

# Awake!

September 8, 1992



## SPACE EXPLORATION

**What Are the Benefits?  
What of the Future?**

## Space Exploration What Are the Benefits? What of the Future? 3-15

What has mankind accomplished so far in space? What practical benefits have accrued? Now that the Cold War is over, will the United States and the Russian Federation cooperate in space? Will man ever get to Mars? What does the Bible say about all of this? The opening series examines these questions.



### **My Quest for a Better World 20**

Eugenia María Monzón was a sincere Catholic and a nun. She thought that justice could be achieved by revolution. Read her fascinating story of how she found true justice.



### **"The Rod of Discipline"—Is It Out-of-Date? 26**

What is involved in disciplining a child? What does the Bible mean when it speaks of "the rod of discipline"?

<b>The New Age of Discovery</b>	<b>3</b>
<b>Space Exploration —How Far Has Man Gone?</b>	<b>5</b>
<b>Space Exploration —What Does the Future Hold?</b>	<b>11</b>
<b>The Celts—Their Influence Still Felt</b>	<b>16</b>
<b>Young People Ask . . . Designer Clothing —Is It for Me?</b>	<b>23</b>
<b>Watching the World</b>	<b>28</b>
<b>From Our Readers</b>	<b>30</b>
<b>"Jehovah's Witnesses Day"</b>	<b>31</b>
<b>Is There a Solution?</b>	<b>32</b>

Cover: NASA photo: Successful launch of the Challenger space shuttle, October 5, 1984

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# The New Age of Discovery

By an Awake! staff writer

**H**AVE you ever watched a space-shuttle launch on TV? Did you wonder just how big those rockets are? And how much room do the astronauts have in the space shuttle itself? I had an opportunity to see for myself when I visited Spaceport USA at Cape Canaveral, also known as the Kennedy Space Center, in Florida, U.S.A.

Having watched all kinds of space liftoffs on TV and thrilled at the first Apollo flight to the moon in 1969, it was quite an experience to find myself at the very heart of this activity, just an hour's drive east of Orlando. As we drove into the parking lot, I saw in the distance a display of rockets that had been used in the past to send men and instruments into space. And there, parked on the tarmac next to the Rocket Garden, was a full-scale replica of the shuttle orbiters used in earth-orbit operations. It is called Ambassador, and although only a copy, it was impressive to see, to visit, and to photograph. It is 56 feet high at the tail and 122 feet long, with a wingspan of 78 feet.

It was Friday, November 22, last year, and I was anxious to get near a launching pad, especially the one where the shuttle *Atlantis* was waiting to be launched on Sunday, November 24. There are several such pads, but they are a few miles away from the exhibition area. So I took the official bus tour of the main rocket building and launching installations.

Our first stop was at the Flight Crew Training Building, where we saw identical copies of

the service and lunar modules that had been used on that historic trip to the moon in 1969. The lunar module was a really ugly contraption—it had none of the smooth lines and shape of the typical space vehicle. At first sight it appeared more like a conglomeration of cubes and pyramids with a set of spidery legs attached. Yet, its twin had served to land two men on the moon.

In July 1971, Apollo 15 landed on the moon, and astronauts Scott and Irwin unloaded the lunar rover, or moon buggy. At \$15 million, that was probably the most expensive jeep ever built. And if you want to drive it, all you have to do is go to the moon—it was left up there along with the landing stage of the lunar module! But don't forget to take fresh batteries with you. The jeep's are long ago exhausted.

My next stop on the tour was the VAB (Vehicle Assembly Building). You have to get used to acronyms at the space center—they are used for everything. Chris, a former engineer on the Apollo project whom I met later, told me: "I was transferred to another section, and for months I could not understand many things that were being said because their acronyms were different from mine!" What is so special about the VAB? At over 520 feet high (equivalent to a 52-story skyscraper) and 518 feet wide and 716 feet long, it is possibly the largest building in volume, or cubic capacity, in the world. It covers an area of eight acres. It has to be so large because this is where the launch

vehicles are assembled before being trundled out on their slow, laborious journey to the launching pad. But more about that later.

We were told that the VAB is so large that four Saturn V rockets could be assembled there simultaneously. And these were 365 feet tall, designed to carry the Apollo spacecraft. The book *The Illustrated History of NASA* explains: "The total lift-off weight was a fantastic 3200 tons (2900 tonnes). Yet Saturn V's engines, developing nearly 3800 tons (3500 tonnes) of thrust, could lift the prodigious load with ease."

As I looked up at the top of this vast building, I spotted buzzards circling around, taking advantage of the updrafts over the roof. It also reminded me that the space center is located in the middle of an extensive national wildlife refuge that harbors dozens of bird, animal, and reptile species. On our bus journey, we passed a huge eagle's nest, seven feet deep, perched high in a tree. It somehow seemed appropriate that eagles should be flying where man has made some of his greatest achievements in space flight.

Our next stop was going to be an observation area from which we would be able to see a couple of launching pads at a distance. However, a big question still remained. How do they transport those huge rockets to the launching pads three and a half miles away? They use the biggest tractors I have ever seen!

They are called crawler transporters and are capable of carrying 14.5 million pounds. These transporters are each half the size of a soccer field and weigh in at six million pounds. But don't expect any speed records from these monsters. Loaded, they have a maximum speed of one mile per hour; unloaded, two miles per hour! The platform is carried on four huge two-track tractors, one at each corner. Each track has 57 cleats; each cleat weighs one ton.

Now imagine the special highway that had to be constructed to each launching pad, capable of taking the enormous weight of the mobile platform and the rocket and spacecraft.

What about the shuttle's return journey to earth? The orbiter needs somewhere to land—and here at Cape Canaveral, that "somewhere" is no ordinary airport landing strip, being about twice the length and width of an average airport runway. It is 15,000 feet long, with 1,000 feet of overlap at each end. If conditions are not right for landing, then the shuttle is diverted to Edwards Air Base out in the California desert, over 2,000 miles to the west.

The immensity of the whole project was overwhelming. And it brought questions to mind. What has man accomplished in space exploration? What have been the benefits? And what are the prospects for interplanetary flight? Will man ever land on Mars?

### **Awake!**

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# Space Exploration How Far Has Man Gone?

**O**N APRIL 12, 1961, a new Columbus entered the annals of history. Yuri Alekseyevich Gagarin, Russian cosmonaut, made man's first voyage into space in the space capsule Vostok 1. His journey lasted 108 minutes and took him 25,400 miles around the earth in one orbit. He was the winner of the first heat in the great space race between the former Soviet Union and the United States.

*U.S. News & World Report* stated: "The truth is that . . . America was propelled into space by the imperative to beat the Russians." President John F. Kennedy was set to trying to close the gap between the Soviet and the American space accomplishments. John Logsdon, director of the Center for International Science and Technology Policy, wrote in *Blueprint for Space*: "Sorenson [Kennedy's special counsel] says Kennedy's attitude was influenced by the fact [that] 'the Soviets had gained tremendous worldwide prestige from the Gagarin flight at the same time we had suffered a loss of prestige from the Bay of

Pigs.\* It pointed up the fact that prestige was a real, and not simply public relations, factor in world affairs."

President Kennedy determined that cost what it may the United States had to do something spectacular to overtake the Soviets. He asked: "Do we have a chance of beating the Soviets by putting a laboratory in space, or by a trip around the moon, or by a rocket to land on the moon, or by a rocket to go to the moon and back with a man? Is there any other space program which promises dramatic results in which we could win?" At last U.S. scientists had a political motivator to back their ambitions. But they were going to have to wait for their success.

The Russians continued their string of successes in 1963 when Valentina Vladimirovna Tereshkova became the first woman to orbit the earth, not once, but 48 times! NASA (National Aeronautics and Space Administration) faced the challenge of catching up in the race for international space prestige. So, what did they finally accomplish?

\* A failed invasion of Cuba that took place on April 17, 1961.

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## Apollo and the Moon

NASA scientists had been studying the possibility of a lunar landing since 1959. They requested permission to build a spacecraft that would be called Apollo. However, "President Eisenhower refused to approve this request." Why this negative attitude? The cost, from \$34 billion to \$46 billion, "would not produce enough scientific knowledge to justify the investment. . . . Eisenhower told NASA that he would not approve any project aimed at a lunar landing." (*Blueprint for Space*) The scientists' only hope was in the new president, John F. Kennedy.

He set the U.S. scientists the goal of landing a man on the moon before the end of the decade—and before the Russians! Wendell Marley, who was an electrical engineer working on the Apollo guidance and navigation system, told *Awake!*: "There was definitely a sense of rivalry with the U.S.S.R., and this was also a motivating force among many of the engineers I worked with. We were proud to do our part in landing a man on the moon before Russia did. Many of us even worked overtime without extra pay in order to stay on schedule."

The outcome of all that effort is now history—Neil Armstrong and Edwin "Buzz" Aldrin left the first human footprints on lunar soil in July 1969. This tremendous achievement was not without a price. On January 27, 1967, three astronauts lost their lives in an on-board fire in the command capsule during a preflight test. Less than three months later, Russian cosmonaut Vladimir Komarov died while attempting to return after 18 orbits of the earth. Yet, for hundreds of years, that has often been the price that men and women have paid for exploration. They have died in their quest for knowledge and glory.

Now, apart from moon travel, what other progress has been made in space?

## Searching the Planets

NASA has sent many satellites out into space, and they have paid off handsomely in increased knowledge of the universe. That is one of the benefits that scientists point to in order to justify the enormous expense of manned flights and unmanned space probes. March 1992 saw the 20th anniversary of one of the great success stories of space exploration—the launching of the first space probe to go beyond the solar system. Pioneer 10, launched in 1972, made up for a string of early failures among its predecessors, stretching back to 1958. The probe's active life was expected to be about three years. Instead of that, thanks to its nuclear power source, it is still sending back information to the earth. Nicholas Booth, writing in *New Scientist*, says that "NASA officials expect to be able to track the craft until the turn of the century. It could be described as the most successful interplanetary mission ever." Why has Pioneer 10 been so special?

It was programmed to head for our largest planetary neighbor, Jupiter, before exiting the solar system. This involved a journey of some 484 million miles that took nearly two years. It reached Jupiter in December 1973. On the way it passed Mars and went through an asteroid belt beyond Mars. It recorded 55 impacts from dust particles. However, the spacecraft escaped without damage. Other instruments measured radiation and magnetic fields around Jupiter.

