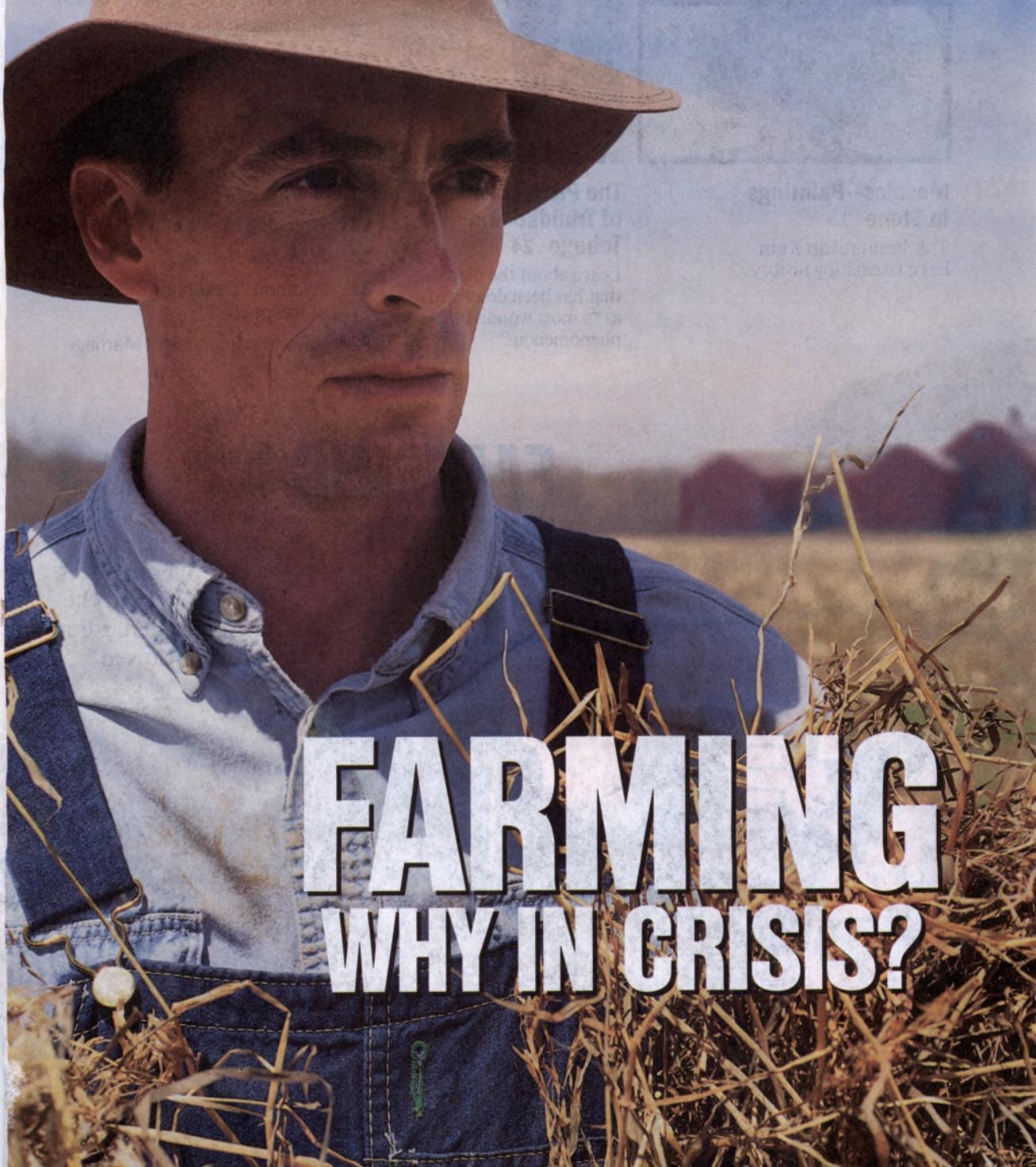


Awake!

OCTOBER 8, 2003

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FARMING WHY IN CRISIS?



Awake!

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FARMING WHY IN CRISIS?

3-11

In many parts of the world, farmers are experiencing unprecedented economic pressures. What is behind the farm crisis, and how can it be solved?

