hairstylist?

A: If you want to change your hairstyle, bring a picture of the style you want and perhaps of the style you *don't* want. Frankly express your wishes and the amount of time you are willing to put into hair care each day, since some hairstyles require more attention than others. Keep in mind that it usually takes two or three visits for a hairstylist to get to know your hair and to establish good communication with you. So don't give up on your stylist too quickly!

What Your Hair Reveals

Hair care and styling are forms of self-expression. Hair has been cut, extended, straightened, curled, colored, and variously styled to meet fashion trends, religious beliefs, and even social and political agendas. Take a closer look at your hair. What does it reveal about you? Healthy hair that is tastefully styled adorns its wearer and is admired by others.

CROSSWORD SOLUTIONS

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WATCHING THE WORLD

New Alexandrian Library Lacks Books

The great library of Alexandria, "famous for containing the whole of human knowledge in the time of Christ, . . . was ravaged by fire in 47 B.C. and finally disappeared in the 7th century A.D.," notes *The Wall Street Journal*. With help from other Arab states and from the United Nations Educational, Scientific, and Cultural Organization, Egypt has created a new library in Alexandria that it hopes will outshine the old one. "The first four floors are below ground. Surrounded by a reflecting water-pool, the library has 17 elevators, self-cleaning windows and a safety system so advanced it can extinguish fires without leaving so much as a drop of water on a rare text." However, continues the *Journal*, "the library is short on one crucial element. Books." The newspaper adds that after millions were spent during long years of construction, "the new library's budget for actually acquiring books is so puny that the library's chief, . . . Mohsen Zahran, must grovel for books whose main virtue is that they are free." A chief librarian is not being sought because "we can't afford the person's salary," says Mr. Zahran. The new library has space for eight million volumes.

Phantom Pain

"People who have lost a limb often experience chronic pain seemingly coming from the

missing limb, or feel sensation in the absent limb if someone touches their face," reports the magazine *New Scientist*. "When part of the cortex no longer receives sensory input—because of amputation or a spinal cord injury—adjacent nerves encroach on the defunct region, essentially taking it over," the magazine explains. It adds: "This often results in people perceiving a missing limb, or suffering constant pain."

Bad Breath and Job Prospects



"It is no exaggeration to say that [bad breath] harms many careers," states dentist Ana Cristina Kolbe in the Brazilian business magazine *Exame*. "In extreme cases," adds executive headhunter (recruiter) Leandro Cerdeira, "people lose one job after another without ever understanding what the real problem is." In a study carried out in two large Brazilian cities, 40 percent of people surveyed suffered from halitosis, or bad breath. Among the most common causes were stress and a fiber-deficient diet. To alleviate symptoms, Dr. Kolbe recommends that sufferers take a few days' vacation and increase their consumption of vegetables. As an emergency short-term mea-

sure, employees with halitosis can gargle with a weak hydrogen peroxide and water solution.

Increasing Despair

According to a report by the World Health Organization (WHO) on 105 countries, the average suicide rate in those areas increased by 60 percent between 1950 and 1995, reports the French newspaper *Le Monde*. Dr. José-Maria Bertolote, coordinator of WHO's mental-health department, estimated that one million people would commit suicide in 2000 and that another 10 to 20 million would attempt suicide. The true figures, however, could be much higher. According to the report, more people die every year from suicide than from all the world's armed conflicts combined. Among those between 15 and 35 years of age, suicide has become "one of the three principal causes of death," says Dr. Bertolote.

South Africa's Rape Victims

"Each year, 1 million rapes are committed in South Africa," states *World Press Review*. This means that a rape is committed about every 30 seconds. The article notes that "South Africa has the world's highest number of rapes that end with murder." The number is 12 times higher than that for the United States, which is next on the list, although South Africa has a population of only 40 million. The article

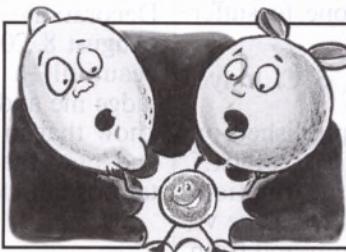
adds: "In other countries, people may rape you, rob you, or kill you. But in South Africa people will rape you before they kill you, almost just because you happen to be there. Rape occurs almost automatically in connection with other criminal acts." Also, "rape has become a part of the initiation rites for new gang members," who then go on to kill their victims. Among the contributing factors cited in the article are the high level of child abuse and the prevailing idea that life is cheap. Additionally, a 1998 Johannesburg survey "revealed that young men believed that women in fact enjoyed being raped but were hiding it, and that if you take a girl out, you have a right to demand sex," the article states.

