Awake!

May 22, 2001

The New Look of TERRORISM

Awake!

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The New Look of TERRORISM

3-12

Terrorists are using new technologies and have set their sights on new targets. How are you affected? Is there a solution to the plague of international terrorism?

Pages 2 and 5: A. Lokuhapuarachchi/Sipa Press

COVER: Top right: AP Photo/Katsumi Kasahara; Oklahoma City bombing: AP Photo/David Longstreath

How Can I Get Closer to My Grandparents? 13

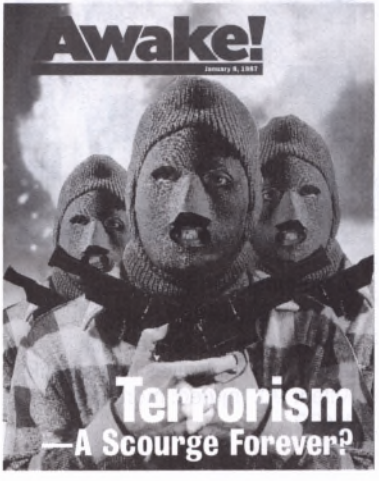
Learn some practical steps you can take to build and maintain a close relationship with your grandparents.

You Are Connected —How? 19

You can telephone a friend on the other side of the earth with ease. What makes this possible?

TERRORISM
Gets a New Look

The last time the subject of terrorism was featured on the cover of this journal, a familiar image was used —that of masked killers toting guns against a backdrop of a powerful explosion. Nowadays, however, the picture is different.



IN THE light of dusk, a convoy of plain trucks moves quietly through the subdivisions. The trucks stop near a school building. Soon, a specially trained team of men in gas masks and chemical-protection suits trudge through the leafy shrubs. The only thing they know is that a small explosive device was detonated at a sports event in the school stadium, spreading fumes that sickened scores of spectators. In cooperation with local emergency personnel, the four men cautiously enter the contaminated area to find out what happened. What did the device unleash? Anthrax? Nerve gas?

The men walk slowly toward the arena, bringing with them an assortment of equipment for chemical analysis. They reach a small room where they find the remains of the explosive device. Their mission is delicate, requiring the handling of tiny detection kits and the moving of heavy objects.

Soon their masks steam up. The effort is taxing, even for trained men. In less than ten minutes, though, the residue is identified. "Positive hit on anthrax," affirms the chemist accompanying them.

The Changing Face of Terror

This event was not as dangerous as it sounds. It was a drill, testing the team's response to a simulated gas attack somewhere in upstate New York. The group is one of the recently formed Weapons of

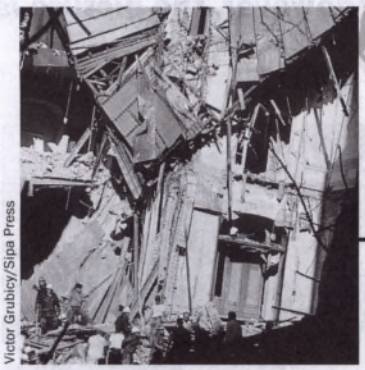
1. Buenos Aires, Argentina
March 17, 1992
A car bomb demolishes the Israeli Embassy. Killed: 29. Injured: 242

2. Algiers, Algeria
August 26, 1992
A bomb explodes in the international airport. Killed: 12. Injured: at least 128

3. New York City, United States
February 26, 1993
Religious extremists explode a massive bomb below the World Trade Center. Killed: 6. Injured: some 1,000

4. Matsumoto, Japan
June 27, 1994
Members of the Aum Shinrikyo group spray sarin gas in a residential neighborhood. Killed: 7. Injured: 270

5. Tokyo, Japan
March 20, 1995
Aum Shinrikyo members carry six packages onto Tokyo subway trains, releasing deadly sarin gas. Killed: 12. Injured: more than 5,000



Victor Grubicy/Sipa Press

6. Oklahoma City, United States
April 19, 1995
A truck bomb explodes at a federal building. Right-wing extremists are blamed. Killed: 168. Injured: more than 500

7. Colombo, Sri Lanka
January 31, 1996
Ethnic terrorists ram a truck laden with explosives into a bank. Killed: 90. Injured: more than 1,400

8. London, England
February 9, 1996
Irish terrorists detonate a bomb in a parking garage. Killed: 2. Injured: more than 100

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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Semimonthly ENGLISH

A Decade of TERRORISM

Source: The Interdisciplinary Center, Herzliya, Israel

11. Phnom Penh, Cambodia
March 30, 1997
Assailants throw four grenades into a demonstration. Killed: up to 16. Injured: more than 100

12. Coimbatore, India
February 14, 1998
A series of bombings are carried out by religious militants. Killed: 43. Injured: 200

13. Nairobi, Kenya, and Dar es Salaam, Tanzania
August 7, 1998
The U.S. Embassies are bombed. Killed: 250. Injured: over 5,500

14. Colombia
October 18 and November 3, 1998
One attack with bombs and another with missiles. An oil pipeline is the target of the first attack. Killed: 209. Injured: more than 130

9. Jerusalem, Israel
February 25, 1996
A suicide bomber blows up a bus. Religious extremists are suspected. Killed: 26. Injured: some 80 others

10. Dhahran, Saudi Arabia
June 25, 1996
A fuel truck carrying a bomb explodes outside a U.S. military housing facility. Killed: 19. Injured: 515

15. Moscow, Russia
September 9 and 13, 1999
Two huge explosions rip through two apartment buildings. Killed: 212. Injured: more than 300

Would you welcome more information? Write Watch Tower at the appropriate address. Publication of *Awake!* is part of a worldwide Bible educational work supported by voluntary donations.

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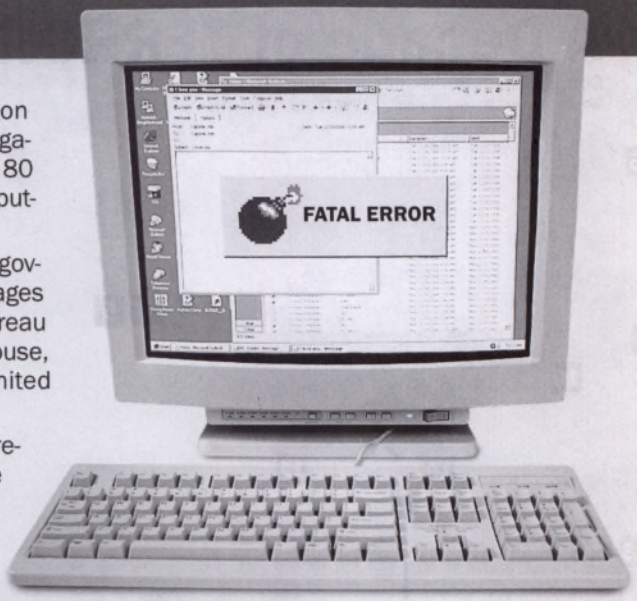
Cyberattacks

March 1999: Reports show that Pentagon computers have been under a "coordinated, organized" barrage from intruders. Every day 60 to 80 attacks from hackers are recorded on the computer systems of the U.S. Defense Department.

Mid-1999: Within a three-month period, antigovernment hackers gain illegal entry to Web pages maintained by the U.S. Senate, the Federal Bureau of Investigation, the U.S. Army, the White House, and several cabinet departments in the United States.

January 2000: Worldwide, businesses are reported to have spent $12.1 billion during the previous year fighting "economic terrorism" in the form of harmful computer viruses.

August 2000: A hacker penetrates government-agency and local-authority Web sites in the United Kingdom.



Mass Destruction Civil Support Teams. Such teams are assigned to assess the scope and severity of a new breed of terrorist attacks by analyzing suspected germs, chemicals, or radioactive material.

This team is one of many worldwide that have been formed in response to the changing threats and challenges posed by terrorism.* Incidents in recent years suggest that acts of terror committed by independent groups or lone extremists are increasing. Although many terrorists still target military installations and diplomatic missions, some have expanded their list to include attacks on so-called soft targets, such as mass transportation systems, sporting events, busy urban locations, hotels, and tourist sites.

Confirming a shift in the behavior of terrorists, Porter Goss, chairman of the U.S. House Intelligence Committee, observed: "We're having to graduate from our old thinking about state-sponsored terrorism to terrorism's new look. We're facing increasingly cause-sponsored terrorism."

Terrorism's emerging new look embraces actions and strategies that may be harder to prevent or combat. More and more, terrorists are able to utilize new technologies and secure independent financing. Reports *USA Today:* "New computer and communications technology and links with organized crime make terrorism even more difficult to combat." The new look also involves new targets, forcing reporters and news analysts to coin such expressions as "cyberterrorism," "bioterrorism," and "ecoterrorism."

