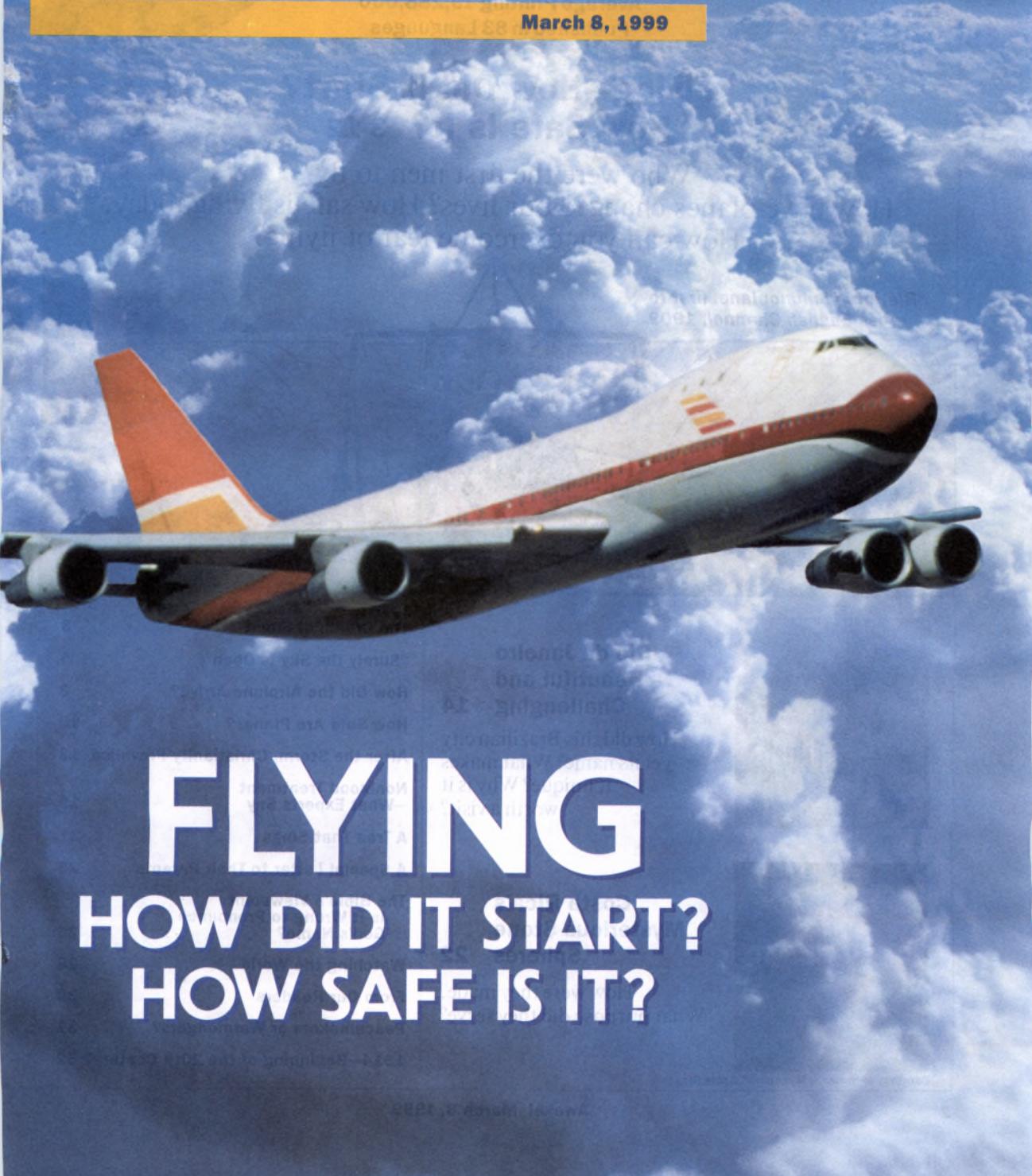


Awake!

Volume 188 • March 8, 1999



FLYING HOW DID IT START? HOW SAFE IS IT?

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Who were the first men to fly?
How have planes changed our lives? How safe is flying today?
How can you overcome fear of flying?

"Blériot XI" monoplane, first to cross English Channel, 1909



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Courtesy of National Museum of Costa Rica

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**Boeing Stratoliner 307, c. 1940,
33 passengers, cruising speed 215 m.p.h.**

THE DREAM OF FLIGHT

FLYING machines, one and all, have quickly illustrated the adage of our youth, 'What goes up must come down.'

So began a somewhat skeptical editorial in *The New York Times* of May 25, 1908—less than five years after the Wright brothers made their famous flight at Kitty Hawk, North Carolina, U.S.A. Still doubtful of the success of the newfangled "flying machines" that were starting to appear in the skies overhead, the writer mused that "comparatively few of us have any desire to float in the air at a great height from the earth." Though conceding that future generations might take more kindly to air travel, the article asserted that the "dream of long-distance passenger airships . . . may never be realized."

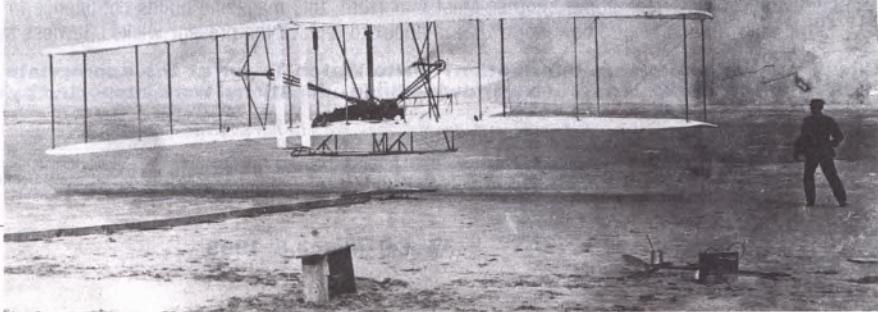
How wrong that prediction turned out to be! Today, more than one billion passengers fly in "long-distance passenger airships" every year. Yes, within one century, airplanes have been transformed from the flimsy wood-and-fabric contraptions they were at the turn of the century to the sleek computer-equipped jetliners of today, which cruise seven miles above the earth and carry hundreds of passengers to far-flung destinations in climate-controlled comfort.

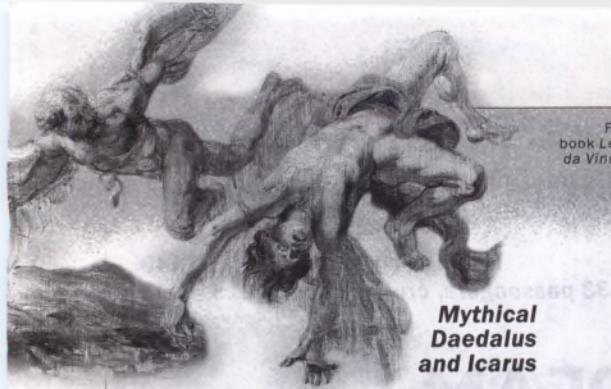
The rapid progress of aviation technology in the 20th century has been truly remarkable and has radically changed our world. Actually, the story of man's quest to conquer the skies can be traced back much further than the past few decades—or even the past few centuries. Human flight is a dream that has obsessed men since ancient times.

**Lockheed SR-71
Blackbird,
world's fastest
jet, at some
2,200 m.p.h.**

U.S. National Archives photo

The Wright brothers' "Flyer," 1903





From the
book Leonardo
da Vinci, 1898.

Mythical
Daedalus
and Icarus



Leonardo da Vinci

The Montgolfier
brothers
designed the first
passenger-carrying
hot-air balloon



"SURELY THE SKY IS OPEN"!

THE desire to fly is as old as mankind," observed historian Berthold Laufer in *The Prehistory of Aviation*. The annals of ancient Greek, Egyptian, Assyrian, and Oriental mythology contain numerous legends of kings, gods, and heroes who tried to harness the power of flight. In almost every case, the stories involve men imitating the winged flight of birds.

For example, the Chinese tell of the wise and daring Emperor Shun, who supposedly lived more than 2,000 years before the birth of Jesus Christ. According to legend, Shun found himself trapped atop a burning granary, clothed himself in feathers, and made his escape by flying. Another account says that he jumped off a tower and used two large reed hats to parachute safely to the ground.

Among the Greeks, there is the 3,000-year-old story of Daedalus, a great artist and inventor, who built wings made of feathers, twine, and wax so that he and his son Icarus

could escape from Crete, where they were being held in exile. "Surely the sky is open, and that's the way we'll go," Daedalus declared. At first, the wings worked perfectly. But Icarus, enthralled with his ability to soar through the heavens, flew higher and higher until the heat of the sun melted the wax that held his wings together. The boy plunged to his death in the sea below.

Such stories fired the imagination of inventors and philosophers who longed to achieve true flight. As early as the third century C.E., the Chinese were building and experimenting with kites, showing an understanding of certain aeronautical principles long before experimentation of this kind even began in Europe. In the 15th century, Giovanni da Fontana, a Venetian physician, experimented with simple wood-and-paper rockets that were launched by an explosion of gunpowder. In about 1420, da Fontana wrote: "I, indeed, have no doubt that it is possible to attach to a man wings which may

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.

Would you welcome more information? Write Watch Tower at the appropriate address on page 5. Publication of *Awake!* is part of a worldwide Bible educational work supported by voluntary donations.

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be artificially moved, by means of which he will be able to raise himself into the air and move from place to place and climb towers and cross water."

In the early 16th century, Leonardo da Vinci, a painter, sculptor, and skilled mechanical engineer, sketched crude designs for helicopters and parachutes as well as for gliders with flapping wingtips. The evidence suggests that he built models of at least some of his proposed flying machines. However, none of da Vinci's designs were really practical.

From the two centuries that followed come various accounts of the efforts of daring men who strapped artificial wings onto their bodies and tried flapping them as they leapt from hillsides and towers. These earliest 'test pilots' were a brave and adventuresome breed—but their efforts were completely unsuccessful.

