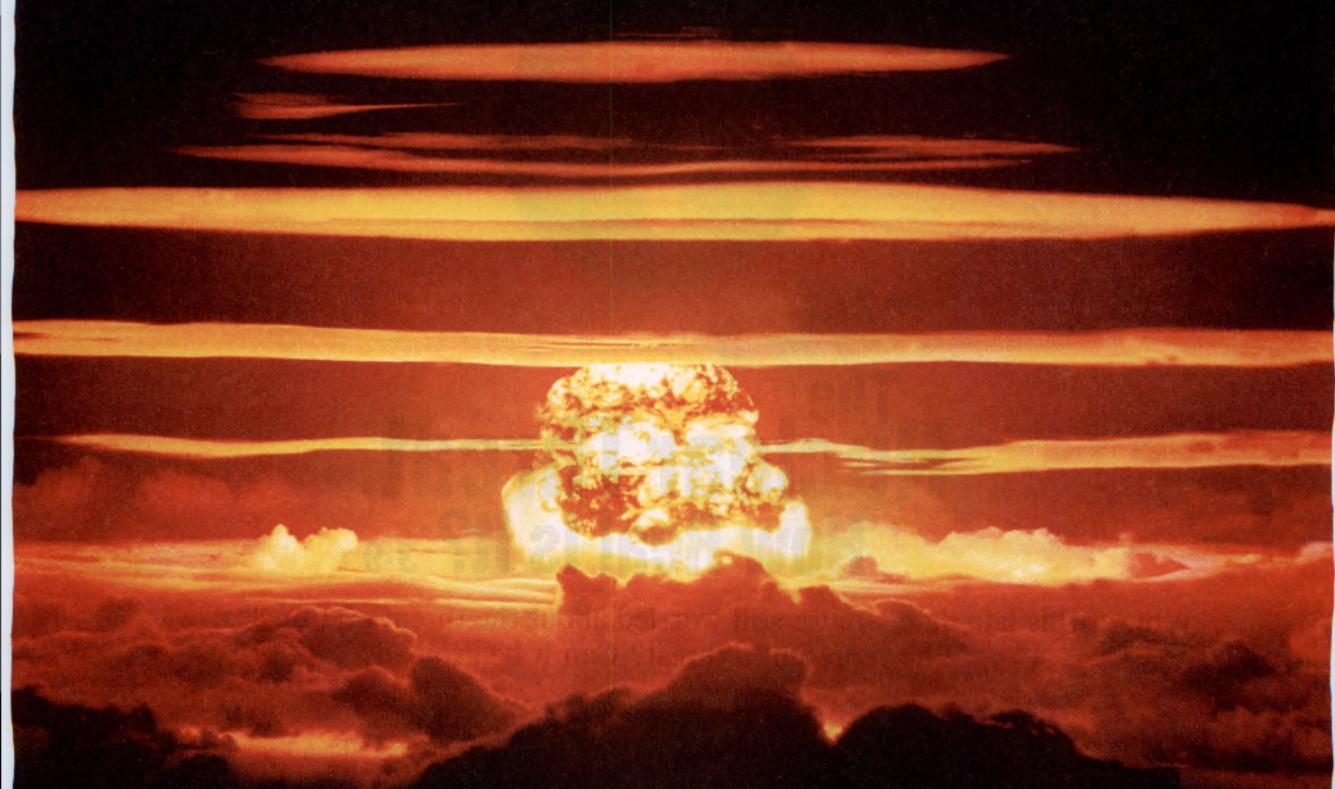


Awake!

MARCH 8, 2004



The Nuclear Threat How Real Is It?

Awake!

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The Nuclear Threat How Real Is It? 3-9

Why, at this late date, are we still worried about the threat of a nuclear war?
Who represent a threat? Can it be avoided?

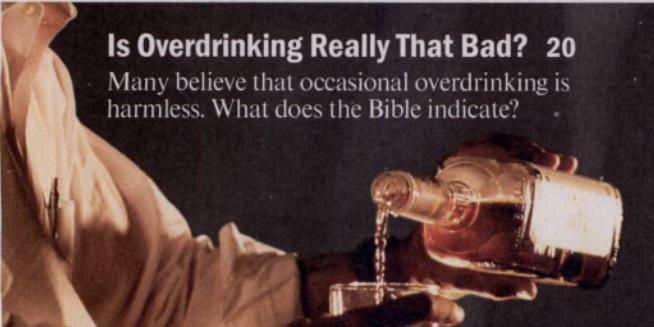
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Millions of people live at high altitudes.
How do they survive? How does the body adapt?



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COVER: U.S. Department of Energy photograph;
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Nuclear War Is It Still a Threat?

By Awake! writer in Japan

“Every thinking person fears nuclear war, and every technological state plans for it. Everyone knows it is madness, and every nation has an excuse.” —Carl Sagan, astronomer.

ON AUGUST 6, 1945, an American warplane dropped an atom bomb on Hiroshima, Japan, and in an instant took an immense price in human lives and property. This was the first atom bomb to be used in warfare. The explosion completely devastated five square miles of the city, which had 343,000 inhabitants. Over two thirds of the city's structures were destroyed, leaving at least 70,000 dead and 69,000 injured. Three days later a second atom bomb was dropped, this time on Nagasaki; 39,000 people were killed and 25,000 injured. About half the city's structures were destroyed or damaged. Never before in the history of mankind had such a powerful weapon been used. The world had changed. It had entered the nuclear age. Within a few years, the United States, the former Soviet Union, Great Britain, France, and China developed the much more destructive hydrogen bomb.

The Cold War—the rivalry between Communist and non-Communist nations—spurred on the development of superior nuclear weapons and delivery systems. Fear gripped the world as ICBMs (intercontinental ballistic missiles) were developed that could make a nuclear strike at targets in countries more than 3,500 miles away in minutes rather than hours. Submarines were equipped with enough nuclear missiles to blast 192 separate targets. Nuclear arsenal stockpiles were once

estimated to be up to 50,000 warheads! During the Cold War, mankind stood on the brink of what some people called a nuclear Armageddon—a war with no winners.

The End of the Cold War

During the 1970's, the tension of the Cold War was eased “as evinced in the SALT [Strategic Arms Limitation Talks] I and II agreements,” explains *The Encyclopædia Britannica*, “in which the two superpowers set limits on their antiballistic missiles and on their strategic missiles capable of carrying nuclear weapons.” Then, the late 1980's saw the thawing of the Cold War and its eventual end.

“The end of the Cold War gave rise to hopes that the legacy of a nuclear arms race and confrontation between the United States and Russia was coming to an end,” says a report by the Carnegie Endowment for International Peace. As a result of nuclear disarmament efforts, hundreds of nuclear arsenals have been dismantled in recent years. In 1991 the Soviet Union and the United States signed the Treaty on Reduction and Limitation of Strategic Offensive Arms, which, for the first time in history, obligated these two nuclear superpowers not merely to limit but also to reduce their deployed strategic warheads to 6,000 each. At the end of 2001, both parties declared that they had complied with the treaty by cutting down their strategic nuclear warheads as agreed. Further, in 2002 the

Moscow Treaty, which obligates further cuts to between 1,700 and 2,200 in the coming ten years, was agreed upon.

Despite such developments, however, "this is no time for complacency when it comes to the threat of nuclear war," said UN Secretary-General Kofi Annan. He added:

"Nuclear conflict remains a very real, and very terrifying possibility at the beginning of the 21st century." Lamentably, a nuclear disaster—far worse than what happened in Hiroshima and Nagasaki—is still a threat in our day. Who is threatening? More important, can it be avoided?

Nuclear War Who Are the Threats?

“The possibility of nuclear extinction is real. It exists today, . . . despite the fact that the Cold War ended more than a decade ago.”

—Former U.S. Secretary of Defense Robert S. McNamara and James G. Blight, professor of international relations at Watson Institute for International Studies.

IN 1991 when the Cold War ended, the minute hand of the famous doomsday clock was set backward to 17 minutes before "midnight." The doomsday clock is pictured on the cover of the *Bulletin of the Atomic Scientists* magazine and is a symbol of how close the world supposedly is to nuclear war (midnight). At that time, the minute hand was set farther from midnight than it had ever been since the clock's introduction in 1947. However, since that time, the minute hand has begun to move forward again. For example, in February 2002, the time on the clock was moved forward to seven minutes before midnight,



Awake!®

THIS JOURNAL IS PUBLISHED 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.

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which was the third advance since the end of the Cold War.

Why did the publishers of that scientific magazine feel the need to move the clock forward? Why do they feel that nuclear war is still a threat? And who is a threat to peace?

A Secret in "Reduction"

"More than 31,000 nuclear weapons are still maintained," explains the *Bulletin of the Atomic Scientists*. It continues: "Ninety-five percent of these weapons are in the United States and Russia, and more than 16,000 are operationally deployed." Some may notice the seeming contradiction in the number of existing nuclear warheads. Did not these nuclear superpowers already declare that they had reduced their warheads to 6,000 each?

Here lies the secret of the "reduction." A report by the Carnegie Endowment for International Peace explains: "The figure of 6,000 accountable warheads uses *specific accounting rules* agreed to under the START [Strategic Arms Reduction Talks] treaty. Both nations will retain thousands of additional tactical and reserve weapons." (Italics ours.) According to the *Bulletin of the Atomic Scientists*, "many if not most of the U.S. warheads removed from the active stockpile will be placed in storage (along with some 5,000 warheads already held in reserve) rather than dismantled."

So in addition to the thousands of ready-to-use strategic nuclear weapons still in reserve—which are capable of being launched from

one continent to another directly—there are thousands of other nuclear warheads as well as other tactical nuclear weapons designed to attack closer targets. Unquestionably, the two nuclear superpowers still hold ample nuclear weaponry in their arsenals to destroy the entire world population several times over! Maintaining such a large number of dangerous weapons invites yet another threat—the accidental launching of nuclear missiles.