How threatening is the new face of terrorism? Is your personal security threatened? Is there a solution to the plague of international terrorism? The following articles will shed some light on these questions.

* Views on what constitutes terrorism vary widely. For example, in countries torn apart by civil strife, acts of violence by one faction against another may be viewed either as legitimate acts of war or as terrorism, depending on which side is asked. In this series of articles, the word "terrorism" generally has reference to the use of violence as a means of coercion.

Facing the Threat of TERRORISM

IN THE late 1980's, terrorism appeared to be on the decline. However, a new breed of terrorist has emerged. Today's terrorist threat comes primarily from extremists who have established their own funding networks—through traffic in drugs, private business, independent wealth, charities, and local financial support. And they continue to be as ruthless as ever.

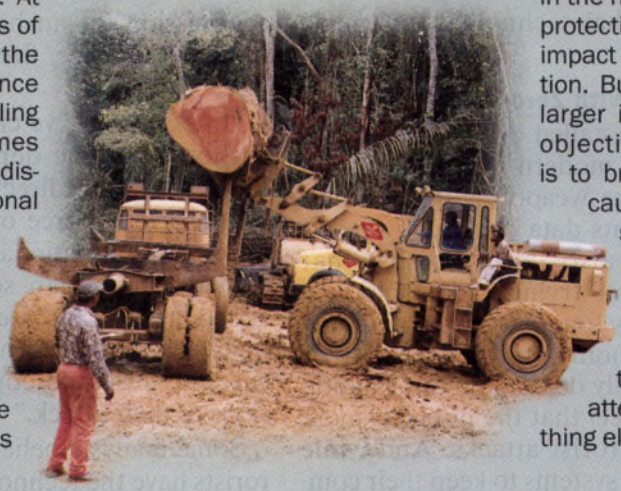
Recent years saw a proliferation of senseless acts of terrorism. The World Trade Center in New York City was bombed, killing 6 people and injuring some 1,000. A cult released sarin nerve gas in the Tokyo subway system, killing 12 and injuring more than 5,000. A terrorist leveled a federal building in Oklahoma City with a truck bomb, killing 168 and injuring hundreds. As the chart on pages 4 and 5 shows, terrorist acts of various kinds have continued up until now.

In general, terrorists seem to exhibit less restraint than they did in the past. The

Terrorism in the Name of Ecology

A new type of terror has taken the form of "arsons, bombings and sabotage in the name of saving the environment and its creatures," reports the *Oregonian* newspaper. These destructive acts have been called ecoterrorism. At least a hundred major acts of this type have occurred in the western United States since 1980, with damages totaling $42.8 million. Such crimes are typically intended to disrupt logging, the recreational use of wilderness areas, or the use of animals for fur, food, or research.

These acts are considered terrorist acts because they involve violence intended to change the behavior of individuals and institutions or to alter public policies. Ecoterrorists frustrate investigators by hitting remote targets, often at night, and leaving little evidence but charred ruins. Until recently, crimes in the name of environmental protection had limited, *local* impact and drew little attention. But targets have grown larger in recent years. "The objective of these people is to bring attention to their cause for change," said special agent James N. Damitio, a veteran U.S. Forest Service investigator. "And if they don't feel like they're getting that attention, they try something else."



convicted bomber of the Oklahoma City federal building in 1995 was quoted as saying that in order to get the level of attention he needed, he wanted "a body count." The ringleader of the group responsible for the 1993 World Trade Center bombing in New York City wanted to knock one building into the other, killing everyone in both.

Also new is the choice of weapons at the disposal of terrorists. Louis R. Mizell, Jr., an expert on terrorism, stated: "We live in an age of unimaginable rage and apocalyptic arsenals: nuclear, chemical, and biological." Extremists who want to make a greater impression are turning to the more lethal weapons that technology has made available.

Heidi Levine/Sipa Press

A. Lokuhapuarachchi/Sipa Press

Attacking With Zeros and Ones

What has been called cyberterrorism involves the use of modern technology, such as computers. One weapon is the computer virus, which eats data or freezes up systems. There are also "logic bombs" that fool computers into trying to do something they can't, thereby forcing them to malfunction. As the economy and the security of nations increasingly depend on information networks, many feel that the public is more open to such terrorist attacks. And while most armies have systems to keep their communications up even during a nuclear war, civilian systems—power supplies, transportation, and financial markets—may be more vulnerable to sabotage.

Not long ago, if a terrorist wanted to cause a blackout in, let's say, Berlin, he might have sought a job as a utility worker so that he could sabotage the electrical system. But now, some say, it might be possible for a trained computer hacker to darken the city from the comfort of his home in a remote village halfway around the world.

Not long ago a hacker from Sweden invaded a computer system in Florida and put an emergency-service system out of commission for an hour, impeding the responses of police, fire, and ambulance services.

"In essence we've created a global village without a police department," observed Frank J. Cilluffo, director of the Information Warfare Task Force of the Center for Strategic and International Studies (CSIS). And Robert Kupperman, senior adviser to CSIS, stated in 1997 that if terrorists choose to use high-tech methods, "no government agency currently exists to cope with the repercussions of their attack."

Some analysts believe that computer terrorists have the technological tools available

to outwit any protection devices that security forces come up with. "An adversary capable of implanting the right virus or accessing the right terminal can cause massive damage," said George Tenet, director of the U.S. Central Intelligence Agency.

1. A suicide bombing in Jerusalem, Israel

2. Ethnic terrorists bomb a bank in Colombo, Sri Lanka

3. A car bomb explodes in Nairobi, Kenya

4. Family of the victims of a bomb explosion in Moscow, Russia

AP Photo/Sayyid Azim

Izvestia/Sipa Press

Terror by Chemicals and Germs

Concern also exists over the use of chemical as well as biological weapons. The world was shocked in early 1995 to hear of the terrorist poison-gas attack in the Tokyo subway system. Responsibility for the incident was laid at the doorstep of an apocalyptic sect.

"Terrorism has changed," says Brad Roberts of the Institute for Defense Analyses. "Traditional terrorists wanted political concessions. But now, some groups say their main aim is mass casualties. That makes biological weapons appealing." Is it difficult to obtain such weapons? The magazine *Scientific American* says: "One can cultivate trillions of bacteria at relatively little risk to one's self with gear no more sophisticated than a beer fermenter and a protein-based culture, a gas mask and a plastic overgarment." Once the germs are prepared, delivering them is relatively easy. Victims would not even know that a weapon had been set off until a day or two later. And by then it could be too late.

Anthrax is said to be a likely choice as a biological weapon. The disease gets its name from the Greek word for coal—a reference to the black scabs that typically form over sores that develop on the skin of those who come in contact with anthrax-infected livestock. Defense planners are more concerned about lung infections caused by breathing in anthrax spores. In humans, anthrax infection has a high mortality rate.

Why is anthrax such an effective biological weapon? The bacterium is easy to cultivate and is highly resistant. It would take

several days before the victims would experience the first symptom, a flulike malaise and fatigue. A cough and mild chest discomfort follow. Then come severe respiratory distress, shock and, within hours, death.

Nuclear Weapons in the Hands of Terrorists?

After the collapse of the Soviet Union, some wondered whether a stolen nuclear weapon would turn up on the black market. Many experts, however, doubt that this will ever happen. Robert Kupperman, quoted earlier, notes that there is "no evidence that any terrorist group has sought to acquire nuclear material."

A more immediate concern is the nuclear bomb's quiet but deadly cousin—radioactive material. It does not explode. There is no blast or heat damage. Instead, it emits radiation that destroys individual cells. Bone marrow cells are especially vulnerable. Their death sets off a cascade of effects, including hemorrhaging and the collapse of the immune system. Unlike chemical weapons, which degrade once they come in contact with oxygen and moisture, radioactive material can continue to inflict damage for years.

An accident in Goiânia, a city in south-central Brazil, illustrates how deadly radiation can be. In 1987 an unsuspecting man opened a lead canister attached to a piece of abandoned medical equipment. The canister contained cesium-137. Fascinated by the stone's luminous blue glow, he shared his find with his friends. Within a week the first victims began coming to the local health clinic. Thousands were checked for signs of contamination. About a hundred residents became sick. Fifty required hospitalization, and four died. The thought of what might have happened had the cesium been intentionally dispersed gives antiterrorism experts nightmares.