Bloodless Surgery in South Africa

"Alarming high Aids statistics have led one of South Africa's major private hospital groups to opt for a switch to 'bloodless medicine and surgery,'" reports the South African newspaper *The Mercury*. "Our aim," said Dr. Efraim Kramer, the medical director of the program, "is to encourage the medical fraternity to provide medical and surgical care to patients without using donor blood." Although at least 800 doctors in South Africa individually offer bloodless medicine and surgery, this is the first time that a hospital group has decided to implement such a nationally coordinated program. Dr. Kramer said that the response of doctors was "overwhelmingly positive."

The Mercury observes: "Large-
ly through demands from religious groupings such as the Jehovah's Witnesses, who refuse to be treated with donated blood, effective methods of bloodless treatment have been developed."

Natural Vitamin-C Capsules



The azarole, also known as the jungle cherry, measures only about three quarters of an inch in diameter. Yet, this bittersweet fruit has 50 times more vitamin C than an orange and 100 times more than a lemon. Studies at the San Martín State University of Tarapoto, Peru, show that 100 grams of pulp from the most acid lemon has 44 milligrams of ascorbic acid, while the same amount of azarole has 4,600 milligrams. Just four of these natural fruit "capsules" provide the daily requirement of vitamin C for an adult. According to the newspaper *El Comercio*, efforts are being made to see if azarole, "an easily perishable fruit," can be grown commercially as a substitute crop for coca.

Harmful Advice

"The media and pop psychologists promote the idea that 'venting' [anger] is useful," notes the magazine *Psychology Today*. "But this advice is more harmful than helpful." Accord-

ing to Iowa State University psychologist Brad Bushman, "expressing anger actually increases aggression." Test subjects who "let it out" by hitting a punching bag showed twice as much aggression and cruelty as those who did not. Even "subjects who read an article on the benefits of catharsis before punching the bag were much more likely to want to box than others," the article says. "Instead of trying to simmer down, says Bushman, just turn off the heat altogether. Count to 10—or 100, if need be—and the anger will pass."

Biggest Ozone Hole Ever

During September 2000, NASA's ozone monitoring satellite registered the biggest hole in the ozone layer ever observed over the Antarctic. So reports the newspaper *Clarín* of Buenos Aires, Argentina. The hole appeared above an area of about 10.9 million square miles, exceeding the previous record by more than 300,000 square miles. The enormous size of the hole surprised scientists. Dr. Michael Kurylo of NASA said that these observations "reinforce concern about the fragility of the terrestrial ozone layer." Physicist Rubén Piacentini of Argentina's National Committee for Space Activities commented that although the hole is presently situated above unpopulated Antarctica, "it could end up passing over the southern area of [Argentina]." *Clarín* notes that ozone acts as a protective shield by diminishing the destructive potential of the sun's ultraviolet radiation.

FROM OUR READERS

Chemical Sensitivity I am 17 years old, and I would like to thank you for the series "Everyday Chemicals—Are They Making You Sick?" (August 8, 2000) I recently received a diagnosis of multiple chemical sensitivity (MCS), and it was a great relief to know that I am not the only one to suffer such humiliating symptoms.

S. C., Italy

The articles you previously published on the subject "Is Pollution Making You Sick?" (June 8, 1983) had lifesaving information. This terrible illness excludes us from the vital company of our spiritual family and from social activity. Yet, it is a disease that hardly arouses any understanding or compassion. Your latest articles describe what sufferers really feel.

M. J., France

I was sick for over a year before I found a doctor who could help me. During this time, my friends were kind and nonjudgmental, but I could tell that they really did not understand. So I thank you for these articles. It is wonderful to be part of an organization that is enlightened on so many matters.