Accidental Nuclear War

"U.S. nuclear forces have been controlled by a 'launch on warning' strategy," according to Robert S. McNamara and James G. Blight, quoted earlier. What does this imply? "Our warheads stand ready to be launched while Russian warheads are in flight," they explain, adding: "No more than 15 minutes can elapse, under the policy, from the time of first warning of a Russian attack and the launching of our missiles." According to one former U.S. strategic nuclear missile launch officer, "virtually all missiles on land are ready for launch in two minutes."

This hair-trigger alert presents the danger of an accidental missile launch caused by a false warning. "In more than one instance," explains an article in *U.S. News & World Report*, "real launch orders have been transmitted by mistake during American nuclear training exercises." Similar false warnings have occurred in Russia too. When a Norwegian research rocket triggered a false alarm in 1995, the Russian president began the process of activating the launch codes of nuclear missiles.

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A Second Nuclear Age?

Writing in *The New York Times Magazine*, columnist Bill Keller (now the executive editor of *The New York Times*) expressed the opinion that the nations have entered into the second nuclear age. The first one ran until January 1994, when Ukraine agreed to give up weapons inherited from the former Soviet Union. Why does he speak of a second nuclear age?

Keller writes: "The second nuclear age was heralded by a rumble under the Rajasthani desert in 1998, as India's newly elected Hindu nationalist government detonated five test blasts. Two weeks later Pakistan followed suit." What made these tests different from those of the former nuclear age? "These were nuclear weapons with a regional agenda."

So, can the world feel any safer for having two more active members of the nuclear club? Keller continues: "Each new country that gets nuclear weapons multiplies the potential for a war involving a nuclear state."—*"The Thinkable," The New York Times Magazine*, May 4, 2003, page 50.

The situation is complicated further by the news that North Korea may have "enough plutonium to be within striking distance of building six new nuclear bombs. . . . Each day increases the risk that North Korea will succeed in producing new nuclear weapons, and perhaps even testing one of them to prove its success."—*The New York Times*, July 18, 2003.

This ready-to-launch strategy puts enormous pressure on those in the line of decision making. Fortunately, in the past, commanders have realized that warnings were false, and thus far, nuclear war has been prevented. Concerning an incident in 1979, a researcher explained: "What stopped American missiles [from being launched] were our early-warning satellites, which showed there were no Soviet missiles in the air." However, in time, such early-warning satellite systems deteriorate. Researchers and analysts are concerned that "most of Russia's early-warning satellites have stopped functioning or wandered out of their assigned orbits." Therefore, as a retired U.S. vice admiral stated several years ago, "the chance of a pre-emptive strike or a missile launch because of misunderstanding, misplaced authority or accident, is as great today as at any time in the past."

New Members of the Nuclear Club

Although the major nuclear arsenals belong to the two nuclear superpowers, there are other nuclear powers such as China, France, and Great Britain. These declared nuclear powers, called the nuclear club, recently took on India and Pakistan as new members. Besides these countries, several others, including Israel, are often described as countries seeking—or perhaps already possessing—nuclear weapons.

Political conflict involving any of the nuclear club members, including the new members, could be a trigger to nuclear hostilities. "The crisis between India and Pakistan . . . marks the closest two states have come to nuclear war since the Cuban Missile Crisis," explains the *Bulletin of the Atomic Scientists*. Seeing the intensified situation during early 2002, the fear of nuclear attack became very real to many people.

In addition, development of other weaponry of mass destruction has produced more possibilities for use of the nuclear bomb. Discussing a secret Pentagon report, *The New York Times* stated that "the possible use of nuclear arms to destroy enemy stocks of biological weapons, chemical arms and other arms of mass destruction" may have become part of the American nuclear policy.

The terrorist attacks in the United States on September 11, 2001, awakened the world to yet another

er nuclear threat. Many now believe that terrorist organizations are attempting to develop—or perhaps already have in their hands—nuclear arms. How is that possible?

Terrorists and “Dirty Nukes”

Is it possible to construct a nuclear bomb using material sold on the black market? According to *Time* magazine, the answer is yes. The magazine reported on a team that was set up to prevent nuclear terrorism. So far, the team “has assembled more than a dozen” homemade bombs by using “technology found on the shelves of the average electronics store and the type of nuclear fuel sold on the black market.”

Nuclear disarmament and the disassembling of nuclear weapons have expanded the possibility of nuclear theft. “Stripping thousands of Russian nuclear weapons from well-guarded missiles, bombers and submarines and squirreling them away in less secure storage sites will make them tempting targets for ambitious terrorists,” says *Time* magazine. If disassembled nuclear weapon parts are acquired by a small group of people and reassembled, such a group could soon be part of the nuclear club!

Peace magazine asserts that it is not even necessary to assemble a bomb to join the nuclear club. All that is needed is the acquisition of a sufficient amount of fissile uranium or plutonium. The magazine states: “Terrorists possessing modern weapons-grade uranium would have a good chance of setting off an explosion simply by dropping one half of

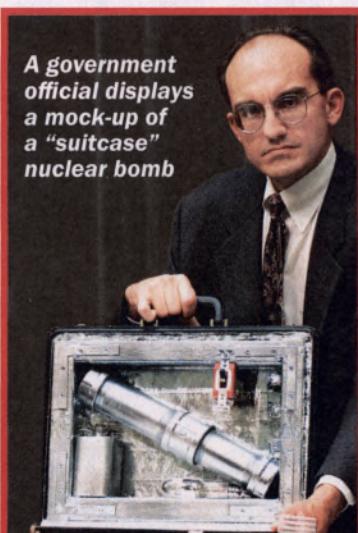
it onto the other half.” How much enriched nuclear material is needed? According to that magazine, “three kilograms [seven pounds] would be sufficient.” This is almost the same amount of weapons-usable nuclear material as was confiscated from smugglers arrested in 1994 in the Czech Republic!

Nuclear waste can become another form of nuclear armament. “What really worries the experts is the lethal combination of radioactive waste and conventional explosives,” says *The American Spectator*. Arms of this type, radioactive dispersion devices, are known as dirty nukes or dirty bombs. How hazardous are they? Dirty bombs use “conventional high explosives to scatter highly radioactive materials with the purpose of poisoning targets rather than destroying them with blast and heat,” explains *IHT Asahi Shimbun*. It continues: “Their effects on people can range from radiation sickness to agonizing, slow death.” Although some say that using easily accessible nuclear waste would not cause too much harm, the existence of enriched nuclear material on the black market worries many. According to a recent worldwide survey, over 60 percent of all respondents feel that nuclear terrorism will occur in the next ten years.

Unquestionably, the nuclear threat is still real to the world. Britain’s *Guardian Weekly* of January 16-22, 2003, commented: “The possibility that

the US will resort to nuclear weapons is greater than at any time since the darkest days of the cold war. . . . The US is progressively lowering the threshold for nuclear war.” Therefore, it is reasonable to ask: Can a nuclear war be avoided? Is there any hope of a world free from the nuclear threat? These questions will be discussed in the following article.

AP Photo/Dennis Cook



A government official displays a mock-up of a “suitcase” nuclear bomb



NASA photo

Old early-warning satellites are deteriorating

Nuclear War Can It Be Avoided?

“They themselves will feed and actually lie stretched out, and there will be no one making them tremble.” —Zephaniah 3:13.

EVERYBODY longs for a world free of the nuclear threat. Seeing the reality of this world, however, many have a pessimistic view. “The idea of controlling, reducing and ultimately getting rid of nuclear weapons is slipping off the US and international agenda,” says *The Guardian Weekly*.

Still, some point to the efforts made by nations in this regard. For instance, it is estimated that the United States alone spent \$2.2 billion in one year to prevent nuclear war. This is certainly no small amount of money. Yet, knowing that the same nation also spends some \$27 billion annually in preparation to fight a nuclear war upsets many.

How about peace treaties? Can such efforts be a source of hope?

Under God's Kingdom government, the world will be free of the nuclear threat

Nuclear Arms Control Treaties

Since the introduction of the nuclear bomb, a number of treaties designed to control or limit nuclear weapons have been concluded. Among them are the Nuclear Non-Proliferation Treaty (NPT), Strategic Arms Limitation Talks, Strategic Arms Reduction Talks, and Comprehensive Test Ban Treaty. Have these not been effective in eliminating the nuclear threat?

Any treaty stands on a mutual promise between the parties involved. For instance, the success of the NPT, signed in 1970 and having 187 parties as of December 2000, depends on the goodwill of the nuclear and nonnuclear countries that signed the treaty. While the treaty prohibits nonnuclear countries from developing or acquiring a nuclear arsenal, it requires nuclear powers to seek to eliminate their own nuclear weapons. Has

this been effective? "While the NPT regime is scarcely foolproof, it has been effective in preventing the diversion of civilian nuclear technology and facilities placed under safeguards," explains Carey Sublette in the document "Nuclear Weapons Frequently Asked Questions."

Though the treaty has seen some success, "it has not . . . dissuaded several nations from pursuing these weapons, in some cases successfully," says Sublette. However, he says, it is only through secret programs conducted outside the Non-Proliferation Treaty safeguarded facilities that they have been able to do so. The effectiveness of any treaty depends on the trustworthiness of the parties involved. Can we simply accept the promises of humans? The answer is obvious as we see the facts of human history.

So, then, where can we turn for hope?