Fire Balloons and "Inflammable Air"

In 1783 news of an astounding aeronautical breakthrough spread through Paris and the provinces of France. Two brothers, Joseph-Michel and Jacques-Étienne Montgolfier, discovered that they could make small paper balloons rise swiftly and smoothly into the sky by inflating them with hot air. Their first large-scale fire balloon, as it was called, was made of paper and linen and was inflated with the foul-smelling smoke from a large fire. The unmanned

balloon rose to an altitude of more than 6,000 feet during its inaugural flight. On November 21, 1783, the balloon carried two passengers—dubbed aeronauts by the public—on a 25-minute ride over Paris. During that same year, another inventor, Jacques Charles, unveiled the first gas-filled balloon, which was inflated with hydrogen, or "inflammable air," as it was then known.

As balloon technology improved, the sky began to "open" rapidly to the adventurous aeronauts. By 1784, balloons were climbing to altitudes of over 11,000 feet. Just one year later, Jean-Pierre-François Blanchard successfully crossed the English Channel in a hydrogen balloon carrying the world's first airmail letters. By 1862, aeronauts had made voyages across Europe and throughout the United States and had managed to reach altitudes of over five miles!

But the early aeronauts were still totally at the mercy of the winds; there was no way to control the direction or speed of balloon flights. The development of gasoline- and electric-powered dirigibles in the latter half of the 19th century made aerial navigation possible to a greater degree, but the sausage-shaped lighter-than-air dirigibles traveled slowly—usually between 6 and 20 miles an hour. A new approach was needed if man was to "raise himself into the air and move from place to place," as da Fontana had predicted.

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Library of Congress/Corbis
Otto Lilienthal,
about 1891

HOW DID THE AIRPLANE ARRIVE?

HOW did designers finally achieve success with heavier-than-air flying machines? They turned their attention back to the true masters of flight—birds. In 1889 a German engineer named Otto Lilienthal, inspired by the flight habits of storks, published “Bird Flight as the Basis of Aviation.” Two years later he built his first simple glider. In 1896, after about 2,000 glider flights, Lilienthal was killed while practicing with a monoplane. Octave Chanute, a French-born American engineer, elaborated on Lilienthal’s design and developed a double-winged glider that again represented a significant advance in the design of a heavier-than-air flying machine.

Enter the Wright brothers. Proprietors of a bicycle shop in Dayton, Ohio, U.S.A., Orville and Wilbur Wright began their first gliding experiments in 1900, building on the accomplishments of Lilienthal and Chanute. The Wrights worked slowly and methodically over the next three years, making repeated experimental flights at Kitty Hawk, North Carolina. They developed new designs with the aid of wind tunnels, the first of which they made for themselves from a laundry starch box. For their first powered flight, they built their own four-cylinder, 12-horsepower engine and mounted it on the lower wing of a new plane. The engine powered two wooden propellers, one on each side of the plane’s rear rudder.

On December 14, 1903, the Wrights’ new invention rose off its wooden launching track for the first time—and stayed aloft for three and a half seconds! Three days later the brothers flew the machine again. Eventually it remained airborne for nearly a full

minute and covered a distance of 853 feet. The airplane was a success.*

Surprisingly, this landmark accomplishment was given little attention by the rest of the world. When *The New York Times* finally carried a story about the Wright brothers in January 1906, it said that their “flying machine” had been developed in strict secrecy and that the brothers had obtained only “some slight success in flying through the air” in 1903. In reality, Orville had sent a telegram to his father on the very night of the historic flight, urging him to inform the press. However, only three newspapers in the United States bothered to publish the story at that time.

No Commercial Future for Flying Machines?

The world in general was skeptical of aviation in its early years. Even Chanute, one of aviation’s noteworthy pioneers, predicted in 1910: “In the opinion of competent experts it is idle to look for a commercial future for the flying machine. There is, and always will be, a limit to its carrying capacity which will prohibit its employment for passengers or freight.”

Nevertheless, aviation technology advanced rapidly in the years following the Wrights’ first flights. Within five years the brothers had built a two-person biplane that could speed along at 44 miles per hour and climb to an altitude of 140 feet. In 1911 the first U.S. transcontinental airplane crossing was made; the trip from New York to California took about 49 days! During World War I,

* Some claim that in 1901, Gustave Whitehead (Weisskopf), a German immigrant living in Connecticut, U.S.A., also flew the airplane that he invented. However, there are no photos to substantiate this claim.



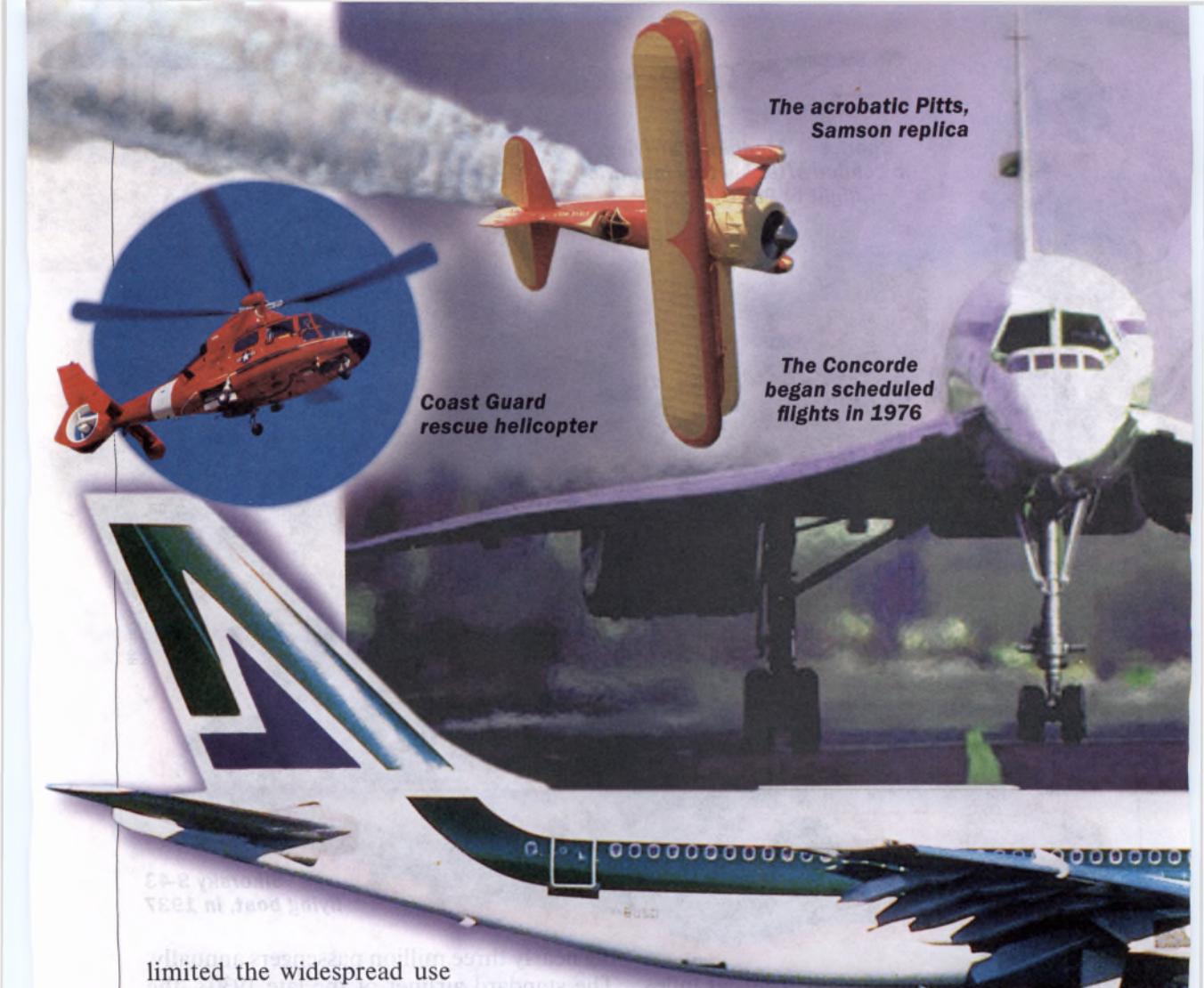
aircraft speeds were pushed from 60 miles per hour to over 145 miles per hour. Altitude records soon topped 30,000 feet.

Aviation records continued to grab headlines in the 1920's. Two American army officers made the first nonstop flight across the United States in 1923, journeying from coast to coast in less than 27 hours. Four years later Charles A. Lindbergh won instant fame by flying nonstop from New York to Paris in 33 hours and 20 minutes.

Meanwhile, the fledgling commercial airlines were starting to attract customers. By the end of 1939, air travel had caught on to the point that U.S. airlines were serv-

ing nearly three million passengers annually. The standard airliner of the late 1930's, the DC-3, carried just 21 passengers at a cruising speed of 170 miles per hour; but after World War II, commercial airplanes grew much larger and more powerful, achieving cruising speeds of over 300 miles per hour. The British introduced commercial turbojet service in 1952. And jumbo jets, such as the 400-seat Boeing 747, made their debut in 1970.

Another breakthrough came in 1976 when a team of British and French engineers introduced the Concorde, a delta-winged jetliner capable of carrying 100 passengers at twice the speed of sound—more than 1,400 miles per hour. But steep operating costs have



The acrobatic Pitts, Samson replica

Coast Guard
rescue helicopter

The Concorde
began scheduled
flights in 1976

limited the widespread use
of commercial supersonic planes.

Shaping the World

Even if you have never flown in an airplane, your life has probably been shaped by these rapid technological advances. Air-freight operations span the globe; often, the food we eat, the clothes we wear, and the machinery we use at work or at home have been flown in from across the ocean or across a continent. Letters and packages are whisked from country to country by means of airmail. Businesses rely heavily on courier services by plane to conduct daily transactions. The goods and services available to us and

the prices we pay for them have all been influenced by man's ability to fly.

Aviation has also generated profound social changes. Without a doubt, the world has shrunk, thanks to aviation. Within a few hours, you can be almost anywhere in the world—if you can afford it. News travels fast, and so do people.