S. B., United States

I suffer from MCS and have never read such a thorough, well-balanced coverage of the condition and its consequences. I enjoyed the "prescription" of love and laughter as an aid in coping. Also practical were the reminders to be reasonable in my expectations of others.

D. G., United States

As one of Jehovah's Witnesses, I have served as a traveling minister for ten years and have met quite a number who were suffering from MCS. It is very evident that this malady is real and is not a figment of their imagination. As usual, *Awake!* has not only described the malady but also given practical

suggestions on how kindness, love, and compassion can be displayed toward sufferers.

T. M., United States

Body Decoration I am writing in response to your article "The Bible's Viewpoint: Body Decoration—The Need for Reasonableness." (August 8, 2000) Tasteful body decoration is beautiful—a true work of art. Society may judge me and classify me by my looks, but I know that in God's eyes I am loved. I hope and pray that others will not dwell on my tattoos but look at what I am inside.

K. M., United States

The article acknowledged that whether a person decides to indulge in body decoration or not is a personal decision. Nevertheless, one way a person gives evidence of being beautiful inside is by 'adorning himself with modesty and soundness of mind.' (1 Timothy 2:9) The Bible also makes it clear that a Christian is under obligation to take into account not only his own conscience but "that of the other person." (1 Corinthians 10:29)—ED.

Language Thank you for the article "Languages—Bridges and Walls to Communication." (August 8, 2000) Languages have always fascinated me, and I have already learned five European tongues. I am now learning Sinhala. What excites me, though, is that learning a language makes it possible to build a bridge to other cultures and impart the "pure language" of Bible teaching! —Zephaniah 3:9.

C. B., Italy

Grief Thank you for the article "Should Grief Be Expressed?" (August 8, 2000) The subject is close to our hearts because we lost a son three years ago. Even though we still shed tears and grieve, articles like this give us the strength to go on.

J. A. and L. A., United States



Making Barren Land F R U I T F U L

BY AWAKE! WRITER IN INDIA

How can barren land areas of Ladakh, a northern district of India, be made more productive? That was the question that occupied the mind of Tsewang Norphel, a retired civil engineer. The runoff from natural glaciers located high in the Himalaya Mountains begins in the month of June, not in April when rain is scanty and the farmers need water to irrigate their fields. Norphel came up with a clever answer: Build artificial glaciers at lower elevations, where the melting of the ice would begin earlier in the year.