The Staggering Cost

The tragic loss of human life is the most obvious result of terrorism. But there are broader implications. Terrorism can destroy or delay the peace process in trouble spots on the planet. It provokes, prolongs, or entrenches conflicts, and it accelerates the cycle of violence.

Terrorism can also have an impact on national economies. Governments have been forced to spend enormous amounts of time and resources to combat it. For example, in the United States alone, antiterrorism spending was budgeted at more than ten billion dollars for the year 2000.

Whether we notice it or not, terrorism affects us all. It influences the way we travel and the choices we make when we travel. It forces countries around the world to spend huge amounts of tax money to protect public figures, vital installations, and citizens.

So the question remains, Is there a lasting solution to the scourge of terrorism? This will be discussed in the next article.

Terrorism and the Media

"Publicity has been at once a primary goal and a weapon of those who use terror against innocent people to advance political causes or to simply cause chaos," says Terry Anderson, a journalist who was held in captivity for nearly seven years by terrorists in Lebanon. "The very reporting of a political kidnapping, an assassination or a deadly bombing is a first victory for the terrorist. Without the world's attention, these acts of viciousness are pointless."

TERRORISM
Soon to End!

A BUS in Jerusalem, a federal building in Oklahoma City, or an apartment building in Moscow can all be targets of terrorism. Although terrorists apparently want to convey a powerful message to politicians, military leaders, or economic leaders, there often seems to be no link between their cause and their target. In many cases the actual targets are ordinary people—people who have nothing to do with the terrorists' avowed cause. Why, then, do extremists resort to acts of terrorism?

Why Terrorism?

Terrorism is systematic, premeditated, and calculated. The resulting toll in deaths and injuries is not the primary objective. Such carnage is a means to an end, part of the atmosphere of shock and fear that the terrorist wishes to create in order to undermine authority and gain a hearing for his specific cause. Consider some of the factors behind the violent acts of terrorists.

Hatred. "Terrorism . . . is fueled by hatred," stated Louis J. Freeh, director of the U.S. Federal Bureau of Investigation. "Those who harbor such hatred live in a world that is colored by bigotry, shaded by conspiracy, and framed by ignorance."

Oppression. "To be sure, there are leaders of groups and countries whose irrational goals are the annihilation of other cultures," writes Stephen Bowman in his book *When the Eagle Screams.* "But it is also clear that a great deal of terrorism is born of despair."

Frustration. "In many cases . . . the primary motivation for a terrorist is a genuine frustration with seemingly intractable political, social, and economic forces," observes the editor of the book *Urban Terrorism.*

Injustice. "Terrorism is a symptom of a problem, not the actual cause," remarks Michael Shimoff in his paper "The Policy of Terrorism." He continues: "Our long-term goal should be to eliminate the underlying social and political causes of terrorism. . . . Paralleling our actions against terrorism, we must have equally vigorous efforts to enhance freedom, dignity, justice, and humanitarian values. Only when those vigorous efforts are effective, will we be able to dismantle our counter-terrorism and anti-terrorism operations."

The causes and history of terrorism have proved the truth of the Biblical statement: "Man has dominated man to his injury." (Ecclesiastes 8:9) The Bible even foretold the traits that have nurtured terrorism. It says: "In the last days critical times hard to deal with will be here. For men will be lovers of themselves, . . . having no natural affection, not open to any agreement, slanderers, without self-control, fierce, without love of goodness, betrayers, headstrong, puffed up with pride."—2 Timothy 3:1-4.

The reality is that human efforts to combat terrorism, no matter how sincerely motivated, cannot successfully deal with its causes. The Bible realistically observes: "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) However, while the solution to the problem of terrorism is beyond human power, it certainly is not beyond God's power.

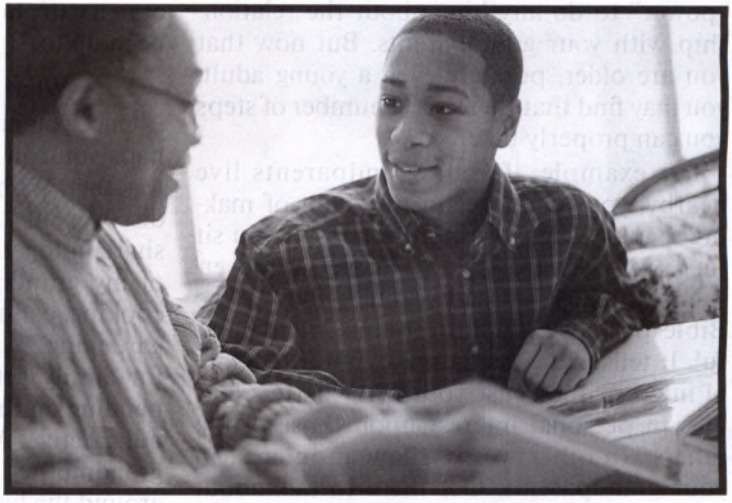
The Solution

Those who have been wronged or oppressed and who feel frustrated can find comfort in the Bible's sure promise: "The upright are the ones that will reside in the earth, and the blameless are the ones that will be left over in it. As regards the wicked, they will be cut off from the very earth; and as for the treacherous, they will be torn away from it."—Proverbs 2:21, 22.

This promise of God will soon be fulfilled. His Ruler, the reigning King Jesus Christ, will see to that. A Bible prophecy says regarding Christ: "He will not judge by any mere appearance to his eyes, nor reprove simply according to the thing heard by his ears. And with righteousness he must judge the lowly ones, and with uprightness he must give reproof in behalf of the meek ones of the earth."—Isaiah 11:3, 4.

Yes, God's Son, Jesus Christ, will soon eliminate all injustice as well as those responsible for it. In God's righteous new system, terrorism and violence of every kind will be things of the past. Then everyone on earth will live in security, free from fear of any harm.—Revelation 21:3, 4.

The Bible promises that God will soon eliminate all oppression and injustice



"Both of my grandfathers are storytellers. Their stories help me to understand my own feelings."—Joshua.

How Can I Get Closer to My Grandparents?

THERE was a time when it was common for several generations of family members to live close together—often in the same home. Close association with one's grandparents was a way of life.

Nowadays, great distances may separate young ones from their grandparents. Furthermore, growing numbers of families have been shattered by divorce. *The Toronto Star* reported that "grandparents may also be victims of divorce and prevented from seeing grandchildren they love." In other cases, the problem is that many young people simply have a negative view of older ones, seeing them as out of touch, as having outlooks, values, and interests that are very different from their own. The bottom line? Many young ones simply are not as close to their grandparents as they could be.

This is tragic. As a previous article in this series showed, having a close relationship with one's grandparents—especially if they are God-fearing—is healthy, beneficial, and enjoyable.* A teenage girl named Rebekah says of her grandparents: "We can always laugh together." A youth named Peter similarly says: "I'm not afraid to tell them how I feel or what my plans are. Sometimes I feel more comfortable with them than with my parents. I feel that I can talk to my grandparents about anything."

What about you? Perhaps you were close to your grandparents when you were little. But now that you are a teenager, it may be that you haven't done much to nourish the relationship recently. If that is the case, the principle of the Bible's counsel at 2 Corinthians 6: 11-13 could well be applied here, namely, to "widen out" in your affections toward them. The question is, How?

Taking the Initiative

'Widening out' implies taking some initiative. After all, the Bible says: "Do not hold back good from those to whom it is owing, when it happens to be in the power of your

* See the article "Young People Ask . . . Why Should I Get to Know My Grandparents?" in our April 22, 2001, issue.

hand to do it." (Proverbs 3:27) When you were younger, you might not have had much "power" to do anything about the relationship with your grandparents. But now that you are older, possibly even a young adult, you may find that there are a number of steps you can properly take.

For example, if your grandparents live nearby, you might get in the habit of making regular visits. Boring? Perhaps, if you sit there in awkward silence. So get a conversation going! What can you talk about? The Bible principle at Philippians 2:4 is helpful. It tells us to 'keep an eye, not in personal interest upon just your own matters, but also in personal interest upon those of the others.' In other words, show an interest in your grandparents. Get them to talk about the things they care about. How do they feel? What have they been doing? They might enjoy talking about the past. So ask them what life was like when they were young. Or what was your father or mother like when he or she was young? If your grandparents are Christians, ask what attracted them to the Bible's truths.

Grandparents are often rich repositories of family history, and they are probably more than willing to regale you with fascinating stories. Indeed, you might even want to turn this into a fun project. Try interviewing your grandparents, maybe taking notes or making an audio or video recording. If you are not sure what to ask, have your parents help you work up suitable questions. Likely you will learn many things that will help you better understand your grandparents, your parents, and even yourself. "Both of my grandfathers are storytellers," Joshua relates. "Their stories help me to understand my own feelings."