Then Pioneer 11 was launched, and after passing Jupiter it went on to Saturn. Building on the foundation of these Pioneer ventures, NASA followed up with the Voyager 1 and 2 spacecraft. These, in Nicholas Booth's words, have sent back "a deluge of information about the Jovian [Jupiter] system that eclipsed the results of the Pioneer missions." How do these probes get their information back to the earth?

There is a tracking system called the Deep Space Network, consisting of radio dishes, of 210 feet diameter, which take turns picking up the signals as the earth rotates. These dishes are located in Spain, Australia, and the United States. They have been the key to accurate reception of spacecraft radio signals.

### Is There Life on Mars?

Space exploration will apparently continue to be driven by one intriguing question that has stirred man's curiosity for centuries: Does intelligent life exist anywhere out there in the vast universe? For a long time astronomers and writers speculated as to whether there was life on the red planet Mars. What have recent spaceflights proved in that respect?

The series of Mariner space probes in the 1960's and 1970's sent back pictures of Mars. Then, in 1976, the Viking 1 and 2 landers touched down on Mars and, incredibly, sent back information on the rock and soil. How was it obtained? By the use of an automated chemical and biological laboratory on the landing craft. Soil was picked up by a robotic arm, brought into the craft, and analyzed by the robotic laboratory. Was there any life there or any hope of it? What did the photos and analyses reveal?

Space science writer Bruce Murray explains: "No bushes, no grasses, no footprints or other indications of life relieved the barrenness of this geologically fascinating terrain. . . . Despite the most careful searching with soil samples . . . , not a single organic molecule was detected . . . Mars' soil is far more sterile than any environment on Earth. . . . Mars very probably has been lifeless for at least the last several billion years."

Murray drew a conclusion from all the evidence coming back from planetary exploration: "We are indeed alone in this Solar System. Earth, exhibiting the only watery surface, is the oasis of life. We do not have distant

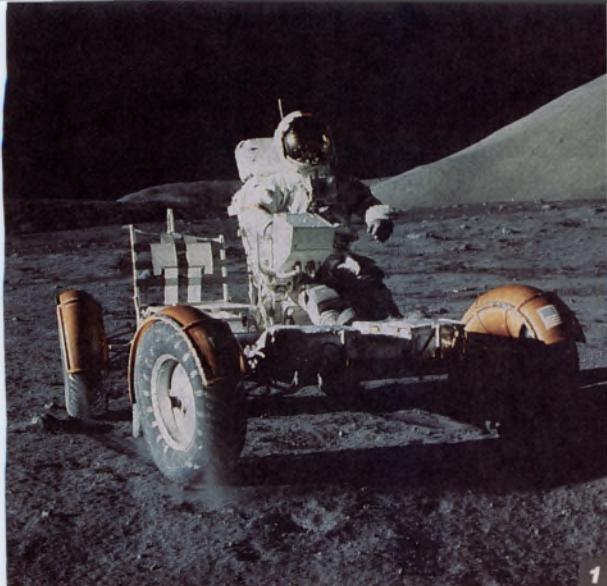
microbial cousins on Mars or anywhere else plausibly in this Solar System."

### What Does Venus Look Like?

Venus, although about the same size as Earth, is a forbidding planet for humans. Astronomer Carl Sagan calls it "a thoroughly nasty place." Its upper clouds contain sulfuric acid, and its atmosphere is mainly carbon dioxide. The atmospheric pressure at the surface is 90 times that of Earth; that is equivalent to the weight of water over half a mile deep.

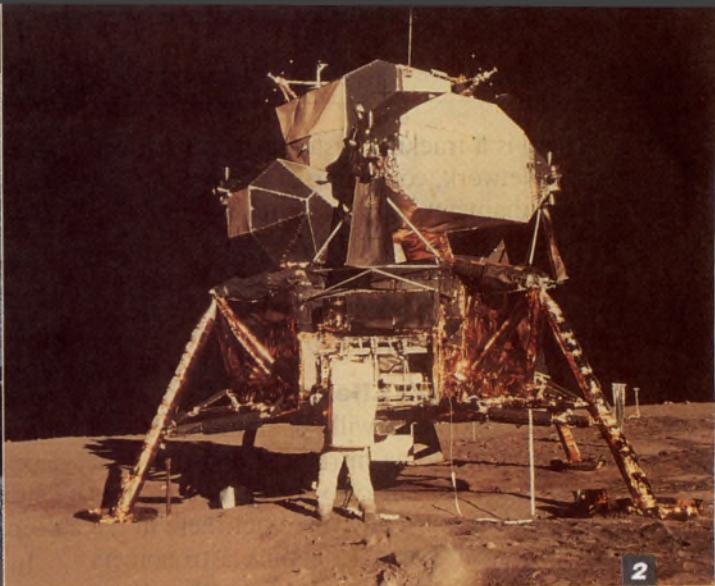
In what other ways does Venus differ from Earth? Carl Sagan, in his book *Cosmos*, states that Venus turns "backwards, in the opposite direction from all other planets in the inner solar system. As a result, the Sun rises in the west and sets in the east, taking 118 Earth days from sunrise to sunrise." Surface temperatures are about 900 degrees Fahrenheit, or, as Sagan says, "hotter than the hottest household oven." Since 1962, Venus has been explored by a variety of Mariner and Pioneer-Venus probes as well as by numerous Soviet Venera craft.

For mapping, however, the best results have come from the space probe Magellan, the Venus radar mapper managed by NASA's Jet Propulsion Laboratory. It was launched from the space shuttle *Atlantis* May 4, 1989. This remarkable craft, Magellan, took 15 months to reach Venus, where it now orbits the planet every three hours and 15 minutes as it takes its radar images and transmits them back to earth. Stuart J. Goldman, writing in *Sky & Telescope*, says: "Calling the product of the Magellan spacecraft's mission phenomenal is making a gross understatement. . . . This robotic surveyor mapped 84 percent of an entire planet to a resolution of a football stadium during its first 8 months in orbit. . . . The quantity of data Magellan has beamed back to eager scientists has been unprecedented. By



1

1. The lunar rover vehicle from Apollo  
2. Lunar module with astronaut Edwin  
E. Aldrin, Jr., (July 20, 1969)



2

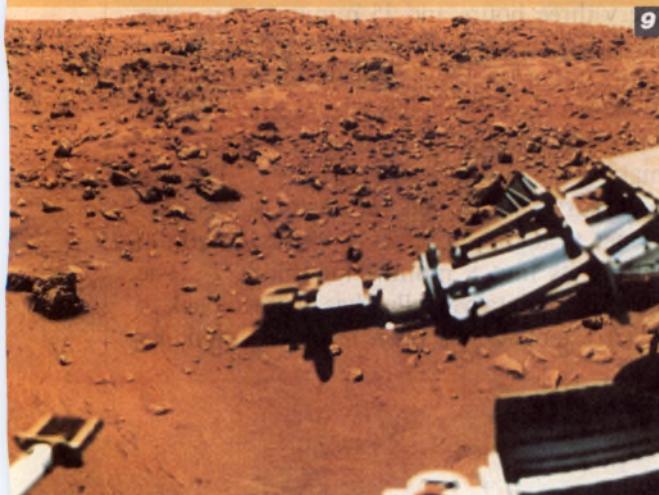
3. Vehicle Assembly Building, possibly the  
largest single construction in the world  
4. Shuttle on the transporter on the way to  
the launch pad



7

8

7. First woman in space, Valentina  
Tereshkova  
8. First man in space, Yuri A. Gagarin  
9. Robot arms gathering samples on Mars



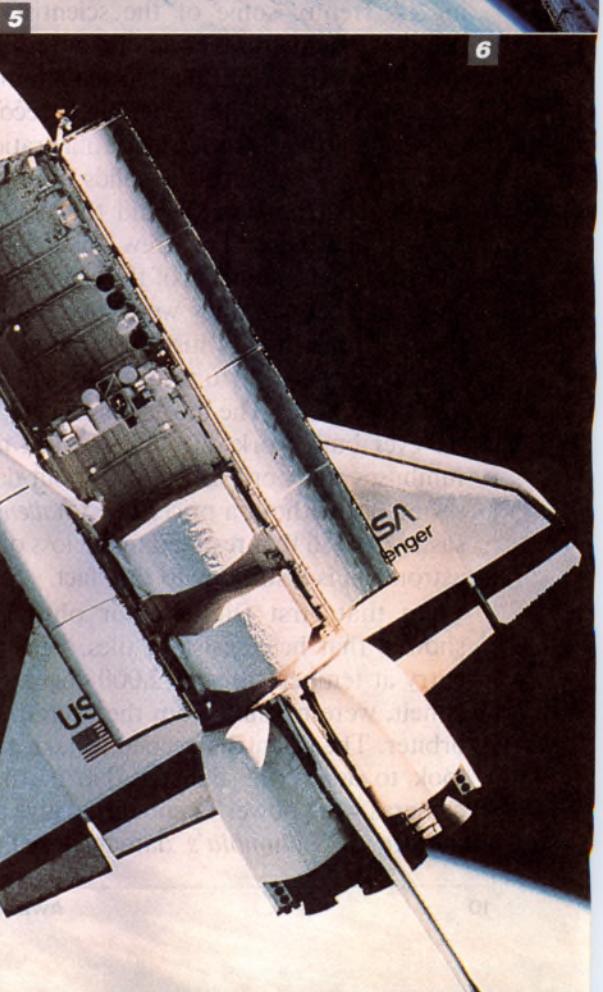
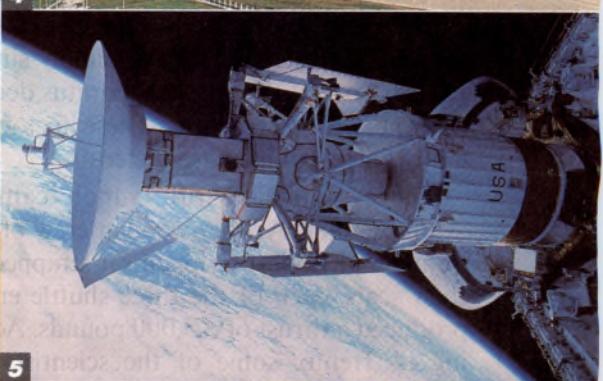
9

the beginning of 1992 the spacecraft had sent 2.8 trillion bits of information. This is three times the imaging data from all previous planetary spacecraft combined."