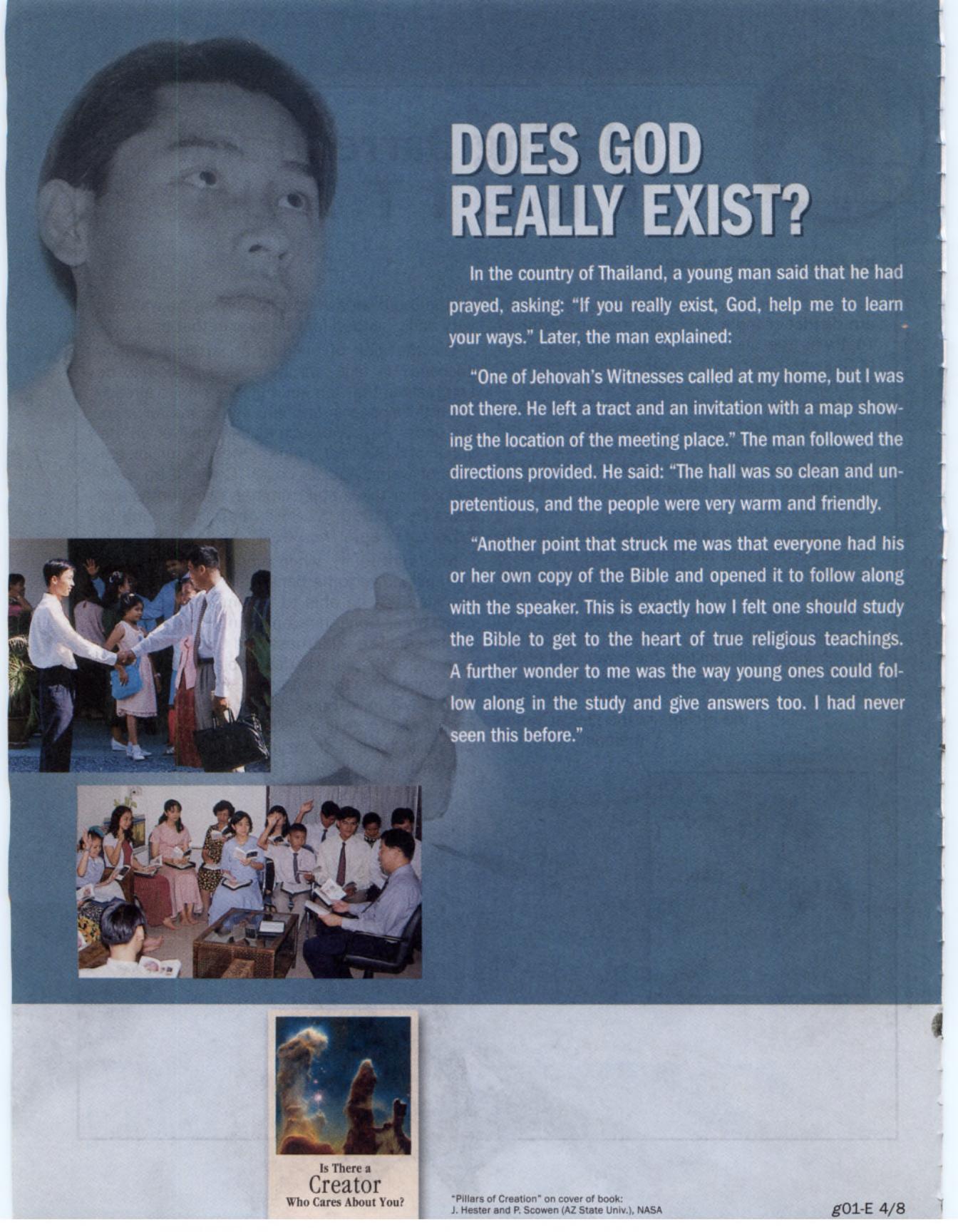
According to the Indian newsmagazine *The Week*, Norphel and his team set out to divert a mountain stream into a 700-foot-long man-made channel with 70 outlets. From these the water would flow at a slow and controlled rate down the mountain slope and freeze before reaching the retaining walls built on the lower part of the slope. The ice would gradually build up, eventually covering the walls. Being in the shadow of the mountain, the glacier would melt only when the

temperature rises in April, supplying the water so very badly needed for irrigation at that time.

Did the idea of building an artificial glacier succeed? In fact, Norphel's idea proved to be so practical that ten such glaciers have already been developed in Ladakh, and plans for more are under way. One such glacier, built at an elevation of 4,500 feet, yields some nine million gallons of water. And its cost? "Creating an artificial glacier takes approximately two months and costs Rs 80,000 [\$1,860], most of it being labour costs," says *The Week*.

Man's ingenuity, when properly directed, can certainly prove to be beneficial. Just think what mankind will be able to accomplish under the direction of God's heavenly Kingdom! The Bible promises: "The wilderness and the waterless region will exult, and the desert plain will be joyful and blossom as the saffron.... In the wilderness waters will have burst out, and torrents in the desert plain." (Isaiah 35:1, 6) What a delight it will be to have a share in the beautification of our earth!





DOES GOD REALLY EXIST?

In the country of Thailand, a young man said that he had prayed, asking: "If you really exist, God, help me to learn your ways." Later, the man explained:

"One of Jehovah's Witnesses called at my home, but I was not there. He left a tract and an invitation with a map showing the location of the meeting place." The man followed the directions provided. He said: "The hall was so clean and unpretentious, and the people were very warm and friendly.

"Another point that struck me was that everyone had his or her own copy of the Bible and opened it to follow along with the speaker. This is exactly how I felt one should study the Bible to get to the heart of true religious teachings. A further wonder to me was the way young ones could follow along in the study and give answers too. I had never seen this before."



Is There a
Creator
Who Cares About You?

"Pillars of Creation" on cover of book:
J. Hester and P. Scowen (AZ State Univ.), NASA