

# Awake!

APRIL 8, 2002



**Motherhood**  
*Does It Take a Superwoman?*

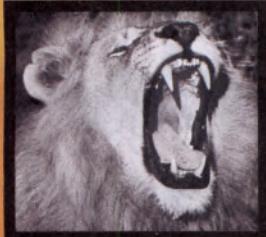
## Motherhood *Does It Take a Superwoman?* 3-11

What are some of the many challenges of being a mother in this modern age? How can they be met?



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**4:50 a.m.** Alex, the baby, crying and half-asleep, climbs to the side of Helen, his mother. Two other children—Penny (5) and Joanna (12)—and husband, Nick, are sleeping. Helen hoists Alex up into bed and nurses him. She is unable to go back to sleep.

**5:45 a.m.** Helen tiptoes to the kitchen, makes coffee, and reads.

**6:15–7:20 a.m.** Nick gets up. Helen wakes Penny and Joanna, makes breakfast, does some housework. At 7:15, Nick leaves for work and drops Joanna off at school. Helen's mother arrives to baby-sit Alex.

**7:30 a.m.** Helen drops Penny off at her kindergarten. The commute to work gives Helen time to reflect on the reality of motherhood. "It's the hardest job I've ever had," she says.

## The Many Tasks of Mothers

**8:10 a.m.** Helen faces a desk overflowing with tasks. She is concerned that another pregnancy might mean the loss of her job. The family needs the extra paycheck.

**10:43 a.m.** After Helen hangs up the phone—a call about her children—her coworker Nancy consoles her: "You're doing such a good job with them." Tears roll down Helen's cheeks.

**12:05 p.m.** Helen grabs a sandwich and reflects on the time before her first daughter was born. Back then she had projects planned for her "spare" time. "What a joke!" she concludes.

**3:10 p.m.** After several phone calls from home about Alex's antics, Helen mentions the special bond she has with her little ones: "It's like no other love I've had for any other person." This depth of feeling helped her overcome the initial, unexpected difficulties.

**5:10 p.m.** After picking up Joanna, Helen runs errands. She calls Nick and reminds him that it is his turn to pick up Penny.

**6:00–7:30 p.m.** Back home, Helen releases Grandma from 'Alex duty,' does housework, prepares dinner. Asked about the demands of a baby, Helen sighs: "A baby craves nothing less than the whole of its mother: her arms, body, and milk and takes the sleep from her eyes."



**8:30-10:00 p.m.** Helen helps Joanna with homework and breastfeeds Alex. While Nick reads to Penny for half an hour, Helen does more housework.

**11:15 p.m.** After Penny and Joanna have gone to bed, Alex is still awake in his mother's arms, but then he finally falls asleep. "I think he's ready for bed," Helen tells Nick, who is half-asleep.

## The Hurdle Race of Motherhood

Motherhood is a complicated and marvelous adventure. Mothers enjoy precious moments that they would not trade for the world. Yet, some at times feel they are on the verge of a breakdown. Helen compares her life as a mother to a hurdle race. And it seems that as time goes by, there are more and higher hurdles.

Mothers may sacrifice free time and much of their social life to make sure that their children are well cared for. "I'm always on call," says Esther, a mother of five. "I have traded relaxing baths for quick showers, and romantic dinners for microwavable food. For me there are travels untraveled, places unseen, things undone. But the laundry is done, and it's folded!"

Of course, most mothers would also speak of the unique moments of joy that they experience as they raise their children. Esther says: "The occasional smile you get, the sweet 'Thank you, Mommy,' and the warm hugs—these are the fuel that keeps you going."\*

\* These articles focus on married mothers. In the future, *Awake!* will deal with the challenges of single and unwed mothers.

## Awake!®

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

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## Mother Joins the Work Force

A major hurdle that has complicated motherhood is that many are meeting traditional family responsibilities while taking on the demands of a job to help support the family financially. Many of these mothers work on the outside, not out of choice, but out of necessity. They know that if they stayed at home, their families, and especially their children, would go without many things. Their salaries—often lower than those of men doing comparable work—are of great importance.

For example, in São Paulo, Brazil, 42 percent of the work force are women. A newspaper there called mothers who raise children full-time an “endangered species.” In the rurals of Africa, a mother with a bundle of firewood on her head and a child strapped on her back is a common sight.

### The Demanding Workplace

Adding to the hurdles, the job market may require that mothers put in long hours at work. And the demands may not stop there. When Maria, who lives in Greece, was hired, her employer asked her to sign a document in which she promised that she would not get pregnant for three years. If she did get pregnant, she would have to pay compensation. Maria signed the document. But about a year and a half later, she got pregnant. Her employer then showed the paper to Maria, who went to court to challenge her company’s policy and now waits for the outcome.

In less extreme cases, employers may pressure mothers to return to work as soon as pos-

sible after giving birth. Usually, no reductions in hours are granted after they do return. Thus there is no accommodation for the fact that they now have responsibilities toward a very young child. They are not able to take much time off without financial hardship. Mothers may also have to cope with poor child-care facilities and inadequate state benefits.

On the other hand, some mothers work, not for financial needs, but for self-fulfillment. Sandra decided to return to work after the birth of each of her two children. She recalls that on finding herself suddenly alone at home with a baby, she would “sometimes stand and stare out of the window and wonder what the rest of the world was doing.” And some mothers seek to escape the stress of family life by going to work. Britain’s *Daily Telegraph* reported: “Some parents seek extra hours in the relative calm of work. This creates a vicious circle, diminishing further the time they spend with increasingly apathetic, aggressive and deviant children.”

### A Juggling Act

Balancing work and home is not easy. Echoing the feelings of many, a mother from the Netherlands said: “Tired, tired, tired. I even wake up tired. When I come home from work, I am overcome with tiredness. The children are already saying, ‘Mom is always tired,’ and that makes me feel guilty. I do not want to miss work, but I also want to be that sociable mother who makes everything possible. But I am not the mirror of perfection I want to be.”

She is one of millions of working mothers who embraced the idea that ‘quality time’ with

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## "Mother's Day"

Dire poverty, a lack of education, irresponsible male partners, a pattern of abuse, and the AIDS epidemic plague mothers in southern Africa. On a recent Mother's Day, a South African newspaper, *The Citizen*, reported: "Thousands of women will be abused by their partners and some will lose their lives on Mother's Day." Such problems lead thousands of

South African mothers to abandon their babies each year. In a recent two-year period, there was a 25 percent increase in abandoned babies. Even more desperate are the growing number of women who commit suicide. Recently, a woman from a poverty-stricken area held her three children to her breast as she stood before an advancing train. All were killed. In order to make ends meet, some mothers turn to prostitution and sell illegal drugs or

encourage their daughters to do so.

From Hong Kong it is reported that "some young mothers kill their baby when they give birth or throw the baby away in a garbage can, as they cannot deal with the pressures." The *South China Morning Post* mentioned that some younger married women in Hong Kong "are now under such great stress [that] their mental health can deteriorate to a level where they kill themselves."

the children could partly make up for frequent absences—and who have found the idea wanting. Many mothers today say that juggling the stresses of work with the responsibilities of home leaves them overworked, overstrained, and underpaid.

When women spend long hours away from their children, the children do not get what they need most—the time and attention of their mother. Fernanda A. Lima, a child psychologist from Brazil, says that no one can fulfill a mother's role as well as a mother can. "The first two years in a child's life are the most critical," she says. "The child is still too young to understand why the mother is not there." A substitute figure can alleviate a child's need for its mother but cannot take her place. "The baby senses that it is not getting its mother's loving care," says Lima.

Kathy, a full-time working mother with a little daughter, said: 'I felt so terribly guilty, as though I was deserting her [at the nursery]. It's hard knowing you are missing out on seeing your child grow and develop, and it's very strange thinking that she is more attached to the nursery than to you.' An airline stewardess in Mexico admitted: "After some time, your child does not recognize you, he does not respect you simply because you are not rearing him. They know that you are their mother, but

suddenly, they prefer to be with the woman that takes care of them."

On the other hand, full-time mothers who stay at home to look after their children say that they have to endure being patronized and downgraded by a society geared to glorifying paid work. In some societies being a housewife is no longer considered an honorable position, so women are pressured to have their own career, even if the extra income is not necessary.

### Left to Struggle Alone

Adding to the hurdles of motherhood is this fact: Tired from a full day's work, a mother comes home, not to rest, but to continue with the regular household chores. Mothers, whether they work secularly or not, are often still seen as the main ones responsible for caring for the house and the children.

While a growing number of mothers work longer hours, fathers do not always compensate. *The Sunday Times* of London wrote: "Britain is a nation of absent fathers, according to new research showing that men spend as little as 15 minutes a day with their children. . . . Many men do not take much pleasure in spending time with their families. . . . By comparison, the British professional mother will spend 90 minutes a day with her children."



## Motherhood in Various Lands

### *So little time*

❖ A survey in **Hong Kong** revealed that 60 percent of working mothers do not devote what they consider to be enough time to their children. And during the workweek 20 percent of children up to age three of working parents live away from their home, usually with grandparents.

❖ Women in **Mexico** spend about 13 years of their life caring for at least one child younger than five years old.

### *Mothers and work*

❖ In **Ireland** 60 percent of women stay home to take care of children. In **Greece, Italy, and Spain**, about 40 percent of the women do the same.

### *Helping around the home*

❖ In **Japan** 80 percent of housewives said that they wished a family member would help them with household chores, especially when they are sick.

❖ In the **Netherlands** men spend about 2 hours a day with the children and 0.7 hours doing household chores. Women spend about 3 hours with the children and 1.7 hours doing chores.