Mark Segal/Index Stock Photography



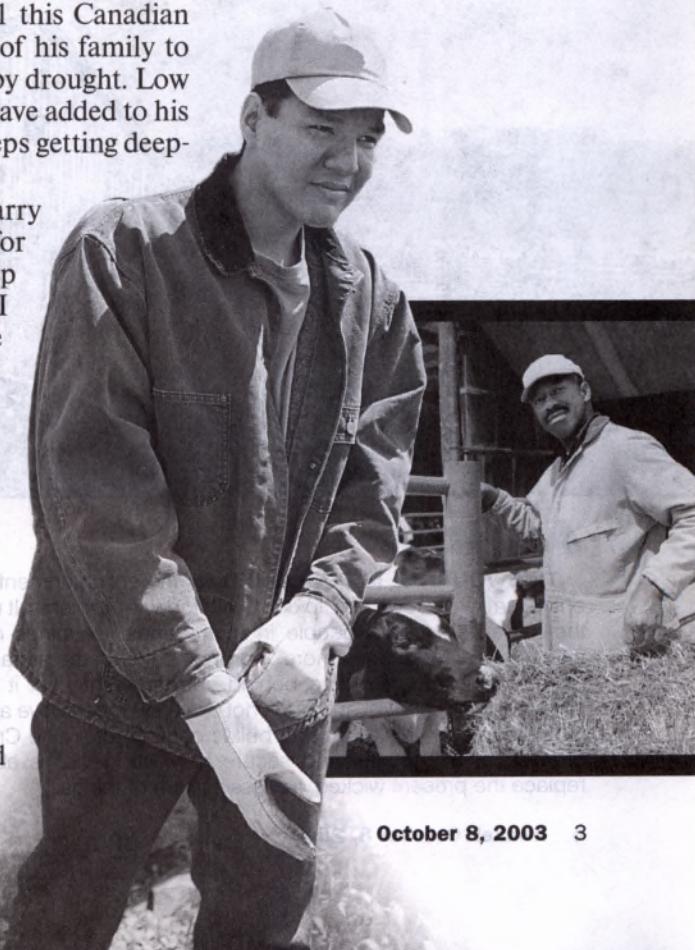
THE CRISIS FARMERS FACE



RICHARD plows the same fields his great-grandfather farmed some 100 years ago. Yet, in 2001 this Canadian farmer was the first in four generations of his family to fail to harvest any crops. They were ravaged by drought. Low crop prices in previous years and rising costs have added to his distress. Lamented Richard: "The hole just keeps getting deeper and there's no way out."

In the Corn Belt of the United States, Larry owned a farm that had belonged to his family for 115 years. "I felt I had a responsibility to keep the farm going, make it profitable . . . , and I wasn't able to do it," he says. Larry and his wife lost their farm.

Larry and Richard are not alone. In Britain the outbreak of foot-and-mouth disease among farm animals exacted an enormous financial and emotional toll on farmers. One news report stated: "Daily life on a British farm—even one which the disease has not reached—is marked by anxiety, isolation, and a desperate struggle to stave off creditors." In some developing lands, war, drought, rapid population growth, and a host of other factors have frustrated the efforts of farmers. Governments are forced to import food—food that many families cannot afford to buy.



Thus, the problems of farmers have widespread impact. Even so, few urban dwellers give much thought to the challenges of agriculture. Almost 50 years ago, U.S. President Dwight D. Eisenhower aptly stated: "Farming looks mighty easy when your plow is a pencil, and you're a thousand miles from the corn field." Farmers today likewise feel that much of the world is out of touch with agriculture and the important role of farmers. "We're pretty complacent about where our food comes from," laments one Canadian farmer. "Before the plastic wrap gets put on it and it gets put on a store shelf, a lot of people's hands have touched it."

Since we are all dependent upon the farming industry, the problems of farmers can-

not be ignored. Sociologists Don A. Dillman and Daryl J. Hobbs warn: "In our highly interdependent society, rural problems quickly become urban problems and vice versa. Neither the urban nor rural portions of our society can flourish for long while the other languishes behind." Furthermore, in today's global village, an economic downturn in one nation can drastically affect the sale of crops and the cost of production in other lands.

Little wonder, then, that the New York Center for Agricultural Medicine and Health reported: "Farming is one of the 10 most stressful occupations in the United States." What are some of the factors behind the farm crisis? How can farmers cope? Is there any reason to believe the crisis can be solved?

"Farming looks mighty easy when your plow is a pencil, and you're a thousand miles from the corn field"



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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WHAT'S BEHIND THE FARM CRISIS?

"The staff at the Farm Stress Line are trained to help you deal with farm stress. We're farmers and former farmers—just like you—and we understand the challenges facing rural families. We can put you in touch with people who can help. . . . All calls are confidential."—From a Canadian government Web site.

STRESS is now recognized by many health professionals as an occupational hazard of farming. To help farmers cope, there are clinical psychologists who specialize in farm stress, offering such services as support groups and stress hot lines for farming communities.