Thinking in a New Way

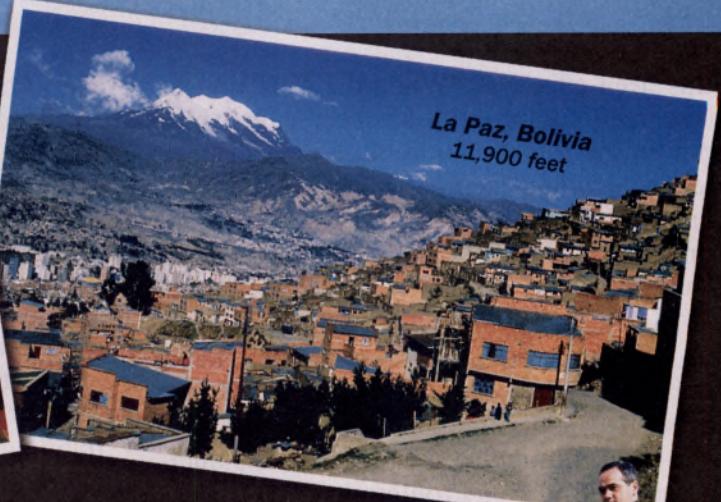
In December 2001, some 110 Nobel laureates agreed to and signed a statement that reads: "The only hope for the future lies in cooperative international action, legitimized by democracy. . . . To survive in the world we have transformed, we must learn to think in a new way." Yet, what "new way" of thinking is needed? Is it realistic to believe that those who are threatening world peace with their nuclear weapons will learn a new way of thinking?

The Bible advises us: "Do not put your trust in nobles, nor in the son of earthling man, to whom no salvation belongs." (Psalm 146:3) Why not? The Bible answers: "To earthling man his way does not belong. It does not belong to man who is walking even to direct his step." (Jeremiah 10:23) Yes, the fundamental reason is that humans are not endowed with the ability to rule the earth in peace. As the Bible states, "man has dominated man to his injury."—Ecclesiastes 8:9.

If humans are not capable of ruling the earth, who is? The Bible promises that there will be peace under a trustworthy and capable government. This rulership is referred to in the Bible as God's Kingdom, and without realizing it, millions have prayed for this government when uttering the Lord's Prayer: "Our Father in the heavens, . . . let your kingdom come. Let your will take place, as in heaven, also upon earth." (Matthew 6:9, 10) This Kingdom has Jesus Christ, the Prince of Peace, as its King. Describing his rule, the Bible states: "To the abundance of the princely rule and to peace there will be no end."—Isaiah 9:6, 7.

Even if "nobles," or politicians, and human governments do not learn this new way of thinking, you can. Jehovah's Witnesses have helped millions to embrace the Bible's message of hope by means of a free Bible study course. If you would like more information, please contact the publishers of this magazine, or you may visit the Kingdom Hall of Jehovah's Witnesses in your area.





Surviving Above the Clouds

BY AWAKE! WRITER IN BOLIVIA

SOLITUDE, majestic scenery, and opportunities to enjoy walking, climbing, and skiing attract many vacationers to the mountains. In addition, millions of people live permanently in valleys and on plateaus that are higher than many cloud formations. However, living so high up may have strange effects on people's health or their motor vehicles and may also affect their cooking. What is the source of these problems, and how can they be dealt with? First, are there really so many people living high in the mountains?

Many highland areas have become economic growth zones. The teeming millions of



Johannesburg, South Africa
5,740 feet

Mexico City live at over 7,000 feet above sea level. Denver, Colorado, U.S.A.; Nairobi, Kenya; and Johannesburg, South Africa are at elevations of more than 5,000 feet. Millions of people in the Himalayas live at

over 9,000 feet. In the Andes several large cities are over 11,000 feet above sea level, and people work mines there that are 20,000 feet up. With so many living in the highlands, the study of how the body adapts to life there has gained importance. What has been learned can deepen your appreciation for your body's marvelous design.

What to Expect

The way Doug felt on arriving high in the Andes is typical. He says: "When handling our suitcases at the airport, I suddenly felt dizzy and nearly fainted. Although that soon passed, for the first week or two, I suffered from headaches and disturbed sleep. I would suddenly wake up with the feeling that I was suffocating. Then, for a couple of months, I had little appetite, tired easily, and needed more sleep." Katty adds: "I used to think that all the talk about altitude problems was in people's imagination. Now I know it isn't."

Doctors call the disturbed sleep that Doug experienced periodic breathing. It is common among people who have recently arrived at high altitude. But if it happens to you, you might call it scary. From time to time, while asleep, you may actually stop breathing for several seconds. At times, this might make you suddenly wake up, gasping for breath.

Some people have no problem at all after arriving in the altitude. A number of people experience unpleasant reactions at 6,000 feet, as do about half of newcomers at 10,000 feet. Interestingly, high-altitude natives returning home after only a week or two in the lowlands often experience the same reactions. Why?

Why Altitude Affects Your Body

Most of the problems are caused by lack of oxygen. Because the atmospheric pressure is lower the higher you go, at 6,500 feet above sea level, a given volume of air contains some 20 percent less oxygen, and at 13,000 feet, air contains 40 percent less oxygen. Lack of oxygen affects most of your bodily functions.

Your muscles can do less work, your nervous system can take less stress, and your digestive system cannot handle fat as well. Normally when your body needs more oxygen, you automatically breathe more heavily and fill the need. Then why doesn't this happen when you arrive at a high altitude?

Just how your body controls your rate of breathing is a wonder that is not completely understood. But when you exert yourself, heavy breathing is not triggered simply by lack of oxygen. Rather, the carbon dioxide buildup in the blood produced by the muscle activity seems to be a key factor in making you breathe more. You do breathe more heavily when at a higher altitude but not enough to compensate for the persistent oxygen shortage.

What causes the headaches? A speaker at the First World Congress of High Altitude Medicine and Physiology, held in La Paz, Bolivia, explained that many of the symptoms of mountain sickness result from an accumulation of fluid in the brain. In some people this causes pressure inside the head. Apparently, because of the size of their cranium, some people do not experience these effects. Nevertheless, in rare cases a life-threatening condition can develop. Loss of muscular control, blurred vision, hallucinations, and mental confusion are signs that warn you to seek medical help immediately and get down to a lower altitude.

Wise Precautions

The effects of high altitude reach their peak about the second or third day, so a few days before and after arrival, it is best to take only light meals, especially at night. After arrival, you should eat carbohydrates, such as rice, oats, and potatoes, rather than fatty foods. You may do well to pay attention to the advice, "Eat breakfast like a king, but eat supper like a beggar." Also, avoid physical exertion, as it can bring on a bad attack of mountain sickness. Perhaps because young people

tend to disregard this advice, they are often the ones who suffer most.

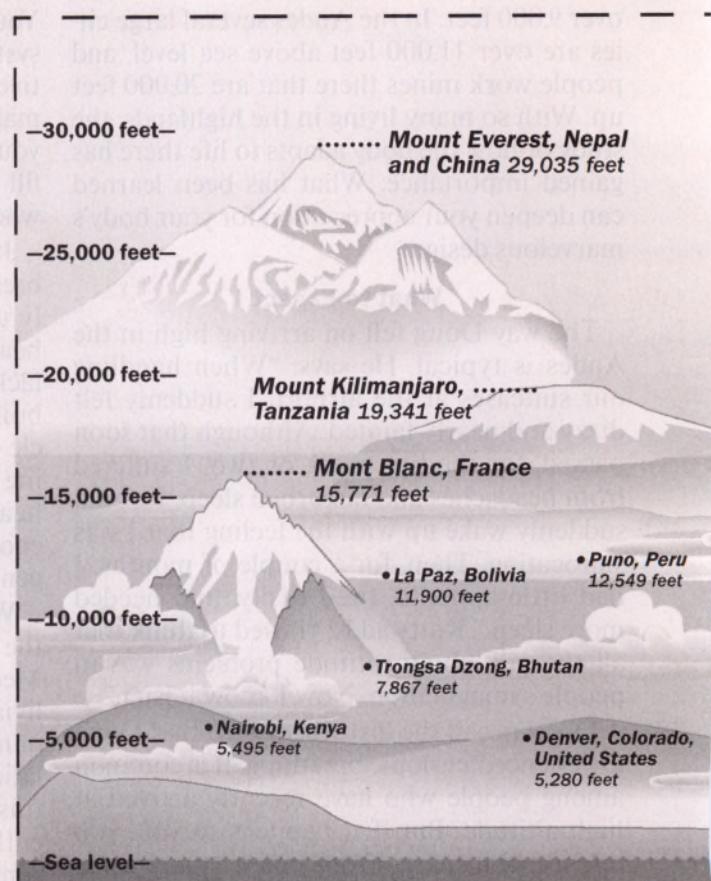
"Slip on a hat, and slop on some sun-block cream" is good advice here too, since there is less atmosphere to protect you from the dangerous rays of the sun. Those rays can irritate or even damage your eyes, so use good sunglasses. The thin mountain air also dries up your tears, causing further eye irritation. The advice is to drink plenty of fluids.

Doctors have warned people who are seriously overweight or who have such conditions as high blood pressure, sickle-cell anemia, or heart or lung disease to have a careful medical evaluation before deciding on a trip above the clouds.* If you have a bad cold, bronchitis, or pneumonia, it may be wise to delay your trip, since high altitude together with a respiratory infection or heavy physical exercise can sometimes cause a dangerous buildup of fluid in the lungs. Respiratory complaints can cause even lifelong highlanders to become oxygen starved and experience serious health problems. On the other hand, asthmatics often feel better living higher up. In fact, a group of Russian doctors reported to the First World Congress of High Altitude Medicine and Physiology that they take patients with certain complaints to a high altitude clinic as therapy.