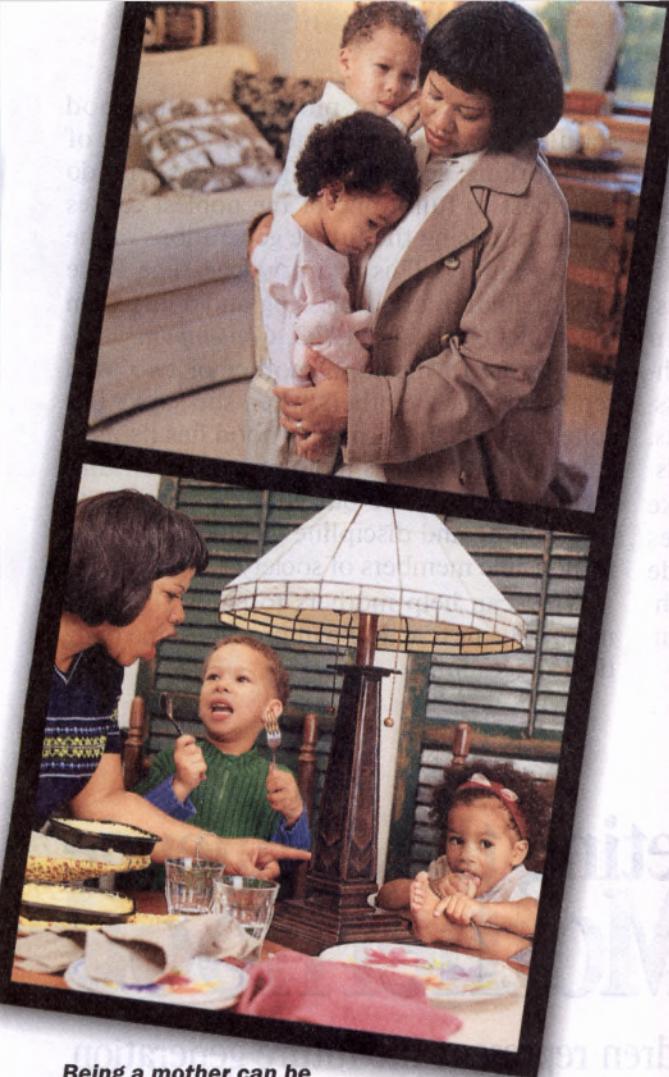
### *Stressed mothers*

❖ In **Germany** over 70 percent of mothers feel stressed. About 51 percent have complaints involving the spine and intervertebral disks. Over a third are constantly tired and despondent. Almost 30 percent suffer from headaches or migraines.

### *Abused mothers*

❖ In **Hong Kong** 4 percent of women surveyed said that they had been abused during pregnancy.

❖ A survey by **Focus magazine** in **Germany** showed that almost 1 mother in 6 admitted to having been attacked physically by her child at least once.



**Being a mother can be very stressful, as many women have to juggle work and family life**

Some husbands complain that their wife finds it difficult to delegate tasks because she insists that everything be done exactly the way she is used to doing it. "Otherwise, you do it wrong," the husbands say. Obviously, in order to benefit from the cooperation of her husband, a tired housewife may have to be willing to make some concessions as to the way certain household tasks are done. On the other hand, the husband should not use that argument as an excuse to do nothing.

### **Adding Hurdles**

Deeply rooted traditions may also add hurdles. In Japan mothers are expected to raise children who are similar to those in their age group. If other children are taking piano or painting lessons, a mother feels compelled to have her children do the same. Schools pressure parents to have their children join in the same extracurricular activities as the other children. Being different can lead to harassment from children, teachers, other parents, and relatives. The same is true in other lands.

Advertising and consumerism can make children demanding. In developed countries mothers may feel that they should provide what their children want because they see other mothers providing those things. If they cannot, they may feel that they have failed.

This discussion of modern motherhood should not obscure the feat of millions of hardworking, self-sacrificing mothers who do their best to fulfill one of the noblest causes—that of raising the future generations of the human family. This is a privilege. The Bible says: “Children are a blessing and a gift from the LORD.” (Psalm 127:3, *Contemporary English Version*) Miriam, a mother of two, well represents such mothers when she says: “Despite the challenges, motherhood has its unrivaled joys. It gives us mothers a sense of satisfaction when we see our children respond to the training and discipline given and become responsible members of society.”

What can help mothers to enjoy their gift more? The next article will provide some practical suggestions.

# **Meeting the Challenge of Motherhood**



**Since children represent the future generation,** then the women who mold them, their mothers, certainly deserve respect, honor, and support. Although the modern world sends mixed messages about motherhood, the Bible affirms that children are a blessing from God and can be a source of happiness for parents. (Psalm 127:3-5) Yet, the Scriptures are not blind to the realities of motherhood. The Bible records many of its challenges.

The decisions parents make about parenting and motherhood have a deep and lasting influence on the life and character of their children. These decisions can bring large changes in the parents' life-style, so they need to be made carefully. They include such questions as: Should a mother work outside the home? If yes, how much? Who is to care for the children while the mother is away working? In the end, parents must do what they believe is best for their children and also what is right before God.

However, mothers need not feel alone in the struggle to make wise decisions. They can take great comfort in the words of Isaiah 40:11, which indicates that God takes special interest in the needs of mothers with young babies, whom he "will conduct with care." God manifests such keen interest by providing in the Bible a number of guidelines that can make motherhood enjoyable and successful.

❖ **Be reasonable:** Christians should be known for their reasonableness. (Philippians 4:5) Janet Penley, a writer and mother, learned the value of this principle. "I began motherhood with the highest of expectations," she says. "I was going to do mothering better than it had ever been done before. I read all the books and listened to all the experts. But

instead of feeling successful and competent, I ended up feeling inadequate and stressed-out." She observes that "tuning into others' expectations and trying to fit yourself into some 'ideal' mold weakens the spirit and creates worry and guilt."

❖ **Simplify:** "What families risk losing in this insane frenzy," wrote *Newsweek* magazine, "is the soul of childhood and the joy of family life." That is why many mothers long for a simpler life. How can you achieve this? First, establish priorities, giving attention to "the more important things," including the time and personal care your children need. (Philippians 1:10, 11) Second, analyze your life-style. You may have to put aside activities and possessions that are not really necessary.





## A Mother's Influence

As a mother, you may sometimes wonder how much of an impact you are having on your child's life. At times, the influence of peers, teachers, entertainment, video games, and music may seem to outweigh yours.

Consider the example of Jochebed, the mother of Moses. She lived in extremely hard times and had limited say over what would happen to her son. Yet, she used the opportunities she had to mold his development. First, she exercised courageous faith by refusing to allow Moses to be put to death. God rewarded her faith not only by preserving the baby's life but also by arranging circumstances that allowed Jochebed to serve as his nurse—and mother.—Exodus 1:15, 16; 2:1-10.

It is evident that Jochebed helped to shape her son's personality. The fact that the adult Moses identified with the Hebrews and their God despite his royal connections in Egypt testifies to the influence of his parents during his formative years.—Hebrews 11:24-26.

As a mother, you probably have more opportunities than Jochebed to influence your child. Are you taking advantage of the few short years of your young one's childhood to provide lasting, godly instruction? Or are you allowing the prevailing culture to have the dominant impact on your child's development?

What is most important in your life? Is it having everything at once, or can some goals be postponed while you pursue others? Carolyn, a mother of limited means, tells how she copes: "I keep things simple and cut down on expenses." Gloria, a mother of three, recalls: "We didn't have any money for designer clothes, but I made clothes for the children, and I told them that these were special because no one else had them."

God's Word says that the person who "is guarding discernment is going to find good." (Proverbs 19:8) Discernment is needed to sort through the unending range of leisure activities, gadgets, and trends that overwhelm mothers and children. Judith, a mother from South Africa, exclaims: "We are constantly being bombarded with new products, better technology, and more services!" Here is how Angela, a mother of four from Germany, copes with that challenge: "You have to determine what is essential and useful to you, and help your children to do the same thing."



**Involve others in housework, reserve private time, and give priority to spirituality**

❖ **Make the changes that are possible:** “Use common sense and sound judgment,” admonishes the Bible. (Proverbs 3:21, *Contemporary English Version*) If you are currently working outside the home, can your family live on just your husband’s income? To help answer this question, determine how much your actual take-home pay is after subtracting taxes, child care, commuting costs, wardrobe, meals out, and extras. Also, your husband’s income may be taxed at a higher rate if your combined income puts you in a higher income bracket. You may be surprised how little is left over.

Some work fewer hours or closer to home, which may mean less money but more time with the children. If you decide to stop working and if your job has been important to you for your self-worth and sense of accomplishment, think about how you can maintain these important elements while staying home.

❖ **Get help:** God’s Word repeatedly shows that a “cry for help” can bring results. (Exodus 2:23, 24; Psalm 34:15) A mother’s cry for help should elicit the help of the husband. With his cooperation you may be able to establish a system of sharing the housework so that you have the time to fulfill the goals that you have set together—such as being available for your children. If possible, a mother should also establish a support network of people, including family and trusted friends, who share her interests and goals.

Many mothers find valuable support from the local Christian congregation of fellow believers. Maria, a mother of three, realized that “getting close to the congregation” is one of the ways that “God shows us love and compassion and shows us that he is concerned about us.”

❖ **Make time for relaxation:** Even Jesus, a perfect man with abundant stamina, invited his disciples to go “privately into a lonely place and rest up a bit.” (Mark 6:30-32) Success as a mother depends on your ability to stay balanced throughout demanding times. It is true that your children need you, but they

also need you to be happy and content. You need reasonable relaxation.

Angela, mentioned earlier, has a plan for relaxation: “I set aside quiet time in the morning. I take at least half an hour for myself. And my husband and I have one or two evenings a week when our children are expected to go elsewhere in the house and do something quiet there. Thus we can have an hour to ourselves.”

❖ **Give priority to spirituality:** It has been observed that the challenges of motherhood are aggravated by a loss of focus and a lack of priorities. Christian families experience happiness when they work together to put God’s will first in their lives. The apostle Paul wrote: “Godly devotion is beneficial for all things, as it holds promise of the life now and that which is to come.” (1 Timothy 4:8) A family that lives with godly devotion and that follows God’s guidance as contained in the Bible will find happiness. Even if only one member of a family applies Bible principles, things are better than if no one does.

Adele, a Christian mother who works full-time, has seen the benefits of being spiritually-minded. She says: “We have a tremendous amount of guidance and information in the Bible-based publications that educate us as to what our children are facing and how we can help them. Seeing your children responding to what you feed them spiritually makes it all worthwhile. When you see small, positive things in their behavior and way of reasoning, you realize that they are taking it in and that your efforts are paying off.”\*

Yes, it is possible to run the hurdle race of motherhood successfully. God himself provides the comforting reassurance that the efforts of diligent and self-sacrificing mothers who trust in him will not be in vain. Mothers who cultivate a personal relationship with him can take solace in his promise to ‘give to the tired one power.’—Isaiah 40:29.