Don't forget, though, that your grandparents are also quite interested in your life and your activities. When you tell them what you are doing, you are inviting them into your life. This cannot help but draw you closer together. A youth in France named Igor says: "My grandmother and I like to sip tea together in a café, talking about what we both have been up to."

What Can We Do Together?

Once you have begun talking together, perhaps you can move on to *doing* some things together. With a little forethought, you might discover all kinds of activities that you can share in together. Young Dara recalls: "Both of my grandmas have given me lessons in cooking, canning, baking, raising plants, and gardening." Amy has joined her grandparents for family get-togethers and vacations. Depending on their age, some grandparents are quite active. Aaron likes to play golf with his grandmother. Joshua fishes and does projects around the house with his grandfathers.

If your grandparents are worshipers of Jehovah, it can be particularly enjoyable to share in aspects of Jehovah's worship with them, such as talking to others about the Bible. Igor got to travel with his grandmother to an international gathering of Jehovah's Witnesses in Poland. "It was an unforgettable experience that we were able to share, and we still enjoy talking about it," he says. True, not all grandparents are so mobile. Still, it is worthwhile to spend time with them.

A Spiritual Heritage

In Bible times a woman named Lois played an important role in helping her grandson, Timothy, to become an outstanding man of God. (2 Timothy 1:5) Not surprisingly, many Christian grandparents play a similar role today. Joshua says regarding his grandparents: "They have served Jehovah longer than I have been alive, so I have a deep respect for them, not only as grandparents but as integrity keepers." Amy says: "My grandparents are always saying how encouraged and happy they are to see me faithfully serving Jehovah. Yet, seeing their fine example and zeal for Jehovah as pioneers [full-time evangeliz-

ers] has encouraged me to continue in my pioneer service."

Chris calls his grandmother "the person who motivated me the most to study and grow." He adds: "I will never forget her saying that 'for Jehovah we have to do our best.'" Pedro's grandparents have played an especially big role in his spiritual development. He says: "Their experience has helped me a lot. My grandparents always took me out preaching, and I appreciate that very much." Yes, drawing close to God-fearing grandparents can help you to serve God more fully.

Long-Distance Grandparents

What if your grandparents live far away? If possible, try to visit regularly. Between visits, do what you can to maintain contact. Hornan sees his grandparents only three times a year, but he says: "I call them every Sunday." Dara, who likewise lives far away from her grandparents, says: "They take an interest in my life, and we call or E-mail each other almost every week." E-mail and phone calls have their place, but don't underestimate the power of an old-fashioned handwritten letter. Many young ones have been surprised to find out that their grandparents have saved every letter that they have written since childhood. Letters can be read and reread—and cherished. So be sure to write!

Grandparents often have a very special love for their grandchildren. (Proverbs 17:6) There are many ways to build and maintain a close relationship with your grandparents, whether they live near or far. By all means, make the effort.

Butterflies, Plants, and Ants

A VITAL CONNECTION

BY *AWAKE!* WRITER IN THE NETHERLANDS

A butterfly visits a blue marsh gentian and deposits her eggs

IN July, delicate blue butterflies in Western Europe know that it is time to produce the next generation. To accomplish that, though, the butterflies need more than a mate. They also need the services of blooming blue marsh gentians and hungry red ants. Why? What role do plants and ants play in the life cycle of these butterflies?

One place to observe this intriguing three-way relationship is at Dwingelderveld National Park in the northern part of the Netherlands. This park is home to a large concentration of these blue butterflies. In spring and summer, the Dwingelderveld heaths are transformed into a multicolored carpet made up of many flowering plants, including blue marsh gentians, pink bog heather, and yellow bog asphodels. The blue butterflies are especially attracted to the dainty flowers of bog heather and the fringed flow-

Ants on pages 16 and 17: Pictures by David Nash; www.zi.ku.dk/personal/drnash/atta/

ers of blue marsh gentians—but for two different reasons. The flowering bog heather is a popular food stop serving nectar, and the marsh gentian is viewed as a potential storage place. But what will the butterflies store there?

A Survival Plan

After mating has taken place, the female butterfly looks for a marsh gentian that is taller than the surrounding vegetation. The butterfly settles down on the flower and deposits a few white-colored eggs. Four to ten days later, the eggs hatch, and between two and six tiny caterpillars begin their new life by burrowing into their food supply. After two to three weeks of nonstop munching, the caterpillars lower themselves to the ground.

Interestingly, the caterpillar usually waits until evening to descend. This is significant, for in the evening two species of red ants, also living in the national park, leave their nests in search of food. The caterpillar lands right in the path of these foraging ants. Although the caterpillar's move may seem suicidal, it is actually part of a survival plan. So, what happens next?

Before long, some red ants bump into the caterpillar roadblock. Quickly they tow the caterpillar to their nest. Once inside, the caterpillar is treated as a guest of honor and lives safely and comfortably through autumn, winter, and spring in an all-you-can-eat environment. Granted, the caterpillar has limited menu choice—some ant grubs and their main staple, food regurgitated by worker ants. But the ants get their end of the bargain too. They regularly milk the caterpillar for the desirable honeydew that it produces. Even when the caterpillar enters the pupal stage, it continues to provide the ants with some honeydew as well as other secretions that the ants fancy eating. But by then, the end of this coexistence is rapidly approaching.

Red ants care for pupae

Pink bog heather

Yellow bog asphodel

From Guest to Intruder

During the pupal stage, the caterpillar begins to turn into a butterfly. When the change is complete, the pupa splits open and a butterfly emerges. It is noteworthy that this event usually takes place early in the morning. Why? Because in the morning the ants are not very active, and unlike the time when the caterpillar lowered itself from the plant to the ground, this time is best for it to avoid attracting its hosts.

When the ants eventually come to milk the pupa, they are shocked to find a foreign winged creature in their nest—and they immediately attack the intruder. Quickly the caterpillar-turned-butterfly dashes for the exit to save its limbs and its life. Once outside the nest, the butterfly climbs up a twig and the ants call off the chase.

At a safe height, the butterfly now stretches its wings and lets them dry. Then, nearly a year after it began its life, the big moment arrives and the butterfly flaps its wings for the first time. There it goes—fluttering above the heath! Within days it will mate, and soon it will begin its search for a tall blue marsh gentian. After all, it's time to start preparing for the next generation.

Butterfly Endangered

The blue butterfly's habitat is the heath. Heaths were formed many centuries ago in areas of Western Europe where man had chopped down the primeval forests. In the past, purple-flowering heaths stretched as far as the eye could see, covering large parts of Belgium, Germany, and the Netherlands, but today only scattered pockets remain. As a result, the blue butterfly is rapidly losing ground. In the past ten years, it has disappeared from 57 of its 136 known natural habitats in the Netherlands. In fact, its survival is so threatened that its name has been added to the European List of Endangered Butterflies, a document compiled by the Council of Europe that lists the names of endangered butterfly species.

To ensure that Dwingelderveld National Park will remain a safe haven for the blue butterfly, the park's caretakers now try to maintain the heathland by applying the same farming methods that were used by farmers centuries ago. As in the past, shepherds with flocks of sheep roam the heaths, and cattle graze on fields covered with tougher grasses. The grazing sheep and cattle clear spots where ling, bog heather, and other plants can germinate. (Presently, some 580 species of plants grow in the park.) In response, the blue butterflies in Dwingelderveld also do their share—their numbers are growing. In fact, this largest and most important heathland park in Europe is such a hospitable home for butterflies in general that 60 percent of all butterfly species living in the Netherlands can be seen there.

Sheep and cattle are helping to restore the butterfly's habitat

YOU ARE CONNECTED *HOW?*

BY *AWAKE!* WRITER IN JAPAN

IN Japan, a land with about as many telephones as people, over 300 million phone connections are made each day. Japan also receives some one million international calls daily, and about the same number of overseas phone calls are made.

Likely, you too use the telephone—be it ordinary (fixed line) or cellular—almost every day. As the world becomes more modernized, calling someone on another continent has become a routine matter for many people. But have you ever wondered how your telephone is connected to the telephone of the party you are calling?

Connected Through a Telephone Network

First of all, your telephone needs to be hooked in to a telephone network. If you were to trace the wire attached to an ordinary telephone, it would lead you to a modular jack or a junction box, which is connected to the wiring in your house.* If you were to continue to trace farther, you would find that this line is linked to a cable, on an electric pole or under the ground, that goes to a telephone exchange in a local telephone office. This exchange, in turn, is connected to a bigger exchange, thus forming a telephone network. So when you call a friend in the same town, a voice circuit is formed between your telephone and your friend's through a network.