Settling in the Altitude

There is no need to fear living at high altitudes. In fact, some highland areas such as the Caucasus Mountains are famous for the number of natives who have lived unusually long lives. And some people have endured extremely high altitudes for years. An *Awake!* reader in the Andes relates: "I lived and

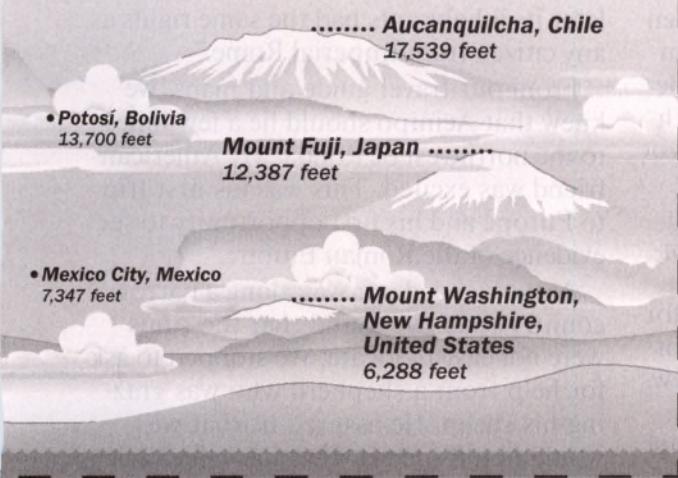
* Some doctors prescribe acetazolamide to stimulate breathing at very high altitudes. Other drugs for mountain sickness are advertised, but not all doctors recommend them.



worked for 13 years at a mine 6,000 meters [19,500 feet] high, near the top of a volcano. Breaking up blocks of sulfur with a sledgehammer was hard work. Yet, at day's end, we used to play soccer!" The human body is endowed with such remarkable abilities to adapt to new conditions that we marvel at the Creator's wisdom. How does your body cope with the lack of oxygen at high altitudes?

Your body's first reaction on exposure to high altitude is to make your heart and lungs work faster. Then you shed plasma from your blood, thus concentrating the oxygen-carrying red cells. In a short time, extra blood is being diverted to your brain, where it is most needed. And within only a few hours, your bone marrow is already manufacturing

Some High-Altitude Cities and Mountains Around the World



extra red blood cells, which may have an increased affinity for oxygen. All this means that although becoming fully accustomed to the high altitude can take months, within just a few days, your heartbeat and breathing can return to normal.

Problems With Motoring and Cooking

It isn't just your body that is oxygen starved, however. Your motor vehicle will seem lethargic too. Even though your local mechanic may adjust the fuel mixture and advance the ignition timing for you, your engine will still have less power. But what is happening in the kitchen?

A fallen cake, crumbly bread, beans that never cook, and a runny boiled egg are just

some of the problems that might make a cook weep. Why do these occur, and what can you do about it?

Culinary disasters are more frequent and noticeable when you are baking. The lower air pressure causes the gases that lighten breads and cakes to expand more than at sea level. The tiny bubbles in the dough or batter become large, making the product crumbly, or worse still, the bubbles may burst causing the cake to go flat. But the problem is not difficult to solve. If the cake is lightened with whipped eggs, simply do not beat them as much. Or if the recipe includes a leavening agent, use less. *The New High Altitude Cookbook* recommends 25 percent less leavening agent at 2,000 feet extending up to 75 percent less at 8,000 feet.

When making yeast breads, watch that the dough doesn't more than double in size. Since eggs strengthen the cell structure of cakes, when adapting your recipes, use extra-large eggs. Too much sugar, on the other hand, weakens the cell structure, so use a little less, since low air pressure also concentrates the sugar in your batter by evaporating the water more quickly. Actually, most recipes require more liquid because the thin, dry mountain air robs food of its moisture.

Nearly all food takes longer to cook at high altitudes. For example, a boiled egg needs a minute extra at 5,000 feet and three minutes extra at 10,000 feet. You will find a pressure cooker invaluable. In fact, at higher altitudes, you cannot cook beans and peas without one.

So do not be fearful of a trip to the highlands. You may have to huff and puff for a while, your sponge cake may look more like a pancake, and the car you are driving might respond like an arthritic tortoise, but if you are in reasonably good health, you will probably find the experience exhilarating.



By Awake! writer in **Spain**

Acinipo

A Forgotten Ancient Outpost

IT WAS awesome to find ourselves walking where Iberians and Romans had trodden two thousand and more years ago. My companion and I had driven from San Pedro de Alcántara, on the coast of Málaga in southern Spain, to visit some of the *pueblos blancos* (white towns) of Andalusia. We drove north on a mountain road, past the Sierra de las Nieves on our right, with its Pico Torrecilla rising to some 6,300 feet. The scenery, though inspiring, hardly prepared us for the view as we descended toward the historic walled city of Ronda. This fascinating jewel was inhabited over the millenniums by, among others, the Celts (who called it Arunda), the Greeks, the Phoenicians, the Romans, the Vandals, and the Berbers (Moors), who defeated the Visigoths in the eighth century C.E.

Our objective, however, was Ronda la Vieja, Old Ronda, known in ancient times as Acinipo (pronounced Athinipo). A Spanish encyclopedia says that this name, of Sidonian origin, came from Phoenician merchants who settled there from Sidon, which is today in Lebanon. The name is related to ancient Greek and Latin words that refer to grapes. Ancient coins carry on one side the name Acinipo and ears of wheat, while on the reverse side, there is a bunch of grapes. Evidently, agriculture and wine-making were principal occupations. One source says that Acinipo, "thanks to its geographical position . . . , became a big city, becoming a mu-

nicipality with power to mint coins, and later its inhabitants had the same rights as any citizen from Imperial Rome."

From our travel guide and maps, we knew that Acinipo should lie a few miles to the northwest of Ronda. My American friend was excited. This was his first trip to Europe and his first opportunity to see evidence of the Roman Empire.

As we wended our way along a narrow country road, we found that the ruins were not easy to locate. We stopped to ask for help from a shepherd who was grazing his sheep. He assured us that we would find Ronda la Vieja just a few miles ahead. Sure enough, we suddenly espied an escarpment rising above us that looked like an easily defensible position. When we got to the entrance of the archaeological site, we found a hillside rising before us and could see heaps of ancient rubble in every direction. These turned out to be former dwellings, perhaps dating from Roman times. Evidently, at one time, there had been a sizable population here. High up on the hill, about half a mile away, was what looked like a solid stone wall. It intrigued us. What ruins would we find?

Why a City Here?

Why did the Romans choose to build a city here, apparently in the middle of nowhere? Because it could not be approached by an enemy without the

YACIMIENTO ARQUEOLÓGICO DE ACINIPO

Entrance sign:
"Archaeological Site of Acinipo"

Rubble of
Roman dwellings

Theater backdrop



Theater and stage



Corner tower
of theater

Hilltop on which Acinipo is situated





In the foreground, foundations of pre-Roman dwellings

seating for perhaps a thousand people. It had been hewed out of the rock hillside. It impressed us to think that we were standing where Roman actors and orators had performed!

The Romans knew how to make the most of mountainsides, by turning them into theaters. Vestiges of Roman theaters and amphitheaters can be found in places as far apart as Mérida in western Spain, Trier in Germany, and Nîmes and Arles in France, and even as far north as Caerleon in Wales. There are famous ones in Pompeii and Rome. The Roman Colosseum had seating for 50,000 people! Remains of more than 75 Roman amphitheaters are scattered throughout the limits of the former Roman Empire. Traveling groups of actors went from theater to theater, entertaining with their performances.

The theater at Acinipo is the best-conserved part of the city. Its seating takes advantage of the hill's gradient and is protected from the wind that comes whistling over the escarpment higher up. The theater is designed to make the best use of the natural acoustics.

We climbed to the top of the escarpment. The view in every direction was magnificent. Way over to our left, to the south, was Ronda, and to the right, or the north, was the ancient city of Olvera. With ominous dark clouds as a backdrop, we sat down in the theater on this lonely hillside and tried to imagine the scene as it might have been about 2,000 years ago in the busy but isolated Roman city of Acinipo. We wondered what else remains to be discovered about this unique site. Perhaps, in time, the resurrection of its former inhabitants will reveal its secrets.

—John 5:28, 29; Acts 24:15.

inhabitants knowing it. The Romans were not the first to see the advantages of this strategic spot. Archaeologists say that the site was occupied by ancient peoples over 4,000 years ago. With the advent of the Phoenicians about 1000 B.C.E., Acinipo became an important part of their commercial activities, as it was an ideal inland connecting point between Málaga and Cádiz, which were coastal colonies.

A guard was on duty at the entrance to the ruins, and after a few brief words, he allowed us to go through the old gateway. Over to the right, there was evidence of round-shaped dwellings from the eighth and seventh centuries B.C.E. We started trekking up the hill and came upon stones that had formed part of the forum, built by the Romans. Archaeologists deduce from the remains unearthed here that there were public buildings at this point and that the square (plaza) was the true nerve center of the city.

A Unique Theater

Our eyes were again drawn to the high wall at the top of the hill. We wondered what it could have been in Roman times. As we got nearer, we realized that we were approaching the backdrop of a theater. It was made of stone, with a large arch and a tower. Following the Roman custom, the stones were cut and set without cement. When we stepped through the arch, we found ourselves on the stage, looking at steps and

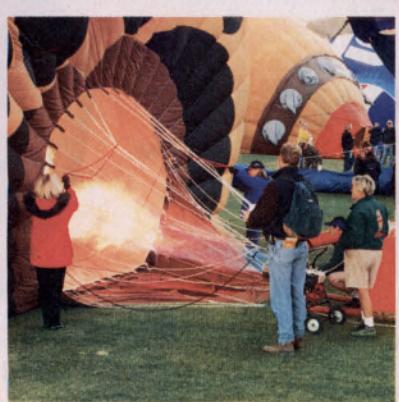
The Greatest Balloon Event in the World!