\* Jehovah’s Witnesses have published a number of Bible-based publications designed for training children. These include *My Book of Bible Stories*, *Questions Young People Ask—Answers That Work*, and *The Secret of Family Happiness*.

# SHOULD CHRISTIANS EXPECT DIVINE PROTECTION?

*The Bible often refers to God's ability to protect his worshipers from harm. King David said: "Rescue me, O Jehovah, from bad men; may you safeguard me even from the man of deeds of violence." (Psalm 140:1) Today many of God's worshipers who have been faced with violence, crime, or natural disasters have just barely escaped death or injury. Some have wondered whether God provided them with miraculous protection on those occasions, especially since there are other instances when God-fearing people have not escaped but have experienced great tragedies, even a violent death.*

**D**OES Jehovah God protect some individuals from harm but not others? Should we expect to receive miraculous deliverance from violence and disasters today?

### Miraculous Protection in Bible Accounts

The Bible contains numerous accounts in which God miraculously intervened in behalf of his worshipers. (Isaiah 38:1-8; Acts 12:1-11; 16:25, 26) The Scriptures also relate how on other occasions Jehovah's servants were not delivered from calamity. (1 Kings 21:1-16; Acts 12:1, 2; Hebrews 11:35-38) Obviously,



then, Jehovah can decide to provide protection for a particular reason or purpose whenever he chooses.

Hence, when individual Christians are not delivered from trials, they should not conclude that God has deserted them. We have to accept the reality that bad things will happen, even to faithful servants of Jehovah. Why is this the case?

### Why Bad Things Happen to Faithful Servants of God

One reason is that all of us inherited sin and imperfection from Adam and Eve. Thus, we face the prospect of pain, suffering, and death. (Romans 5:12; 6:23) Another reason is that we

are living in the last days. The Bible describes people in our day as "having no natural affection, not open to any agreement, slanderers, without self-control, fierce, without love of goodness." (2 Timothy 3:1-5) Evidence of this is the prevalence of rape, kidnapping, murder, and other brutal crimes.

Many faithful servants of God live and work among violent people and at times become their target. We may find ourselves in a life-threatening situation simply because of being in the wrong place at the wrong time. Moreover, we experience the reality expressed by Solomon when he stated that "time and unforeseen occurrence befall them all." —Ecclesiastes 9:11.

Additionally, the apostle Paul stated that Christians would be the object of persecution because they worship God. He said: "In fact, all those desiring to live with godly devotion in association with Christ Jesus will also be persecuted." (2 Timothy 3:12) In recent years this has proved true in a number of countries.

Therefore, God-fearing people are not exempt from the effects of violence, crime, natural disaster, or accidental death. Satan has tried to use the argument that Jehovah puts a hedge around His people so that they go through life unscathed. (Job 1:9, 10) That is not the case. We can, however, be certain that even when Jehovah does not provide miraculous deliverance from a situation, he does give his people protection.

### How Jehovah Protects His People Today

Through his Word, Jehovah provides divine guidance that protects his people. Spirituality and Bible knowledge can impart good judgment and soundness of mind to us, which can help us to avoid unnecessary mistakes and to make wise decisions. (Psalm 38:4; Proverbs 3:21; 22:3) For example, heeding the Bible's advice on sexual morality, greed, anger, and violence has spared Christians from many calamities. Also, by not having intimate association with bad people, we are less likely to be where

calamity may strike—in the wrong place at the wrong time. (Psalm 26:4, 5; Proverbs 4:14) Those who live by Bible principles enjoy a superior way of life, often resulting in better mental and physical health.

Most comforting is the knowledge that even if God allows bad things to happen, he will provide his worshipers with the necessary strength so that they can bear it. The apostle Paul assures us: "God is faithful, and he will not let you be tempted beyond what you can bear, but along with the temptation he will also make the way out in order for you to be able to endure it." (1 Corinthians 10:13) The Bible also promises "power beyond what is normal" to help us endure calamities.—2 Corinthians 4:7.

### God Does According to His Own Will

Should Christians expect God to rescue them miraculously in every case of impending disaster? The Bible record does not support such an expectation.

Of course, Jehovah God could choose to intervene directly in behalf of any of his servants. And if anyone believes that he has escaped harm by divine intervention, he should not be criticized. But when Jehovah chooses not to intervene, it should never be taken as a sign of his displeasure.

May we have the confidence that no matter what trial or situation we face, Jehovah will provide divine protection for his faithful servants, either by removing the situation, by giving us the strength to endure it or, if we die, by resurrecting us to everlasting life in his new world.—Psalm 37:10, 11, 29; John 5:28, 29.

## In Our Next Issue

■ "Can I Worship God in My Own Way?"

■ Australia's Infamous Era of Convicts

■ Despite Trials, My Hope Has Remained Bright

# FINDING TREASURES IN THE PORT OF PEARLS

BY AWAKE! WRITER IN AUSTRALIA

**BROOME** is a town in the northwest of Australia, surrounded by oceans of sand and oceans of water. To the southeast, the Great Sandy Desert sprawls toward the center of Australia. To the west, the Indian Ocean stretches to the shores of Africa. Cyclones often pound this northwestern corner of the continent.

At one time, beneath Broome's tropical waves, there were pearl oyster beds so rich that Broome was known as the Port of Pearls. Pirates, slaves, and pearl barons feature in the colorful history of Broome.

## A Buccaneer's Discovery

Although the Dutchman Dirck Hartog explored this remote corner of the world in 1616, the west coast of Australia remained in relative obscurity until 1688. In that year the English author, artist, and buccaneer William Dampier chanced upon this shore while aboard the pirate ship *Cygnet*. On returning home, Dampier published his experiences. His writings and drawings so captivated the imagination of his fellow countrymen that the Royal Navy assigned him a ship and commissioned him to make a voyage of exploration to New Holland, as Australia was then known.

Dampier's expedition aboard the navy ship *Roe-buck* was considered a failure. No new land was discovered, and the voyage came to an end when his rotting ship broke up and sank. Dampier survived, and among the records of his trip, he noted the discovery of pearl shell.

## Built on Blood and Buttons

It was another 160 years before anyone realized the value of Dampier's discovery. In 1854 the harvesting of pearls began in the area that Dampier had named Shark Bay, but this venture was only

partially successful. Meanwhile, in the nearby waters of Nichol Bay, the giant oyster *Pinctada maxima* was discovered. The shell of this dinner-plate-size oyster provided the best mother-of-pearl in the world—a resource in great demand for the manufacturing of buttons.

By the 1890's, some 140,000 English pounds' worth of mother-of-pearl was being shipped to England each year from the Broome oyster beds. Although many valuable pearls were found nestled in the shells, these jewels were a fringe benefit. It was the shell itself that created most of the wealth for the early pearl barons—wealth often paid for in blood.

Initially, the pearl barons cajoled or forced the local Aborigines into becoming pearl divers, a task the Aborigines quickly mastered. But pearl diving is dangerous work, and a number of divers drowned or were killed by sharks. Many divers also died as a result of the wretched working conditions imposed on them

by their employers. To supplement the Aboriginal work force, divers were imported from Malaysia and Java. When the shallower oyster beds were exhausted, the deeper beds were reached with the aid of the recently invented diving helmet.

## Bankruptcy Hits "Sodom and Gomorrah"

Broome's pearling fleet grew to an armada of over 400 boats. Asian, European, and Aboriginal culture formed a unique and often lawless conglomerate. The social climate of the time is well described by one pearl harvester: "Broome [was] an affluent, sinful and tolerant community, in which the Clergy's frequent references to Sodom and Gomorrah were regarded as appropriate tributes to civic progress, rather than as warnings of future divine retribution."



William  
Dampier

**Pearl diver collecting pearl shells in coastal waters north of Broome**

**An expert removing a pearl from an oyster**



With the outbreak of the first world war, however, the world market for mother-of-pearl crashed, and Broome suddenly became bankrupt. The industry enjoyed a brief revival between the world wars, but after the second world war, Broome was dealt another blow. Plastics were invented, and plastic buttons soon undermined demand for mother-of-pearl.

### **Manufacturing 'Diamonds of the Deep'**

At the end of the second world war, an Australian delegation visited the pearl culture farms at Ago, Japan. There Kokichi Mikimoto had perfected the art of culturing pearls by artificially inserting grit into

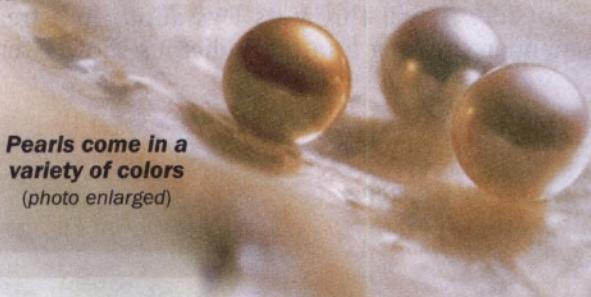
oysters. The book *Port of Pearls* says that Mikimoto told the Australians that "even better pearls could be grown in their own warm waters in the bigger Australian [oyster] shell." His advice was followed, and by the 1970's, Australian oysters were producing some of the world's biggest and most valuable cultured pearls.

While pearls grown in many parts of the world reach a size of 11 millimeters in diameter, South Sea pearls can grow to 18 millimeters in size. Just one string of these large pearls can be worth over \$500,000. No wonder these spherical jewels are called diamonds of the deep!

**One of the original pearl luggers restored to seaworthy condition**



**Pearls come in a variety of colors  
(photo enlarged)**



# WILD LANGUAGE

## The Secrets of Animal Communication

BY AWAKE! WRITER IN KENYA

**W**I THOUT a doubt, one of the most precious gifts humankind has been given is the power to communicate. With it we pass vital information to one another either verbally or by nonvocal methods, such as gestures. Freedom of speech is, in fact, a widely contested issue throughout the earth. Some have therefore assumed that communication is only the preserve of humans.