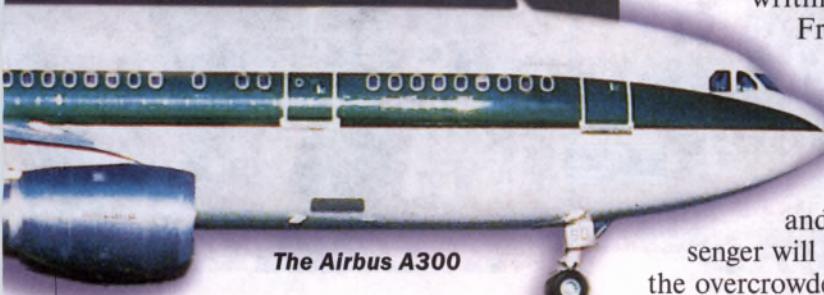
The Price of Progress

But such progress has come at a price. With air traffic increasing, some fear that



Upon reentry, the space shuttle becomes a high-speed glider

"Rutan VariEze," 1978



The Airbus A300

the skies are becoming more dangerous. Each year crashes involving private and commercial planes take many lives. "Under competitive pressures, many airlines are forgoing the extra margins of safety that they maintained routinely when they could pass the extra costs on to customers," says *Fortune* magazine. The Federal Aviation Administration, charged with the task of ensuring air safety in the United States, is "underfunded, undermanned, and badly managed," the magazine reported.

At the same time, a growing number of environmentalists are alarmed by increases in air and noise pollution that result from heavier jet traffic. Dealing with concerns over noise problems is "among the more divisive issues in world civil aviation," said the magazine *Aviation Week & Space Technology*.

These problems are compounded by the fact that air fleets are getting older: In 1990, 1 of every 4 U.S. airliners was found to be more than 20 years old, and a third of them had been used beyond their prescribed "objectives for useful life" as originally set by the manufacturer.

Thus, aeronautical engineers are now faced with tremendous challenges. They must develop safer and less expensive ways to carry more passengers, even as costs escalate and environmental concerns increase.

Some solutions for cutting costs have already begun to emerge. Jim Erickson, writing in *Asiaweek*, says that the

Franco-British team of *Aerospatiale* and British Aerospace plan to develop a plane that can carry up to 300 passengers at twice the speed of sound. Costs and fuel consumption per passenger will be lower. And in response to

the overcrowded traffic conditions at many airports, some industry visionaries have proposed a new generation of giant commuter helicopters—each capable of carrying 100 passengers. These aircraft, they believe, could someday handle much of the short-haul air traffic now carried by conventional fixed-wing aircraft.

Will mammoth helicopters and supersonic planes truly meet the urgent needs of the airline industry in the years to come? Only time will tell as man presses on in his quest to 'open the skies' to human flight.



HOW SAFE ARE PLANES?

IN ONE year about half a million people die on the roads of the world. In contrast, the number of deaths from airline accidents in 1996 was 1,945. For 1997 the total was down to 1,226. According to statistics kept by the manufacturer Boeing, "commercial jets crash less than 2 times for every 1 million flights."

Photograph courtesy of Boeing Aircraft Company

Yet, every airline crash gets top publicity, while the daily carnage on the roads is taken for granted. In the United States, only travel by bus is considered to be slightly safer than plane travel.

Why is a plane normally safer than a car? One obvious reason is that unlike vehicles on the road, planes do not usually fly in close proximity. Another reason is that most airline crews are highly trained and very professional in their approach to their responsibilities. A captain of a Boeing 747 will usually be in his 50's and have about 30 years of flying experience. Safety is the primary factor for all members of the crew. After all, their lives are also on the line.

Safety on the Flight Deck

If you stop to look inside the flight deck of a passenger plane, you will notice that all the primary instruments and controls are duplicated—one set on the left for the captain and the other on the right for the copilot.* Thus, according to *The Air Traveler's Handbook*, "in the unlikely event of one of the pilots collapsing, the other has all the controls needed to fly safely. In flight, each pilot can monitor the other's instruments, and ensure that they are giving the same indications on both panels."

Another safety factor on the flight deck is that as a precaution, the captain and the copilot usually have different meals. Why is that? So that in the unlikely event of food poisoning, only one of them would be affected.

In order to guarantee control of such movable parts as flaps, landing gear, and brakes, "airliners usually have two or more hydraulic systems in case one should fail." A doubling or even a tripling of systems is a standard safety requirement for most modern planes.

* On most airlines the captain will allow you to look inside the flight deck while the plane is parked. He will also answer your questions.

What Can You Do?

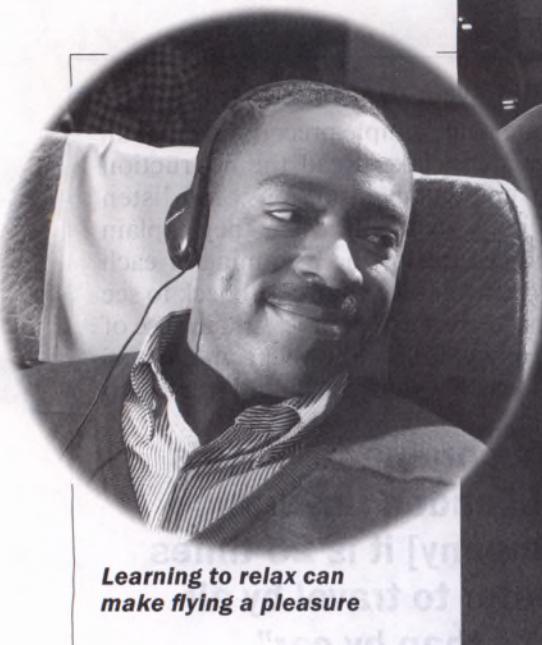
Here are some simple precautions that all passengers can take: Read the instruction card for emergency situations, and listen to the flight attendants when they explain safety procedures at the beginning of each flight. When you take your seat, check to see where the nearest exit door is. And in case of an emergency, follow the flight attendants' instructions. They are all highly trained to

"According to Lloyd's of London [insurance company] it is 25 times safer to travel by air than by car"

handle difficult situations, should any arise. When instructions are given, it is vital that passengers move quickly and forget about their belongings. Life is more important than possessions.

Modern planes normally fly above or around the weather, so most long-distance flights are very smooth. As a consequence, very few people experience airsickness. If any turbulence is expected, the captain usually advises the passengers to be sure to buckle their safety belts as a precautionary measure.

Could travel by plane be safer? The answer is yes. But most passengers would not tolerate the necessary change. What would that be? Have passengers face backward rather than forward! What advantage would there be in that? Passengers would be supported by the backrest during sudden deceleration instead of by just a seat belt fastened across the abdomen, which is incomplete protection compared with most car seat belts that additionally cross the chest. However, people prefer to see where they are going rather than where they have been!



Learning to relax can make flying a pleasure



Afraid to Fly?

It is estimated that 1 in 6 of the adult population in the United States is afraid of flying. With some it is more than fear—it is a phobia, a disproportionate fear that can lead to panic reactions. What can help?

Becoming an informed passenger can do much to quell anxiety. Every year worldwide about 15,000 aircraft serving nearly 10,000 airports transport more than 1.2 billion people with relatively few accidents or incidents. "According to Lloyd's of London [insurance company] it is 25 times safer to travel by air than by car."

If you are nervous about air travel, read books on flying, planes, and pilot training. Read about the high standards of training that are demanded of pilots and the rules they work under with regard to hours of sleep, limits on consumption of alcohol before flying, and random drug testing. Also there are the semiannual checkups that pilots must pass in a flight simulator to test their reactions to emergency situations. These simulations are so lifelike that some pilots exit the simulator "shaking and

soaked in perspiration." If a pilot fails the simulator test, he can lose his license to fly commercial aircraft.

These standards are far higher than any imposed on those who drive vehicles. Therefore, the more you learn about planes and pilots, the more your confidence can grow.

It may also help to visit an airport. Note the procedures for passengers, and observe how people are reacting. You will notice that most people step off a plane as if they were just stepping off a bus. Air travel for them is commonplace. Watch planes taking off and landing. Understand and admire the scientific principles of aerodynamics that make flight possible and safe.

When you finally take your first flight, tell the flight attendant that it is your first time in a plane and that you may be a little nervous. These professionals know how to help you to relax and have confidence in the system. Try to relax. When the captain says it is OK to walk about the plane, get up and take a stroll about the cabin. You may be well on the way to conquering your fear of flying!

BY AWAKE! CORRESPONDENT IN MOZAMBIQUE

AFTER THE STORM, CHRISTIANITY PREVAILED

ON THE evening of March 2, 1998, the city of Maputo, Mozambique, was hit by a violent rainstorm. The next morning, storm damage was everywhere. Fallen trees were scattered along the beachfront, roads were scarred by raging waters, roofs were blown off some houses, and other houses had collapsed.

The buildings of the branch office of Jehovah's Witnesses stood firm. But a neighbor's house, a modest wooden frame building with a roof made of corrugated zinc sheets, did not fare so well. The house was too fragile to withstand the strong winds, and it had caved in. Happily, all in the home, a woman and her five children, were alive and well. In a material sense, however, they had lost practically everything.

Early in the morning, volunteer workers from the Watch Tower Society's branch office visited the family and found them salvaging their few belongings from the debris. Their material losses intensified their grief, as they did not have enough money to rebuild their house. Without a father, the family had only a meager income, which came from selling food items in a local market.

After assessing the situation, Jehovah's Witnesses quickly made themselves available to help. It was determined that the building materials left over from the previous structure were not suitable for reuse. So a team of volunteer workers gathered all the necessary materials and started to build a small reinforced house.

At first the neighbors were curious, but soon they were astonished, as they saw how quickly the work advanced. Within five days the house was totally rebuilt and ready to be occupied. Upon entering her new home, the woman was at a loss for words. However, words were not necessary, for the happiness of the mother and her children was evident when the workers saw their smiling faces and eyes full of deep appreciation.

The volunteers were happy too. They were glad to have had the opportunity to demonstrate in a practical way the spirit of true Christianity.—Galatians 6:10.