FOR nine days each October, Albuquerque, New Mexico, U.S.A., faces an unusual traffic problem. Drivers slow down or stop to view vast flotillas of brightly colored balloons filling the clear autumn sky. This is the annual Kodak Albuquerque International Balloon Fiesta, and more than 800,000 visitors come to experience it.

It is easy to understand why traffic slows down. Imagine the spectacle! Hundreds of balloons—usually from 50 to 80 feet tall—ascending together in the crisp morning air, then floating on gentle winds across the Rio Grande River and out over the city of Albuquerque. In the background, the picturesque 10,000-foot Sandia Mountains complete the stunning panorama.

The festival has enjoyed phenomenal growth since it began in a parking lot in 1972 with just 13 balloons. By 1978, with 273 entries, it had already become the world's largest balloon event. For the year 2003, over 720 balloons were entered. Balloon teams came from many U.S. states and from some 20 other countries. Media representatives from scores of organizations along with countless other photographers contributed to the fiesta's reputation as "the world's most photographed event."





In the year 2000, in celebration of the new millennium, over 1,000 balloons participated—about 20 percent of all known balloons in the world.

How the Balloons Work

The great majority of the balloons at the fiesta are lifted skyward by hot air heated by propane burners at the balloons' mouth. Balloon envelopes, or bags, are made of synthetic fabric coated with poly-

- 1. Each balloon requires a ground crew, usually of four to eight people**
- 2. A propane burner blasts hot air for the ascent**
- 3. At night the balloons emit a warm glow**
- 4. A variety of balloon designs**

Photos 1 and 2: Raymond Watt/
Albuquerque International Balloon Fiesta

urethane to reduce leakage. A basket, or gondola, that carries the pilot and any passengers, is attached to each balloon. A balloon is inflated in two stages. First, a large fan blows cool air into it as it lies spread out on the ground. Next, a propane burner blasts hot air into the partially inflated envelope. The hot air lifts the

balloon upright, but it remains firmly tethered to the ground until the pilot is ready for liftoff. Once the balloon is airborne, the pilot can make it ascend by turning the burners on and adding more hot air. To descend, he just lets the air cool off, or he can open a vent in the top of the balloon to let hot air escape.

At the festival, hot-air balloons normally carry only enough propane to stay aloft for a few hours, usually at an elevation of less than 2,000 feet. Therefore, the balloonists—including a chase crew who follow them on the ground—must keep on the lookout for safe landing sites. The pilot and crew look for open land free of electric cables and away from busy streets.

Some of the balloons at the festival are filled with helium or hydrogen. Unlike the hot-air variety, these gas-filled balloons can remain airborne for days. Gas balloonists compete to see who can fly the farthest, traveling at altitudes of 10,000 to 15,000 feet.

Balloons cannot really be steered. Rather, they drift at the whim of the winds. But an experienced pilot can control his course by ascending or descending to pick up air currents flowing in the desired direction. In this respect, Albuquerque is ideal for bal-

looning. The surrounding mountains and river valley form the Albuquerque Box—a combination of wind patterns that causes lower-level winds to push balloons one way and upper-level winds to bring them back in the opposite direction.

An Exciting Event

More than 2,000 volunteers cooperate for the success and safety of the festival. Coordinating the complicated event is an official called the balloonmeister. His job of directing the liftoff of hundreds of balloons is somewhat like managing a busy airport. Just imagine the scene! At lift-off, the kaleidoscope of color and imaginative shapes thrills both the adult spectators and the wide-eyed children. Look! There's a balloon shaped like a frog, another shaped like a bear, and another like a rabbit! There goes a baby dinosaur, a giant floating cow, two flying pigs, a goldfish named Sushi, a jack-in-the-box, a huge airborne soda can, a cowboy boot, a bunch of red chili peppers, and many, many others.

Seeing such a multitude of colors and designs set against the bright blue sky, a photographer can really get carried away! And evening brings another magnificent sight—the darkening sky is strewn with hundreds of balloons, each one's burner glowing like a candle in a paper lantern.

Few of us may witness the balloon festival or have the exhilarating experience of riding in a balloon. But as you contemplate these pictures, you can at least allow your imagination to soar—up into the autumn sky over Albuquerque.



IS OVERDRINKING REALLY THAT BAD?

THE amiable drunk, played for laughs, has been a staple of stage and screen for years. Although entertainers may just be acting, their type of humor typifies the ambivalence many have toward heavy drinking, considering it a weakness, yes, but virtually harmless.

The reality, of course, is nothing to laugh at. The World Health Organization rates alcohol abuse as one of the top hazards to health worldwide. It is said that with the exception of tobacco addiction, abuse of alcohol causes more deaths and illnesses than the abuse of any other dependence-producing substance, and it drains the American economy alone of over \$184 billion a year.

Despite these facts, many continue to

downplay overdrinking. While they may acknowledge the harmful effects of long-term abuse, they see nothing wrong with an occasional binge. Among young people in some parts of the world, getting drunk is viewed as a rite of passage. And despite dire warnings by health organizations, binge drinking, defined as downing five or more drinks at a single sitting, is rising dramatically in all age groups. Understandably, then, many individuals wonder whether heavy drinking is really all that bad. What does the Bible say?

Wine and Strong Drink—Gifts From God

The Bible contains many references to wine and strong drink. King Solomon wrote: "Go, eat your food with rejoicing and drink your wine with a good heart, because already

the true God has found pleasure in your works.” (Ecclesiastes 9:7) The psalmist acknowledged that Jehovah God is the Provider of “wine that makes the heart of mortal man rejoice.” (Psalm 104:14, 15) It is apparent that wine is one of the gifts included among Jehovah’s blessings to mankind.

Drinking wine was obviously acceptable to Jesus. In fact, his first miracle involved turning water into choice wine at a marriage banquet. (John 2:3-10) He also used wine as a fitting symbol of his blood when inaugurating the Lord’s Evening Meal. (Matthew 26:27-29) The Bible even mentions wine’s medicinal value, for the apostle Paul encouraged Timothy to “use a little wine for the sake of [his] stomach.”—1 Timothy 5:23; Luke 10:34.

Moderation Is the Key

Note that Paul recommended drinking only “a little wine.” The Bible clearly condemns all immoderate use of alcohol. Jewish priests were free to drink in moderation when off duty. However, they were forbidden to drink any alcoholic beverages while engaging in their priestly duties. (Leviticus 10:8-11) Many years later, first-century Christians were warned that drunkards “will not inherit God’s kingdom.”—1 Corinthians 6:9, 10.

Furthermore, in instructions to Timothy, Paul says that those taking the lead in the congregation cannot be ‘drunken brawlers’ or be “giving themselves to a lot of wine.”* (1 Timothy 3:3, 8) In fact, the Bible commands that unrepentant drunkards be expelled from the Christian congregation. (1 Corinthians 5:11-13) As the Scriptures aptly put it, “wine is a ridiculer.” (Proverbs 20:1) Overindulgence in alcohol can weaken the drinker’s inhibitions and impair his judgment.

* Since overseers and ministerial servants should be examples to the flock in their judgment and behavior, displaying Jehovah’s exalted standards to the best of their ability, this requirement would reasonably apply to other Christians as well.

Why God’s Word Condemns Overdrinking

Jehovah, ‘the One who is teaching us to benefit ourselves,’ knows that when we abuse anything, we end up hurting ourselves and others. (Isaiah 48:17, 18) This is true when it comes to consuming alcoholic beverages. God’s Word asks: “Who has woe? Who has uneasiness? Who has contentions? Who has concern? Who has wounds for no reason? Who has dullness of eyes?” It answers: “Those staying a long time with the wine, those coming in to search out mixed wine.”—Proverbs 23:29, 30.

Under the influence of too much alcohol, people have done many thoughtless and dangerous things: driving while impaired and putting themselves and others at risk, becoming overly affectionate with another person’s mate and seriously damaging relationships, speaking and acting foolishly or even perversely. (Proverbs 23:33) Alcohol abuse has rightly been called one of the most damaging of all social ills plaguing mankind today. No wonder God exhorts: “Do not come to be among heavy drinkers of wine”!—Proverbs 23:20.

At Galatians 5:19-21, Paul lists drunken bouts and revelries as “works of the flesh” in opposition to the fruitage of God’s spirit. Overindulging in alcohol will damage one’s relationship with God. Clearly, then, Christians should avoid any immoderate use of alcohol.

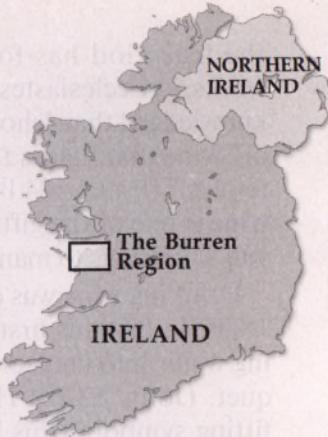
In Our Next Issue

- **Can This World Be Changed for the Better?**
- **Why Does God Let Us Suffer?**
- **Understanding Lactose Intolerance**



IRELAND'S FASCINATING Burren

BY AWAKE! WRITER IN IRELAND



NOT everyone found it fascinating. Some saw it as little more than a barren, rocky wilderness. "There is not water enough to drown a man, wood enough to hang one, nor earth enough to bury him," said English Lieutenant General Edmund Ludlow, sometime after his visit there in 1651.

Most visitors, though, are captivated by it. Naturalists, botanists, archaeologists, historians, and thousands of others who regularly come here have many different reasons for seeing it as "a fascinating and awesome stretch of land." Where is this place? Why does it appeal to so many different people?

"A Place of Rocks"

It is at the very edge of Europe—on the west coast of Ireland, between the world-famous Cliffs of Moher to the south and Galway Bay to the north. It is called the Burren. The name comes from the Irish word *boireann*, and it means "a place of rocks."