A farmer's wife named Jane attends a Thursday night group counseling session. "I came because my husband committed suicide," explains Jane. "His dream had always been to farm the family farm, and I guess if he couldn't do that, he didn't want to do anything else."

Many have observed an unprecedented rise in the number of farmers seeking relief from stress. Just

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what is behind the crisis many farmers are facing?

Natural Disasters and Disease

The government Web site quoted at the outset states: “The very nature of farm work means that a large portion of your daily lives—weather, market prices, interest rates, equipment breakdown—are not under your control. Even choosing between two things like which

In today's global community, farmers are subject to the forces of international markets

crop to grow or selling land [versus] transferring it to a creditor can create stress, as the outcome can be positive or negative.” When these factors are compounded by the threat of serious drought or disease or of losing a farm, the stress can become overwhelming.

Drought, for example, can be a double-edged sword. Farmer Howard Paulsen explained that the drought of 2001, one of the worst in Canadian history, affected his crops and his livestock. Without pastures to graze or crops to harvest, animal feed had to be purchased. “I’ve already spent \$10,000 on feed and now I’m feeding them stuff that should be used in the winter time,” he said. “You start doing that, there’s no profit even in the livestock end of it.” In other areas, flooding has devastated many farms—ruining entire harvests.

In Britain the outbreak of foot-and-mouth disease in 2001 was only the latest in a string of problems British farmers had experienced, including mad cow disease and swine fever. These diseases—and the fear they generate in the public—do more than wreak economic damage. Reported *Agence France-Presse*: “Sturdy countrymen, not the type easily moved to tears, have been seen sobbing as they watch government veterinarians stacking onto a

burning pyre the herds they spent a lifetime building.” Following the outbreak of the bovine disease, police even began confiscating shotguns from farmers liable to commit suicide. Counseling services were flooded with calls from anxious farmers.

Economic Instability

There have also been dramatic changes in the economic landscape. “Between 1940 and the mid 1980s,” reads the back cover of the book *Broken Heartland*, “farm production expenses in America’s Heartland tripled, capital purchases quadrupled, interest payments jumped tenfold, profits fell by 10 percent, the number of farmers decreased by two-thirds, and nearly every farming community lost population, businesses, and economic stability.”

Why have profits failed to keep up with rising expenses? In today’s global community, farmers are subject to the forces of international markets. Farmers thus find themselves in competition with food producers

“How far can this go before we run out of people willing to farm the land?”

thousands of miles away. True, international trade has also opened up new markets for farm goods, but the global market can be dangerously unstable. For example, in 1998 several grain and hog producers in Canada faced bankruptcy when their customers in Asia suffered an economic setback.

Loss of Community

Professor Mike Jacobsen, of the University of Iowa, who specializes in rural issues, observes that the farm crisis is also a *rural community* crisis. He says: “These places are child-centered, clean, where you want to get married and raise your kids. The schools are pretty decent. Safe. That’s the image, right? Well, the economic status of these towns is highly

(Continued on page 8)



ORGANIC FARMING

Organic food is enjoying growing acceptance. The retail market for organic food in Canada is increasing at a rate of approximately 15 percent each year.

What is organic food? A report by the Alberta Department of Agriculture, Food and Rural Development defines it as "food grown under a production system that, in addition to the avoidance of synthetic chemicals, also promotes soil health, biodiversity, low stress treatment of animals and sound environmental practices."

This, say organic farmers, stands in contrast with food production by large commercial farm operations. "With enormous farms comes a trend to vast single crops, whose high yields are produced through intensive mechanization and a plethora of man-made pesticides and fertilizers," writes Katharine Vansittart in *Canadian Geographic*. "In addition to the residues that such chemicals can leave in food, the nutritional content declines when produce

is picked before it's ripe, a given when it must travel long distances to reach its market. To ensure that crops arrive at their destination intact, they may also be gassed, waxed or irradiated with a nuclear by-product."



Who is buying organic food? The Alberta report says that buyers "range from the health-conscious teenagers, to concerned mothers, to aging baby boomers. . . They are no longer merely the stereotyped sixty's flower child."

However, not all people are con-

vinced that organic food is better. *Canadian Geographic* observes: "The generally higher cost of organics causes skeptics to question its worth without hard science to prove its benefits. Others worry about a two-tier food system that excludes the poor." Proponents of organic food counter that changes in diet, marketing, and delivery can make organics available to everyone, regardless of their economic station. In view of the wide range of opinions and scientific data, the debate over organic food is not likely to die down anytime soon.