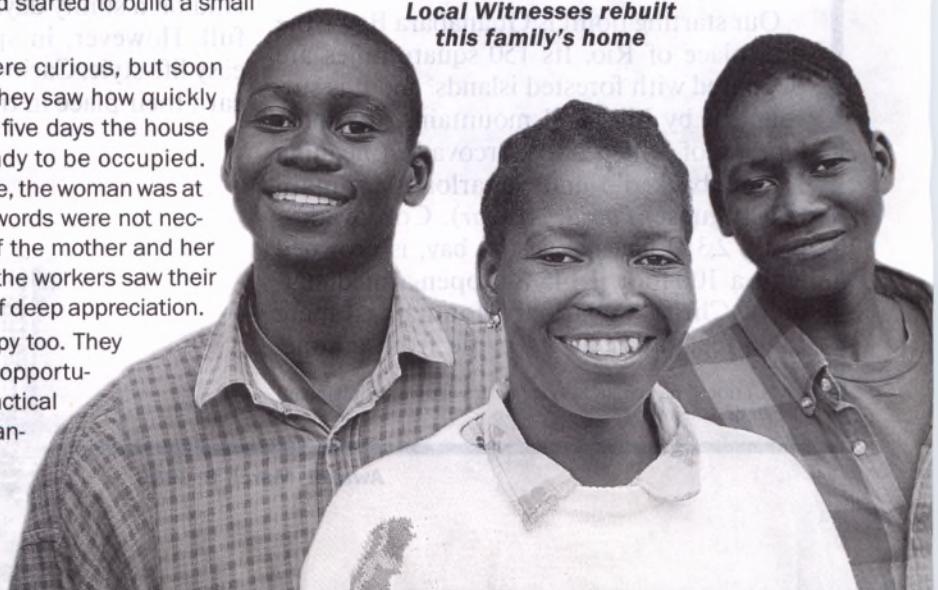
March 5



March 6



March 7



Local Witnesses rebuilt this family's home

Rio de Janeiro

Beautiful and Challenging

BY AWAKE! CORRESPONDENT IN BRAZIL

RIO DE JANEIRO has it all—beaches, hills, lakes, tropical forest. “Its scenery is so attractive that it is hard to know where to look first!” exclaimed one visitor. Rio de Janeiro, or just Rio, is considered by many to be one of the world’s most beautiful cities. Although the word “rio” means “river,” the city actually sits on a bay.—See the box on page 18.

Of course, with 11 million people living in the metropolitan area, Rio has its share of problems—violence, unemployment, and a housing shortage, not to mention pollution and chaotic traffic. Despite this, Rio’s inhabitants proudly refer to it as *Cidade Maravilhosa* (Marvelous City). In the words of one Carioca:^{*} “Rio is a happy city. The beaches and hills we see on our way to and from work on a sunny day make us feel good.” A romanticized view? Let us take a look.

Bays, Beaches, and Lots of Sun

Our starting point is Guanabara Bay—the birthplace of Rio. Its 150 square miles are peppered with forested islands, and it is surrounded by hills and mountains, the most famous of which are Corcovado (meaning “Hunchbacked”) and Sugarloaf Mountain (Portuguese, *Pão de Açúcar*). Corcovado’s peak, 2,310 feet above the bay, is crowned with a 100-foot, 1,145-ton open-armed statue of Christ. Sugarloaf Mountain, a mere 1,296 feet tall, gets its name from a cone-

shaped form that was used by colonial sugar refiners. Visitors can go up Corcovado by small train or by automobile, and a cable car ferries sightseers to the top of Sugarloaf. The view of Rio, sandwiched between the deep blue sea on the one side and the rich green forest and the sinuous contours of Rodrigo de Freitas Lake on the other, is breathtaking.

Beaches with fine white sand along with sun—lots of it—make Rio a tourist’s dream. As you might expect, with summer temperatures reaching 100 degrees Fahrenheit, the more than 70 beaches along Rio’s 50-mile coastline are packed. Which beach is the best? The answer depends on the beachgoer. For Cariocas the beach is a rendezvous, reading room, soccer field, volleyball court, bar, restaurant, playground, concert hall, gymnasium, and office as well as a place to go for a swim. Every morning Rio’s promenades are packed with joggers and cyclists. And on a sunny day, the beaches are always full. However, in spite of their seemingly easy life-style, Cariocas have to work hard to earn their place in the sun.

* “Carioca” has come to refer to any native or inhabitant of Rio de Janeiro.



Until the end of the 19th century, the city of Rio crowded around the beaches of Guanabara Bay. Then, tunnels built to link the bay to ocean beaches channeled the city's growth southward. With the inauguration in 1923 of the Copacabana Palace Hotel, one of the first luxury hotels in South America, the first beach to become famous was Copacabana, the "Little Princess of the Sea." Later on, in the '60's, Ipanema beach became a meeting place for intellectuals and bohemians. If something was not considered to be in at Ipanema, it simply was not in. The latest and largest of Rio's beaches to be developed was Barra da Tijuca (11 miles long), nicknamed Brazilian Miami. It is home to the city's largest shopping centers and many new residential buildings.

A Forest Surrounded by a City

Greenery is an important part of Rio's scenery, and its peaceful, 350-acre botanical garden, located in the city center, is just a few minutes from the hustle and bustle of the beaches. Formed in the 19th century, the

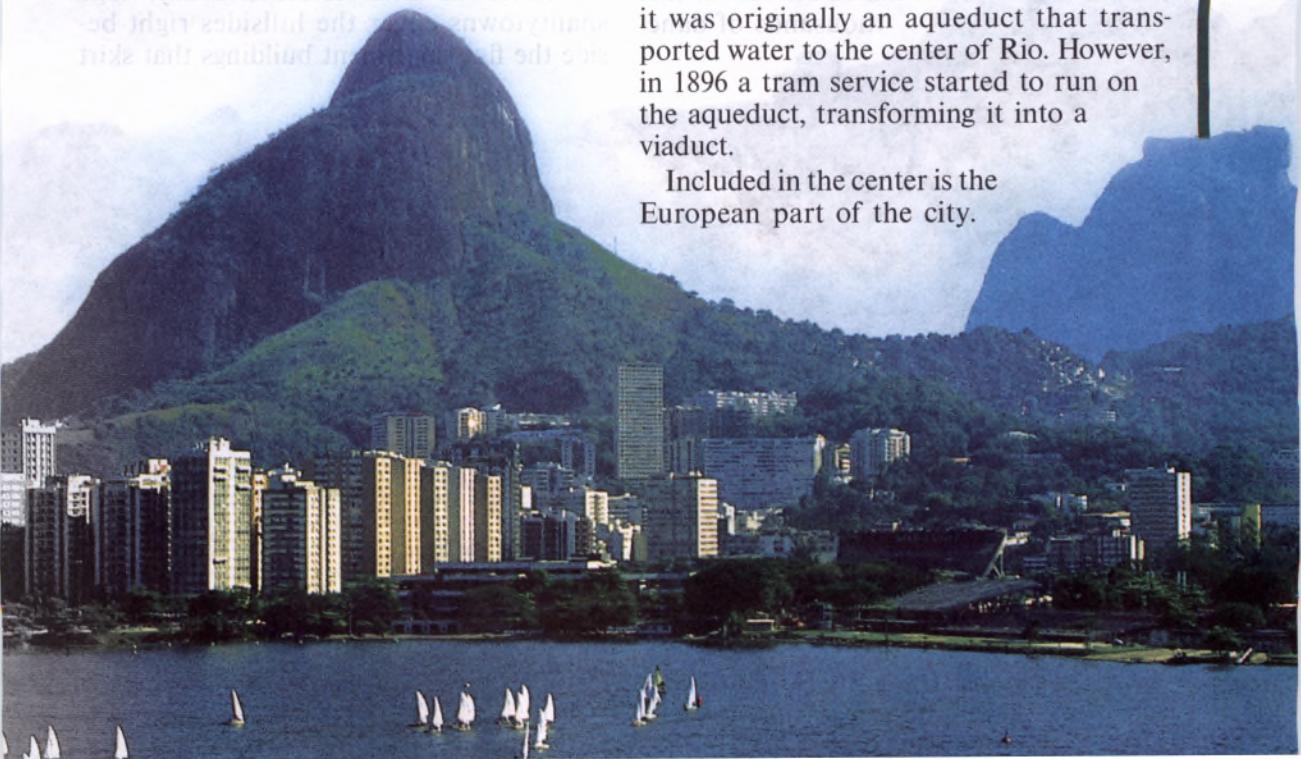
garden houses more than 6,200 species of tropical plants and trees.

Another haven within the city limits is the Forest of Tijuca. Located about 12 miles from the center of Rio and covering over 39 square miles, it is perhaps the largest urban forest in the world. It contains part of the Atlantic Forest, which once stretched along the whole Brazilian coastline. Visitors can see the majestic pink jequitiba together with beautiful, yellow flowering *canelas-santas*. There are also eye-catching blue butterflies of the *Morpho* species. As for birds, colorful green-headed or red-necked tanagers are a common sight.

A Visit to the Center

The center of Rio is all bustle—with people hurrying everywhere and lots of noise and heat. Pedestrians jostle for space with peddlers, who sell practically everything, from imported electronic goods to clothes, spices, and corn remedies. You can enjoy the tram ride over the 42 solid granite arches known as Arcos da Lapa. Built by Indians and slaves between 1712 and 1750, it was originally an aqueduct that transported water to the center of Rio. However, in 1896 a tram service started to run on the aqueduct, transforming it into a viaduct.

Included in the center is the European part of the city.





The National Museum of Fine Arts, built between 1906 and 1908, has a facade reminiscent of the Louvre Museum in Paris, and its colored panels and mosaics remind one of the Italian Renaissance. Another important building is the Municipal Theater, inaugurated in 1909, which seats 2,357 spectators and was inspired by the Paris Opera House.

Soccer and the Samba

Cariocas enjoy a good soccer match, and when important league games are scheduled, the Maracanã Stadium becomes the center of attention. Known as the largest soccer stadium in the world, it has hosted matches with up to 200,000 in attendance. At the moment, maximum capacity is limited to 100,000 for security reasons and for the comfort of the fans.