Here is a case where the combination of a manned shuttle and a robot has produced incredible results. The benefit? Greater knowledge of our solar system. And all of this at a relatively low cost, since the Magellan has been to some extent a spare-parts project, using many leftovers from the Voyager, Galileo, and Mariner probes.

#### NASA and the Spy Satellites

The search for scientific knowledge has not been the only motive for space exploration. Another driving force has been the desire to achieve a military advantage over any potential enemy. Over the years, the space programs have been used by both the United States and the former Soviet Union as a vehicle to expand their spying capacity. Bruce Murray says in his book *Journey Into Space*: "Earth orbit was from the beginning an arena



3

**5. Satellite about to be launched**

**6. "Challenger" shuttle with robotic arm visible**

Photos 1-6 NASA photo; 7, 8 Tass/Sovfoto, 9 Photo NASA/JPL

for reconnaissance and other military activities, a domain of deadly serious strategic rivalry between the United States and the Soviet Union."

Joseph J. Trento reports in his book *Prescription for Disaster* that "in 1971 the CIA and Air Force began designing the Keyhole or KH series of spy satellites. On December 19, 1976, the first Keyhole was launched." These photographic satellites could stay in orbit for two years and send their information back to the earth by digital transmission. How effective were they? Trento continues: "Their resolution was so superior that license plate numbers on parked cars could be clearly read. Further, the satellites were used to photograph Soviet spacecraft in orbit and strategic bombers in flight."

### The Complicated Shuttles

In recent years the world has thrilled to see the manned shuttle orbiters launched into space. Have you ever thought about the complexity of the whole operation? Of how many

things could go wrong and lead to disaster? For example, engineers have struggled with such problems as how to keep the shuttle engines cool at blast-off to prevent them from melting from their own heat. "During the first few years of testing, one engine after another melted down and exploded" writes Trento. Then, there is the need to ignite the two solid-fuel booster rockets absolutely simultaneously so that the whole apparatus does not cartwheel to destruction. These factors certainly helped to increase the costs.

The first successful launch came on April 12, 1981. As the two-man crew of John Young and Robert Crippen sat strapped into their seats, each of the three shuttle engines produced a thrust of 375,000 pounds. According to Trento, some of the scientists wondered: "Would this be victory or would the dream cartwheel into the Florida swamps? If the solids did not ignite within a second of each other there would be conflagration on pad 39A. . . . At zero the solids fired. White steam filled the horizon and the hold-down bolts broke loose. The crew could hear the roar. They felt the swing of the vehicle and the surge of energy." They were successful. "For the first time in U.S. history, Americans had climbed aboard an unproven rocket system and flown it. . . . The most sophisticated vehicle ever built worked." A new breed of Columbus was born. But not without dangers—and not without a price. The *Challenger* disaster of 1986 that resulted in the loss of seven astronauts is testimony to that fact.

On that first flight, color photographs showed that heat resistant tiles, vital for re-entry at temperatures of 2,000 degrees Fahrenheit, were missing from the bottom of the orbiter. The scientists needed to take a closer look to assess the damage. No earth-based cameras were powerful enough to give a clear picture of *Columbia's* damaged belly. So,

what was the solution? The KH-11 spy satellite was out there in orbit above the shuttle. It was decided to turn the orbiter upside down in relation to the earth so that its belly would face the satellite. The results sent back to earth assured the NASA people that no large areas of tile were missing. The mission was not in jeopardy.

### **Shuttle Program —For War or for Peace?**

The history of NASA is one of constant clashes between those who saw the agency as a means of peaceful exploration of space and those who saw it mainly as an opportunity to get the drop on the Soviets in the Cold War. In 1982 this conflict of interests was summarized by Harold C. Hollenbeck, member of the House of Representatives, when he said to the House Science and Technology Committee: "The tragedy is the American people are not aware of the politicizing and militarizing of the civilian space agency. . . . It was a civilian-run team that put us on the moon . . . I, for one, do not want a gold-plated space program that is part of some Star Wars Pentagon. . . . I can only hope the next generation of Americans will not look back upon those of us here today as the leaders who sat in silence as America turned a noble endeavor into an interstellar war machine."

He continued with a remark that summed up the mess that man was making of his future: "We went into space as a new frontier and now we drag the hate and the bitterness of earth into the heavens as if it is the right of man to make war everyplace." Big business and political and military interests were trying to take over NASA. Billions of dollars and thousands of jobs (and votes) were tied up in its future.

A logical question now is, What have been some of the benefits for mankind of space exploration, and what does the future hold?

# Space Exploration What Does the Future Hold?

WITH the collapse of the Soviet Communist empire, most of the competition has gone out of the space race. Some scientists are now without their original motivation—someone to beat. Instead of competing, Russian and American space scientists are talking of cooperating, of pooling their knowledge and skill. But there are still aims to achieve and questions to answer. One question many ask is, What are the benefits for mankind from all this tremendous effort and expense to explore outer space?

A NASA publication says that during the span of the last three decades, "more than 300 launches [of unmanned craft] were conducted for programs ranging from solar system exploration to improved weather forecasting, global communications and Earth resources studies." Have the results justified the vast amounts of money poured into these programs? NASA asserts that they "have more than repaid the nation's investment in time, money and technical talent." NASA further justifies the expense by saying: "About 130,000 Americans are employed because of the space program conducting research to improve fire-resistant fabrics and paint, smaller and longer lasting radios and TVs, tougher plastics, stronger adhesives, electronic monitoring systems for hospital patients, improved computer technology, as well as other areas of research."

Another peripheral benefit of the space program is the more detailed mapping of the earth's surface, and even below the earth's sur-

face. The second shuttle flight included an experiment "using a relatively primitive optical recorder." It "was supposed to be a simple geological survey using ground-imaging radar." (*Prescription for Disaster*, by J. J. Trento) But there was an unexpected payoff. "When the ship returned and the images . . . were processed, the roads and streets of an ancient city buried by the sands of the Sahara were revealed. A lost civilization was discovered." Moreover, there is another benefit that affects all of us.

## What Will the Weather Be?

The daily weather forecast, with maps and visual aids, is something most people with a TV now take for granted. Yet, how it changes our ability to plan for each day! Usually, if there is going to be a storm or it is going to rain or snow, you will know hours ahead of time—thanks to the weather satellites out there in earth orbit.

For the last 30 years, meteorological satellites have been transmitting information on the earth's weather. A NASA publication states: "These satellites not only make it possible to understand our environment better, they also help to protect us from its dangers." It notes further that in 1969 a hurricane struck the Mississippi Gulf Coast, causing property damage worth \$1.4 billion. "Yet, thanks to weather satellite forecast, only 256 people lost their lives, and most of these could have been spared if they had heeded the early warnings to evacuate the area." Surely, these benefits could be applied to other parts of the earth

that regularly suffer from the deadly effects of monsoons and storms.

Space scientists are not just interested in spin-off benefits for earth's inhabitants. Their goals go much further. So, what does the future hold for space exploration?

### The Space Station Challenge

What many space scientists see as a vital need is a genuine, functioning space station. NASA calculates that \$30 billion will be needed through the year 2000 for the space station *Freedom* that is being built. Since the station has been planned for some years, \$9 billion has already been spent, according to a NASA source. But how can the experts get their space station into orbit? It is calculated that the U.S. shuttle would have to make at least 17 manned flights to get *Freedom* out there piece by piece. That amounts to a very expensive and time-consuming operation. What could be a solution?

Some have suggested that the Russians and the Americans join forces and use the powerful Russian Energia rockets to get *Freedom* out there. The Energia, described by *New York Times* writer Serge Schmemann as "a 20 story flying skyscraper," could help speed up the U.S. space station project. The Russians need U.S. dollars, and here would be their opportunity for some smart capitalism. *U.S. News & World Report* stated: "Six unmanned Energias could put up the entire space station, cheaply and without risking human life."

Of course, the United States and the Russian Federation are not the only nations involved in space exploration. Among other initiatives, the European Space Agency, through the French Arianespace company, produces expendable rockets for commercial satellite launchings. Japan is also reaching for the stars, and "by the turn of this century, Japan plans to become the first Asian nation to establish a permanent human presence in space," according to recent

information published in *Asiaweek*. The first official Japanese astronaut, Mamoru Mohri, is scheduled for a seven-day mission from Cape Canaveral, Florida, in 1992. The same report says that "the mission is an important prelude to Japan's plans to contribute to the [U.S.] Freedom space station." This project will also have the cooperation of European and Canadian space scientists.

### Populating Planets

Another ambition also fires the imagination of many—the desire to populate and exploit other planets. George Henry Elias, in his book *Breakout Into Space—Mission for a Generation*, writes: "The construction of an interplanetary civilization is essential to the survival of our species. . . . We humans now occupy an entire planet, and it is time for us to move on to a larger habitat. An empty solar system awaits us." His immediate sights are on the planet Mars.

One person who definitely thinks man should go to Mars is Michael Collins, former astronaut who piloted Gemini 10 in 1966 and also piloted the command module of Apollo 11, which took man to the moon. In his book *Mission to Mars*, he says: "Mars seems friendly, accessible, even habitable."

Bruce Murray, longtime manager of Pasadena's Jet Propulsion Laboratory, strongly advocates a joint United States-Russian venture to Mars. As a cofounder of the Planetary Society, he has recently pushed the "To Mars . . . Together" initiative. He says: "Mars is the planet of the future. It will constitute a playing field for the adventuresome members of future generations."

Marshall Brement, former U.S. ambassador to Iceland, writes: "The two countries can teach each other much in this field [of space]. The Soviet manned space program is second to none; Soviet cosmonauts hold all the records for time in orbit. . . . Com-

mitments by both nations to establish together a station on the moon, to circumnavigate Venus, and to land on Mars could have great scientific value."