Yet, research shows that animals exchange information in intricate ways that often baffle humans. Yes, they "speak," not with words, but through visual signals such as wagging tails, twitching ears, or flapping wings. Other forms of communication may involve the use of voice, such as a bark, a roar, a snarl, or the song of a bird. Some of the "languages" are obvious to humans, while others require much scientific study to detect.

### Predators!

It is mid-July. In the sprawling Serengeti National Park in Tanzania, thousands upon thousands of wildebeests are heading northward toward the Masai Mara Game Reserve in Kenya in search of greener pastures. The plains resonate with the sound of hooves during this annual migration. However, dangers lurk along the way. The route is lined with predatory animals, such as lions, cheetahs, hyenas, and leopards. The wildebeests will also take their chances by crossing the crocodile-infested Mara River. How do wildebeests ward off predators?

To confuse the enemy, the wildebeest, or gnu, will run fast over a short distance and then turn around to face the enemy, all the while tossing its head from side to side. It will throw its legs about in a freakish manner, creating a rather ludicrous show. Even a

hardened predator will not fail to stop in amazement on seeing this erratic dance. Should the predator insist on approaching, the wildebeest will do a repeat performance. This so confuses the intruder that the hunt may

**Cape gannets in their greeting routine**





**A wildebeest performs an erratic dance to confuse the enemy**



**The hyena's infamous "laugh"**

© Joe McDonald

be abandoned after the concert. The ungainly dance has earned the wildebeest the dubious distinction of being the clown of the plains.

The wildebeest's smaller cousins, impalas, are known for their gigantic leaps. To many, these high jumps could signify gracefulness and speed. In times of trouble, though, this antelope uses its soaring techniques to make it difficult for a predator to trap it by the legs. The leaps, up to 30 feet in length, give the attacker a clear message, "Follow if you can keep up with me." Few animals of prey are willing to do so just to bring down the unwilling impala!

#### **A Time to Eat**

In the wild many predatory animals have to develop their hunting skills in order to become good hunters. Young ones must pay keen attention as their parents take them through the paces. In an African animal sanctuary, a cheetah named Saba was observed giving vital lessons of survival to her

cubs. After stalking a grazing Thomson's gazelle for over an hour, she made a giant leap forward and then trapped and choked the hapless antelope—but without killing it. Moments later, Saba dropped the dazed animal in front of her cubs, which were strangely reluctant to throw themselves at the prey. These young cheetahs understood why Mother had brought a live animal to them. She wanted them to learn how to kill the gazelle. Each time the prey tried to get up and run, the overexcited cubs brought it down. Exhausted, the gazelle gave up the fight for survival. Watching from a distance, Saba approved their actions.

Some animals specialize in making as much noise as possible while searching for food. A pack of spotted hyenas will grunt, snort, and giggle while running after prey. Once the kill is made, other hyenas will be invited to the feast by the hyenas' infamous "laugh." However, hyenas do not always hunt for food. In the wild they are among the worst of the food pirates—using all methods of harassing other predators to get their kill. Why, they have been known to scare away lions from their meal! How do they accomplish this? Boisterous animals, they will work themselves into a frenzy in a bid to disturb the feeding lions. Should the cats ignore the noise, the hyenas will become more excited and bolder. Their peace disrupted, the felines often abandon the

carcass and move away from the area.

Among bees the search for food is a complicated ritual. Complex scientific studies have revealed that by dancing, a honeybee informs others in the hive of the location, type, and even quality of the food found. On its body a bee carries samples of the food, such as nectar or pollen, back to the other bees in the hive. Doing a figure-eight dance, it is able not only to direct others to the food source but also to indicate the distance to be covered. Watch out! That bee hovering around you might be collecting some vital information to take back home. Your scented perfume could be mistaken for its next meal!



*The honeybee's dance*

### Keeping in Touch

Few sounds are as spectacular as the roar of a lion during a quiet night. Several reasons have been advanced for this communication. A male's mighty roar is a warning to all that he is in the territory; intrude at your own risk. However, being a

social cat, the lion will also roar to keep in touch with other members of the pride. This is usually a softer, less assertive roar. During one night a lion was heard to roar every 15 minutes until a cousin answered from a distance. They kept "talking" for another 15 minutes until they finally met. The roars ceased.

Such contacts not only enhance good relationships but also offer protection against

## Elephants' "Sound of Silence"

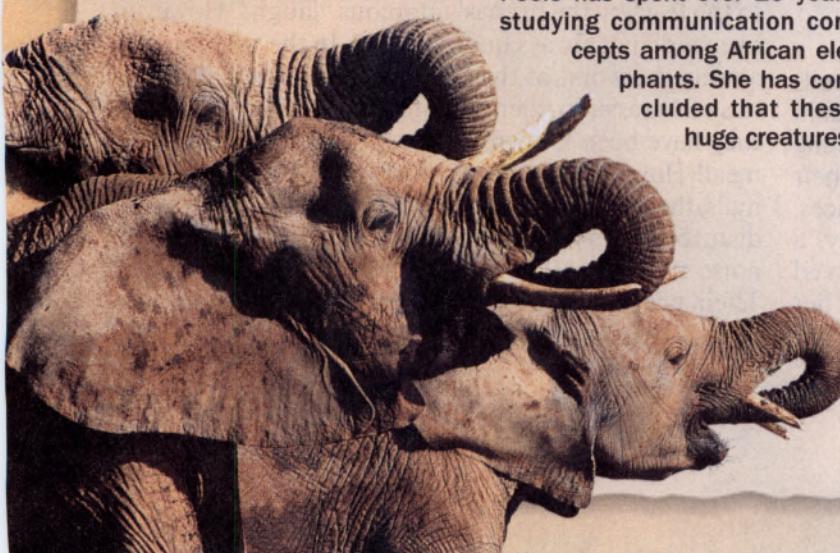
On a hot afternoon in the sprawling Amboseli National Park in Kenya, the large herd of elephants seems undisturbed by any intrusion into their habitat. Yet, the air is full of "elephant talk," ranging from low frequency rumblings to high frequency trumpets, roars, bellows, barks, and snorts. Some of the calls

contain components that are below the level of human hearing and yet are so powerful that they can be heard by an elephant several miles away.

Experts in animal behavior continue to be puzzled by the intricate ways in which elephants convey serious messages. Joyce Poole has spent over 20 years studying communication concepts among African elephants. She has concluded that these huge creatures,

known for their coveted tusks, exhibit feelings found in very few animals. "It is hard to watch elephants' remarkable behavior during a family or bond group greeting ceremony [or at] the birth of a new family member . . . and not imagine that they feel very strong emotions which could be best described by words such as joy, happiness, love, feelings of friendship, exuberance, amusement, pleasure, compassion, relief, and respect," says Poole.

When getting together after being separated for long periods, their greetings turn to pandemonium, as members rush together with heads high and ears folded and flapping. At times, an elephant will even put its trunk into another's mouth. These greetings seem to give the elephants a deep sense of joy, as if they were saying, "Wow! It's simply fantastic to be with you again!" Such bonds renew



harsh weather elements. A hen will utter several vocalizations that convey different messages to her chicks. The most distinct, however, is the long, low purring sound made in the evening, indicating that she has come home to roost. Heeding Mother's call, the scattered young ones gather under her wings and retire for the night.—Matthew 23:37.

### Finding a Partner

Have you ever been stopped in your tracks by the melody of songbirds? Are you not fascinated by their ability to sing the notes? Yet, did you know that entertaining you is the least they intend to do? Their songs are methods of passing important messages. Although at times singing is a means of establishing territory, it is also used in a large way to attract potential mates. According to *The New Book of Knowledge*, "the amount of singing drops

by 90 per cent" once the male and the female have found each other.

Sometimes, however, it takes more than just a good song to win a partner. Some female birds require that a "bride-price" be paid before they are won over by a male. Thus, a male weaverbird will have to demonstrate his nest-building skills before making further moves. Other male species will prove their ability to provide by literally feeding the female.

The intricate ways in which animals communicate not only serve their physical needs but also reduce fights and promote peace in the wild. With more research being done on animal communication, we have yet to hear the last of this "wild talk." Although we may not comprehend it fully, it does bring praise to the one who formed it, Jehovah God.

the support network vital to their survival.

Elephants seem to have a sense of humor too. Poole describes watching elephants draw the corners of their mouths in what she called a smile, wagging their heads in a manner suggesting amusement. She once initiated a game in which the animals took part, and for 15 minutes they behaved in a totally absurd manner. Two years later, some participants seemed to "smile" at her again, perhaps remembering her involvement in the game. Not only do elephants amuse each other in play but they also mimic sounds. In a research project, Poole heard a sound that was different from the normal elephant calls. On analysis, it was suggested that the elephants were imitating the noise made by trucks passing nearby. And they were apparently doing it for fun! It is as if elephants look for any excuse to get excited.



Much has been said about the way elephants appear to mourn when calamity befalls a family member. Poole once observed a female standing guard over her stillborn baby for three days and described it this way: Her "facial expressions" seemed "similar to a grief stricken, depressed person: her head and ears hung down, the corners of her mouth were turned down."

Those who kill elephants for ivory do not consider the 'psychological trauma' of the orphans

who may have witnessed the killing of their mothers. These babies spend the first few days at an animal orphanage trying to overcome their "grief." A keeper reported having heard the orphans "scream" in the morning. Repercussions can be observed several years after the death. Poole suggests that the elephants can detect the hand of man in their suffering. We look forward to the time when man and beast will live together in peace.—Isaiah 11:6-9.