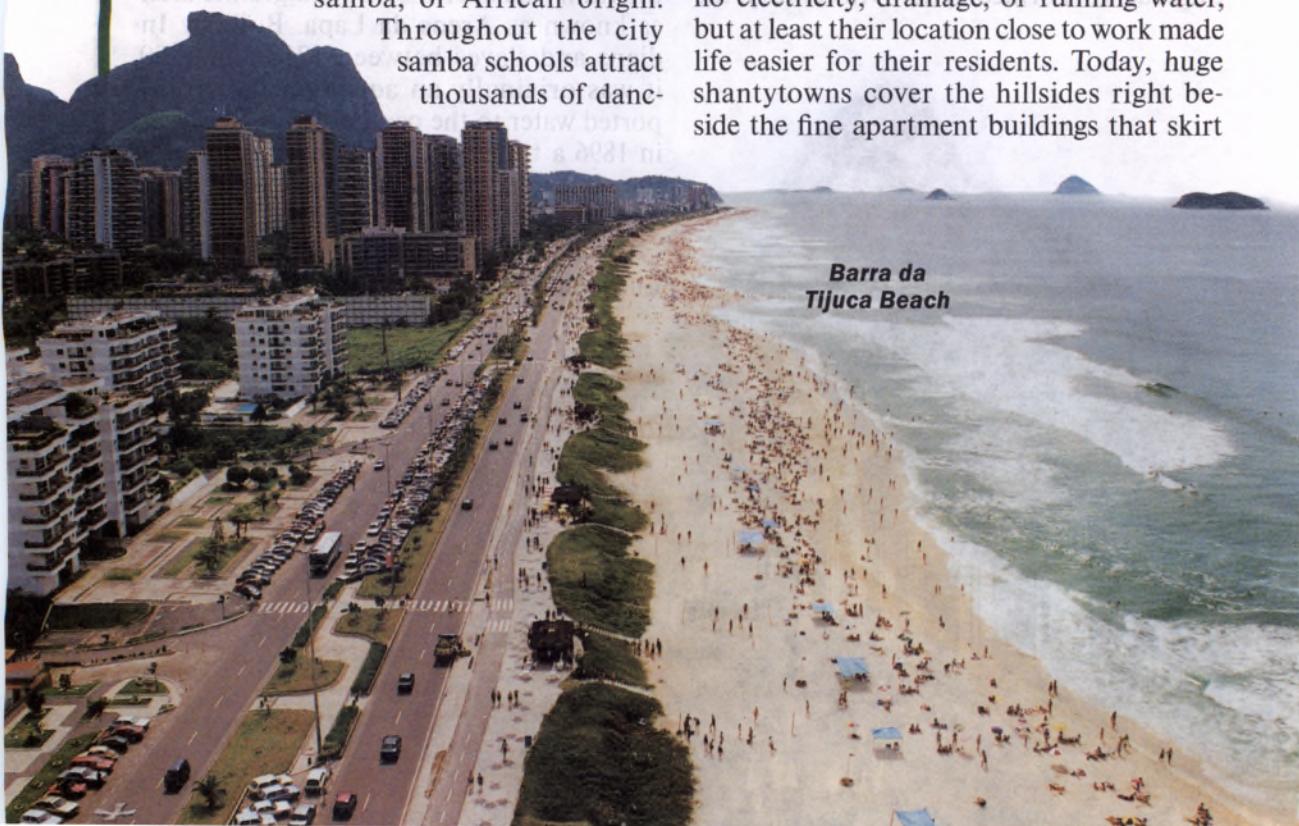
A favorite dance among Cariocas is the samba, of African origin.

Throughout the city samba schools attract thousands of danc-

ers—men, women, and children—often from the same neighborhood. During carnival, just prior to Lent, these schools—with up to 5,000 dancers each—file through the Sambódromo, a huge specially built parade ground, passing between two parallel concrete grandstands that hold up to 100,000 people. Unhappily, carnival has become noted more for its excesses, ranging from drunken driving to drug abuse and sexual promiscuity.

Rio Has Its Problems

For decades, until it was overtaken by São Paulo in the '50's, Rio de Janeiro was Brazil's industrial center. The dream of better living conditions led many to abandon rural life and move to Rio, forcing part of the city's population to cram into apartment blocks while those less fortunate took to the hills and built groups of improvised dwellings—shantytowns, or *favelas*. At first, these were made of dismantled boxes and tin and were covered with sheets of zinc. They had no electricity, drainage, or running water, but at least their location close to work made life easier for their residents. Today, huge shantytowns cover the hillsides right beside the fine apartment buildings that skirt



Barra da
Tijuca Beach

Copacabana and Ipanema. Few places in the world present such a visible contrast between the haves and the have-nots.

Newer shantytown dwellings are built of bricks. By creating streets and installing amenities, urban planners have attempted to make improvements; but this is no easy task. According to a recent survey, upwards of 900,000 people live in Rio's more than 450 shantytowns. Rocinha, the largest, has 150,000 residents. "It is like a city within a city," explains Antônio, who lives there but works at a bank in Ipanema. Residents have cable TV, community radio, and an FM radio station as well as a professional soccer team and a samba school. But life in the shantytown has a harsher side. Summer rains cause landslides on the hills, which result in injury and even death. A recent reforestation program has removed houses built in some dangerous areas, thus improving the situation.

Another major problem is organized crime. Its chief victims are youths who make a career as drug dealers. The relationship between drug dealers and residents is governed by certain rules. "There are practically no robberies, holdups, or rapes in the shantytowns. No one risks committing these crimes. People know that they will be executed if they do," explains João, who has lived in a shantytown for 40 years. Drug dealers punish nondrug crimes to gain the support and sympathy of the residents. "Although things have changed somewhat," João

adds, "it is still common for residents to ask drug dealers to pay for funerals, buy medicine or food, care for unpaid rent, or pay for entertainment."

Other Challenges

Sitting between the sea and the mountains, Rio has grown up on a swampy plain—a location that hardly favors the development of a big city. Over the years, it has been necessary to fight a "battle against these three elements: swamps, the sea, and the mountains," explains the book *Rio de Janeiro—Cidade e Região* (Rio de Janeiro—City and Region). To win this battle, countless tunnels and landfills have been made that connect different neighborhoods. The railways have also played an important role in the populating of suburban areas, although train travel nowadays is an adventure. "There are so many people trying to catch the train that you do not need to make any effort to get on. You are pushed on by the crowd," explains Sérgio, who has to catch a train in the suburbs at five o'clock in the morning to arrive at work at seven. The trains are so full that they often leave the station with their doors

Maracanã, the world's largest soccer stadium



Landmarks in Rio's History

1502: On January 1, André Gonçalves, a Portuguese sailor, mistakes the entrance to Guanabara Bay for a river mouth and names the body of water Rio de Janeiro (River of January).

1565: Estácio de Sá, chief of the Portuguese forces, founds a small settlement between the hills of Sugarloaf Mountain and Cara de Cão, to combat the French, who have also claimed the region. This settlement becomes the city of Rio.

1763: In an attempt to control the huge quantities of gold and diamonds that pass through the port en route to Portugal from neighboring Minas Gerais State, the Portuguese elevate Rio to the status of capital. The African slave trade gains impetus.

1808: The Portuguese court arrives, fleeing from the imminent invasion of Portugal by Napoléon I, and Rio becomes the temporary seat of the Portuguese monarchy. Rio continues as capital until the construction of Brasília, in 1960.



FOTO: MOURA

open and passengers clinging to the sides of the carriages. The most daring Cariocas even perch on top of them, train-surfing, as it is called. Any mistake while dodging the electric cables means almost certain death.

Another challenge is the preservation of Guanabara Bay, a symbol of the city's beauty. According to a World Bank



Arcos da Lapa, the aqueduct that became a viaduct

report, in some places its waters are "little better than raw sewage because of the heavy discharges of industrial wastewater and untreated (or partially treated) sewage." The damage is huge and includes a reduction in the number of species of fish, which affects 70,000 fishermen who depend on the bay for their livelihood. Polluted beaches also frighten off tourists. The government has tried to expand the sewerage system and supervise industry. Rio's antipollution campaign has adopted two dolphins as its symbol. Organizers predict that there will be dolphins swimming in Guanabara Bay before the year 2025!

Rio Is Still Beautiful!

After this quick look at Rio, what is your verdict? To most tourists and Cariocas, Rio is still beautiful! And what about the challenges? It would be nice if they could be met. But until that happens, all that Cariocas can do is adapt as best they can to the city's problems and enjoy its beautiful surroundings. That is what they have learned to do, with creativity and humor.



NONBLOOD TREATMENT

What Experts Say

BY AWAKE! CORRESPONDENT IN NORWAY

"EVEN if I should forget everything else from this congress, I will not forget your booth." So said a doctor who attended the 25th Congress of the International Society of Blood Transfusion, held in Oslo, Norway, last summer (June 27 to July 2, 1998). He had just visited the information booth that Jehovah's Witnesses had set up as approved exhibitors.*

Over 1,700 doctors from 83 countries attended this congress. Many delegates represented blood banks, but there were also hematologists, surgeons, and anesthesiologists. What information did the professionals share at this high-level meeting? What did Jehovah's Witnesses present at their exhibit, and what response did they get from the delegates?

Nonblood Alternatives

Among the topics considered were blood transfusion, blood testing, and medical alternatives to human blood. Dr. C. V. Prowse, of the Scottish National Blood Transfusion Service, spoke on "Alternatives to Human Blood and Blood Resources." He mentioned various recombinant (synthetic) growth factors that can increase blood cell levels by stimulating the body's production of these cells. For example, erythropoietin is produced by the kidneys and stimulates the formation of

red blood cells. But now this can be produced in laboratories. Dr. Prowse said that synthetic "erythropoietin is well established as a treatment for various forms of anaemia."

A similar substance has been developed to stimulate the body's production of blood platelets. Dr. Prowse said: "The most recent discoveries in this area are the thrombopoietic growth factors. Interleukin 11 is already licensed for its effect in improving platelet count . . . , and it seems likely that thrombopoietin and its homolog, rh-PEG-MGDF, soon will be."