The Planetary Society, which includes as a founder Cornell University astronomer Carl Sagan, published "The Mars Declaration," which stated: "Mars is the world next door, the nearest planet on which human explorers could safely land. . . . Mars is a storehouse of scientific information—important in its own right but also for the light it may cast on the origins of life and on safeguarding the environment of the Earth." Scientists are intrigued by the mystery of the origin of life. The Bible's simple answer does not satisfy them: "You are worthy, Jehovah, even our God, to receive the glory and the honor and the power, because you created all things, and because of your will they existed and were created."—Revelation 4:11; Romans 3:3, 4.

### Problems to Be Faced

However, Murray, along with other scientists, recognizes some of the problems of such long-distance interplanetary flights. For example, astro/cosmonauts would take about a year of interplanetary flight to get to Mars. Thus, a round-trip would take at least two years, without allowing for time spent on Mars. The effects of weightlessness are not completely understood. A NASA publication states: "Among these are the leaching of certain minerals from bones; atrophy of muscles when not exercised; and space adaptation syndrome, a form of motion sickness found only in spaceflight."

So far, no human has experienced weightlessness for such a long period. However, Russian cosmonauts are getting there. On March 25, 1992, after ten months in space in the Russian space station *MIR*, 33-year-old Sergei Krikalev returned to earth. He was a little groggy when lifted from the return cap-

sule, but he had shown that man can survive long periods of weightlessness. And weightlessness is not the only problem that astro/cosmonauts have to face, as the Russians have discovered.

When you put a group of people into a confined space for any length of time, you will eventually have personality and psychological problems. The Time-Life book *Outbound*, in the series *Voyage Through the Universe*, states: "Irritability levels tend to rise with every week of a mission. During the [Soviet] Salyut missions, ground controllers noticed that cosmonauts grew increasingly testy at what they deemed stupid questions. . . . During the extended 1977 mission of Grechko and Romanenko, ground controllers also established a 'psychological support group' to monitor the cosmonauts' mental health." Grechko said: "Competition within a crew is one of the most harmful things, especially if each starts trying to prove that he is the best." He added that in outer space, "you have no psychological outlets. It is much more dangerous there."

Thus, any long-term interplanetary travel is going to be a delicate balancing act, considering all the scientific, mechanical, and psychological factors that are involved. Putting up with one another is not easy for people here on earth; how much more difficult in the confines of a spacecraft.—Compare Colossians 3:12-14.

### Will Man Ever Reach the Planets?

The famous American *Star Trek* films have whetted the appetite of millions for space travel. What are the future prospects for manned exploration of other planets? There are two perspectives to be taken into account—the human and the divine. After all, the Bible says that Jehovah is "the Maker of heaven and earth. As regards the heavens, to Jehovah the heavens belong, but the earth he has given to the sons of men."—Psalm 115:15, 16; Genesis 1:1.

We have already seen that many scientists are optimistic about mankind's ability to reach Mars and settle on it. Human curiosity and a yearning for knowledge will no doubt continue to impel men and women to expand the frontiers of discovery. One of the purposes of the Hubble Space Telescope, according to a NASA fact sheet, is to "search for other worlds, other galaxies and the very origins of the universe itself." NASA also states: "The outlook for space activities in the 21st century is exciting and challenging. We can envision such important achievements as industries operating in orbit, Moon bases, and manned expeditions to Mars. Now that the space frontier has been crossed, there is no turning back."

What can be said from a Biblical viewpoint? True, man was told by God to 'multiply and fill the earth.' (Genesis 1:28) At the same time, he was given intelligence and an insatiable desire to know more about his context, including the biosphere, the stratosphere, and beyond. That context includes our tiny solar system and the stars beyond. Thus, King David was inspired to write some three thousand years ago: "When I see your heavens, the works of your fingers, the moon and the stars that you have prepared, what is mortal man that you keep him in mind, and the son of earthling man that you take care of him?" —Psalm 8:3, 4.

The Hubble telescope recently transmitted an image of the giant galaxy M87. It was described as a blob of light that consists of two trillion stars! Can you imagine that figure? How far away is M87? Fifty-two million light-years from earth—"relatively close on the intergalactic distance scale!" Let's face it, man and the earth are so infinitesimal compared to the unimaginable vastness of universal space! What Jehovah is doing and will do in all that endless space is beyond our present compre-

hension. Regardless of man's ambitions for outer space, an issue has been raised on our planet that must first be settled by God's intervention.—Revelation 16:14-16.

### Issue to Be Settled

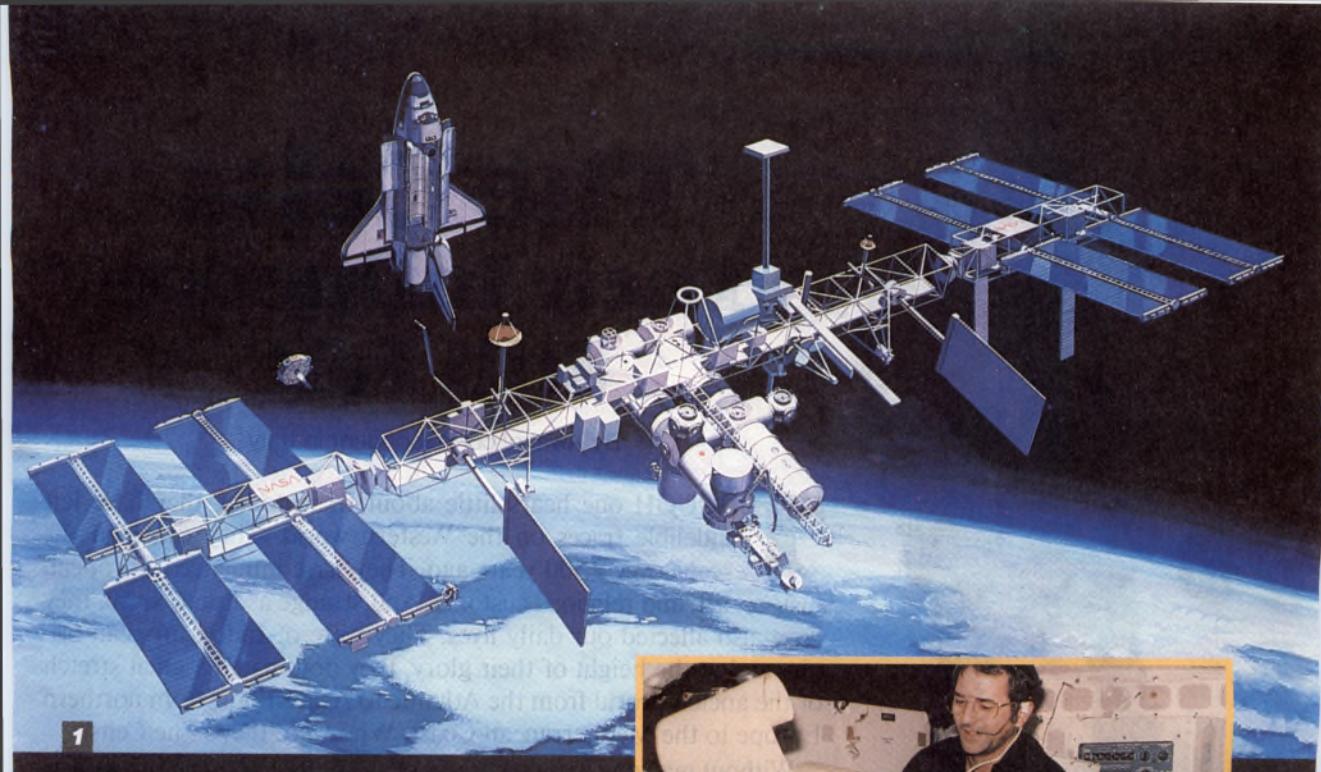
The issue is the choice between rule by God and rule by Satan. That is why Jehovah's Witnesses are proclaiming worldwide that God must soon take action to cleanse the earth of wickedness, corruption, murder, violence, and war.—Mark 13:10; 2 Corinthians 4:4.

Astronauts who have peered down upon our earth from hundreds of miles out in space have marveled at the beauty of this planetary jewel. Viewed from high up, the earth shows no political boundaries to divide and separate. It is just one beautiful, global home for the human family. Yet, here we have a world full of greed, envy, lies, exploitation, injustice, terror, fear, crime, and violence. What do mankind need to bring them to their senses?

The Bible shows that Jehovah God, earth's Maker and Landlord, will soon take action against this planet's unruly and unrulable tenants. Only the truly meek will be left to inherit the earth. Then only will we get to see what further purposes God has in mind for an obedient human family.—Psalm 37:11, 29; Revelation 11:18; 16:14-16.

### Satellite Rescue

NASA pulled off a coup in May of this year when three astronauts from the space shuttle *Endeavor* manhandled a wayward 9,000-pound communications satellite during a space walk. They brought it to the cargo bay where a new booster rocket was attached. The satellite was then fired to a high orbit before being brought down to its working position 22,300 miles above the earth.



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**1. Artist's rendering of the projected "Freedom" space station; 2. Weightlessness is a problem faced by interplanetary travelers; 3. Earth seen from the moon; 4. Venus; 5. Mars**

Photos 1-4, NASA photo; 5 Photo NASA/JPL

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# The Celts Their Influence Still Felt

By Awake! correspondent in Italy

**T**HOUGH one hears little about them today, they have left indelible traces on the Western world. They came on the scene over 2,500 years ago. They have influenced European history, art, and religious customs. And strange as it may seem, they have also affected our daily lives. They were of Indo-European origin, and at the height of their glory, they dominated a great stretch of the ancient world from the Atlantic to Asia Minor, from northern Europe to the Mediterranean Coast. Who were they? The Celts.

Without realizing it, we see traces of the Celts every day. It was they, for example, who spread the use of trousers in the Western world; they were also the ones who invented barrels. There are other more visible evidences of their passage through history. In areas of Europe, you can still see hundreds of fortified hills, or hill forts, and burial mounds, or barrows, covering ancient tombs—all left by the Celts. Many cities or regions today have names of Celtic origin, for example, Lyons and Bohemia. If your community has the custom of memorializing the dead at the end of October or the beginning of November, you may be sure that centuries ago the Celts did the same thing. Also, if you know the stories of England's King Arthur or well-known fables like *Little Red Riding Hood* and *Cinderella*, then you are acquainted with more or less direct legacies of that Celtic civilization.