# Crossword Puzzle

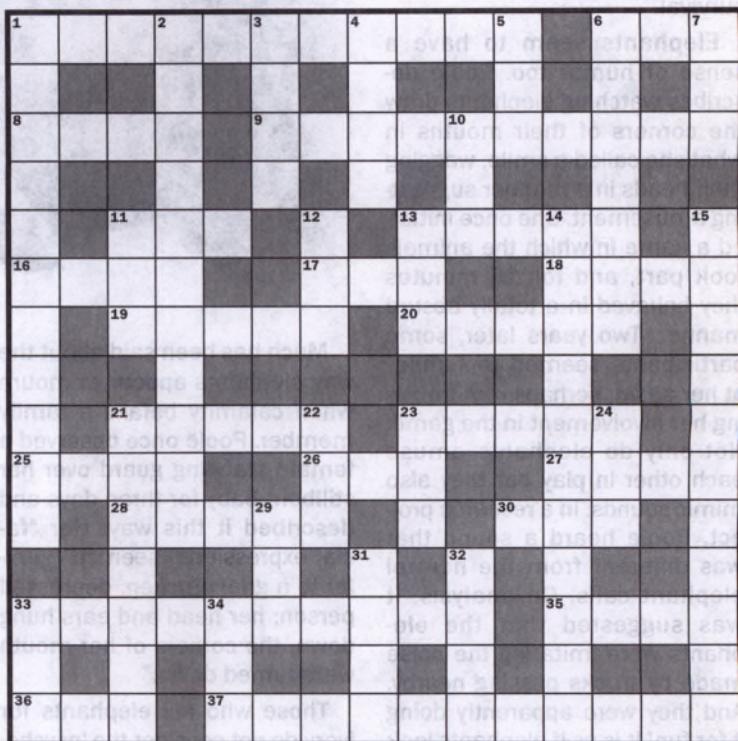
## Clues Across

- Samuel warned the Israelites against turning aside from the worship of Jehovah to follow these (1 Samuel 12:21)
- Flying mammal (Leviticus 11:19)
- What the Israelites were told not to do completely at the edges of their fields (Leviticus 19:9)
- If this is focused on beneficial things, it will be pleasurable to Jehovah (Psalm 19:14)
- Under the Mosaic Law, a man who severely damaged this part of his slave had to let the slave go free (Exodus 21:26)
- Moved slowly
- A manslayer had to remain in the city of refuge until the death of this priest (Numbers 35:25)
- Earlier than the present time (Acts 10:30)
- This Asherite's three sons were tribal family heads and valiant warriors (1 Chronicles 7:39)
- A Canaanite town whose king was one of 31 conquered by Joshua (Joshua 12:13)
- What "trembling at men" is said to lay (Proverbs 29:25)
- This son of Shiza was head over 30 other Reubenites in David's army (1 Chronicles 11:42)
- Action to be taken toward "those who cause divisions and occasions for stumbling" (Romans 16:17)
- The underside of a foot (Job 2:7)
- The name of the wilderness where the Israelites first ate manna and the Sabbath law was first put into effect (Exodus 16:1)
- Without any covering (Ezekiel 16:39)
- The sword with which Ehud killed King Eglon had two of these (Judges 3:16)
- Female person (Revelation 18:2)
- The advantage given to one over another (Exodus 23:3)
- The seven congregations of Revelation were located in this province (Revelation 1:4)
- A constellation mentioned by Job (Job 9:9)
- Unheeding

## Clues Down

- Strict adherence to moral principles (Malachi 2:6)

- Scatterbrained (Romans 1:21)
- Jesus is often identified as this animal (John 1:29)
- The rising and falling of the ocean's waters
- Term used for the collective waters of the earth as distinguished from land (Habakkuk 2:14)
- To stand stiffly erect (Jeremiah 2:12)
- One of the spoils of war taken from the Midianites (Numbers 31:22)
- The waterproofing material that Noah used on the ark (Genesis 6:14)
- Jesus said that no father whose son asks for this would hand him a scorpion (Luke 11:12)
- What took place in heaven after Christ's enthronement (Revelation 12:7)
- An island off the southwest coast of Asia Minor (Acts 21:1)
- Jesus said that those in this condition "will see God" [3 words] (Matthew 5:8)
- A man carrying this type of vessel
- was to show the disciples the house where they would celebrate their last Passover (Luke 22:10)
- This son of Jehoaddah was a direct descendant of King Saul (1 Chronicles 8:36)
- It was foretold that Jesus would ride triumphantly into Jerusalem upon this animal (Zechariah 9:9)
- Lazy ones are exhorted to copy the ways of this insect (Proverbs 6:6)
- Something that rightfully belongs to one (1 Corinthians 7:3)
- The part of Malchus, the high priest's slave, that Peter cut off with his sword when trying to defend Jesus (John 18:10)
- An insect that the Pharisees strained out so as not to be defiled (Matthew 23:24)
- Being nothing more than (1 Samuel 16:7)
- A leguminous plant
- He was noted for honoring his sons more than Jehovah (1 Samuel 2:22, 29)



# HIGH BLOOD PRESSURE

## *Prevention and Control*

BY AWAKE! WRITER IN BRAZIL

MARIAN was afraid! Without warning, her nose had begun to bleed profusely. "I thought I was going to die," she recalls. A doctor informed Marian that her nosebleed had been caused by high blood pressure (arterial hypertension). "But I feel fine," answered Marian. "Many people do not know that they have high blood pressure because they have no symptoms," she replied.

What about your blood pressure? Could your current life-style cause high blood pressure in the future? What can you do to keep your blood pressure under control?\*

Blood pressure is the force blood exerts against blood vessel walls. It can be measured using an inflatable rubber cuff, which is wrapped around the upper arm and connected to an apparatus that records pressure. Two readings are obtained. For example: 120/80. The first number is called systolic blood pressure because it indicates blood pressure during the heartbeat (systole), and the second number is called diastolic blood pressure because it indicates blood pressure while the heart is relaxed (diastole). Blood pressure is measured in millimeters of mercury, and physicians classify patients as hypertensive when their blood pressure is above 140/90.

What makes blood pressure increase? Imagine that you are watering your garden. By opening the faucet or by reducing the caliber, or diameter, of the jet of water, you increase the pressure of the water. The same occurs with blood pressure: Increasing the rate of flow of blood or decreasing the caliber of the blood vessel elevates the blood pressure.

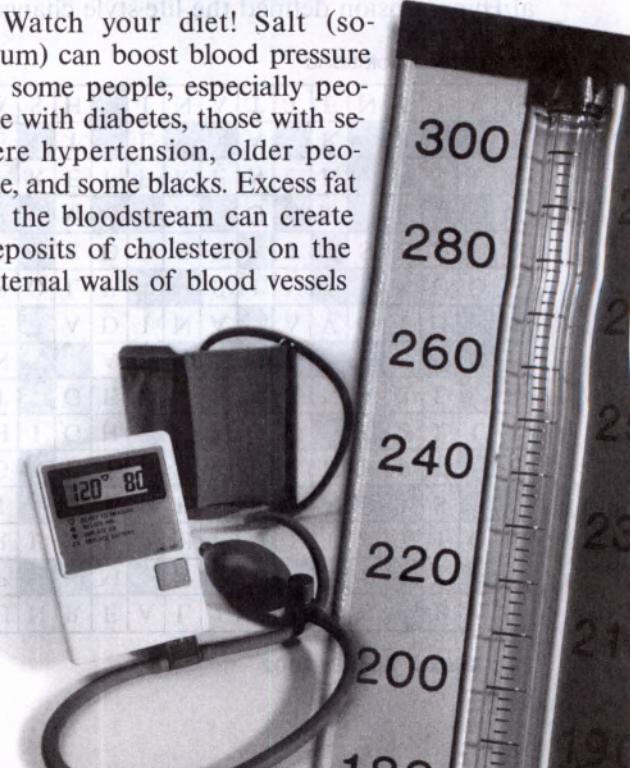
How does high blood pressure occur? Many factors are involved.

### **Factors You Cannot Control**

Researchers have discovered that if a person has relatives with high blood pressure, his chances of suffering from the disease are greater. Statistics indicate a higher incidence of hypertension in identical twins than in fraternal twins. One study refers to the "mapping of the genes responsible for arterial hypertension," all of which would confirm the existence of a hereditary component responsible for high blood pressure. The risk of abnormally high blood pressure is also known to increase with age and to be greater among black males.

### **Factors You Can Control**

Watch your diet! Salt (sodium) can boost blood pressure in some people, especially people with diabetes, those with severe hypertension, older people, and some blacks. Excess fat in the bloodstream can create deposits of cholesterol on the internal walls of blood vessels



\* Awake! does not endorse any particular form of treatment, recognizing that this is a matter for personal decision.

(atherosclerosis), thus reducing their caliber and increasing blood pressure. People who are more than 30 percent above their ideal body weight are liable to have high blood pressure. Studies suggest that increasing the intake of potassium and calcium may lower blood pressure.

Smoking is related to a greater risk of atherosclerosis, diabetes, heart attack, and stroke. That being so, smoking and high blood pressure are a dangerous combination that can lead to cardiovascular diseases. Although the evidence is contradictory, caffeine—contained in coffee, tea, and cola drinks—and emotional and physical stress may also aggravate high blood pressure. In addition, scientists know that intensive or chronic consumption of alcoholic drinks and lack of physical activity can increase blood pressure.

### Healthful Life-Style

It would be a mistake to wait for high blood pressure to develop before taking positive steps. A healthful life-style should be a concern from an early age. Taking care now will result in a better quality of life in the future.

The Third Brazilian Consensus on Arterial Hypertension defined the life-style changes

### Crossword Solutions

U	N	R	E	A	L	I	T	I	E	S	B	A	T
P	M	M	A	I	I	E	A	S			R	I	
R	E	A	P	M	E	D	I	T	A	T	I	O	N
G	E	Y	E	W	W	C	R	E	P	T	E		
H	I	G	H	A	G	O		U	L	L	A		
T	G	E	D	E	R	S	N	A	R	E	R		
N	A												
E	A	D	I	N	A	A	V	O	I	D	H		
S	E	D	G	E	S	T	S	H	E	N			
S	O	L	E		S	I	N	N	U	D	E		
M	A	G	M	E									
P	R	E	F	E	R	E	N	C	E	A	S	I	A
E	T	L	A	R	R								
U	S	H	I	N	A	T	T	E	N	T	I	V	E

## FIGHTING HIGH BLOOD PRESSURE

### 1. Measures That Can Help Control High Blood Pressure

- Reduce body weight
- Cut salt intake
- Increase intake of potassium-rich foods
- Reduce consumption of alcoholic drinks
- Exercise regularly

### 2. Other Measures That May Help Control Blood Pressure

- Calcium and magnesium supplements
- High-fiber vegetarian diet
- Antistress therapy

### 3. Related Measures

- Quit smoking
- Control cholesterol level
- Control diabetes
- Avoid drugs that can boost blood pressure

Adapted from the Third Brazilian Consensus on Arterial Hypertension—*Revista Brasileira de Clínica & Terapêutica*.

that favor a decrease in arterial blood pressure. They are a helpful guide to people with high or normal blood pressure.