Rock dominates the landscape. "Exposed by some quirk of geology," says one guidebook, in many places "huge pavements of grey limestone dotted with massive boulders stretch as far as the eye can see." The whole Burren area, in fact, is a vast limestone deposit that covers some 500 square miles. Much of this "mysterious brooding moonscape" seems totally devoid of any soil.

Like "a Huge Storage Heater"

Wind and rain have sculpted the limestone pavements or slabs, known as clints, into some wondrous shapes and forms, giving the Burren a dramatic, stark beauty all its own. But it was not the unique beauty of the Burren that first attracted the people who settled here thousands of years ago. They were more interested in the Burren's remarkable ability to provide year-round grazing for their cattle.

The large expanse of limestone—over 3,000 feet deep in places—acts "as a huge storage heater, soaking up warmth in summer and slowly emitting it in winter." Along with the moderating influence of the ocean temperatures, this created a very attractive farming environment for those early settlers.

Early Builders in the Burren

Past generations, such as those early farmers, left their mark all over the Burren landscape. There are dozens of megalithic tombs. One of the most famous of these is the Poulnabrone dolmen, built long before the time of Christ. What we see today, of course, is only the bare skeleton of the original tomb—just the huge limestone slabs that the ancient builders used to construct this memorial to their "special dead." When it was first built, say the experts, the tomb was covered with an imposing heap of stones and earth.

Long before the Celts arrived in Ireland, inhabitants of the Burren left evidence of their

Panoramic view
of the Burren



presence in the form of stone burial places that are called wedge tombs because of their particular wedge shape. In 1934, at a place called Gleninsheen, a young man found what he thought was a "queer looking thing." This turned out to be a beautifully manufactured gold collar—now seen as "one of the finest achievements of Irish Later Bronze Age goldsmiths."

Great mystery surrounds these ancient peoples. Who exactly were they? What did they believe? What was the purpose of their buildings, such as those on the exposed summit of what is called Turlough Hill? Was this enigmatic site an ancient hill fort, or was it set aside as a sacred place for some special religious rituals? No one really knows.

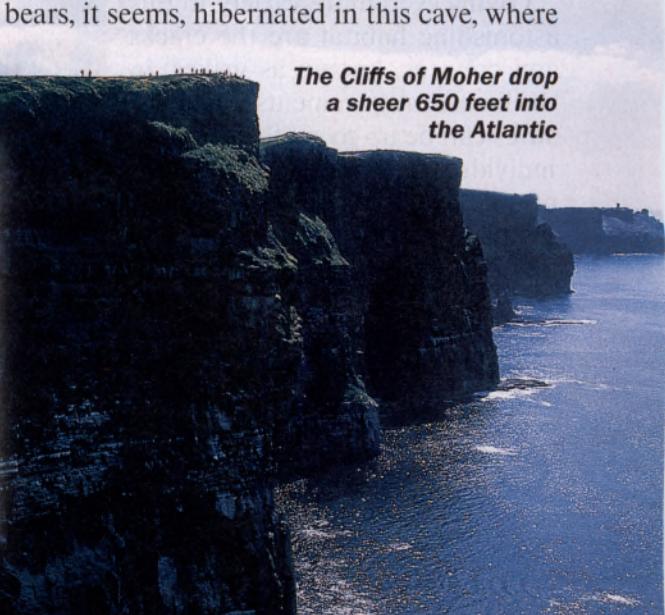
Later communities built countless stone or earthen ringforts, ancient fortified homesteads. They were followed by the build-

ers of the many churches, monasteries, and castles.

The Underground Burren

Even underground, the Burren is a fascinating place. Water has penetrated deep into the porous limestone deposits to produce "one of Ireland's most remarkable underworlds." The limestone is honeycombed with caves. Many of these caves are still active, that is, they still have streams, rivers, and waterfalls flowing in them. In one cave, called Poll an Ionain, is what is said to be Europe's longest free-hanging stalactite—over 30 feet long!

Since many caves are dangerous, cautious visitors confine their explorations to the relatively safe Burren's show cave, the Aillwee Cave, the only one open to the general public. Here you can see traces of an animal that has been extinct in Ireland for more than a thousand years—the brown bear. The bears, it seems, hibernated in this cave, where



The Cliffs of Moher drop a sheer 650 feet into the Atlantic

the temperature stays at 50 degrees Fahrenheit all year. Deep inside the limestone mountain, you can marvel at the strangely shaped stalactites, stalagmites, and other extraordinary rock formations. You can also try to imagine the force of water that gouged out the remarkable caves and caverns in the first place.

A "Botanical Metropolis"

It is the remarkable plant life that really makes the Burren different. This landscape "is one of Europe's most varied and astonishing habitats," says one writer. It includes seashore and mountainside, meadow and woodland. There are hundreds of totally enclosed valleys, formed thousands of years ago by the collapse of some of the Burren cave systems. Strange lakes called turoughs are transformed into meadows during the summer months, as the water table falls. Stone walls—some of them thousands of years old—stretch everywhere across the limestone pavements and surround every available patch of green.

Giving even more variety to this astonishing habitat are the cracks and crevices, known as grikes, in the limestone pavements. These fissures can be up to six feet deep. In individual crevices, isolated islands of soil have developed that provide sheltered and varied havens where plants of all sorts grow.



Throughout the Burren, says botanist Cilian Roden, "rare and spectacular plants occur in an abundance normally associated with daisies or thistles." Although more than 600 different species mingle here, it is not simply the variety or abundance of plants that makes the Burren different. What makes it unique is the extraordinary mixture of plants. The "flourishing of Arctic, Alpine and Mediterranean flora, lime haters and lime lovers, all growing together in this small corner of western Ireland" has baffled and bewildered botanists for hundreds of years.

The beautiful blue spring gentian, considered an alpine plant, grows even at sea level in the Burren. Within a few inches of one another are Arctic plants, such as the mountain avens, and subtropical plants, such as the maidenhair fern. More than 20 species of orchids thrive throughout the Burren. Here, too, in abundance are wild thyme, wood sorrel, bloody cranesbill, bird's-foot trefoil, thrift, and many more. The Burren fully merits its description as a "botanical metropolis."

Yes, it is rocky. Yet, the Burren is no barren wilderness. It reflects the beauty and diversity of creation. It stimulates the mind, excites the senses, stirs the imagination, and lifts the spirit. Come to Ireland and see the fascinating Burren!



The Day the "Bush Capital" Burned

BY AWAKE! WRITER IN AUSTRALIA

ON January 18, 2003, the residents of Australia's capital city, Canberra, awoke to an eerie glow. A thick veil of smoke transformed the morning sun into a blood-red ball. The air was hot, dry, and oppressive. Australia was in the grip of drought, making trees, leaves, and undergrowth as dry as parchment. For weeks fire had ravaged the vast eucalypt forests surrounding this city, which is affectionately known as the Bush Capital.

During that afternoon, gusty, searing winds caused the unthinkable to happen. The fires broke containment lines and leapt onto the pine forests growing in and around the southwest side of Canberra.

The Forest Exploses

Elliot, a volunteer fire fighter, says: "The pine forests exploded at 3:00 p.m. with such ferocity that we and the nearby suburbs were showered with burning embers. It was terrifying to see a 40-meter-high [130-foot-high] wall of flame racing toward us." The extreme heat and gusting winds formed their own weather patterns, creating a fireball that

ripped through the suburb of Chapman at frightening speed, uprooting trees and destroying homes. Scores of electric poles burned and snapped, bringing down live wires. Within the first hour, 230 homes were destroyed.

Fire-fighting crews were overwhelmed by the fury of the phenomenon. Elliot says: "It was heartbreaking to see homes go up in flames, since we had to choose which homes to try to save and which to abandon to the fires. Worse still was seeing crying, distressed people returning to what used to be their homes."

The Aftermath

Four people died in the fires, and hundreds more were injured. One victim, a 36-year-old woman, ran back into her home to save photographs. The roof of the house collapsed, trapping her inside. She could not be saved.

When the winds and flames died down, 530 homes had been destroyed, leaving 2,500 people homeless. Electricity, gas, and sewage services were badly damaged, causing health concerns. People with respiratory problems overloaded the emergency unit of the Canberra Hospital. Sadly, while the evacuation centers filled, heartless criminals began looting abandoned homes. But reports of heroism and human kindness also abounded. Neighbors helped one another, strangers rescued animals, schools opened their doors to the homeless, and fire-fighting volunteers protected the buildings of others, only to lose their own homes.

While the trees will eventually grow again and the houses will be rebuilt, Prime Minister

John Howard said that the impact of the devastation is "not something that will disappear . . . from the psyche of Canberra."



Amate

Mexico's Papyrus



BY AWAKE! WRITER IN MEXICO

THE Mexican people have a rich and fascinating history. Among the valuable cultural treasures rescued from the past are "testimonies"—pictographic manuscripts, or codices. By means of these codices, it is possible to delve into many fields of knowledge—history, science, religion, and chronology—and into the daily life of developed civilizations in Mesoamerica, including the Aztecs and the Maya. *Tlacuilos*, or scribes, of surprising ability captured their history on various materials.

Although some codices were made of strips of cloth, deer-skin, or maguey paper, the principal material used was amate. The name amate is taken from the Nahuatl word *amatl*, which means paper. Amate was obtained from the bark of a ficus, or fig tree, from the Moraceae family. According to the *Enciclopedia de México*, "the many species of the *Ficus* are difficult to tell apart unless a detailed examination of the trunk, leaves, flowers, and fruit is made." The ficus can be white amate, white woodland amate, or dark-brown amate.