What happens in the case of cellular phones? How are they connected? Here, too, the principle remains the same as with the ordinary telephone. An invisible "wire," namely a radio wave, links your cellular phone to a nearby mobile telephone switching office that is connected to a telephone network. But what about when you talk to someone on another continent?

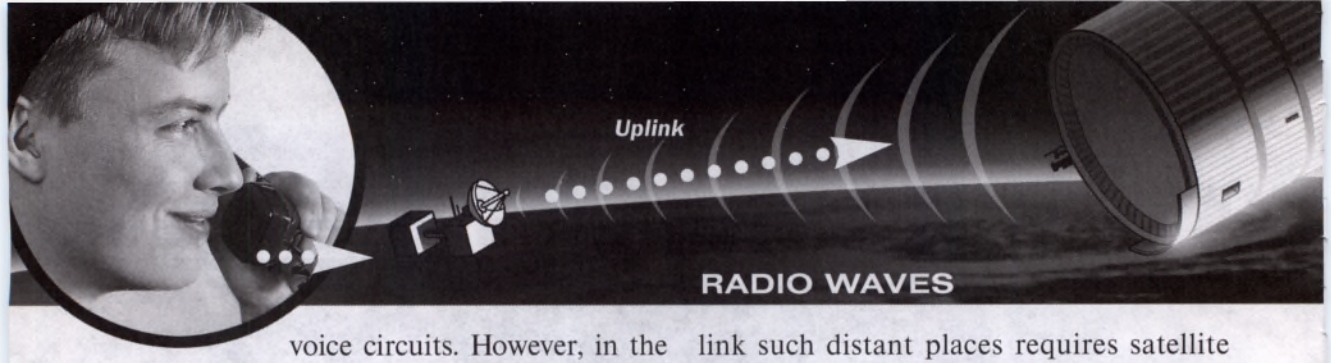
Cables Across the Oceans

Connecting by cable two continents separated by an ocean is a gigantic project. This requires installing a cable thousands of miles long under the sea and crossing undersea trenches and mountains. Yet, this is how intercontinental telecommunication had its start. The very first transatlantic underwater telephone cable was completed in 1956.* It linked Scotland to Newfoundland and carried 36 telephone circuits. In 1964 the first transpacific cable was laid between Japan and Hawaii. That cable carried 128 telephone circuits. A number of other undersea cables followed, linking continents and islands.

What types of cables are laid across the ocean floor for phone connections? Initially, coaxial cables with copper as conducting wire and copper or aluminum foil as conducting shell were commonly used. One of the last coaxial cables was laid in 1976, and it had the capacity to carry up to 4,200

* Since a certain voltage of electric current is constantly applied to the telephone wiring, increasing when the phone rings, it is dangerous to touch the inside of a junction box or the metal parts connected to it.

* A *telegraph* cable was successfully laid across the Atlantic between Ireland and Newfoundland in 1866.



voice circuits. However, in the 1980's fiber-optic cable became available. The first intercontinental cable of this type, installed in 1988, was capable of carrying 40,000 telephone conversations concurrently, using digital technology. The capacity of cables has been increased since then. Some cables spanning the Atlantic Ocean can carry 200 million telephone circuits!

How are telecommunication cables placed underwater? They are actually placed on the ocean floor and follow the seabed. Near the shore, the cable is housed in a solid casing placed in a trench that is dug by a remotely operated vehicle. The housing protects the cable from damage by anchors or fishing nets. So when you call up your friend on another continent, one of these cables may carry your voice across the deep sea.

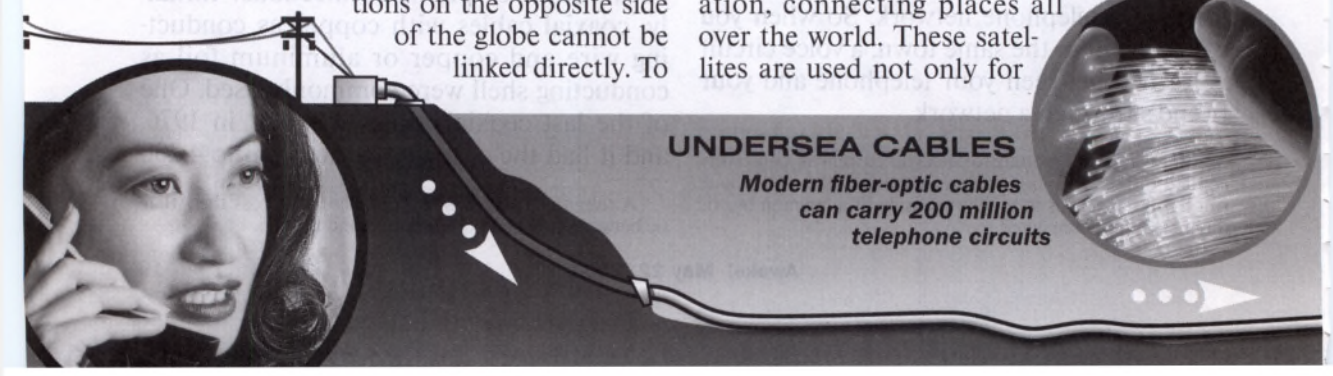
Invisible Cables Tie Distant Places Together

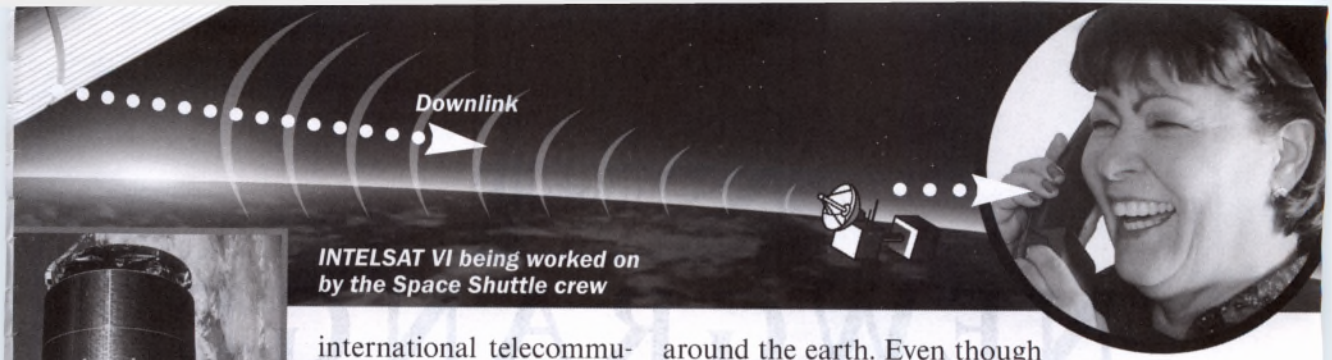
Yet, an underwater cable is not the only means to connect continents and islands. An invisible "wire"—a radio wave—is also commonly used. This type of wave, also called a microwave, ties distant places together for international telecommunications. Since a microwave travels in a straight line like a narrow beam of light, it can only link line-of-sight locations that are in its path. Because of the curvature of the earth's surface, locations on the opposite side of the globe cannot be linked directly. To link such distant places requires satellite communication.

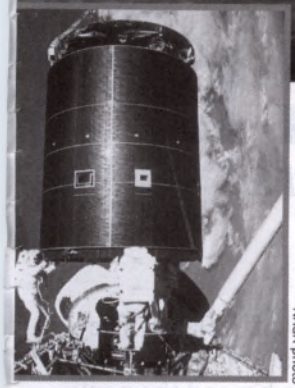
If a satellite is placed above the equator at an altitude of about 22,000 miles, in what is known as a geostationary orbit, its revolution around the earth is approximately 24 hours—the same as the earth's rotation. Hence, it remains above virtually the same region of the earth. Since this satellite can see a region that covers one third of the earth, earth stations—locations that transmit and receive microwaves—in this region can communicate with the satellite. How, then, can two distant locations be connected to each other via a satellite?

An earth station under the coverage of a satellite transmits a microwave signal to the satellite. This is called an uplink. Receiving the wave, a radio repeater, or a transponder, mounted on the satellite simply shifts the frequency lower and retransmits it so that it can be picked up by another earth station. This is called a downlink. In this way, two earth stations that cannot directly communicate with each other can be linked by an invisible wire via satellite.