For the obese, researchers recommended a balanced low-calorie diet, avoiding fast and “miracle” diets, while maintaining a program of moderate physical exercise. With regard to salt, they suggested a consumption of no more than six grams or one teaspoon per day.\* In practice, that means cutting to a minimum the use of salt in food preparation, as well as minimizing canned foods, cold cuts (salami, ham, sausage, and others), and smoked foods. Salt intake can also be reduced by refraining from adding extra salt during the meal and by checking the packaging of processed foods to see how much salt has been added.

The Brazilian Consensus also suggested increasing the intake of potassium because it may have an “antihypertensive effect.”

\* Consult your physician about your daily sodium and potassium requirements if you suffer from arterial hypertension or heart, liver, or kidney disease and are on medication.

That being so, a healthful diet should include "foods that are low in sodium and rich in potassium," such as beans, dark green vegetables, bananas, melons, carrots, beets, tomatoes, and oranges. Keeping alcohol intake at a moderate level is also important. Some researchers indicate that hypertensive males should consume no more than one ounce of alcohol per day; and women or those with low body weight no more than one half ounce.\*

The Brazilian Consensus concluded that regular physical exercise decreased blood pressure and thus lowered the risk of developing arterial hypertension. Moderate aerobic exercise, such as walking, cycling, and swimming, for 30 to 45 minutes, three to five times a week is beneficial.\* Other factors that have been associated with a more healthful life-style include quitting smoking, controlling blood fats (cholesterol and triglycerides) and

\* One ounce of alcohol is equivalent to 2 ounces of distilled drinks (whiskey, vodka, and others), 8 ounces of wine, or 24 ounces of beer.

\* Discuss with your doctor the need for a personal exercise program.

diabetes, getting an adequate intake of calcium and magnesium, and controlling physical and emotional stress. Some drugs may increase blood pressure, such as nasal decongestants, antacids high in sodium, appetite moderators, and caffeine-containing painkillers for migraines.

Certainly, if you have arterial hypertension, your doctor is in the best position to give you advice on your diet and habits, according to your personal needs. Regardless of your situation, however, adopting a healthful life-style from an early age is always beneficial, not only for hypertensive people but for all the members of the family. Marian, mentioned at the beginning of this article, had to make changes in her life-style. Currently she takes medication and leads a normal life despite her health problem. How about you? While awaiting the time when all people will have a healthful life and "no resident will say: 'I am sick,'" keep your blood pressure under control!—Isaiah 33:24.

**Regular exercise  
and a healthful diet  
help prevent and  
control high blood  
pressure**





# SEED BANKS

## A Race Against Time

BY AWAKE! WRITER IN BRITAIN

**O**UR lives depend on plants. They are sources of food and clothing. They provide fuel, building materials, and lifesaving medicines. Animals, birds, and insects depend on them too. Yet, according to some researchers, a quarter of the world's plants are in danger of becoming extinct within the next 50 years. A leader in the race against time is the Millennium Seed Bank Project.

Hailed as a "Noah's Ark for plants" and "an insurance policy for the planet," the \$120 million building in southern England will safeguard hundreds of millions of seeds gathered from some of the world's most endangered species.

### What Is a Seed Bank?

Have you ever deposited your valuables in a bank for safekeeping until you need them again? A seed bank performs a similar function for plants. It is an easy, economical way of preserving any plant life bearing seed,

from the tiniest herb to the tallest tree. Once banked, the seeds need very little attention. Most do not take up much space. A tiny glass vial holds a million orchid seeds! For numerous other species, as many seeds fit into an ordinary pickling jar as there are people in a city. After specialized treatment, these potential new plants can be safely preserved for decades or even for centuries, far longer than they would survive in the wild.

Seed banks are not new, though in the past they were used mainly for commercial crops. In 1974, scientists of the Royal Botanic Gardens, at Kew, in London, began studying how to conserve wild plant seeds at their branch at Wakehurst Place in the Sussex countryside. Having stored 4,000 different species from around the world, they realized that they needed a far larger enterprise to ensure against the earth-wide loss of plants and their habitats. So in 1998, Kew started building a larger seed bank on the grounds of Wakehurst Place.

### Meeting the Goals

The first goal, even before completion, was to bank the seeds of all Britain's trees, brambles, grasses, shrubs, and wildflowers by the year 2000. Out of 1,440 native species, 317 are threatened with extinction. Kew already had 579 species in the bank, and a team of over 250 professional and amateur botanists scoured the land to find the remainder. Enthusiasts climbed mountains, lowered themselves down cliffs, and waded through icy waters searching for elusive

**Seed collecting in Burkina Faso**





plants. The deadline was met for all except a handful of rare specimens.

Since the year 2000, the main objective has been to collect and bank 1 in 10, or over 24,000 species, of the world's seed-bearing flora by 2010, particularly those from the dry lands. A fifth of the world's human population live in these hot, arid regions and depend on plants for survival, yet vast areas are being lost to deserts each year. Seed-collecting expeditions started in some countries at the beginning of 1997, and by February 2001, Kew's seed hunters had collected 300 million seeds from 122 countries, leaving nearly 19,000 species still to bank.

### Banking the Seeds

Gardeners and farmers have long collected seeds and stored them. However, seeds treated in the Millennium Seed Bank will live far beyond their natural life span. The secret lies in the way they are dried and frozen.

After seeds are collected in sufficient numbers and separated from surrounding material, they are placed in paper or cloth bags or even in soft-drink bottles to dry out before being sent to Britain. At the same time, the collectors prepare pressed specimens of the actual plants so that they can be formally



**Storing at subzero temperature**

identified at Kew, and the precise location where they were found is recorded by means of navigation satellites.

On arrival at Wakehurst Place, the seeds go through two vital drying stages separated by a cleaning session. Spending time in two rooms that have a successively lower relative humidity and are both drier than most deserts reduces their moisture content from at least 50 percent to about 5 percent. This ensures that they will not be damaged when they are frozen, and it slows their biological processes right down to a kind of suspended animation in which they can remain for a very long time. Before the seeds are banked, a few are X-rayed to see if they are healthy or have been damaged by insects. Another sample is

## ONE OF MANY

Kew Gardens is just one of the 1,300 seed banks around the world that are busily preserving seeds in deep freezers. Steve A. Eberhart, head of the National Seed Storage Laboratory in Colorado, describes that facility as a sort of "Fort Knox for plants."



### Millennium Seed Bank Project





## DIPPING INTO THE GENE POOL

An important function of seed banks is to collect diverse forms of a crop and its relatives. This collection then provides a genetic pool from which to draw when combating outbreaks of new diseases or pests in that crop. By selectively breeding plants, scientists can improve the yield, nutritional value, and disease and insect resistance of crops. This genetic pool is becoming increasingly important.

Worldwide, more than 90 percent of mankind's calorie requirements are now met by just 103 plant species, and more than half the global energy intake comes from only three major crops—rice, wheat, and maize. Why is this a problem?

When a widespread crop is genetically similar, it becomes uniformly susceptible to a single disease or pest. The most famous example of the danger of genetic uniformity occurred in the 1840's in Ireland. Back then the potato crop was wiped out by potato blight (*Phytophthora infestans*). This fungus triggered what is sometimes called the Great Famine and led to the death of 750,000 people.

tested to see if they will germinate. In fact, every ten years samples will be nudged back to life to see if they are still viable. If fewer than three quarters of them germinate, new seeds will need to be collected.

Knowing how seeds respond to long-term storage and understanding how to germinate them later are key areas of research. Finally, the seeds are packed in air-

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**A botanist from Kenya learns how to check the moisture content of seeds**

tight glass jars and taken below ground to one of two room-size freezers in a large concrete vault. There, stacked neatly on shelves, they begin their long sleep at a temperature of minus 4 degrees Fahrenheit.

Does the process work? Indeed it does. A few years ago, when 3,000 seeds of different plants that had been banked for a decade were tested, 94 percent of them germinated.

Some species present a problem. Their seeds die if their moisture content drops too low. Some oak (*Quercus*), cacao (*Theobroma cacao*), and rubber tree (*Hevea brasiliensis*) seeds are examples. But freezing them moist kills them because water expands and ruptures cell walls when it turns to ice. Scientists are researching techniques to overcome this hurdle. One possible solution is to extract the seed's embryo, dry it rapidly, and store it in liquid nitrogen at an ultralow temperature.

### Who Share the Dividends?

Like a financial bank, the Millennium Seed Bank makes payments. Samples of seeds are used for research. A quarter of medicines are derived from plants, but four fifths of the world's flora have not yet been studied. What new remedies are waiting to be found? A Mediterranean species of vetch (*Vicia faba*) has provided a blood-clotting protein that helps detect rare human blood disorders. Perhaps new foods, fuels, or fibers will be discovered too.

Scientists from overseas stay at the Bank while learning about seed storage and germination techniques so that they can set up seed banks back home. Each country providing seeds retains a substantial proportion of them, and it will have an equal share in any research benefits and profits.

With seed samples being used to restore degraded lands and increase stocks of critically endangered species, the hope is that these conservation strategies will help to turn the tide of the world's fast-disappearing flora and the many life-forms dependent on it.





## DIVERSITY UNDER ATTACK

Dr. Peter H. Raven warned delegates at the XVI International Botanical Congress, held in the United States: "As many as 100,000 of the estimated total 300,000 species may be gone or on the way to extinction by the middle of the [21st] century." A report from the Food and Agriculture Organization of the United Nations (FAO) states that the loss of diversity in our food crops already "has been substantial." The major threat to plant diversity comes from an unlikely source.

The FAO report noted: "The chief contemporary cause of the loss of genetic diversity has been the spread of modern, commercial agriculture. The largely unintended consequence of the introduction of new varieties of crops has been the replacement—and loss—of tradi-

tional, highly variable farmer varieties."