Pounding the fibers



Its Manufacture

With the conquest by the Spanish in the 16th century, efforts were made to interrupt the activity of manufacturing amate. Why? In the conquerors' view, amate was closely related to pre-Hispanic religious rites, which were condemned by the Catholic Church. In his work *Historia de las Indias de Nueva España e Islas de la Tierra Firme* (History of the New Spain Indies and Terra Firma Islands), Spanish friar Diego Durán pointed out that the natives "composed very extensive histories of their forefathers. These would have given us more than a little light if ignorant zeal had not destroyed them for us. Because there were some ignorant ones who, thinking that they were idols, had them burned up, when actually they were histories worth remembering."

However, attempts to eradicate the tradition of amate papermaking were not successful, and fortunately it has endured down to this day. In the north Sierra mountains of the state of Puebla, paper is still made in such places as San Pablito, Pahuatlán municipality. Quoting information recorded by King Philip II's royal physician, Francisco Hernández, the magazine *Arqueología Mexicana* (Mexican Archaeology) says that "papermakers cut only the thick branches of the trees, leaving the shoots. Then the branches were left to soften in nearby rivers or streams during the night. The next day, the bark was pulled off the branch and the outer bark was separated from the inner, saving only the latter." After the bark was cleaned, the segments of fiber were spread out on a flat surface and were pounded with a stone hammer.

Nowadays, to soften the fibers and, at the same time, to eliminate certain substances from them, the fibers are cooked in large kettles to which ash and lime are added. The cooking process can last up to six hours. Then the fibers are rinsed and left in water. Craftsmen place strands of fibers one by one

on a flat wooden surface to form a checkerboard pattern. Later, using a stone hammer, they pound the fibers with regular blows until these are interwoven and form a sheet of paper. Lastly, the borders of the paper are folded to the inside to reinforce the edges, and then the paper is left to dry in the sun.

There are several colors of amate. Brown is traditional, but it also comes in white or ivory, in mottled brown and white, and in such colors as yellow, blue, rose, and green.

Its Modern Use

Beautiful Mexican handicrafts are created with amate. Although some paintings on this paper have a religious significance, others are representations of different stylized animals as well as festivals and scenes reflecting the happy life of the Mexican people. In addition to beautiful multicolored pictures, there are also cards, bookmarks, and other handicrafts made using amate. Such crafts fascinate both the native-born and foreigners, who buy them as decorations. This art has spread beyond the borders of Mexico, being exported to several parts of the world. Replicas have been made of the ancient codices. How interesting it must have been for the Spanish to observe this art for the first time! In fact, Diego Durán, the Dominican monk mentioned earlier, commented that the natives "had everything written down and painted in books and on long pieces of paper, with calculations of the years, months, and days on which they occurred. Their laws and ordinances, their census lists, etc., were written down in these paintings, all with much order and accord."

How fine it is that the tradition of making amate has survived down to our time and with it the beauty of the Mexican heritage. Just like the *tacuilos*, or scribes, of antiquity, simple modern-day craftsmen enjoy the marvel of amate, which may well be called the papyrus of Mexico.

Watching the World

Church Attendance in Canada Continues to Decline

"In Canada, secularism is triumphant," said French Canadian writer Yann Martel in an interview with *Publishers Weekly*. Moreover, a report in *The New York Times* says that in Montreal "church attendance is plummeting so fast that at least 18 churches in the last three years have been boarded up and abandoned or converted into condominiums and, in one case, even a pizza parlor." According to Marguerite Van Die, a theology professor at Queen's University in Kingston, Ontario, "this is a society where religion no longer wields cultural authority."

Venezuelan Lightning Helps Ozone Layer

Although 90 percent of the ozone surrounding the earth is formed by ultraviolet radiation from the sun, the other 10 percent is created by electrical storms. And electrical storms abound in the swamps of the Catatumbo National Park, Zulia State, Venezuela. *The Daily Journal* of Caracas reports that there are "140 to 160 days of electrical storms" per year over the Catatumbo River delta region. It is thought that methane, a by-product of decomposing vegetation and other matter from the sur-

Zipped Wounds

Closing wounds with a medical zipper works better than conventional stitching, reports the *Frankfurter Allgemeine Zeitung*. "A surgical bandage with a zipper is adhesive, just like a normal plaster. The bandage, with its rows of teeth, is stuck to each side of the wound and is then closed like the zip fastener on an item of clothing." A study conducted at the University Clinic of Göttingen, Germany, compared two groups of patients who had skin tumors surgically removed. Both groups had the tissue beneath the skin stitched in the normal manner. But the uppermost skin layers of one group were closed with medical zippers, while the other group's wounds were closed with conventional stitches. The wounds with zippers left significantly thinner scars and developed unsightly "ladder" scars less frequently.



rounding lagoons and marshes, combines with low clouds and bad weather to trigger the lightning. Another interesting feature of the Catatumbo lightning is that it is so far away that no thunder is heard. It is "a natural phenomenon found nowhere else in the world," says Lost World Adventures Web site.

The Most Expensive Cities

Tokyo, Moscow, and Osaka are the most expensive cities in the world. That is the conclusion of a study conducted by Mercer Human Resource Consulting. The survey, which covers 144 cities, took into account the comparative cost of more than

200 products and services, including housing, clothing, transportation, entertainment, furniture, and household equipment. Half of the 20 most expensive cities are in Asia. Geneva, London, and Zurich appear among the most expensive cities in Europe, after Moscow. New York appears as the tenth most expensive city, while no Canadian city is ranked among the first 100. As to the cheapest cities, Asunción in Paraguay tops the list.

Disappearing Languages

"The number of 'living' languages spoken in the world is dwindling faster than the decline in the plan-

et's wildlife," reports a study cited in *The Independent* of London. Linguists estimate that worldwide, 6,809 languages are spoken, 90 percent of them by fewer than 100,000 people. Languages with fewer than 50 speakers number 357, while 46 are known to have just one native speaker. Colonization has caused the disappearance of 52 of the 176 languages of North American tribes, and 31 of the 235 Aboriginal languages of Australia. Professor Bill Sutherland of the University of East Anglia, England, said that when threats to languages were compared in the same way as threats to animals, a substantially higher proportion of languages could be classified as "critically endangered," "endangered," or "vulnerable." He adds: "The threats to birds and mammals are well known but it

turns out that languages are far more threatened."

Cause of the Common Cold

"Catch a chill and you'll catch a cold," goes the saying. However, "for more than a century, scientists have invested an extraordinary amount of time and energy in debunking this old saw," reports *The New York Times*. "But despite their efforts, the link between colds and the weather still lingers and continues to inspire yet more research." Beginning with Louis Pasteur, in 1878, thousands of experiments have been conducted to determine what part, if any, chilling the body has on catching a cold. Not surprisingly, researchers are still not certain of the answer. Dr. Jack Gwaltney, Jr., one of the world's leading experts on the common cold, suggests that it is humidity rather than tem-

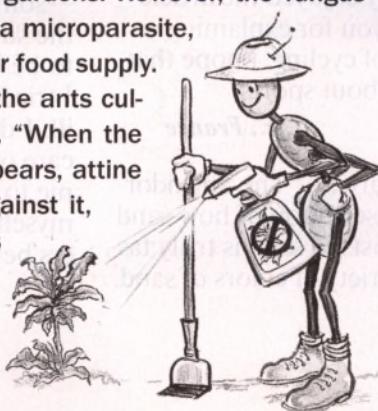
perature that promotes colds. The bottom line is that "the common cold is a complex entity—not a single disease at all, but many similar ones, and that all of them cycle in response to the weather in ways that are still not understood," says the *Times*.

Psychological Problems in the Workplace

"The causes of disability in the workplace are shifting dramatically from physical to psychological," says the *Globe and Mail* newspaper of Canada. More than 180 Canadian companies participated in a survey of disability management practices. Results showed that "79 per cent of respondents ranked psychological conditions as the leading cause of short-term disabilities and 73 per cent said those illnesses were the No. 1 cause of long-term disabilities." Some reasons suggested for the rise in workplace stress, anxiety, and depression include an older work force that finds it more difficult to keep up, heavier work loads, and modern technology that keeps employees connected to their work, resulting in a "never-ending workday." According to Dr. Richard Earle, of Toronto's Canadian Institute of Stress, employers can help "by educating managers on how to identify and deal with psychological illnesses and by providing employer-assistance programs and other services."

Ants That Make Weed Killer

"Some ants that raise fungus for food also make a weed-killer to get rid of a parasite," reports Bloomberg news service. Attine ants cannot digest the leaves and detritus they bring into their nest. The rotting vegetation they gather is stored in chambers and used to grow fungus gardens. However, the fungus the ants harvest is attacked by a microparasite, which can reduce or destroy their food supply. In order to protect the fungus, the ants culture a bacteria on their bodies. "When the unwanted fungus [parasite] appears, attine ants rub parts of their body against it, depositing the weed-killer," says the report.

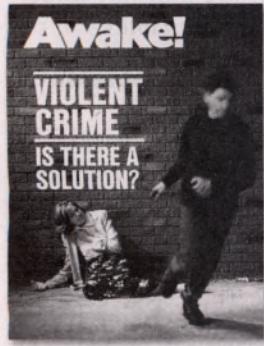


From Our Readers

Violent Crime The series "Violent Crime—Is There a Solution?" (July 8, 2003) was extraordinarily well written. I appreciated the way the first article stated the facts without setting forth the solution. It simply

ended with some good questions for contemplation, allowing the reader to grasp the severity of the problem. Then the Scriptural solutions were outlined. For lack of better terminology, the articles were riveting!

A. L., United States



The final article in this series, entitled "A Realistic Solution—Is It Possible?," helped me to see that a change of mind and heart is needed in order for people to love righteousness. All of us have to be taught by Jehovah God, as Isaiah 54:13 states. Even now, with Jehovah's help we can start on the road to being the type of people that Jehovah wants us to be.