Dr. Prowse also mentioned synthetic clotting factors (plasma proteins) that have proved valuable to hemophiliacs: "Recombinant equivalents of a number of plasma proteins are licensed, and in some cases are established as the preferred therapy due to concerns over the viral infectivity of plasma-derived products." Dr. Prowse added that "a number of other coagulation factors are now in development for production."

N. S. Faithfull, who is affiliated with a pharmaceutical corporation, gave a presentation on perfluorocarbon (PFC) compounds. Certain perfluorocarbons can transport oxygen in the circulatory system. The first generation of these chemicals did not prove satisfactory as "artificial" blood. Has progress been made? Faithfull said: "Over the last few years, further development of PFC technology has progressed and clinical trials have been performed using [two second] generation PFC emulsions." He reported on trials of one of these involving

* For religious reasons, Jehovah's Witnesses do not accept blood transfusion, asking instead for nonblood alternative medical treatment. (Acts 15:28, 29) For information on the reasons for and reasonableness of this, see *How Can Blood Save Your Life?*, published by the Watchtower Bible and Tract Society of New York, Inc.

256 patients undergoing orthopedic, gynecologic, or urologic surgery—procedures that often result in high blood loss. The results? “The data from both studies indicated that Oxygent was significantly better than blood at reversing these triggers [a trigger indicates a need for a blood transfusion] and that the triggers were reversed for significantly longer than the reversal caused by autologous blood.”

The congress also heard that the size of PFC particles in such emulsions “is very small . . . , about 40 times smaller than the diameter of an RBC [red blood cell]. This small size can enable PFC particles to traverse capillaries through which no RBCs are flowing.” This seems to hold promise of benefit in the case of certain damaged, blood-starved tissue.

A British physician emphasized the need of saving blood in surgical procedures. He urged this because of the shortage of blood and because of the hazards connected with transfusions. To illustrate how much can be done to reduce the use of blood, he told of a surgeon who used blood in only 10 percent of the hip operations that he performed. Other surgeons at the same hospital used blood in 70 percent of hip surgeries.

Jehovah's Witnesses Represented

Information about many such alternatives and methods was made available at the booth

of Jehovah's Witnesses. One poster indicated that around the world, 120 medical centers now offer bloodless medicine, and printed handouts contained abstracts from some 1,000 medical articles. Information was presented to show different methods of avoiding blood transfusion—techniques that might be applied before, during, and after surgery.

The response was very favorable. During the congress the Witnesses at the booth spoke with about 480 physicians—many of whom came back for more information, even bringing colleagues along. A professor of anesthesiology and surgery from California remarked: “This is impressive.” A professor from Germany said: “I can use this information in the education of my students.” A doctor representing the largest blood bank in China noted: “We badly need such information because of the shortage of the blood supply.”

The day after receiving the printed handout, the head of the blood bank at a Norwegian hospital returned and said: “May I have two or three more? I will give them to the surgeons and anesthesiologists and tell them to use these methods to reduce or avoid the use of blood transfusions in connection with operations.” Another doctor said: “This is the most interesting booth at the congress.”

Jehovah's Witnesses have been active around the globe in helping individuals to locate physicians who can and will treat patients without blood transfusion. The Witnesses have also made available current information on medical alternatives to blood transfusion. At the congress, hundreds of doctors, including surgeons, as well as other medical staff, from scores of lands, expressed interest in such information. This should have a positive impact as these individuals endeavor to use the many procedures and products that make blood transfusion unnecessary.

IN OUR NEXT ISSUE

Grandparents—Their Joys, Their Challenges

I Thank Jehovah for My Five Sons

Coping With Celiac Disease

A TREE THAT SINGS

BY AWAKE! CORRESPONDENT IN KENYA



IN THE boundless grasslands of Africa stands a tree that often sings. The tree is of the acacia species and is known as the whistling thorn. Why? Because when the wind rushes through the delicate branches, the tree seemingly lifts its voice.

A lovely, lilting sound is produced when the tree's unusually long and slender thorns vibrate in the wind. Adding to the melody of the thorns, the tree's hollow galls produce a sound much like that of an empty bottle when air is blown across its mouth. These "instruments" are formed by ants, who are said to hollow out the galls, the ants' spherical homes, and carve tiny entrance and exit holes in them. Because the galls and holes are of differing sizes, they produce sounds of differing pitch. These sounds add to the uniqueness and beauty of the whistling thorn.

This tree reminds us of the words of the psalmist who declared figuratively: "Let all the trees of the forest break out joyfully [in song] before Jehovah." (Psalm 96:12, 13) Indeed, when the wind flows over the thorns and the flutelike galls, it produces sounds that are a lovely, emotive song of Africa.



COSTA RICA'S MYSTERIOUS STONE SPHERES

AS LONG AS 16 centuries ago, the natives of southwestern Costa Rica made a variety of solid stone spheres, some as small as four inches in diameter and others up to eight feet. They are so perfectly formed that one is bound to wonder, 'How were they made? What purpose did they serve?'

Rock spheres have been found in several other countries, including Chile, Mexico, and the United States. But Costa Rica's granite spheres are unique. Their quality is superb, some being perfect spheres with smooth surfaces. They have often been found in groups of 20 or more. Of special interest is the fact that many of them are found aligned in geometric patterns, such as triangles, rectangles, and straight lines. These alignments often point to the earth's magnetic north.

Several spheres have been discovered in the Diquis River Delta. Others have been found near the southern cities of Palmar Sur, Buenos Aires, and Golfito as well as in the province of Guanacaste to the north and in the central valley. Several artifacts found with the spheres have provided valuable clues for dating them. Archaeologists estimate that some of these mysterious rocks date back to 400 C.E. The greatest number appeared between 800 and 1200 C.E. Some have been found near what seem to have been dwellings or in close proximity to graves. Over the years, some spheres have been destroyed by people who expected to find treasures hidden inside them. Still, the National Museum of Costa Rica has a catalog of some 130 existing stone spheres. But there are many more that are not cataloged. It has been difficult to count these ancient spheres because many have been removed from their original sites and placed as ornaments in private locations, such as gardens and churches. Undoubtedly, many lie yet undiscovered—some underground, others in thick jungles.

How were they made? This is a mystery. Some mechanical

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procedure seems to have been necessary in order to achieve such precision. Judging by the many statues of that period, we know that the sphere makers were skillful sculptors. In addition, gold artifacts dating from as early as 800 C.E. give evidence that they were experienced in working with high temperatures. One theory is that the sculpting of the orbs could have involved the use of high temperatures followed by cooling, to remove outer layers of rock. The work could have been finished by polishing the spheres with sand or leather.

Courtesy of National Museum of Costa Rica



Locomotive behind sphere Indicates scale

One scientist explained that the larger spheres "were the product of the finest craftsmen, and [the spheres] were so nearly perfect that the tape and plumb-bob measurements of diameters did not reveal imperfections." This exactness points to mathematical ability, advanced knowledge of stone carving, and use of tools on the part of the native peoples. However, since these people apparently did not have a written language, there are no records of exactly how they made the spheres.

Most of these spheres are made of granitelike rock. The nearest known granite quarry was up in the mountains about 25 to 30 miles from the Diquis River Delta. How did the sculptors move such heavy stones? If the spheres were carved at the quarry, the sculptors would have had to control their descent carefully. Can you imagine the challenge of moving something so heavy?



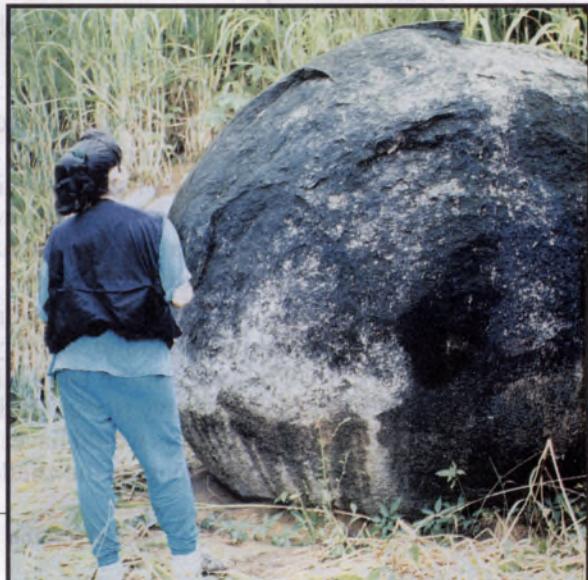
Spheres on premises of National Museum of Costa Rica

across such distances without modern equipment? Exactly how heavy are the spheres? Some weigh over 16 tons!

If the granite was quarried and moved before it was sculpted, the nine-foot cube that would be needed for a ball eight feet in diameter would weigh over 24 tons! Likely, to create a wide, smooth road to make transport possible, the natives would have had to cut through dense jungle. No small feat! Other spheres were made of coquina, a material much like limestone, which can be found on beaches near the mouth of the Diquis River. This may indicate that the stone was rafted about 30 miles upstream. Some spheres have been found on Caño Island, about 12 miles off the Pacific coast.

No one can explain with certainty the original purpose of these spheres. They could have been a mark of rank or importance for a tribal chief or a village. It is also possible that they were religious or ceremonial symbols. Future archaeological studies may someday reveal the mystery of the stone spheres of Costa Rica.

**Largest sphere
yet found to date,
with a diameter of
8.5 feet**



A Special Letter to Their Parents



Two teenage girls in Spain recently wrote a letter of appreciation to their parents. Here are some excerpts:

To our dear parents, Pepe and Vicenta:

Where to begin? There are so many things we want to say, and it's hard to put it all in a few words. We want to thank you for our 17 and 15 years of life, years that have been full of care and affection.

We have always known your opinions and your rules. Sometimes we wondered why we had to get home at a set time, but now, after observing how things turned out for other young ones who did not have a curfew, we realize that we have been protected by those rules.

Your example in not ever missing a Christian meeting at the Kingdom Hall, except for very good reasons, has helped us a lot, as has preaching with you on Sundays. On Sun-

day mornings we don't need to ask if we are going in the field service. We know perfectly well that we are!

Our upbringing has also included learning hospitality. So many have visited our home, and you always give them the best you have. We have seen this with our young eyes, and we have appreciated that we have parents who are special.

There is no one who knows or understands us better than you do. You are our best friends, the ones we trust completely.