In China nearly 10,000 wheat varieties were in use in 1949. Today fewer than 1,000 are still in use. In the United States, nearly 6,000 varieties of apple trees have disappeared over the past 100 years, and 95 percent of the cabbage varieties as well as 81 percent of the tomato varieties have apparently vanished.

Warfare also causes the extinction of crop species when farmers are forced off their land for many years and local crop varieties die out. The UNESCO Courier noted: "Wars . . . have affected every country in the West African coastal zone of ancient rice agriculture. This region is a key centre for genetic diversity in African rice (*Oryza glaberrima*), which . . . can now be cross-bred with Asian rice, one

of the world's key food crops. It will be of global significance if this . . . little-studied African crop is a casualty of the regional warfare."

### Safer Than Seed Banks

John Tuxill, a researcher for the Worldwatch Institute, warned: "We are increasingly skillful at moving genes around, but only nature can create them. If a plant bearing a unique genetic trait disappears, there is no way to get it back." Thus, millions of dollars are invested in keeping seeds safe in seed banks.

Safer still is the promise made by the Creator of these miracles of packaging, who long ago gave this assurance: "All the days the earth continues, seed sowing and harvest . . . will never cease."—Genesis 8:22.

### How Will the Race Be Won?

No one can doubt the serious situation mankind faces. Roger Smith, head of Kew's seed conservation department, gives three reasons for the project: "The first is direct use. Do we know so much about every plant that if one is lost, we know what has gone in terms of its potential for food or medicine? The second is the web of life. Imagine all the world's species forming a net, with each species a knot in the net. How many knots can you cut out before the net ceases to function? The strongest argument is stewardship. What right does the current generation have to take options away from future generations by not handing on the species it inherited?"

The challenges for the future are formidable. Project coordinator Steve Alton says: "You can have all the seeds in the world, but if there's no habitat for those plants to go back to there's no point in storing them." Will it be possible to save these vanishing species as well as ensure responsible care of our planet?

The reassuring answer is yes. The Creator promises: "There will be the seed of peace; the vine itself will give its fruitage, and the earth itself will give its yield, and the heavens themselves will give their dew; and I shall certainly cause the remaining ones of this people to inherit all these things."—Zechariah 8:12.

# Watching the World

## Salt-Resistant Tomatoes

"Researchers have genetically engineered the world's first tomato that can grow in salty water—an advance that could help solve one of the biggest problems in agriculture," says *washingtonpost.com*. The salt-tolerant tomato has been engineered with a gene from a plant related to the cabbage. The inserted gene enables the tomato plant "to shunt salt into storage cavities, allowing the plant to thrive in what otherwise would be marginal cropland." According to the report, "the genetically engineered tomato can grow in soil irrigated by water that is about 50 times saltier than normal." It is hoped that such salt-resistant plants will be able to grow in soils that are not regularly flushed by rainfall. The report adds that "another potential use of the modified tomatoes (or other crops made similarly salt resistant) is to reclaim damaged soil by soaking up the salts."

## Suicidal Children

Calls from suicidal children to helplines of the British charity ChildLine doubled from 346 in 1990/91 to 701 in 1998/99, reports *The Guardian* of London. "Extremes of despair" were "caused by bullying, sexual and physical abuse, bereavement and exam stress." According to the charity, "the commonly held view that suicide attempts are merely attention seeking is dangerous. There is no truth in the myth that those who talk about suicide don't do it. Many suicidal children who called ChildLine said their distress was increased by parents'

## Procrastination and Health

"Procrastination can make you sick," says a study mentioned in the *Vancouver Sun* newspaper. As presented at a recent conference of the American Psychological Society held in Toronto, Canada, a study of 200 Canadian university students "found that procrastinators put themselves under so much pressure by delaying action that they suffered more stress-related illnesses than others. . . . With the exam date looming, stress levels among procrastinators soared. Their happy-go-lucky attitude was replaced with higher rates of headaches, back pain, colds, sleeping problems and allergies. They suffered more respiratory problems, infections and migraines."

or carers' apparent lack of concern." After a first attempted suicide, "families are so relieved their child has survived . . . that they assume the problem has gone away. Then, tragically, it happens again," usually within a few months of the first attempt. Although suicidal girls outnumber boys by 4 to 1, the boys were far more likely to kill themselves. Most suicidal child callers were aged 13 to 18, but the youngest were only 6.

## Mosquito Decoy

A Singapore firm is producing a device to deal with mosquitoes without insecticides. It is a 15-inch-tall black plastic box that "radiates heat and carbon dioxide much as a human body would," reports *The Economist* of London. Because mosquitoes find their victims by homing in on body warmth and carbon dioxide in the breath, the device "tricks mosquitoes into



thinking they are about to get a meal." The box is heated electrically, and it releases carbon dioxide from a small cartridge. Glittering lights lure the insect into a slot in the box. A fan then blows it downward into a pool of water, where it drowns. The device can trap 1,200 mosquitoes in a night and can be adjusted to target the nocturnal *Anopheles* mosquito, which carries malaria, or the diurnal *Aedes* mosquito, the carrier of yellow fever and dengue. A further advantage is that harmless insects such as butterflies are not destroyed.

## Men Encouraged to Eat Fish

Men who eat large amounts of fatty fish, such as salmon, herring, and mackerel, are two to three times less likely to develop prostate cancer than men who rarely eat fish, say researchers from the Karolinska Institute in Stockholm. The 30-

year study of 6,272 men took into account risk factors such as smoking. The researchers concluded that "so-called omega-3 fatty acids [found particularly in oily fish] apparently impede the growth of prostate cancer." The same fatty acids "also reduce the risk of heart attack," says the report. Hence, experts advise people to eat fish "once or twice a week."

### Rice Bran Saves Trees

Rice bran, a substitute fuel in northern Peru's brick factories, is helping to prevent many endangered carob trees from being cut down as firewood, reports Peru's newspaper *El Comercio*. The use of rice bran, an agricultural waste product, by 21 brick makers has also helped to reduce carbon dioxide emissions. In addition, by plastering the walls with a paste composed of sand, clay, and molasses—which improves insulation and thus reduces heat loss—the efficiency

of the ovens has been increased by 15 percent. Experiments are also being made to include the ashes of rice bran in the brick mixture, with the hope of strengthening the finished product. "This use also reduces pollution and problems of storage of residues," says *El Comercio*.

### Mental Health and Children

"Statistics show one in five children will develop a mental-health problem by age 11," says *The Gazette* newspaper of Montreal, Canada. "Good mental health means balancing the social, physical, spiritual and emotional aspects of one's life." According to Sandy Bray, a community-education coordinator for the Canadian Mental Health Association, we should be as concerned about our mental health as we are about our physical health. Bray states: "If we continue to leave mental health last on the list of priorities, that's when we tend to get depressed, anxious and stressed

out." Parents are encouraged to be more proactive in keeping their children mentally healthy, by scheduling family time into their lives and by eating meals together. Other suggestions to help all to maintain good mental health include getting sufficient sleep, eating well, keeping fit, making time to do the things you enjoy, spending time with friends, laughing, volunteering, giving and accepting compliments, really listening to others, and not being too hard on yourself when you make mistakes.

### The Heavy Cost of Overfishing

"Mankind brought about a marine apocalypse on a scale never previously imagined in which thousands of species became extinct through overfishing, a study has revealed," states *The Times* of London. "The human race's efficiency at hunting large marine animals and shellfish has disrupted food chains and destroyed ecosystems to such an extent that the seas have been changed forever," according to the research project. The report mentions that when Captain John Smith sailed into the waters of Chesapeake Bay on the eastern coast of the United States in 1607, a cannon that fell overboard was "clearly visible in over 30ft of water." The researchers attributed this once clear water to "vast oyster reefs [that] filtered all the water in the bay every three days, controlling levels of microbes and algae." At that time "grey whales, dolphins, manatees, river otters, sea turtles, alligators and giant sturgeon were numerous" in the region. Now it is home to "a fraction of the species" once supported.

### A Rock-Climbing Fish!

A team of Brazilian ichthyologists, scientists who study fish, have observed a species of the South American darter that routinely performs the seemingly impossible feat of climbing up a wet, slippery, five-story cliff beneath a waterfall, reports *Natural History* magazine. "The researchers observed the waterfall-climbing abilities of the inch-and-a-half-long fish in the swift freshwater streams of Espírito Santo in eastern Brazil." Using their two large pairs of fins, the darters clung to the base of the waterfall and slowly inched themselves up the 50-foot-high rock face, "with strong lateral movements," resting at regular intervals. "The scientists think this behavior helps maintain populations in the isolated uplands," says the report. However, darters are not the only fish with rock-climbing skills; other species include tropical gobies and Asian loaches.



## From Our Readers

**Post-traumatic Stress Disorder (PTSD)** When I received the August 22, 2001, issue of *Awake!*, entitled "Coping With Post-traumatic Stress," I was so surprised that I couldn't stop crying. I have continually

prayed that Jehovah teach me to cope with my PTSD. I thought that I was worthless, and I started to lose my self-respect. Today I received the answer to my prayers. I can't express how much these articles have meant to me, both spiritually and emotionally.

**C. K., Japan**

I'm a 40-year-old adult who suffers from post-traumatic stress disorder because of my childhood. Your articles answered my prayers. They were encouraging and positive. Thank you for such insightful articles. Keep them coming!

**R.D.M., United States**

The pain of living and suffering with this disorder is very hard to express. My father was an alcoholic, and from childhood I was subjected to his anger and violence. I was also sexually abused. I was happy that this article pointed out that those with PTSD tend to reproach themselves and are in need of great encouragement. I give my heartfelt thanks to Jehovah and to all of you for these wonderful articles.

**Y. S., Japan**

Articles like these help us to cope emotionally and also strengthen us mentally, so that we can do better. Please continue to write such needed articles that help us to understand ourselves!

**C. L., United States**

I was diagnosed with PTSD, but the only thing I knew about the disorder was that you have flashbacks. Your articles explained details about symptoms. I used to blame myself, thinking that my spirituality had fallen sharply. But the point that we should think, not of how we view ourselves, but of how Jehovah views us was a real help.