The first commercial communications satellite, INTELSAT 1, also known as Early Bird, was launched in 1965. Now about 200 communications satellites, most of them geostationary, are in operation, connecting places all over the world. These satellites are used not only for







NASA photo

INTELSAT VI being worked on by the Space Shuttle crew

international telecommunication but also for television broadcasting, weather observation, and other purposes. Carrying many transponders, such satellites can provide multichannel circuits. For instance, the Early Bird was capable of relaying either one television circuit or 240 simultaneous telephone circuits. The INTELSAT VIII series, which has been in operation since 1997, can provide three television broadcasts and a maximum of 112,500 telephone circuits simultaneously.

Can You Tell?

All these changes have brought the price of international telephone calls down drastically. Perhaps you are now able to talk more often to your friends or family members on another continent. How can you tell whether you are connected by an underwater cable or a satellite link?

With a satellite link, the length of the invisible wire (which includes the uplink and the downlink) reaches some 44,000 miles. That is nearly equal to twice the distance around the earth. Even though microwaves travel as fast as a flash of light, the time it takes for them to cover the distance from one earth station to another via a satellite is nearly one fourth of a second. This means that your voice reaches the other person one fourth of a second later, and the same is true of the opposite direction. Thus, there is a time lag of half a second. Not being accustomed to this delay in everyday conversation, you may find yourself talking at the same time as the other person. If you have experienced this, it may be an indication that you are speaking over a satellite link. However, when you call the same number another time, you may not notice any time lag. This may be because you are now linked through an underwater fiber-optic cable. The choice of how to connect you to the other part of the world is made behind the scenes by an intricate telephone network.

The expertise and labors of many are needed to maintain the complex telephone network system of underwater cables, earth stations, and satellites that provides us with the convenience of communication. So the next time you make a phone call to a friend, why not think of all that has been done to connect you?

Courtesy TyCom Ltd.

Ships lay the cables and maintain them

NEWGRANGE

More Questions Than Answers?

BY *AWAKE!* WRITER IN IRELAND

IN EARLY Irish literature, the place is called Brú na Bóinne, meaning "the House or Mansion of the Boyne." Today in this mysterious area located at a bend in the river Boyne, about 30 miles north of Dublin, some of the world's oldest tombs are being unearthed. One of these is called Newgrange. No one knows exactly how old it is—although it is thought by some to be older than the great pyramid of Giza in Egypt. Each year at the time of the winter solstice, tourists flock to Newgrange to see a truly spectacular evidence of the abilities of the ancients.

Why Was It Built?

This mysterious monument must have been very important to its builders. (See box on page 24.) Why all the expenditure of time, effort, and resources? Why did they build this remarkable tomb?

Brú na Bóinne, or Brugh na Boinne, was apparently viewed not only as a sacred burial place but also as a place for ritual worship. Professor Michael O'Kelly, who excavated the site, reported: "The Brú was associated with the Dagda, the Good God; his wife, Boann; and his son Oengus; all belonging to the Tuatha Dé, a people said to have inhabited Ireland before the coming of the Gael or Celts and who thereafter retreated into the fairy mounds and forts of Ireland. They were . . . regarded as supernatural beings who could and did perform deeds beyond the power of mortals."—*Newgrange—Archaeology, Art and Legend.*

Boann was the mythical goddess after whom the river Boyne was named. With the river on three sides of the burial mound, the builders may have believed that Boann would protect the site from harm. According to researcher Martin Brennan, they may also have thought that some of the gods actually resided in the mound. In fact, he says that the earliest mythology surrounding the mounds indicates that they "were regarded as abodes of living gods conceived and born there."—*The Stars and the Stones.*

But Newgrange was more than a tomb for the dead and an abode for the gods. It is one of the oldest astronomically aligned monuments in the world. With great precision, the architects aligned the long passage and grave chamber with the spot on the horizon where the sun rises at the winter solstice. Then they put a special aperture above the entrance to the tomb. This allowed the rays of the rising sun to reach the innermost part of the tomb.

Even today, tourists gather at Newgrange each winter solstice, when the sunlight pierces the inner chamber for about 15 minutes. Clare Tuffy, manager of the Brú na Bóinne visi-

All pictures on pages 22-3 except map: Dúchas, The Heritage Service, Ireland

tor center, said: "Some people believe that the sunlight penetrating the depth of the mound represented a sort of marriage between the earth goddess and the sun deity and that the people of the time thought this would bring fertility to the ground."

The Enigma of the Stone Carvings

As far as we know, the mysterious tomb builders left no written records. But they did leave their signature in the form of some remarkable stone carvings. They carved spirals, chevrons, rectangles, triangles, curved lines, circles, and other shapes, likely using only a piece of flint or quartz and a stone hammer. Brennan calls their legacy to Ireland "the greatest collection of megalithic art in the world."

Some feel that the cryptic carvings can be interpreted and that they reflect an expert knowledge of astronomy. Brennan thinks that they depict solar and lunar activity. "It is likely that . . . both the mounds and the symbols were regarded as sacred to the sun

Above: Sunlight pierces the inner chamber for about 15 minutes each year during the winter solstice

• • • •

Below: Burial chamber from the innermost recess; note the three-spiral carving

The Builders and the Building

What do we know about the builders of Newgrange? "Very little," said Clare Tuffy, manager of the Brú na Bóinne visitor center. "But we have learned a few things. We know that they were farmers. They were also wealthy—they needed to be in order to have the resources to build such a magnificent tomb. And they had no metal tools."

Using huge stone slabs weighing up to ten tons, the builders constructed a passage approximately 60 feet long, 6 feet high, and wide enough for a man to walk through with ease. The passage leads into a 20-foot-wide burial chamber with three alcoves. The passage and chamber are in the shape of a long cross.

Over this burial chamber, these ingenious ancient builders used other massive stones, without mortar, to erect a vaulted roof 20 feet high. Above the tomb they then constructed a huge mound about 270 feet in diameter and 40 feet high. They also built a retaining wall of boulders and faced the front of it with quartz pebbles. Around the edge of the mound, they laid 97 immense curbstones, each weighing from two to five tons. Sometime in the past, the curbstones and the entrance to the tomb were buried. In 1699 a laborer searching for stones stumbled on the entrance, and this ancient passage tomb came to light again.

Entrance to Newgrange passage

and moon," he says. "This recognition alone, to a large extent, explains much of the art." But other experts agree with O'Kelly, quoted earlier, who wrote that the carvings "must have had a meaning for those who saw them, but we are unlikely ever to know what that meaning was. It must remain part of the mystery which was the Brú or mansion of the ancient gods."

"An Intellectually Sophisticated People"

It may seem that Newgrange is all questions and no answers. The mysteries surrounding the passage-tomb builders of Brú na Bóinne do remain largely unsolved. But at least one thing has been established. The builders were no savages. Indeed, O'Kelly said that Newgrange's architects, artists, and artisans "must have been of a high cultural level." Author Peter Harbison states that the builders "were far from being the primitive cave-man savages of popular legend . . . They were an intellectually sophisticated people."

Granted, we do not know who built Newgrange at Brú na Bóinne. Still, it gives eloquent testimony to the ingenuity and intelligence of its ancient architects and builders—whoever they were.

Megalithic mound and tomb

Dúchas, The Heritage Service, Ireland

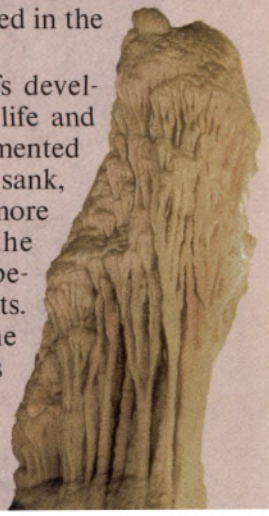
The Underground Splendor of CARLSBAD CAVERNS

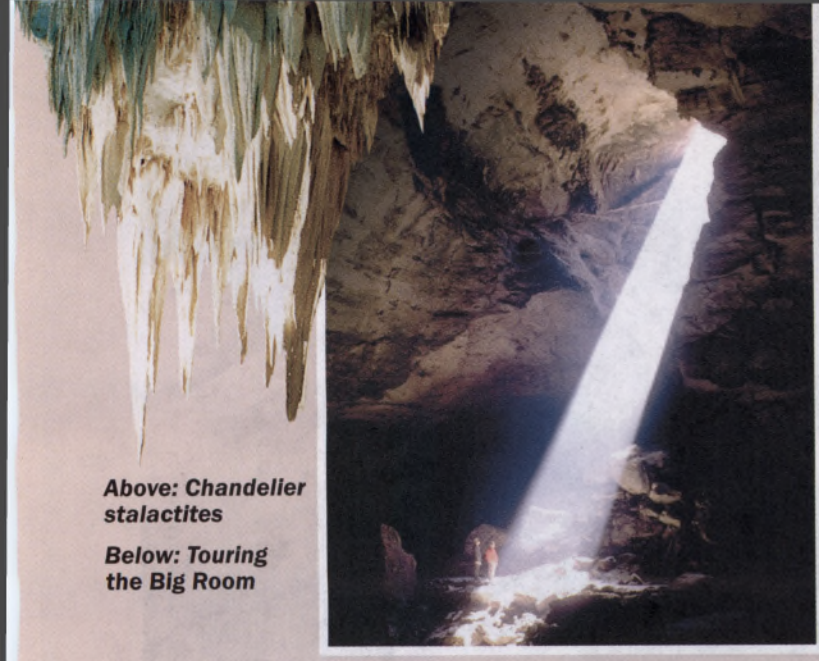
Total darkness and absolute silence. That is what we encountered deep within the grottoes of Carlsbad Caverns National Park in New Mexico, U.S.A. Upon entering the caverns, we wondered: 'How did these caves form? How extensive are they? What unusual features lie hidden within them? Are they safe to explore?'