Like many other peoples, the Celts, in time, came to be viewed in different ways depending on who described them. Plato (Greek, fourth century B.C.E.) described them as a drink-loving, war-mongering people. In the eyes of Aristotle (Greek, fourth century B.C.E.), they were a people who scorned danger. According to the Greek-Egyptian geographer Ptolemy (second century C.E.), the Celts feared only one thing—that the sky would fall on their heads! Their enemies generally presented them as cruel, uncivilized barbarians. Today, thanks to progress made in Celtic studies, "we can paint a very different picture of the Celts from what we could have done only twenty years ago," says Venceslas Kruta, one of the most authoritative scholars in this field.





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### Their Rise and Fall

The Celts were actually a collection of tribes held together "by a common language and style of craftsmanship, military structure, and religious beliefs that were sufficiently unitarian to be recognizable." (*I Celti, La Stampa* supplement, March 23, 1991) It is therefore more accurate to speak of Celtic culture than of an ethnic group. Gauls, Iberian Celts, Senones, Cenomani, Insubres, and Boii were the names of some of the tribes who inhabited what we now know as France, Spain, Austria, and northern Italy. Others, in the course of time, colonized the British Isles.

It seems that the original Celtic nucleus spread from central Europe. There is no mention of them in historical writings before the sixth century B.C.E. Greek historian Herodotus was among the first to mention them, describing them as "the farthest inhabitants of western Europe." Ancient historians recall more than all else their military exploits. Various Celtic tribes marched against the Etruscans in northern Italy and then against Rome at the beginning of the fourth century B.C.E., conquering it. According to Latin chroniclers, such as Livy, the Celts left only after a suitable ransom had been paid and after Brennus, the Celts' leader, had pronounced the words *vae victis*, "woe to the vanquished." Even in modern times, the Celts are remembered by those who read the adventures of the fictional Gaulish warriors Asterix and Obelix, featured in comic books in many languages.

Greece's turn to know the Celts came about 280 B.C.E., when another Celtic Brennus reached the doors of the famous Delphi sanctuary without, however, succeeding in capturing it. In that same period, some Celtic tribes, referred to by the Greeks as *Galatai*, crossed the Bosphorus and settled in northern Asia Minor, in the region that subsequently came to be called Galatia. In 50-52 C.E., some early Christians lived in that area.—Galatians 1:1, 2.

The Celts were known in ancient times as bold warriors, endowed with great physical strength. Not only did they have an imposing

1. Ambiorix, chief of the Eburones; 2. Gundestrup cauldron; 3. Iron helmet; 4. Bronze, iron, and gold helmet; 5. Bronze bracelet; 6. Stylized stone head; 7. Note three-headed god on terra-cotta vase; 8. Gold torque; 9. Gold decoration; 10. Gold torque; 11. Bronze boar helmet decoration

Photos 2-6, 8-11 Courtesy of Palazzo Grassi, Venice; 7 Bibliothèque Nationale, Paris



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## Celtic Expansion

physique but, to strike terror in their enemies, they would wet their hair with a chalk and water mixture that, when dry, gave them a particularly ferocious appearance. And that is exactly how they were represented in ancient statues, with "plaster-cast hair." Their physique, their ardor in fighting, their weapons, the way they wore their hair, and their typical long mustaches all helped to forge that image of Gallic fury so feared by their adversaries and epitomized in the Asterix sagas. This was probably why many armies back then, including the one led by the Carthaginian commander Hannibal, enlisted Celtic mercenaries.

Toward the end of the first century B.C.E., however, the power of the Celts began inexorably to be subdued. The Gaul campaign of the Romans, led by Julius Caesar and other commanders, brought the Celtic military apparatus to its knees.

### Innovators in the Field of Art

For various reasons the direct testimony that this people left for us consists almost exclusively of manufactured goods, found particularly in their numerous tombs. Ornaments, various types of vessels, weapons, coins, and the like, 'unmistakable and original' according to the experts, were objects of large-

To work it better, they used furnaces that were very sophisticated for that time.

Interestingly, unlike contemporary Greco-Roman art, which attempted to imitate reality, Celtic art was primarily decorative. Living forms were often stylized, and symbolic elements abounded, frequently with magical and religious functions. Archaeologist Sabatino Moscati says: "We have before us undoubtedly the oldest, the greatest, and the most illuminating form of ornamental art that Europe has ever had."

### An Existence Regulated by Religion

The Celtic tribes generally led a very simple life, even in the oppida, their characteristic fortified cities. The tribes were ruled by the aristocracy, and the commoners hardly counted at all. Because of the harsh climate of the regions in which they lived, life was not easy. Perhaps an important reason for their moving toward the south was not only economic gain but the quest for milder weather.

Religion strongly influenced the daily life of the Celts. "The Gauls are a very religious people," wrote Julius Caesar. "Their faith in the life to come and in the immortality of the soul was such," related the scholar Carlo Carena, quoting a Latin historian, "that they would

quite happily make loans, accepting that the repayment be made even in hell." As a matter of fact, beside the corpses in many tombs, food and drink have been found, obviously provided for the supposed journey to the other world.

One of the common features of all the Celtic tribes was a priestly caste, organized into at least three categories: bards, *wates*, and Druids. While the first two groups had a less important function, the ones who were responsible for dispensing both sacred and practical knowledge were the Druids, which word perhaps means "very wise." The scholar Jan de Vries explains that such a "priesthood was a very powerful one, headed by a chief druid, to whose decision everyone had to submit." The Druids were also the ones who at fixed times would carry out the ritual cutting of mistletoe in the "sacred" forest.

It was by no means easy to become a Druid. It would take the novice about 20 years to learn the caste's religious and technical knowledge by heart. The Druids would never put anything concerning religious matters into writing. Their traditions were transmitted orally, which is why we have so little knowledge of the Celts. Why, though, did the Druids forbid the use of writing? Jan de Vries points out that "orally transmitted traditions are renewed with every generation: The original contents are kept intact and at the same time can be continually adapted to fit changing circumstances. For this very reason, the Druids were able to keep pace with their progressive knowledge." The writer Sergio Quinzio explains: "The priesthood, being the sole custodian of sacred knowledge, had greatly magnified authority." Thus, the Druids were always in control.

Little is known about the Celtic divinities. Despite the fact that many sculptures and portraits of them have been found, nearly all have

been nameless, and it is therefore difficult to say which god or goddess each artifact represented. There are what appear to be portraits of some of these gods in the famous Gundestrup cauldron found in Denmark. Names like Lugh, Esus, Cernunnos, Epona, Rosmerta, Teutates, and Sucellus do not mean a lot to us today; nevertheless, these gods greatly affected the daily lives of the ancient Celts. It was not unusual for the Celts to offer up human sacrifices (often enemies conquered in battle) in their honor. Sometimes the victims' heads were worn as macabre ornaments, and at other times human sacrifices were made with the sole purpose of gathering omens from the way in which the victims died.

A salient characteristic of the Celtic religious world was the divine triad. According to the *Encyclopedia of Religion*, "probably the most important element in the religious symbolism of the Celts is the number three; the mystic significance of the concept of threeness is attested in most parts of the world, but among the Celts there seems to have been a particularly strong and continuous awareness of it."

Some scholars say that to conceive a divinity as triune or as having three faces is the same as considering it to be all-seeing, omniscient. Three-faced statues were put at the crossroads of important routes, perhaps for the purpose of "supervising" commercial exchange. Sometimes the triads, affirm certain scholars, gave the impression of "the unity in three persons." Today, in the very regions where sculptures of Celtic triune divinities have been discovered, the churches of Christendom still represent the Trinity in that same way. The Sacred Scriptures do not, however, teach that God and Jesus are coequal and part of a Trinity.—John 14:28; 1 Corinthians 11:3.

Yes, the present daily lives and thoughts of many peoples are influenced by the Celts, perhaps more than we may think.

# My Quest for a Better World

As told by a former Catholic nun

**A BETTER** world—was that possible? Surely a world full of hate, violence, selfishness, corruption, injustices, and suffering was not the world that God purposed when he created it. There must be a better world. If that was possible, then I was determined to help to bring it about.

I was born and grew up in the province of Corrientes, Argentina, a place famous for its worship of the Virgin of Itatí. The people are Catholics, extremely religious, and they make many pilgrimages each year to worship that virgin. I was among them. From childhood I had a desire to know this God of whom so much was spoken, but my father prohibited me from attending catechism classes. Later, during my adolescence, because of his wrong associations, my father became a drunkard. All of us suffered but especially my mother, who bore the brunt of his verbal and physical abuse. As a result, I came to hate the opposite sex, considering all men wicked and perverse.

## **My Goal—A Gun to Kill**

School, though, brought out the best in me. I studied with zeal and tenacity, receiving diplomas in dressmaking and commercial subjects and later graduating with the highest grades as a teacher. Now my fondest dreams were beginning to be fulfilled: the acquisition of titles and diplomas that would free me of



the paternal yoke. At the same time, I made plans to work hard so that I could better my mother's situation and then—buy a gun to kill my father!

This, of course, brought me no joy, much less peace and happiness. Rather, I felt like a caged animal. I was 20 years old and found myself in a labyrinth with no exit.

## **Religious Life —Expectations Versus Realities**

About this time I began to associate with nuns and also with Communists. Both sides tried to pressure me with their ideas. But the thought of helping the poor in far-off lands such as Africa and Asia made me decide in favor of the convent.

For 14 years I lived in a convent. My life in the convent was comfortable, quiet, and peaceful. It was not until I began to work with priests having a philosophy centered on the developing world that I was made aware of the difference between the world we nuns lived in and the world of the rest of mankind—that world of pain and injustice where people suffered under the oppressive yoke of the high and mighty.

In my religious order, the Theresian Carmelite Missionaries, much was said about justice, but my superiors seemed to ignore it completely in their dealings with others. Members of the teaching staff received a sal-

ary far below the government's established wage scale, with no fringe benefits for themselves and their families, and they could be dismissed without previous notice and without indemnification. Domestic help fared even worse; after working from 10 to 12 hours in the school, they had to find extra employment in order to subsist and feed their families. I wanted to correct that unjust situation.