In conclusion, we want to say that we love you. You are our parents, and we wouldn't exchange you for anyone else. If somehow we could choose our parents and our way of life all over again, we would, without a doubt, choose you, and we would live the same life all over again.

With affectionate kisses, your daughters,
ESMERALDA AND YOLANDA

Is It Wrong to Pronounce God's Name?

FOR centuries Judaism has taught that the divine name, Jehovah, is too holy to pronounce.* (Psalm 83:18) Many theologians have reasoned that it is disrespectful to address the glorious Creator in such a familiar fashion or even that it constitutes a breaking of the third of the Ten Commandments, which prohibits 'taking the Lord's name in vain.' (Exodus 20:7, *King James Version*) In the third century C.E., the Mishnah declared that "he who pronounces the divine Name as it is spelled out" has "no portion in the world to come." —Sanhedrin 10:1.

Interestingly, many scholars in Christendom follow the spirit of this Jewish tradition when translating the Bible. For example, *The New Oxford Annotated Bible* comments in its preface: "The use of any proper name for the one and only God, as though there were other gods from whom the true God had to be distinguished, began to be discontinued in Judaism before the Christian era and is inappropriate for the universal faith of the Christian Church." Therefore, in that translation

* In the Hebrew portion of the Bible (Old Testament), God's name is represented by four letters that can be transliterated as YHWH. While the exact pronunciation of God's name is unknown, in English it is commonly pronounced "Jehovah."

the word "LORD" is substituted for the divine name.

What Is God's View?

But do the views of such translators and theologians reflect God's thinking? After all, God did not choose to hide his name from mankind; rather, he *revealed* it to them. In the Hebrew portion of the Bible, commonly called the Old Testament, God's name, Jehovah, appears more than 6,800 times. The Bible record shows that the first human pair, Adam and Eve, were among those who knew and used God's name. On giving birth to her first son, Eve proclaimed: "I have produced a man with the aid of Jehovah."—Genesis 4:1.

Centuries later, when God called Moses to lead the nation of Israel out of slavery in Egypt, Moses asked God: "Suppose I am now come to the sons of Israel and I do say to them, 'The God of your forefathers has sent me to you,' and they do say to me, 'What is his name?' What shall I say to them?" Moses may well have wondered whether God would reveal himself by some new name. God said to Moses: "This is what you are to say to the sons of Israel, 'Jehovah the God of your forefathers, the God of Abraham, the God of Isaac

Courtesy of the Shrine of the Book, Israel Museum, Jerusalem

A portion of the book of Psalms from the Dead Sea Scrolls. God's name, Jehovah (YHWH), appears in a more ancient form of Hebrew script than the rest of the scroll.



and the God of Jacob, has sent me to you.' This is my name to time indefinite, and this is the memorial of me to generation after generation." (Exodus 3:13, 15) Clearly, the true God did not feel that his name was too holy for his people to pronounce.

In fact, God's faithful servants of every generation have freely and respectfully pronounced God's name. Boaz, a loyal servant of God, regularly greeted his workers in the field with the words, "Jehovah be with you." Did the workers express shock at such a greeting? No. The account relates: "In turn they would say to him: 'Jehovah bless you.'" (Ruth 2:4) Instead of viewing this greeting as an affront to God, they viewed it as a way of giving him glory and honor in their daily affairs. In this same spirit, Jesus taught his disciples to pray: "Our Father in the heavens, let your name be sanctified."—Matthew 6:9.

The Third Commandment

But what about the prohibition mentioned in the third of the Ten Commandments? Exodus 20:7 forcefully states: "You must not take up the name of Jehovah your God in a worthless way, for Jehovah will not leave the one unpunished who takes up his name in a worthless way."

What exactly does it mean to take up God's name "in a worthless way"? *The JPS Torah Commentary*, published by the Jewish Publication Society, explains that the Hebrew term rendered above as "in a worthless way" (*lash-shaw*) can mean "falsely" or "for nothing, in vain." The same reference work continues: "The ambiguities [of this Hebrew term] allow for the proscription [prohibition] of perjury by the principals in a lawsuit, swearing falsely, and the unnecessary or frivolous use of the divine Name."

This Jewish commentary correctly highlights that 'taking up God's name in a worthless way' involves using the name in an improper way. But could pronouncing God's

name when teaching others about him or when turning to our heavenly Father in prayer be rightly termed "unnecessary or frivolous"? Jehovah expresses his view through the words of Psalm 91:14: "Because on me he has set his affection, I shall also provide him with escape. I shall protect him because he has come to know my name."

Does It Matter?

The modern-English translation entitled *The Five Books of Moses*, by Everett Fox, breaks away from tradition. This translation uses, not the traditional "LORD," but "YHWH" to represent God's name "out of a desire to reflect the experience of the Hebrew reader." Fox emphasizes: "The reader will immediately notice that the personal name of the Biblical God appears in this volume as 'YHWH.'" He admits that the sight of God's name may be "jarring" to the reader. But after taking the commendable step of not covering over God's name in translation, he adds: "I would recommend the use of traditional 'the LORD' in reading aloud, but others may wish to follow their own custom." However, is it just a matter of personal choice, tradition, or following one's own custom?

No. The Bible not only encourages the proper use of God's name but commands it! At Isaiah 12:4a, God's people are pictured as crying out in no uncertain terms: "Give thanks to Jehovah, you people! Call upon his name." In addition, the psalmist speaks of those deserving God's adverse judgment: "Pour out your rage upon the nations that have not known you, and upon the kingdoms that have not called upon your own name."—Psalm 79:6; see also Proverbs 18:10; Zephaniah 3:9.

So although some refrain from pronouncing Jehovah's glorious name out of a misunderstanding of the third commandment, those who truly love God seek to call upon his name. Yes, at every appropriate opportunity, they 'make known among the peoples his dealings, making mention that his name is put on high!—Isaiah 12:4b.

WATCHING THE WORLD

Newborn and Pain

Researchers at London's University College have established that newborn babies feel pain more than adults and for longer periods of time. "It is only in the past 10 years that it has even been acknowledged that babies and infants felt pain," states *The Sunday Telegraph* of London. Prior to that, premature babies were subjected to traumatic procedures and surgery without the use of pain-killing drugs. Doctors now believe that such treatment can have long-term consequences on pain behavior, possibly even beyond childhood. This is because the natural mechanism that 'dampens down' pain messages in older children and adults does not function properly in premature babies. Babies also feel pain over a greater area, and even a minor skin wound can make the affected area hypersensitive to touch long after the wound itself has healed, reports the newspaper.

Student's Suggestion Leads to Discovery

Acting on a tip from a university astrophysics student, astronomers have added one more to the list of planets that orbit stars other than our sun. Kevin Apps, a student at the University of Sussex, England, suggested to astronomers Dr. Geoffrey W. Marcy and Dr. R. Paul Butler, between them responsible for discovering nine other such planets, that they search 30 overlooked sunlike stars. They did so and found a planet the size of Jupiter orbiting

one of the stars. To select the stars he recommended for investigation, Apps "used the latest satellite data and sifted out the stars that would have the best likelihood of harboring planets," said Dr. Marcy. This detection—plus an additional planet found by the two astronomers—brought to 12 the number of known planets outside the solar system, all discovered within a three-year period, reports *The New York Times*.

Old-Age Simulator



While many people seek to feel young and dynamic, equipment has been developed to make a person feel old and frail, reports German newspaper *Die Zeit*. A manufacturing consulting firm, together with medical doctors, developed the age simulator to help nurses and product designers to understand "how old people perceive the world." The equipment includes bandages and seams to limit mobility, 30 pounds of lead to give the impression of lost muscle strength, hard knobs inside a pair of gloves to stiffen the fingers, headphones to absorb high frequencies, and a screen to reduce the field of vision to half and to blur the sight. *Die Zeit* suggests: "Everyone under 60

should walk around in this outfit for a couple of hours, as a contribution to understanding between the generations."

History Surfacing

"Two centuries after a historic battle destroyed Napoleon's hopes of crushing the British empire, the French emperor's fleet has been discovered in the shallow water of a Mediterranean bay," reports *The Toronto Star*. In 1798 during the Battle of the Nile, the flagship *L'Orient* and the ships *La Seriuse* and *La Artemise* were sunk by the British Navy, led by Admiral Horatio Nelson. French marine archaeologist Franck Goddio found the fleet in 40 feet of water a mile off the coast of Alexandria, Egypt. "This is where the fate of Europe was decided," commented Goddio.

Traveling Birds Shed Excess Baggage

The kidneys, liver, and other internal organs of some birds shrink prior to long migration, reports *New Scientist*. Bar-tailed godwits, gull-size wading birds that migrate between Alaska and New Zealand, gorge themselves before their nonstop 7,000-mile flight. Researchers Theunis Piersma, of the University of Groningen in the Netherlands, and Robert Gill, of the U.S. Geological Survey, found that the birds compensate for the weight they gain by reducing the size of their food-processing organs by as much as 25 percent. States Gill: "They keep just enough so that,

when they land again, they can process food and rebuild their internal organs."

Infants and Honey Warning

Honey contains vitamins, minerals, and antioxidants, reports *Science News*. Generally, the darker the honey, the more antioxidants it contains. However, the *UC Berkeley Wellness Letter* offers this word of caution: "Never give honey to children less than a year old." Dormant *Clostridium botulinum* spores reside in approximately 10 percent of honey and can cause infant botulism. "The severity can range from mild illness to severe paralysis and sudden death, if not treated," states the *Wellness Letter*. For older children, however, honey is considered to be safe.

Smoking to Be Thin

The "drive to be thin" is compelling teenage girls to smoke, reports *The Globe and Mail* newspaper of Canada. In a survey of 832 Canadian and 1,936 British girls aged 10 to 17, many "listed smoking as a substitute for eating" and as an activity that curbs the appetite. Many teenage girls said they believed that "if they gave up smoking they would eat more and gain more weight." The *Globe* noted that "reports suggest teen-aged girls now account for the greatest increases in overall teen-age smoking and offer insight into the climbing rate of lung cancer among women."