BEFORE touring the caverns, our small group enjoyed camping and hiking in the Guadalupe Mountains National Park in southwest Texas. During our ascent of Guadalupe Peak, the highest point in Texas at 8,749 feet, we noticed a number of fossils lacing the rocks along the trail. According to geologists, these fossils provide a clue to the origins of Carlsbad Caverns. How so?

Long ago, it seems, algae, sponges, and mollusks thrived here. The whole region was a warm inland sea. Coral, the mainstay of modern reefs, was relatively rare. Some of the more exotic marine life included the now extinct trilobites and ammonoids. Many of the ammonoids lived within large, coiled chambered shells resembling those of the present-day nautilus. We were thrilled to see one of those shells embedded in the rock along the trail!

Apparently, limestone reefs developed as fossil remains of sea life and other particles piled up and cemented together. Because the sea floor sank, the reef complex thickened to more than 1,500 feet. Eventually the sea retreated, and the reefs became deeply buried by sediments. Much later, the land rose, the sediments eroded, and the reefs





Above: Chandelier stalactites

Below: Touring the Big Room

emerged as mountains. How, though, was this upheaval instrumental in forming Carlsbad Caverns?

Gas, Water, Air, and Acid

As rainwater passes through air and soil, it becomes mildly charged with carbonic acid. This weak acid is apparently responsible for forming most of the world's limestone caves. However, according to geologist Carol Hill, a much stronger acid hollowed out the caverns of the Guadalupe Mountains.

Hill suggests that sulfur-rich gas formed in oil reservoirs in rocks below the limestone reefs. When the rock mass began to rise, the gas infiltrated the reefs and reacted with air and fresh, oxygenated underground water to form sulfuric acid. This strong acid was able to dissolve large amounts of the limestone rock.

As the mountains rose and the water table dropped, cavern etching progressively deepened. In Carlsbad Caverns, spacious voids and widened fractures interconnected, forming a huge labyrinth. Some 23 miles of passages have been mapped here. But they are not the only underground chambers in these

mountains. Hundreds more exist. The largest known is Lechuguilla Cave, which has more than 100 miles of documented passages!

Cave Decorations

Our first entry into Carlsbad Caverns took us 750 feet down an elevator shaft, where we arrived near the Big Room. This huge opening stretches across 14 acres. In places, its ceiling looms more than a hundred feet above the floor. But what caught our eye was the wide array of natural cave decorations at every turn, illuminated by hidden lights.

These decorations grow wherever water entering the caves evaporates, causing the lime within it to be deposited. Where water has dripped continually from the same spots on a cave ceiling, thin hollow tubes have grown downward for as much as several feet. These soda straws, as they are called, may eventually become plugged and develop into iciclelike stalactites. Also, hanging below some sloping ceilings, wavy "draperies" enhance the theaterlike appearance of some cavern rooms.

Where the water drips to the floor, pillars may form and grow upward. These stalagmites may eventually connect to the ceiling, perhaps joining a stalactite to form a column. Some of the stalagmites in the Hall of Giants have grown to heights of more than 60 feet! If dripping water falls into small hollows, tiny rock fragments can become evenly coated with smooth limestone, resulting in lustrous cave pearls. Even more exotic decorations have developed in some cases. These include delicate clusters of needle-sharp crystals as well as twisted, wormlike tubes known as helictites, which grow in ever-changing directions.

Gazing up at the many immense stalactites, we wondered if there was any danger that they would fall. Our guide reassured us that these cave decorations rarely fall. We hoped that this would hold true during our visit!

The Cave Environment

After enjoying a meal above ground, we descended into the caverns through their natural entrance—a gaping cavity. Rock art drawn by early Native Americans decorates the wall of the opening.

As we entered, we detected the odor of bat guano. We learned that beginning nearly a century ago, the guano was mined for fertilizer. Later, a bucket-and-cable system that was used to remove the guano became the first elevator to take tourists into and out of the caverns. The guano is found in a side passage known as the Bat Cave—the summer home of a million bats. At dusk they soar out of the cave entrance by the thousands.

The park rangers explained to us that the caverns are extremely delicate. Human visitors entering the caves can easily damage and pollute them. For example, just touching the cave decorations can leave oils on their surfaces, preventing continued growth and causing discoloration. Thus, we stayed on the designated trails and avoided touching the cave formations.

As we departed from this hidden scenic wonder, we contemplated returning to see more of the caves. We would like to see the flight of the bats—they have been enjoying the caves a lot longer than human visitors. It is the humans, though, who leave those caves feeling a lingering sense of awe. —*Contributed.*

IN OUR NEXT ISSUE

Good Health for All —Is It Possible?

Cathedrals—Monuments to God or Men?

When the Waters Turn Red

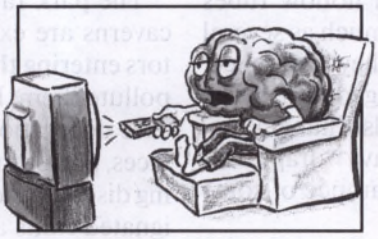
Britain's Religious Conversions

Britons are swapping religions at a faster rate than ever, with about 1,000 converting every week, reports *The Sunday Telegraph*. "Anglicans are becoming Roman Catholics, and vice versa, Jews are becoming Buddhists, Muslims are becoming Anglicans and Roman Catholics Jews." Islam, Buddhism, New Age movements, and paganism are gaining the most converts. Dr. Ahmed Andrews of England's Derby University, himself a convert, says: "There are between 5,000 and 10,000 white Muslim converts in this country, and most of the ones I know are former Catholics." Jews make up 10 to 30 percent of converts to Buddhism. Anglican conversions to Catholicism peaked after the Church of England decided to ordain women. According to Rabbi Jonathan Romain, "people feel a spiritual vacuum so they look outside their own religious backgrounds."

Life-Style and Cancer

"Cancer is overwhelmingly caused by where you are, what you do, and what happens to you in life, rather than by what you are, a study of almost 90,000 twins has shown," reports London's newspaper *The Guardian*. Dr. Paul Lichtenstein of Sweden's Karolinska Institute led the research team for this study. He says: "Environmental factors are more important than gene factors." Scientists believe that smoking causes about 35 percent of cancers, while another 30 percent appear to be related to diet. Genetic factors play a part in prostate, colorectal, and breast cancer, but Dr. Tim Key of the Imperial Cancer Research Fund in Oxford, England, advises: "Even if you have . . . a family history [of cancer] what you do with your life is much more important. You should not smoke, you should take care of your diet. Those things do make a difference."

Use Your Brain



"The brain's vitality can remain intact throughout our lives, as long as we keep exercising it," states the *Vancouver Sun* newspaper. "Read, read, read," says Dr. Amir Soas of Case Western Reserve University Medical School in Ohio, U.S.A. To retain brainpower as you age, choose mentally challenging hobbies, study a new language, learn to play a musical instrument, or engage in stimulating conversations. "Anything that stimulates the brain to think," says Dr. Soas. He also encourages cutting back on TV. "When you watch television, your brain goes into neutral," he says. The *Sun* adds that a healthy brain also needs oxygen pumped through healthy arteries. Thus, exercise and proper diet, the same things that help to prevent heart disease and diabetes, also help the brain.