When I mentioned it to the mother superior, she told me that all I needed to be an extremist was a machine gun over my shoulder! At that moment I thought that I would rather be an extremist than be as inhuman as they were. Thus, I decided to request dispensation from the perpetual vows of chastity, poverty, and obedience that I had taken. I wanted to help the church in a wider field. The dispensation was readily granted.

### **My Political Activity**

Then I really began to fulfill the vow of poverty. Many times I would not have had a morsel of bread had it not been for the good-hearted people who surrounded me. For the first time, I found out how the common people really lived. I worked hard with the local church in all fields—religious, social, and political. As a teacher of adults, I had many opportunities to talk to them about the backward conditions forced upon them by society, their causes, and the possible solutions. What were these solutions? First, working by peaceful means and protests; and then, if necessary, using violence in order to reach that desired goal, justice.

The religiopolitical movement I was associated with, organized by Catholic priests and supported by members of the laity, directs its activities to the underdeveloped areas of Africa, Asia, and Latin America. It advocates an immediate, radical change of the socioeconomic structures by a revolutionary process, with a definite rejection of all types of eco-

nomic, political, and cultural imperialism. Its aim is to establish a Latin-American socialism that promotes the creation of the *hombre nuevo* (new man), free of the bonds imposed by foreign political systems.

We committed ourselves to penetrate more and more into the ranks of the poor, identifying ourselves with their situation in life. With these ideals in mind, I fought to help everyone—young and old, adolescent and adult.

### **My Private Life —The Greatest Disillusionment**

In my fight to better the conditions of the poor, I forgot that the heart can be treacherous. I fell in love with my boss, a priest, with whom I lived for two years. In time I became pregnant. When the priest found out, he wanted me to have an abortion, which I refused, since that would have been murder. In order to have the child, I had to give up my work with the priest and leave the city for fear that it would be discovered that I was his mistress.

I left the city greatly hurt and thought of committing suicide by throwing myself under a train, but something restrained me. I persevered. Friends, family members, and kindly disposed persons in my hometown gave me their love, compassion, and understanding—something that the only man I ever loved never did. When my son was born, these were the ones who cared for us. I wanted my son to grow up to be a strong, dynamic man, true to his convictions and willing to die for his ideals. In token of this desire, I gave him the middle name Ernesto in memory of Ernesto Che Guevara (the well-known Argentine guerrilla), whom I greatly admired.

When the Argentinean government was overturned by the military, leftist groups began to be persecuted. Many of my companions were arrested. Several times my home was raided by the *encapuchados* (hooded ones), who ransacked everything and stole



**Preaching from house to house  
in Argentina**

almost all my belongings. Many times I was summoned to appear before the authorities to reveal the whereabouts of my companions, but I remained loyal to my friends, preferring death to turning traitor.

#### **A Turning Point**

Living under such pressure, I needed someone to talk to, someone I could trust and count on as a true friend. It was then that two of Jehovah's Witnesses called at my door. I received them happily, noting about them a certain tranquillity and friendliness that attracted me. I wanted them to return to study the Bible with me. When they did, I explained the difficult situation in which I found myself and told them frankly that I did not want to get them involved as accomplices. They assured me that they had no fear, since the authorities knew who they were.

Our Bible study was an obstacle course from the beginning. Since I had lost faith and confidence in God, it was very difficult for me to accept the doctrinal points in the Bible study aid *The Truth That Leads to Eternal Life*. I was about to give up the study, considering that the Bible was a myth and that Marx was

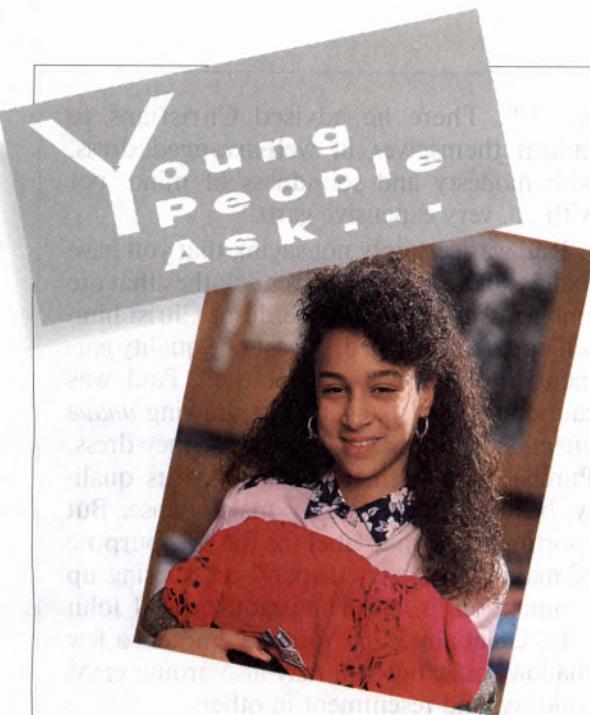
right when he said that religion was "the opium of the people." When I expressed my feelings to the Witnesses and told them not to waste any more time on me, they replied that they did not consider it a waste of time to help people who needed help.

I got a different impression when I was invited to go to the Kingdom Hall. I was fed up with meetings where dialogue, mutual respect, and friendliness were so noticeably lacking. However, the meetings of Jehovah's Witnesses were different. They are Bible-based and faith-strengthening, and they move us to love one another and to love even our enemies.

#### **New Christian Personality Supplants Violence**

At last I found the way to better the world. On June 8, 1982, I symbolized my dedication to Jehovah God by water baptism, and then as never before it became my desire to strip off the old personality, the political *hombre nuevo* of violence, and to put on the new personality, with its fine fruits, described at Galatians 5: 22, 23. Now I am participating in another kind of warfare, a Christian warfare, preaching the good news of the Kingdom and giving of myself to teach others the Kingdom truth of a better world to come.

What a blessing it is to be able to teach my little son that instead of growing up to imitate Ernesto Che Guevara, he can walk in the footsteps of Christ Jesus, our Leader and Model! I pray that my son and I, together with all lovers of righteousness, including my former companions and my relatives, may enter into that everlasting better world, a paradise earth filled with joy, peace, happiness, and justice. Violence does not benefit anyone; it only fosters hatred, divisions, frustrations, and troubles that never end. I speak from experience, for I have lived it.—*By Eugenia María Monzón*



## Designer Clothing Is It for Me?

**C**LOTHING represents a person. . . . Clothing is always a symbol of who you are." So said Barbara Dickstein, a specialist in clothing at a major museum. "It tells your status, your role in life, your social position," she added. Little wonder, then, that clothing is important to most people—and an obsession among some youths.

For many young people, though, the preoccupation with clothing goes beyond simply being style conscious. Many are also aggressively *brand* conscious. Virtually every item they buy—from sneakers to eyeglasses—must bear that all-important designer logo. For example, a *Seventeen* magazine survey revealed

that 90 percent of teenage girls feel that a brand name is important when it comes to buying sportswear.

Considering the powerful boost the media have given designer clothes in recent years, this should hardly come as a surprise. Through TV commercials, magazine and newspaper ads, billboards, and movies, consumers have been exposed to a barrage of designer propaganda. The aim is to brainwash the public into believing that a designer logo works an almost magical transformation on a garment—and its wearer. Without a designer label, denim trousers are just pants. With a designer logo, denim trousers suddenly become the key to popularity, excitement, and romance!

### The Lure of the Label

"What's in a name?" asked a character in one of Shakespeare's plays. When it comes to clothing, names can be very important. A textbook aimed at educating professional retailers says: "Many customers are willing to pay slightly higher prices for brand names . . . and designer names. Many brands have a reputation for high standards of styling, appearance, quality, and construction. Designer clothes often offer a unique look." (*Know Your Merchandise*, by Wingate, Gillespie, and Barry) An article in *The New York Times Magazine* similarly points out that "the workmanship and fabric in more expensive clothes are often very different" from cheaper garments. Designer clothes thus tend to last longer and look better than cheaper brands.

Still, for many youths designer labels are not so much symbols of quality as they are status symbols—badges of honor. As 17-year-old Sam puts it, "if you don't have it, you're not with it!"

### The Power of Peer Pressure

No wonder, then, that a youth named Casey says: "There are tons of pressure to wear designer clothing." Adds 14-year-old

Tennile: "Everyone is always asking, 'What brand is your sweater, jacket, or jeans?'" According to one youth, the pressure can be so great that if you don't conform, "people will tease you and talk about you, say you got on no-name shoes or say you shop at [bargain stores]."

Of course, it's only human to want to fit in with others and be accepted. Fifteen-year-old Andy says: "No one wants to stand out and be an oddball." But how far should you go to conform? Fourteen-year-old Joe admits: "Sometimes you get clothes you don't like —just to fit in."

## **With a designer logo, denim trousers suddenly become the key to popularity, excitement, and romance!**

But does it make sense to allow others to make decisions for you, to strip you of your individuality, or to intimidate you into violating your own tastes, standards, or common sense? Romans 6:16 says: "Do you not know that if you keep presenting yourselves to anyone as slaves to obey him, *you are slaves of him* because you obey him?" Who wants to be somebody's slave? But that is what you become when you let peers have the final word on what you wear, or if you let yourself be carried here and there by the winds of fad or fashion.—Compare Ephesians 4:14.

### **Getting the Bible's Perspective**

How can you learn to think for yourself? Become acquainted with the principles of God's Word. When your thinking is Bible-oriented, you are much less prone to be controlled or manipulated by others. (Proverbs 1:4) True, the Bible is not a manual on fashion. But it does contain principles that can help you decide what to wear. Consider, for example, the apostle Paul's words at 1 Timothy

2:9. There he advised Christians to "adorn themselves in well-arranged dress, with modesty and soundness of mind, not with . . . very expensive garb."

Paul was certainly not saying that you have to dress like a pauper or wear clothes that are embarrassingly out of style. Jesus Christ himself apparently owned at least one quality garment. (John 19:23, 24) Rather, Paul was cautioning Christians against drawing *undue attention to themselves* in the way they dress. Purchasing a garment because of its quality, beauty, or practicality makes sense. But sporting a designer label for the sole purpose of making a "showy display" or "stirring up competition" is selfish and egotistical. (1 John 2:16; Galatians 5:26) You may impress a few shallow souls, but you may also arouse envy, jealousy, and resentment in others.