(Continued from page 6)

dependent on a number of small family farms in the surrounding area." As a result, the farm crisis also shows its face in the form of closed hospitals, schools, restaurants, stores, and churches in rural towns. One of the greatest charms of agrarian life, its close-knit community, is disappearing.

Not surprisingly, then, according to *Newsweek* magazine, almost 16 percent of rural Americans are under the poverty line. In his report "The Rural Crisis Downunder," Geoffrey Lawrence writes that in Australia, "unemployment, underemployment and poverty rates are very much higher in rural than in urban areas." Economic instabilities have forced many families—especially younger ones—to move to the city. Sheila, who works a farm

with her family, asks: "How far can this go before we run out of people willing to farm the land?"

Because of the exodus of the younger generation to cities, the population of many rural towns has become noticeably older. These communities have lost not only the vigor of youth but also the availability of support for the elderly—often when this care is most needed. Understandably, many older residents are confused and frightened by these rapid changes.

The farm crisis is thus devastating and far-reaching. It touches all of us. Nevertheless, as our next article will show, there is reason to believe that the farm crisis will end.

▼ USDA Photo by Doug Wilson



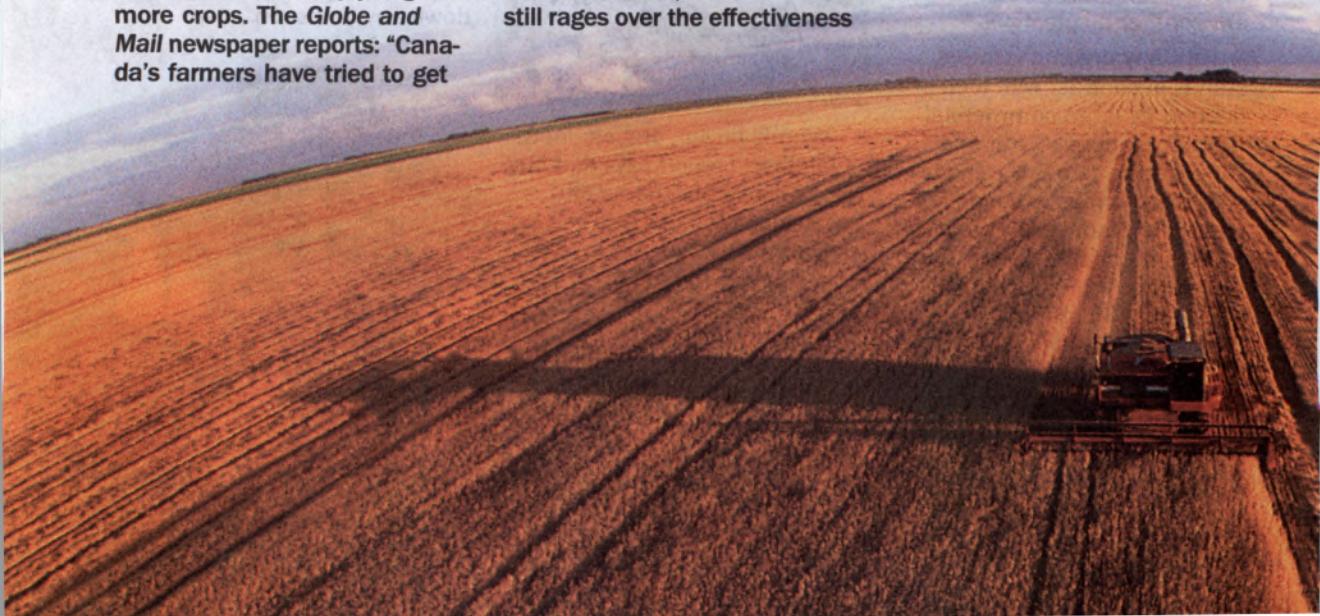
Pests and plant diseases in some parts of the world have damaged as much as 75 percent of potential crops. An obvious solution is simply to grow more crops. The *Globe and Mail* newspaper reports: "Canada's farmers have tried to get

PESTICIDES THE FARMER'S DILEMMA

out in front of the competition by adopting production methods designed to increase yields, giving them more to sell." Yet, Terence McRae of Canada's environment bureau warns: "Many of these changes have increased the potential environmental risks from agriculture."

What about the use of pesticides? This too creates a dilemma for farmers, since debate still rages over the effectiveness

of pesticides and the risks they pose to health. A report by the World Health Organization acknowledged that the toxicity and risks of most pesticides are still not fully known. Potential dangers may be compounded as pesticides are passed through the food chain. Animals eat vegetation sprayed with pesticides. Humans, in turn, consume the animals.