**J. S., Japan**

Reading this material was hard, as I was trying to see through my tears. For the past two years, I have had flashbacks and nightmares of the night my grandfather died in my arms of a heart attack. I spent much of my time at Christian meetings crying. This information has helped me to understand why I am still hurting so badly. Now I know where to turn for help—to my most loving and caring heavenly Father and his organization.

**P. T., Australia**

Five years ago I lost my husband in an automobile accident, and a year later I began to experience unusual physical symptoms. When I received this article, I keenly felt that the ones who understand the matter best are Jehovah and his organization. Just having this feeling gave me the renewed strength I needed to go on. My heartfelt thanks for all the work you do!

**A. K., Japan**

**Bible Reading** Thank you from the bottom of my heart for the article "Young People Ask . . . How Can I Make Bible Reading More Enjoyable?" (August 22, 2001). I am 17 years old. I have always quit reading the Bible halfway through. Sometimes I did it just because I felt that I was too busy, and other times I thought that what I was reading wouldn't really be of use to me. But the young people in the article are really enjoying their Bible reading and benefiting from it. I couldn't help wanting to read it too. Now I want to keep trying and not give up.

**Y. T., Japan**

# Listen and Learn

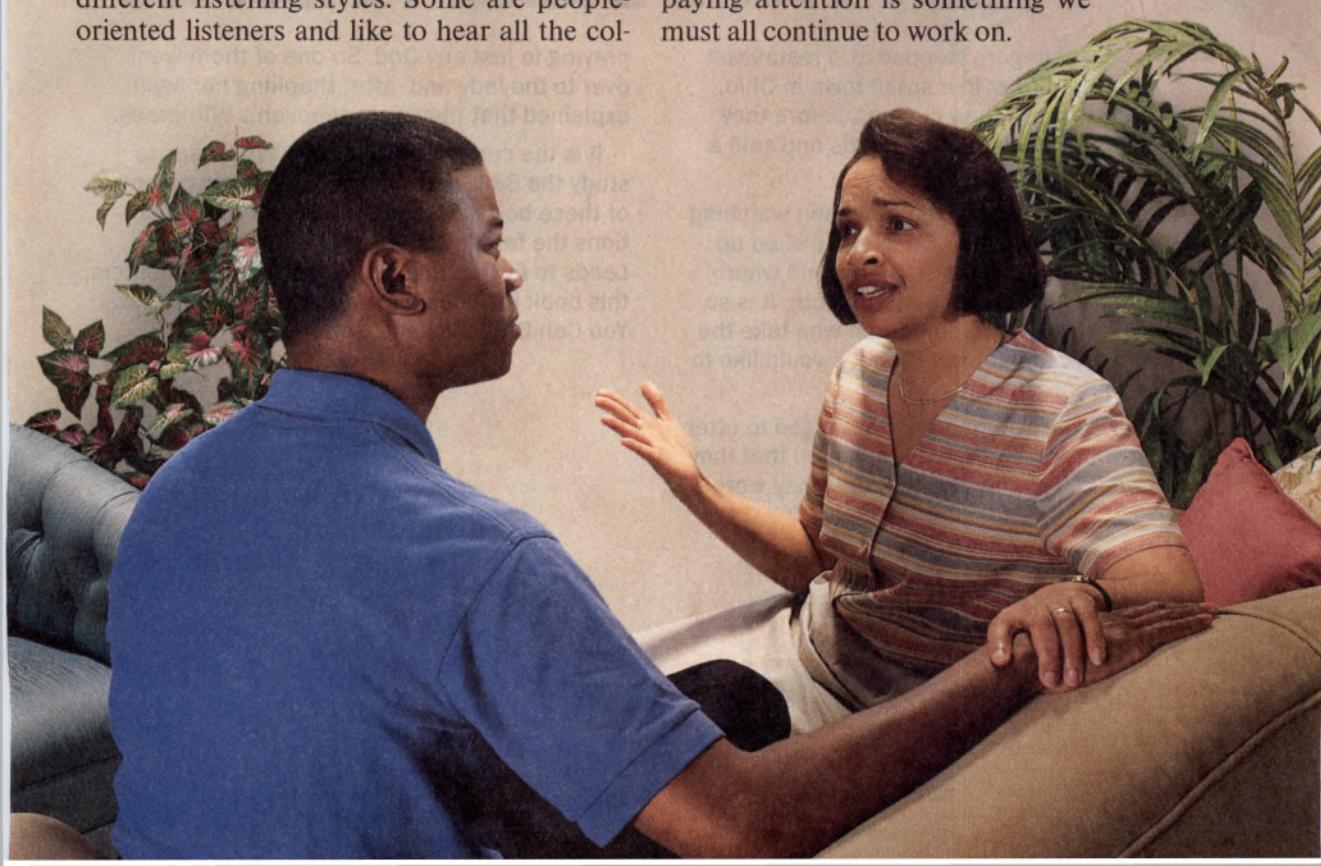
“WE’VE learned 85 per cent of what we know by listening,” says a report in the *Toronto Star* newspaper. Although we spend much of our time listening, we are distracted or preoccupied or we forget 75 percent of what we hear. These attention-grabbing statistics highlight the need to develop our listening ability.

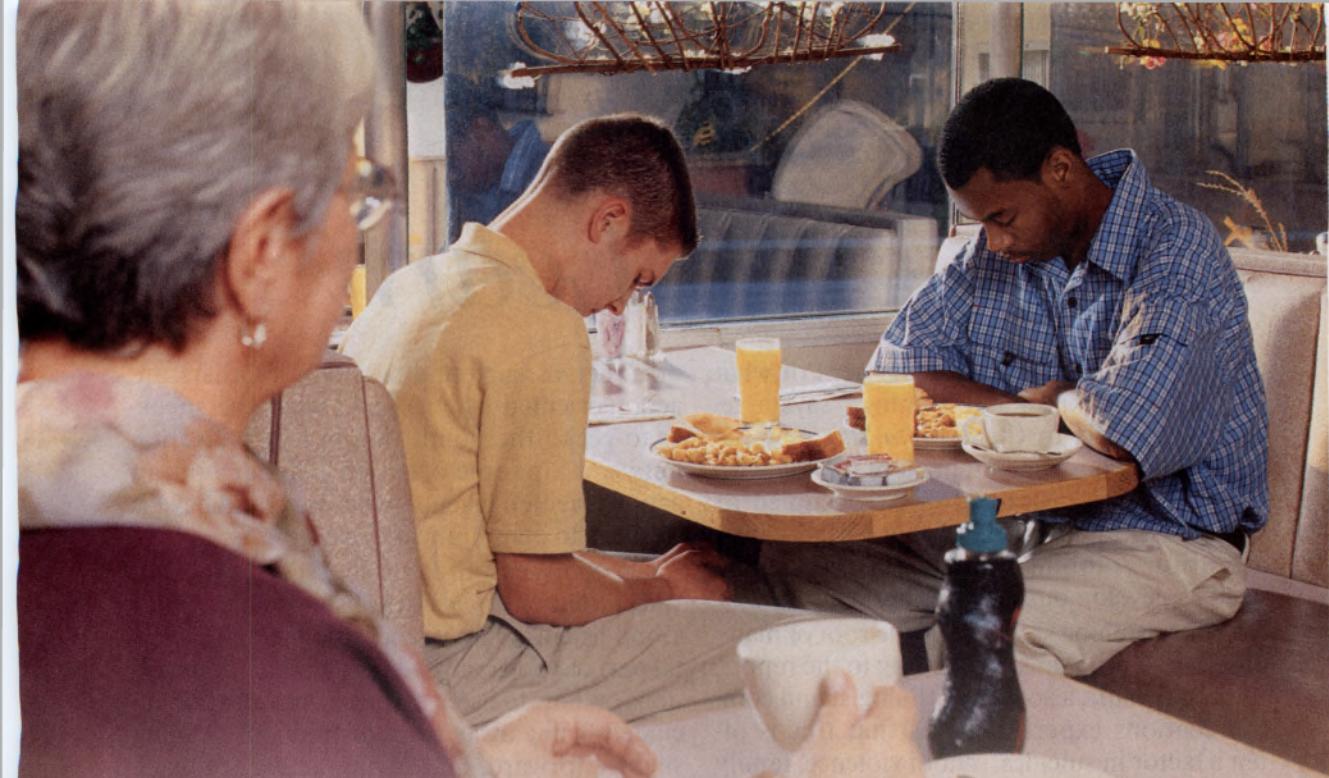
“Poor listening skills are at the root of many of society’s problems,” according to the report. Rebecca Shafir, a speech pathologist and communications expert, believes that this is often a factor in suicides, school violence, family breakups, and drug abuse.

Social scientists observe that people have different listening styles. Some are people-oriented listeners and like to hear all the col-

orful details surrounding a story. Others are action-oriented listeners and want the speaker to get to the point. “So, in a conversation between a people-oriented listener and an action-oriented listener, what we could have is a failure to communicate,” says the *Star*.

For good reason, Jesus stressed the need to “pay attention to *how* you listen.” (Luke 8:18) Good listening shows good manners. It is a vital part of good conversation. Practical suggestions on how to listen during a conversation include turning away from distractions, leaning slightly forward, and giving active feedback with eye contact and nodding. Since much of our learning depends on effective listening, paying attention is something we must all continue to work on.





## THEY WERE BEING WATCHED

**T**WO teenagers stopped at a restaurant for breakfast in a small town in Ohio, U.S.A. As is their custom, before they ate they bowed their heads and said a silent prayer.

Afterward, a woman who had been watching them came over to their table and picked up their check. She told them: "In a world where we hear so much bad about our youth, it is so refreshing to see two young men who take the time to thank God for their food. I would like to pay for your breakfast."

The boys were stunned but managed to utter a thank-you. Afterward they reasoned that they could not let the woman think that they were

praying to just any God. So one of them went over to the lady and, after thanking her again, explained that they were Jehovah's Witnesses.

It is the custom of Jehovah's Witnesses to study the Bible with their families. The parents of these boys had done so. One of the publications the families studied is *Knowledge That Leads to Everlasting Life*. Among its 19 chapters, this book includes one on prayer entitled "How You Can Draw Close to God."