Threatened Job May Equal Threatened Health

Insecurity regarding the future of your job may damage your health, reports *Science*

News. Of the 10,000 British civil servants taking part in a long-term health survey, a group of more than 600 men and women heard rumors over a period of four years that their department was going to be sold to the private sector. In the meantime, on the average, the health of those in this group declined when compared with that of other study participants whose jobs were not at risk. Those in the threatened group experienced an increase in blood cholesterol concentrations and a 40- to 60-percent higher incidence of ischemic heart disease. *Science News* notes: "These workers also proved far more likely to forgo exercise, gain weight, sleep more than 9 hours, and divorce or separate from a spouse."

Canine Concentration



What does it take for a dog to be a good drug detector? Among other things, an outstanding sense of smell and "unswerving concentration," explains *New Scientist* magazine. "A good detector must be capable of focusing on the task of searching for drugs, despite the circus of distractions in any airport or dockside," notes the report. And while a routine check of mail can take hours, "the dogs stay so focused that not even . . . 0.5 grams of heroin . . . hidden in a bulging

sack of letters escapes detection." In 1993 a dog-breeding program was set up that has met with a high rate of success; more than 50 percent of the dogs have qualified for service as drug detectors with the Australian Customs Service. Over generations of dogs, the breeders sought other traits, such as a love of praise, a strong hunting instinct, stamina, and fearlessness.

Oldest Map With Numbered Distances

Chinese archaeologists have found a 2,300-year-old engraved copper plate that is actually a map having distances indicated with numerals, reports Agence France-Presse. The map, which shows a small part of what is now northern Hopeh Province, in northern China, uses a scale of approximately 1:500. It includes a drawing of the royal mausoleums belonging to King Wang Cuo, who lived in the fourth century B.C.E. Du Naisong, a researcher with China's Forbidden City, stated: "It is not only the oldest map ever found in China but the oldest map noted with numerals in the world."

Six Billion in 1999

The world's population will pass six billion sometime this year, reports the French daily *Le Monde*. However, the pace of population growth is slowing. Annual growth is 30 percent less than it was in the '60's. This slowdown is partly due to increased use of contraceptives and to greater education of girls. According to the report, youths between 15 and 24 years of age now number over one billion, while there are more than 578 million people over 60.

FROM OUR READERS

Vacation Woes I really enjoyed the article "How You Can Avoid Vacation Woes." (June 22, 1998) I learned a lot. For example, I never knew that your risk of getting a blood clot is increased when you sit in cramped areas for long periods of time.

L. G., United States

Humans—Just Higher Animals? I would like to express my great appreciation for the series of articles "Humans—Just Higher Animals?" (June 22, 1998). These articles are well conceived and very well written. Actual quotations of well-known authorities make them suitable reading for experts. In the end it is simply impossible not to agree—we are God's creation.

A. D., Slovakia

These articles were fascinating. *Awake!* certainly understands how to condense deep and complicated truths into simple, irrefutable sentences.

C. L. D., Germany

The cover photo for the articles was very eloquent, and the contents were no less so. Your constant efforts to defend Biblical truth against insidious theories are appreciated. In the preaching work, this issue of *Awake!* aroused great interest among young people; many open-minded people accepted it.

M. M., Italy

A Robot Explores Mars Just after I finished reading the series of articles that outline the huge gulf that separates man from the animals, I turned to the article in that same issue entitled "A Robot Explores Mars." (June 22, 1998) How succinctly and indisputably that article capped off the matter of the intellectual gulf between man and animals!

G. D. M., United States

What if He Doesn't Return My Love? Today I received the June 22 issue of *Awake!*, and when I saw the article "Young People Ask . . . What if He Doesn't Return My Love?," I immediately thanked Jehovah for answering my prayers. I am determined to consider this article with my mom and to apply the counsel in my life. The "Young People Ask . . ." series really is a loving provision from Jehovah God.

K. M., Kenya

I am a 22-year-old woman, and I enjoy each issue of your magazine; but this was the first time an article has touched my heart so deeply. When I started to read it, I had tears in my eyes. Some time ago I had exactly the feelings you described, and I had many questions regarding them. This article helped me to see things more clearly.

R. B., Lithuania

When I read this article, my reaction was, 'How did someone understand the way I feel?' I was so glad to know that Jehovah kindly understands everything. The magazine came today, and even though it's midnight, I wanted to write at once.

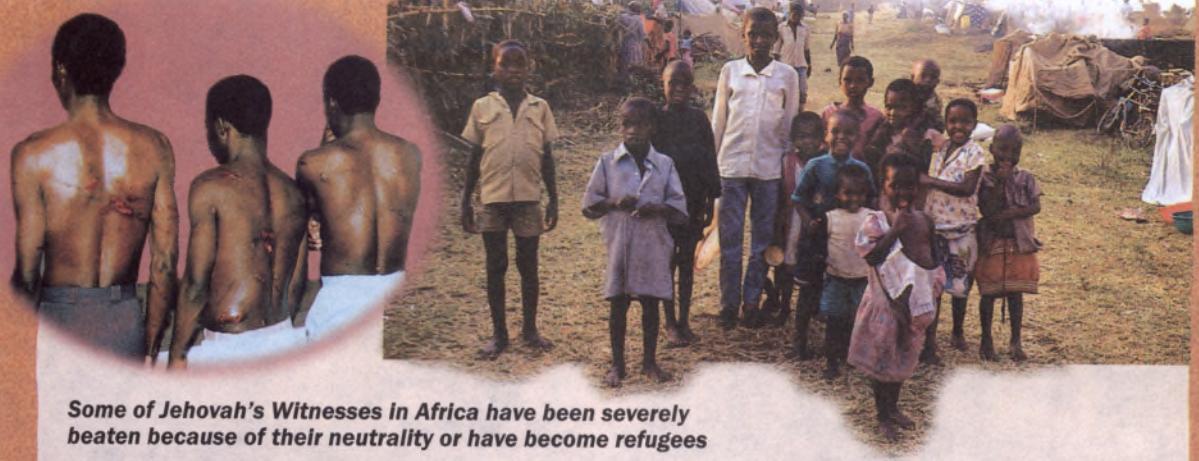
A. N., Japan

Although the article was prepared with women in mind, I found it very helpful. Just a week earlier, I had been given a firm rejection, and it hurt. Your article helped me to put my feelings in order. It comforted me and, more important, showed me that when choosing a wife, I should think about giving, not getting.

P. H. S., Brazil

Korean society puts great emphasis on a girl's marrying as soon as she is of age. It is quite a challenge for a young Christian woman to wait until she is "past the bloom of youth" before marrying. (1 Corinthians 7:36) Thanks for the excellent counsel.

S. C., Korea



Some of Jehovah's Witnesses in Africa have been severely beaten because of their neutrality or have become refugees

PEACEMAKERS OR WARMONGERS?

A CHRISTIAN is not to participate in acts of war." That statement sums up the early Christians' view on war, say Thoko and Malusi Mpulwana in *Echoes*, a magazine published by the World Council of Churches (WCC). It was only "after the Christian Church had come into alliance with the political establishment," they add, that the church began to favor "an acceptance of the necessity of war." The result? Christendom's support of wars throughout the ages has become so flagrant that after the second world war, the United Church of Christ in Japan even felt the need to issue an official "Confession of Responsibility for World War II."

Today, some 50 years after the war, Christendom's belligerent reputation has changed little. "If we ask whether we as Christians have indeed said a firm and convincing No to the logic of war and Yes to the love of Christ," admits Dr. Roger Williamson, who works for the Church of England, "it is clear that we . . . still have much to confess." Although the WCC declared in 1948 that "war as a method of settling disputes is incompatible with the teaching and example of our Lord Jesus Christ," Christendom's churches, Williamson notes, have often contributed to "bigotry, intolerance, restriction of human liberty and hardening of conflicts." No wonder he concludes that "religion . . . often serves to exacerbate rather than end conflict."

The war that ripped apart the former Yugoslavia is a case in point. Despite the injustices and cruelties that have been taking place for years, the churches have found it very difficult to take a united stand on the conflict in that country. Why? Dr. Williamson notes that despite their supposed Christian bond, Serbian and Croatian clergy are just as divided as their countries' politicians. There and elsewhere Christendom's clergy, whether Catholic, Orthodox, or Protestant, act not as peacemakers but as "chaplains to their own side." Though more than 300 churches now belong to the WCC, Dr. Williamson admits that it is "surprisingly hard to find examples of churches actually making . . . peace."

Hard, yes. But unlike the WCC's member churches, which are merely talking about reconciliation, there exists one religion that has already succeeded in reconciling former members of different religions and helping them become true Christians. Today, moved by their love for God and their desire to "pursue peace with all people," in 233 lands the more than 5.8 million Jehovah's Witnesses refuse to share in the wars of the nations—whether fought in such places as Asia, Latin America, the Middle East, Northern Ireland, Rwanda, or the former Yugoslavia. (Hebrews 12:14; Matthew 22:36-38) Instead, they are fulfilling Bible prophecy by 'beating their swords into plowshares' and 'learning war no more.'—Micah 4:3.

1914 Beginning of the 20th Century?

"The 19th century—defined as a set of beliefs, assumptions, attitudes and morals—did not end on Jan. 1, 1901," wrote columnist Charley Reese. "It ended in 1914. That's also when the 20th century, defined the same way, began."

Reese explained: "Virtually all of the conflicts that we have been concerned with all of our lives stemmed from that [first world] war. . . . It destroyed 19th century optimism and created the 20th century versions of hedonism, cynicism, anxiety, angst and nihilism."

Reese's point of view is that the First World War was the catalyst for the shift in the way people viewed the world. He believes that the war, which lasted from 1914 to 1918, brought about a significant change in the way people thought and behaved.

He argues that the war was a turning point in history, as it marked the end of an era of optimism and idealism. The war was a reminder of the残酷 reality of life and the harshness of the world. It showed that even the most idealistic and optimistic beliefs could not avoid the harsh reality of war. The war also highlighted the divisions between different groups of people, such as the rich and poor, the educated and uneducated, and the different ethnicities and cultures.

Reese's argument is that the war was a catalyst for the shift in the way people viewed the world, and that it marked the beginning of the 20th century.