Paul told Christians to show soundness of mind, or good judgment, in the way they dress. In some areas, wearing designer clothing is a risky business. Fifteen-year-old Michael Thomas, for example, was killed for wearing a pair of \$100 designer athletic shoes. Another teenager wanted the shoes for himself. *The New York Times* reported that in many U.S. urban schools, wearing expensive designer items "can be enough to set off a fight and even a killing." Young Katherine thus says: "I have found it a protection not to be unduly influenced by my peers in the way I dress. Otherwise, I might attract the wrong kind of attention to myself."

Of course, not all youths can afford designer clothes in the first place. If you are in that situation, you may have no choice but to learn to be 'content with sustenance and covering' —even when that covering is not the latest or the best. (1 Timothy 6:8) Rather than falling victim to envy, which is destructive, try to make the most of your situation. (Titus 3:3) Your clothes may lack a fancy label, but they can be neat, clean, and presentable.

***Don't be fooled by a label.  
Carefully examine any garment  
before you buy it***

### **Smart Shopping**

What you wear is not nearly as important as what kind of person you are inside. (1 Peter 3:3, 4) Nevertheless, whatever your circumstances, it only makes sense to dress appropriately for each occasion. As a Christian, you also have the obligation to dress in a way that befits a young minister.—2 Corinthians 6:3.

Fortunately, Christian modesty does not necessarily mean that you have to be out of style. Young Tamaria puts it nicely when she says: "There's nothing wrong with being in style—just as long as you don't overdo it." Nor is there anything wrong with wearing clothes of high quality. In fact, according to the book *Dressing Smart*, by Pamela Redmond Satran, experts "advise buying the best clothing you can afford and emphasize quality over quantity." *Know Your Merchandise* similarly gives this advice: "A small wardrobe of good-quality, carefully chosen garments is better than a large wardrobe of garments that wear poorly and may have a short fashion life."

This may require you to become a shrewd shopper—like the "capable wife" described in the Bible at Proverbs 31:10, 14, 18. She would travel "far away" to 'trade well.' And you can learn to 'trade well' yourself. An issue of *Ladies' Home Journal* suggested: "Ask for the sale price—even at big stores. . . . Do your homework. Research prices at several stores." You might even learn to negotiate prices with sales personnel, particularly at smaller stores.

*Consumer Reports* magazine reminds us, though, that "price and prestige are not fault-



less guides to quality." Indeed, their researchers found that some moderately priced garments were almost equal in quality to the higher-priced designer clothes. The book *Dressing Smart* says: "Sometimes, clothes are priced sky-high simply because of fashion, a designer's name, or pure nerve." Designer labels are sometimes affixed to counterfeit goods of inferior quality. And even when the label is legitimate, manufacturing errors can occur.

So do not be fooled by labels or price tags. Be cautious. (Proverbs 14:15) Carefully examine the garment—its fabric, construction, stitching, and so forth. Does it hang properly? Is there ample material for alterations? Are there hallmarks of quality, such as lining and interfacing? What about details, such as symmetry and matching of patterns?

By being shrewd and discerning, you can avoid letting the lure of the designer label entice you into making poor choices. You can dress well, without dressing extravagantly.

# "The Rod of Discipline" Is It Out-of-Date?

"Foolishness is tied up with the heart of a boy; the rod of discipline is what will remove it far from him."—Proverbs 22:15.

"Any physical punishment is emotionally abusive and should not be sanctioned."  
—Parents Anonymous.

THE BIBLE'S mention of "the rod of discipline" ignites fiery controversy. This is understandable, for each year thousands of children die as a direct result of physical abuse by a parent. Perhaps this is why one Bible commentary passes off the Bible's sanction of physical punishment as merely a "culturally conditioned opinion."

But cultural opinions did not inspire the Bible—God did. (2 Timothy 3:16) Are its comments on "the rod of discipline" unreasonable? It is important that we examine "the rod" in its context. To illustrate: The individual pieces of a jigsaw puzzle make little sense. It is only after fitting them together that one can see the whole picture. Likewise, "the rod" is just one piece of the puzzle. To see the full picture, we must fit "the rod" in with other Bible principles related to discipline.

## A Balanced View

Does the Bible endorse only physical punishment? Consider the following advice:

- "Never drive your children to resentment."
- "Don't over-correct your children, or you will take all the heart out of them."

'That's much more reasonable than the Bible's advice,' some may say. But this *is* the Bible's advice. It is recorded at Ephesians 6:4 (*The New Jerusalem Bible*) and Colossians 3:21 (*Phillips*).

Yes, the Bible's viewpoint is reasonable. It acknowledges that physical punishment is usually not the most effective teaching method. Proverbs 8:33 says, "Listen to discipline" not, 'Feel discipline.' And Proverbs 17:10 points out that "a rebuke works deeper in one having understanding than striking a stupid one a hundred times." Furthermore, Deuteronomy 11:19 recommends preventive discipline, taking advantage of casual moments to instill moral values in one's children. Thus, the Bible's view of discipline is balanced.

The Bettmann Archive



## **What About “the Rod”?**

Still, the Bible does mention “the rod” of discipline. (Proverbs 13:24; 22:15; 23:13, 14; 29:15) How is this to be understood?

The word “rod” is translated from the Hebrew word *she'vet*. To the Hebrews, *she'vet* meant a stick or a staff, such as that used by a shepherd. In this context the rod of authority suggests loving guidance, not harsh brutality.—Psalm 23:4.

*She'vet* is often used symbolically in the Bible, representing authority. (2 Samuel 7:14; Isaiah 14:5) When referring to parental authority, “the rod” does not refer exclusively to physical punishment. It encompasses all forms of discipline, which most often need not be physical. And when physical discipline is employed, it is usually because other methods have proved unsuccessful. Proverbs 22:15 says that foolishness is “tied up” (“anchored,” NJB; “deep-rooted,” *The New English Bible*) with the heart of the one receiving physical discipline. More than mere childish frivolity is involved.

## **How Should Discipline Be Administered?**

In the Bible, discipline is consistently linked with love and mildness, not with anger and brutality. The skillful counselor should be “gentle toward all, . . . restrained under evil, instructing with mildness those not favorably disposed.”—2 Timothy 2:24, 25.

Therefore, discipline is not an emotional outlet for the parent. Rather, it is a method of instruction. As such, it should teach an erring child. When administered in anger, physical discipline teaches the wrong lesson. It serves the need of the parent, not that of the child.

Furthermore, effective discipline has boundaries. “I shall have to chastise you *to the proper degree*,” Jehovah says to his people at Jeremiah 46:28. This is especially vital to remember when administering physical discipline. Hitting or shaking an infant can lead to brain

damage or even death.\* Going beyond the intended purpose of discipline—to correct and to teach—may lead to child abuse.<sup>#</sup>

## **The Bible Does Not Promote Abuse**

Before correcting his people, Jehovah said: “Do not be afraid, . . . for I am with you.” (Jeremiah 46:28) Discipline should not leave a child feeling abandoned. Rather, the child should sense that the parent is ‘with him’ as a loving, supportive encouragement. If physical discipline is deemed necessary, the child should understand why. Proverbs 29:15 says that “the rod and reproof are what give wisdom.”

It is a sad fact that today many use “the rod” of parental authority abusively. Yet, fault cannot be found with the Bible’s balanced principles. (Compare Deuteronomy 32:5.) When we consider “the rod” in its context, we see that it serves to teach children, not to abuse them. As in other matters, the Bible proves to be “beneficial for teaching, for reproofing, for setting things straight, for disciplining in righteousness.”—2 Timothy 3:16.

\* The book *Outgrowing the Pain: A Book for and About Adults Abused as Children* cautions: “Spanking can become child abuse when it is done in an out-of-control way, with enough force to leave injuries. Using instruments to hit, spanking with a closed fist, hitting very young children, and hitting in vulnerable areas (face, head, stomach, back, genitals) can increase the likelihood of corporal punishment becoming child abuse.”

<sup>#</sup> The book *Father Power*, by Dr. Henry Biller and Dennis Meredith, notes: “Physical punishment need only be quite mild to be effective. If it comes from someone he loves and whom he knows loves him, the emotional impact will be enough to make the child think about what he has done.”

## **In Our Next Issue**

### **Your Children—Doing What’s Best for Them**

### **Does God Answer My Prayers?**

### **Why All the Tears?**

## Watching the World

### Marriage or Cohabitation?

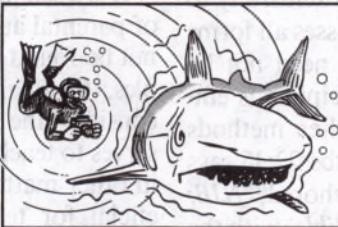
It is becoming more and more common in some lands for couples to live together before or instead of marriage. So much so, warns the *New Zealand Herald*, that "marriage could become irrelevant in Europe." In Sweden and Denmark, the paper reports, statistics suggest that only half of the women will get married. In the rest of Europe, about one third are now projected to remain unmarried. Yet, studies have shown that cohabitation prior to marriage does not ensure a quality marriage, as was once thought. A recent report in the *Journal of Marriage and the Family* found that "couples who cohabited before marriage reported lower quality marriages, lower commitment to the institution of marriage, . . . and greater likelihood of divorce than couples who did not cohabit."

### Scientists Suspect Their Peers

How prevalent is scientific fraud? The world's largest general scientific society, the American Association for the Advancement of Science, recently sent surveys on this subject to 1,500 members. Of the 469 scientists who responded, 27 percent "believe they have encountered or witnessed fabricated, falsified, or plagiarized research over the past 10 years," according to *Science* magazine. Only 2 percent believe that fraud is on the decline; 37 percent feel that it is on the rise. Of those who had encountered fraud, 27 percent said they had done nothing about it, and only 2 percent had publicly challenged the data they suspected as phony. As to the causes of all the fraud, the scientists listed many, such as the fierce competition to publish findings first and obtain government grants and public recognition.