V. K., United States

Tour de France I thoroughly enjoyed the article "The Tour de France—100 Years of Cycling's Supreme Test." (July 8, 2003) I used to race in amateur cycling tournaments. Even though I watch the Tour de France every year on television, I knew nothing of its beginnings or that 2003 marked its 100th year. The article mentioned acts of "gentlemanly sportsmanship." I think this is what attracts so many people.

R. S., Japan

I am ten years old, and I really enjoyed the article on the Tour de France. Thank you for explaining so many things about the history of cycling. I hope that you will publish more articles about sports.

J. F., France

Sand I read with interest the article "The Splendor of Sand." (May 8, 2003) The description of how sand is formed and of the life that exists in sand is truly fascinating. I am amazed at the variety of colors of sand.

To think that without sand we would not have glass or cement—such valuable commodities! Thank you for such wonderful information.

N. N., South Africa

Diabetes Thank you very much for the cover series "Living With Diabetes." (May 8, 2003) For 12 years I have had Type 1 diabetes, and I have been treated by means of frequent insulin injections. My wife provides enormous support for me. We both keep learning about the disease, we visit the doctor together, and I am working on acquiring a more positive attitude. Because I serve as a traveling overseer, I have noted among fellow Christians a greater awareness of the need to be kind and patient toward an ill person in order to help him face life's challenges. Such an attitude helps me to continue my ministry to the congregations. This series of articles came just in time. Once again, thank you very much.

W. B., Poland

I have been a diabetic for 28 years. Ten members of my family suffer from this illness. Your series contains the most comprehensive information that I have seen up until now. The articles reflect our Creator's love—something that secular articles on the subject lack. Since I did not want to be too dependent on my family, I tried not to let others see that I was ill. I derived pleasure from taking care of others. But this article helped me to see that I need to take care of myself so that I can take care of others better.

L. P., France

An Amazing Survivor

BY AWAKE! WRITER IN NAMIBIA

HERE in the Namib Desert of southwestern Africa, the air is clear and crisp. It is a cloudless day. As the sun rises, so does the temperature. This is a world of sand dunes and windswept gravel plains. We look around in awe. What is that heap of green leaves in the distance? Looking closer, we find that we have stumbled upon one of the strangest plants in the world—the *Welwitschia mirabilis*. The second word of that scientific name is Latin for “wonderful.”

In the wild, welwitschias are found only in desert regions of Angola and Namibia. They are so different from any other plant that scientists classify them as a unique family and genus made up of only one species. “Of the approximately 375,000 species of plants known to man, no other plant has succeeded in creating so much botanical interest as has *Welwitschia*; nor has any other plant so defied man’s habit of categorizing,” writes Chris Bornman in his book *Welwitschia—Paradox of a Parched Paradise*.

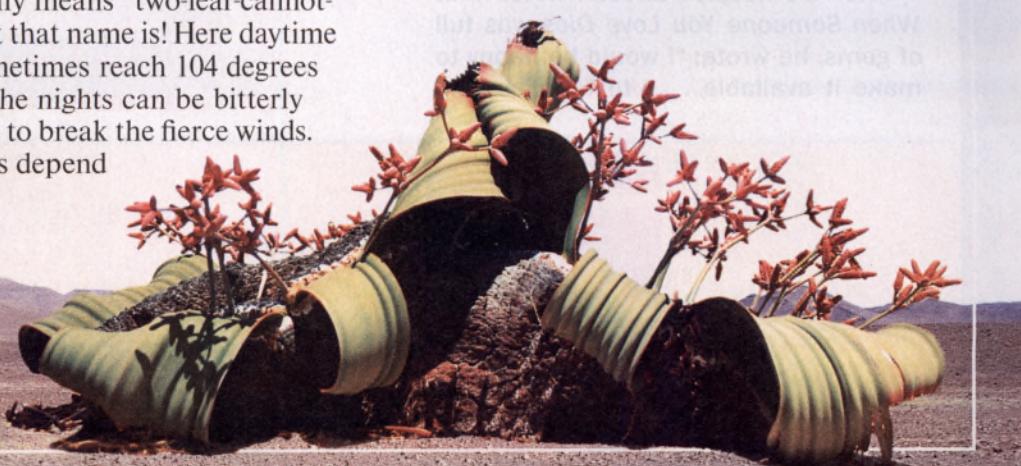
Welwitschias may look like a mass of leaves surrounding a tree stump, but the plant actually has only two leaves. These become shredded into strips by the desert wind. An Afrikaans name for it, *tweeblaarkanniedood*, literally means “two-leaf-can-not-die.” And how apt that name is! Here daytime temperatures sometimes reach 104 degrees Fahrenheit, and the nights can be bitterly cold with no trees to break the fierce winds. While most plants depend

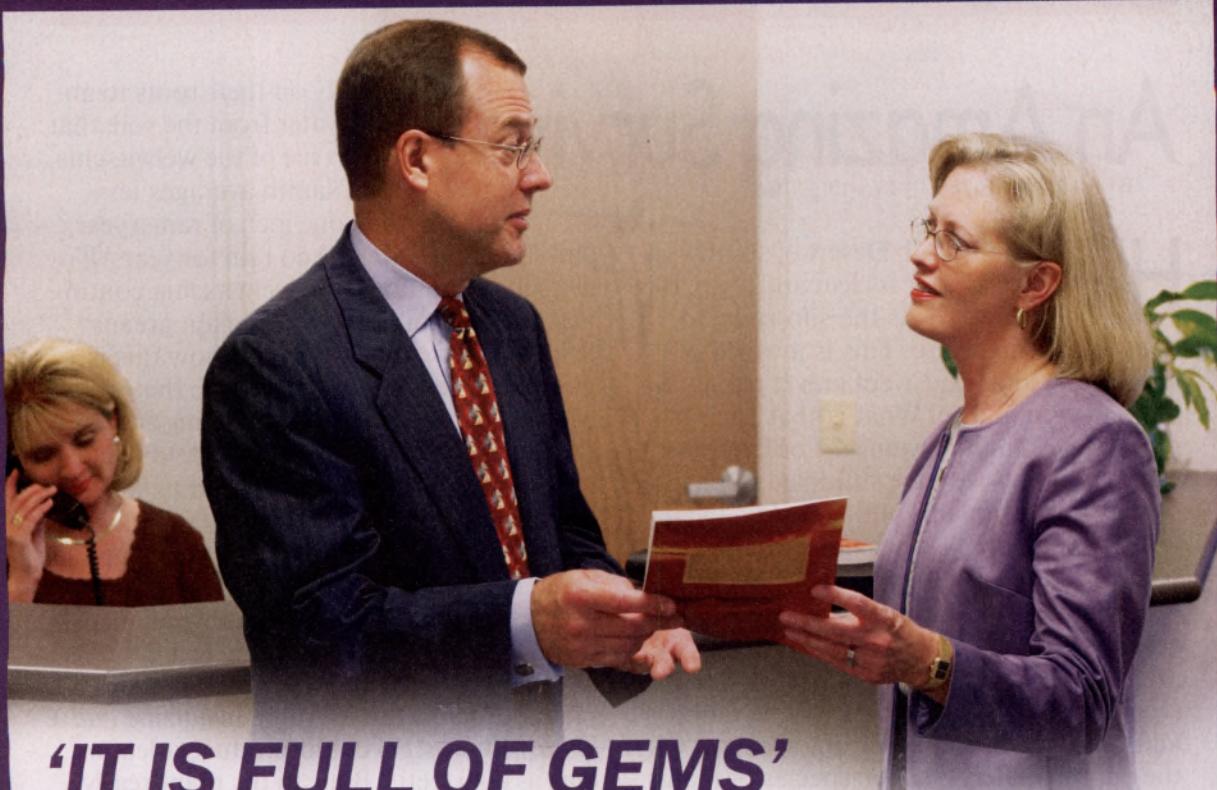
entirely on their roots to absorb water from the soil, that is not true of the welwitschia. The Namib averages less than one inch of rain a year,

and sometimes there is no rain for years! Under such conditions, the welwitschia continues to grow and its leaves remain green. Scientists have long wondered how this is possible. The answer seems to be that welwitschia leaves absorb the morning fog carried into the desert by regular coastal winds.

The welwitschia does not shed its leaves and grow new ones. The original pair continue growing for the entire life of the plant. On being unraveled, one leaf was found to be over 28 feet long! Imagine what would happen if the ends of a welwitschia leaf did not die and wear off! “In a life span of 1500 years,” explains the scientific magazine *Veld & Flora*, “*Welwitschia* could produce a leaf as long as [740 feet].” But can the plant really live that long? “*Welwitschia* plants grow slowly and often live 1,000 to 2,000 years,” confirms *The World Book Multimedia Encyclopedia*.

The welwitschia is indeed a wonderful survivor. What accounts for the fact that this unique plant lives so long in such harsh desert conditions? Basically, we must thank the all-wise Designer, the Creator, Jehovah God, the one who makes “vegetation for the service of mankind.”—Psalm 104:14.





'IT IS FULL OF GEMS'

That is how the director of a hospice in Illinois, U.S.A., described the brochure *When Someone You Love Dies*. The brochure and an *Awake!* magazine had been mailed to him by one of Jehovah's Witnesses because from reading *Awake!* the Witness had learned that suicide was very high among the aged. When the hospice director received the literature, he responded immediately.

After the hospice director noted that *When Someone You Love Dies* was full of gems, he wrote: "I would be happy to make it available . . . to families who

would be comforted by its practical wisdom and Biblical references and discussions."

The Witness immediately phoned the director and made an appointment to visit him personally. The director requested 20 copies of the brochure and asked that the hospice be contacted every two or three months to replenish copies.