Elephants "Don't Forget Their Friends"

"Elephants never forget—or at least, they don't forget their friends," reports *New Scientist* magazine. Dr. Karen McComb of the University of Sussex, England, recorded the low-pitched "contact calls" of female African elephants in Amboseli National Park, Kenya, noting which elephants would meet together frequently and which were strangers. She then played back their calls to 27 elephant families to study their responses. If the animals knew the caller well, they immediately called back. If they knew the caller only slightly, they listened but did not respond, and an unfamiliar call made them agitated and defensive. "They could recognise members of at least 14 other families from their calls, which suggests that each elephant can remember around 100 other adults," the article stated. Elephants may remember humans too. John Partridge, head of mammals at England's Bristol Zoo, says that an Asian elephant he worked with for 18 years recognized him when he returned after a three-year break.

High-Tech Drug Smugglers

In the past, Colombian drug smugglers have concealed their wares in passenger planes and ships. Recently, however,

authorities were amazed to find that smugglers were building a high-tech, double-hulled submarine, measuring more than 11 feet in diameter, which was capable of holding about 200 tons of cocaine. Suspicious residents nearby led police to "a warehouse outside Bogotá, 7,500 feet up in the Andes and 210 miles from any port," says *The New York Times*. "The 100-foot vessel could have crossed an ocean, surfaced off Miami or other coastal cities and surreptitiously unloaded its drug cargo." Though no one was at the site or was arrested, Russian and American criminals are thought to be involved, including a skilled submarine engineer. Semitrailers could have transported the submarine to the coast in three sections, officials said. They marveled at the lengths to which the drug traffickers would go to export their products.

Animals Thrive in the DMZ

"Since the DMZ [Demilitarized Zone] was established at the close of the Korean War in 1953, security measures have left the natural environment there and in surrounding areas largely undisturbed," states *The Wall Street Journal*. "While economic development has ravaged much of the land elsewhere in the two Koreas, the border area has become the peninsula's most important animal refuge." Rare and endangered birds and animals reside there. Tigers and leopards are thought to be there as well. Environmentalists are now worried that the recent peace efforts between North and South Korea could destroy the DMZ animal haven. Therefore, they are asking for "a cross-border 'peace park'" to preserve the wildlife there and allow the animals from both sides to mate. Says the *Journal:* "Environmentalists take heart from the belief that peace might help reunite these animals, the way the thaw has already brought together long-separated family members."

Stressful Lunch Breaks

"Lunch is for wimps in macho Britain as workaholic employees give up the mid-day meal in favour of a sandwich eaten at their desks," reports London's *Financial Times*. Recent research shows that the average Briton's "lunch hour" is now just 36 minutes long. Medical experts say that a midday break alleviates stress. But some employers arrange lunchtime meetings, thus giving workers no break at all. Datamonitor, the research organization that compiled the report, observes: "Caught up in a society that demands more of its workers and regards time as an expensive commodity, the lunch break is for many an inconvenient fuel stop." Datamonitor analyst Sarah Nunny adds: "We're competing in global markets. There's no longer any scope for saying 'I'll do it later.' It has to be done now."

Tobacco Addiction in Mexico

As part of a recent program for the prevention and control of tobacco addiction in Mexico, José Antonio González Fernández, then national secretary of health, noted that 27.7 percent of Mexicans smoke. The greatest concern is that approximately one million smokers are between the ages of 12 and 17. Mr. González observed that an estimated 122 Mexican deaths per day are associated with the tobacco habit. He lamented "the high cost that this represents for the economic development of the nation, the lost years of productive human life, . . . and the indirect harm that we suffer because of those who smoke around us."

Filling a Spiritual Need?

The growing popularity of self-help gurus who preach self-affirmation, positive thinking, and personal success "coincides with a movement in the population away from organized religion," says Canada's *Globe and Mail* newspaper. "An interest in spirituality is very much alive, but traditional sources of it are losing ground." Research indicates that although 80 percent of Canadians say that they believe in God, 22 percent of those who profess Christianity give more importance to their private beliefs than to the teachings of any church. The *Globe* report calls the spirituality offered by the self-help business "something to help you refuel and get back to the business of getting ahead."

Thinness The article "Young People Ask . . . Why Am I So Thin?" was of great interest to me. (September 22, 2000) I am a 32-year-old woman, but I have always been very thin and very ashamed of the way I look. I've been teased all my life, being called names like Matchstick and Bird Legs. This has often made me depressed. I like it when you say that we should seek out people who value us for who we are inside. Christians should not put others down because of their physical traits.

W. L., United States

Genetic Engineering Last night I read the series "Will Science Create a Perfect Society?" (September 22, 2000) I brought it to work, which resulted in a very good conversation with my boss, who is a doctor. The illustrations really stimulated thinking and appreciation. Thanks for the time, effort, and thought that is obviously put into each illustration.

N. M., United States

Thank you for explaining a very complicated subject in a way that all could understand. When scientists decide who can reproduce and who is "unfit," I wonder if they take into consideration such attributes as love, compassion, and appreciation for spiritual things? More brainpower or better health does not necessarily mean a better person. However, I did have a question. Why is left-handedness called a disorder?

J. C., United States

The statement in question was a quotation from the book "The Biotech Century." The word "disorder" appeared in quotation marks, indicating that the author used it ironically. The statement highlights some of the ethical challenges that genetic engineering presents. There is the danger that with the power to change the human genetic code, some might arbitrarily declare traits like skin color or left-handedness to be something undesirable.—ED.

Although science is not my favorite subject, the articles touched my heart. Eugenics involves imperfect people pursuing perfection. If they ever attained what they have in mind, the sick and disabled would likely be viewed as "inferior." Empathy for such ones would disappear. In contrast, God promises to bring man to perfection during the Millennium. (Revelation 20:4, 5) But he will do so without violating our free will.

S. O., Japan

The Universe Thank you so much for the series "The Universe—Did It Come About by Chance?" (October 8, 2000) I am a first-year biology student, and the articles read like a textbook—but written with the theme of an intelligent Creator instead of the theory of evolution. How refreshing to see this information presented in a truthful, reasonable way!

K. L., United States

Life Story The article "My Chief Concern —Remaining Loyal" (October 8, 2000), the story of Alexei Davidjuk, greatly encouraged me. Alexei explained that someone he had trusted for years betrayed his spiritual brothers. The same thing happened to me years ago when our Christian work was under government ban. Two "elders" gave details of our work to the secret police. As a result, we were arrested and interrogated. One of these so-called brothers has since died. The other was expelled from the congregation. However, a short time ago he was reinstated. How grateful I am that I can now greet this brother without any feelings of rancor! That is something that only Jehovah's spirit can make possible.

D. G., Germany

The "GOLD" of the North

BY *AWAKE!* WRITER IN POLAND

FROM ancient times, amber has been called the gold of the North. It was considered a commodity in ancient Rome. In fact, Emperor Nero reportedly dispatched a nobleman to purchase amber from Poland. What did amber traders receive in exchange? Gold and silver coins along with items for everyday use. It has been suggested that the amber trading route was instrumental in the spreading of Christianity to Poland in the early centuries of the Common Era.

Some believed that amber had magical powers. Hence, it was used to make amulets—supposedly to bring good luck, protect one from misfortune, and assist in hunting and combat. Amber was also employed in the worship of the dead. Flat disks, small ax heads, and figurines made of amber were used in solar, ancestor, and fertility cults.

In addition, amber played a significant role in folk medicine. It was believed that strings of amber beads worn around the neck would bring relief from head, neck, and throat pain, while amber bracelets would benefit sufferers of rheumatism. Various creams, balms, mixtures, and infusions of amber steeped in alcohol were also employed. Even today, some believe that amber has healing properties.

Amber is truly a credit to the Creator of all things, Jehovah God. With good reason, the psalmist was inspired to declare: "How many your works are, O Jehovah! All of them in wisdom you have made. The earth is full of your productions." —Psalm 104:24.

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Come, Hear the Free Public Talk

"WHO ARE TEACHING ALL NATIONS THE TRUTH?"

A bishop once claimed: "Ultimate truth is beyond the grasp of all of us." Is that view correct? Or is there a source of ultimate truth? Is it possible that the time will come when everyone will speak the truth?

Beginning this month the talk with the title featured above will be given at 189 three-day "Teachers of God's Word" District Conventions of Jehovah's Witnesses in the contiguous United States. In fact, it will be a highlight of some 2,000 such conventions in about 150 countries throughout the world.

Among the questions that will be addressed are: Where does truth originate? How is truth revealed? What is the principal textbook for revealing truth?

You may listen to this important talk at a convention near your home. Contact Jehovah's Witnesses locally, or write to the publishers of this magazine for the location of the one nearest you. The February 15, 2001, issue of our companion magazine, *The Watchtower,* lists the addresses of all convention locations in the United States, Canada, Britain, and Ireland.

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