### Shark Shock!

An effective shark repellent has long been sought. Shark nets, apart from being ecologically damaging to endangered sea creatures such as dolphins and turtles, require maintenance, especially following severe storms. However, it appears that a breakthrough has been made in the form of an electromagnetic shark repellent. Norman Wynne of the Natal Sharks Board in South Africa explains: "We found that [sharks]



were extremely sensitive to an electromagnetic field of a particular frequency." Tests involving 250 contacts with sharks showed that in each case sharks were repelled by the new deterrent. It appears that the device is harmless to other forms of sea life. The product, which will shortly be marketed, is small enough to be worn on a belt or fitted onto a surfboard.

### Useful Tobacco?

Considering all the deaths that come from its misuse, does tobacco have a beneficial use? According to an article published in the South African journal *Endangered Wildlife*, it might. Tobacco can be used as a natural pesticide. A boiled solution of ground tobacco and soap sprayed on crops kills caterpillars, flies, and mites. Brushed on the hides of sheep, cattle, and goats, the solution effectively eliminates ticks. The article does, however, present this sobering warning: "This tobacco solution is a strong natural poison. On no ac-

count should people or animals drink it. Do not keep quantities around the house. Crops sprayed with it should not be harvested for at least 4 days after spraying and should be washed thoroughly with clean water before eating."

### Breast-feeding Benefits

Premature weaning is a main cause of infant mortality in the developing world, according to the Brazilian magazine *Superinteressante*. Half of Brazil's mothers stop breast-feeding in the second month rather than continuing at least until the sixth month. The magazine adds: "Without an immunological inheritance and subjected to precarious sanitary conditions, children die of diseases that they would have been able to overcome if they had been breast-fed." Pediatrician José Martins Filho claims: "Only five out of a hundred women are unable to breast-feed because of physical problems."

### Doctors' Favorite Patients

Doctors in Toyama, Japan, have drawn up a list of the types of patients they find hard to treat. They dislike patients who leave all the talking to whoever accompanies them, those who needlessly ask for help outside of office hours, those who disobey instructions, those of prominent social standing who are arrogant and hostile, those who think they know as much or more than doctors, and those who go from one doctor to another without trusting any. *The Daily Yomiuri* quoted Dr. Kaoru Oyama of Toyama's Saino Hospital as saying: "Doctors are not gods. Our best patients are those who motivate us to do our best work on them, by being open and communicating with us, and by following our directions and instructions."

## Cambodian Malaria Threat

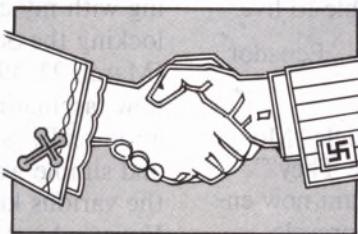
Twenty years of war have left the Cambodian countryside strewed with millions of land mines. An even greater threat, though, comes from a new strain of malaria that is resistant to the usual drugs. According to the Cambodian health ministry, malaria is killing an estimated 15 to 25 people a day—ten times the number of land-mine victims. The World Health Organization fears that the disease may spread not only through tropical Southeast Asia but also around the world. About 16,000 UN peacekeeping troops are assigned to the area, and it is feared that when they return home, some will be carrying the new parasite in their blood, which will then be transmitted by mosquitoes to more victims. Also threatened are the 360,000 Cambodian refugees who will return home from camps in Thailand. Most effective against the new strain are quinine and tetracycline. But both drugs, along with trained staff and transport, are in short supply in Cambodia, and people are dying for lack of proper treatment.

## Injured Instead of Cured

About 6,000 religious pilgrims flocked to a Roman Catholic shrine near Denver, Colorado, U.S.A., last December after a woman reported that the Virgin Mary had appeared to her there. Some of the pilgrims stared directly into the sun in hopes of glimpsing the Virgin. Dozens suffered eye damage, and ophthalmologists report that in a number of cases, the damage is severe and permanent. Said one woman affected: "Did you ever hear of people going to Jesus for a miracle and coming away crippled?" Denver's Archbishop J. Francis Stafford urged the "Christian faithful" not to participate in future gatherings associated with private revelations. He warned against "superficial sentiment and vain credulity."

## French Bishops Compromised?

A report accusing the "hierarchy of France's Roman Catholic Church of fully supporting the pro-Nazi government of Vichy France" has been made public after 48 years, says the *International Herald Tribune* of Paris. The report is said to have been written in 1944 by a Jesuit theologian who later became a cardinal. It calls the compromises made by the majority of the French bishops during the



Nazi occupation of France "a scandal." The report says in part: "The church seemed satisfied, despite justice being violated everywhere, consciences tortured and Christian values swept away. . . . The Church in France appeared in the eyes of everyone to profit odiously from an odious situation." The *Tribune* concludes: "Nearly 50 years after the war, France is only beginning to deal with the behavior of the Church during the German occupation."

## Out-of-Wedlock Children

The percentage of children born to unwed parents has more than doubled in France since 1981, says a report by the French National Institute of Statistics and Economic Studies. Today, every third child there is born out of wedlock. This, according to the Paris daily *Le Monde*, gives France the second-highest percentage of illegitimate births in the European Community. First is Denmark, where half of all children are born out of wedlock. However, unlike in years past, more and more illegitimate births in France are apparently the result of

planned rather than unplanned pregnancies. Brigitte Rabin, author of the report, feels that this trend indicates that having out-of-wedlock children has become socially acceptable for many. Thus, with the stigma removed, more and more women are remaining single—yet choosing to raise a family.

## A Worldwide Supergovernment

Some environmental disasters, such as the poisonous radioactive cloud released by the Chernobyl reactor accident, frustrate governments because they spread across national borders, making them impossible for any one government to control. Thus, according to the Italian daily *Il Sole-24 ore*, the Italian minister for the environment suggested: "A world government for the environment is no utopia, especially if specific responsibilities . . . are assigned to it."

## Age and Memory Loss

Is old age synonymous with forgetfulness? Many people think that it is. This idea is now challenged by research conducted in Italy and summarized in *Corriere Salute*. The tests involved about a thousand subjects between the ages of 20 and 70. The results showed that the reason for the apparent decline of memory may be loss of self-confidence by the elderly. For example, if a youth forgets, no attention is paid to age. However, if an elderly person forgets, then age becomes the culprit. Thus, forgetfulness may be wrongly associated with aging. In other words, often "our estimate of our own memory is closely related to our anxieties, and in the end, all that we really need is just to be reassured." The survey also concluded that even though an elderly person does not learn as fast as a youngster, age is no handicap in recalling subjects studied in the past.

## From Our Readers

**Unborn Children** The article "Learning Begins in the Womb" delighted me. (January 22, 1992) I am a medical doctor, and I recently met with a couple who asked for my advice about having an abortion. In giving my comments, I added the arguments made in your article. The couple decided they would have the baby. Thanks to you, a small infant will be able to live.

G. U., Ecuador

**Motorcycles** I read your article "Motorcycles—How Dangerous Are They?" with interest. (April 8, 1992) I am now entering my 55th year in the motorcycle business and am always interested in motorcycle safety. Often where a motorcycle and a car are involved in an accident, the car is at fault; many times drivers just do not see the motorcycle. Keep up the good work in bringing us such interesting subjects.

M. H., United States

I have ardently followed all the safety precautions you mention. But this did not compensate for the most dangerous threat to a cyclist's safety: THE OTHER DRIVERS! I was almost run over a few years ago by someone who never even stopped. I fell off my bike and, despite protective gear, received serious injuries. As a husband and a father of two beautiful children, I decided it would be best for me to sell my bike.

J. B., United States

*We tried to give a balanced picture of both the pleasures and the dangers of motorcycle riding. Readers were encouraged to "weigh*

*these aspects of appeal and safety against each other" when they considered riding a motorcycle. It is not up to others to be judgmental when it comes to matters of personal decision.—ED.*

**The Universe** I have just finished reading with my children the articles on "Unlocking the Secrets of the Universe." (March 22, 1992) These articles showed how fascinating Jehovah's immense creation really is. Thank you for the clear and simple way in which you explained the various kinds of heavenly bodies. Every subject you cover is handled with great clarity, depth, and competence.

N. B., Italy

I kept putting this issue of *Awake!* aside because it was not a subject I was interested in. Now I feel different. You have taken what was for me a very complicated subject and—as you always do—presented it in a manner others can understand. I didn't want the article to end once I started reading it!

S. J., Canada

**Nail Straightener** Being of poor health, I am unable to have a direct share in the construction project taking place at the Watch Tower Society's branch facilities in Selters/Taunus, Germany. But the article about elderly Adams Akueteh, called "the nail straightener of the Ghana branch" (May 22, 1992), moved me to tears!

T. R., Germany



## "Jehovah's Witnesses Day"

**J**EHOVAH'S WITNESSES enjoy gathering together in large numbers several times during the year. They assemble to learn about God and his righteous principles. These meetings are also excellent opportunities for encouraging association with fellow Christians.—Hebrews 10:24, 25.

What sort of impact do these large groups of Witness visitors have on the cities selected for these assemblies? Of course, there is a financial benefit to the local economy. But there is also the impact of “their example of spiritual dedication and personal decorum,” as stated in a proclamation issued by the mayor of the city of Gainesville, Georgia, U.S.A.

This official document stated in part:

“WHEREAS, the Jehovah’s Witnesses have been meeting at the Georgia Mountains Center on an average of 14 weekends annually for the past 11 years, with the attendance at each session averaging 2,200 persons; and . . . this ‘great cloud of Witnesses’ has surely given an inspiring testimony of faith and dedication to all who have observed it:

“NOW, THEREFORE, I, Emily D. Lawson, Mayor of the City of Gainesville, hereby proclaim Saturday, November 23, 1991, as ‘JEHOVAH’S WITNESSES DAY’ in Gainesville; calling upon all citizens to recognize and extend a warm welcome to these visitors, and to seek to emulate their example of spiritual dedication and personal decorum, at every opportunity this weekend and in the future.”



## Is There a Solution?

**M**an's insatiable curiosity drives him to expend energy, money, materials, and even lives in his quest for knowledge of the universe. While interplanetary travel is the immediate goal for some, for others the challenge is the earth itself. Crime, violence, and war reap lives on a daily basis. Man ruins the earth and creates an ecological imbalance with his pollution and commercial exploitation of its finite resources. The earth's "lungs," its forests, are being denuded. Earth's water is being poisoned and wasted. Is there a viable solution to these problems? *Awake!* is dedicated to bringing to your attention God's solution as found in the Bible.