THE FARM CRISIS WILL END

"A tough lesson for many farmers is that hard work does not always lead to success"

SOME who look from the outside at the situation facing farmers must question why anyone would want to continue to farm," says Rodney, a third-generation farmer. Yet, millions worldwide keep on farming. In some developing lands, there may be little choice of employment; farming can at least help a family to have something to eat at the end of the day.

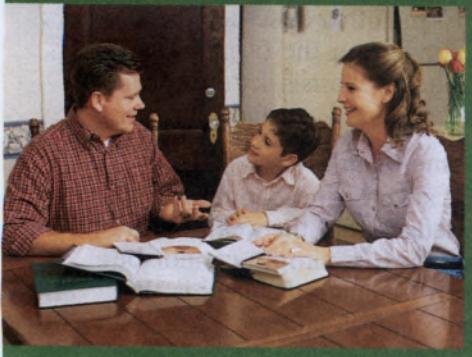
Moreover, many families feel that farming is not merely a job but a way of life. The number of people who have continued farming despite drought, disease, harsh economic conditions, and other crises testifies to their resilience and love for life on the farm. Before examining the solution to the farm crisis, let us look at how some farmers have been helped to cope.

How Some Cope

Farming brings with it several inescapable challenges. It must be acknowledged that the weather, the economy, and many other factors simply cannot be controlled. "A tough lesson for many farmers is that hard work does not always lead to success," states a report published by the North Carolina Cooperative Extension Service. "The work ethic ingrained into the very life of every farmer does not always provide the rewards it promises. For every farmer, there are conditions and factors that are out of his or her control." Describing how he managed to stay happy, one elderly farmer said: "I've just learned to cooperate with the inevitable."

An ancient proverb states: "He that is watching the wind will not sow seed; and he that is looking at the clouds will not reap." (Ecclesiastes 11:4) Uncertainty and indecision can be paralyzing. Replacing negative





Caring for the emotional and spiritual needs of family members can help them cope

Under divine rule, the earth will produce food superabundantly

thoughts with positive actions can help to reduce unnecessary stress.

A proper diet, adequate rest, and proper exercise can also reap results. *The Western Producer* reports that farmers who stay healthy "make better decisions." A farmer named Eugene and his wife, Candace, told *Awake!*: "Adequate rest helps us to cope with stress. Problems seem smaller and easier to solve when we are rested. Proper meals also help, especially when eaten together as a family." This advice harmonizes with what the Bible says: "Every man should eat and indeed drink and see good for all his hard work. It is the gift of God."—Ecclesiastes 3:13.

Supporting the Family

One farmer told *Awake!*: "Many farm families have had to support themselves with off-farm employment. Although this is intended to relieve financial stress, other stresses connected with relationships can set in. Some farm families that were once close-knit have now grown apart." How can families cope?

Some 2,700 years ago, family heads were admonished: "Prepare your work



out of doors, and make it ready for yourself in the field. Afterward you must also build up your household." (Proverbs 24:27) Randy, a father and fourth-generation farmer, says: "Taking time to show appreciation to the rest of the family is a must. Each member of the family needs support and love. Kind words and deeds make everyone feel wanted and appreciated."

Children especially need reassurance when drastic changes take place. The loss that children feel after the foreclosure of the family farm has been compared to that of children whose parents have divorced or died. They need to know that they are not to blame for the problem and that the family will stay together.

How Others Can Help

Stressed-out farmers may keep to themselves, avoiding even their friends. (Proverbs 18:1) During times of distress, however, a person needs the support of others more than ever!

Do you have any friends or neighbors who are suffering as a result of the farming crisis? Simply showing empathy to such ones can be helpful. "The fact that our friends realize the hardships we are going through is a comfort in itself," says a farmer named Ron. Yes, take the initiative to visit your friends and listen as they express their feelings.

Jack benefited from such visits. He relates: "I fondly recall occasions when my friends observed my stressful situation and paid me a loving visit to encourage me." A deep understanding of farming operations is not needed for a person to be supportive. Rodney, quoted at the outset, says: "Just the fact that my friends realize that I have a heavy work load gives me the strength and desire to do what I can." We are reminded of the Bible proverb: "A true companion is loving all the time, and is a brother that is born for when there is distress."

—Proverbs 17:17.

A Permanent Solution

The farm crisis is just one of many evidences of man's inability to manage the earth and

its resources successfully. The prophet Jeremiah said: "I well know, O Jehovah, that to earthly man his way does not belong. It does not belong to man who is walking even to direct his step." (Jeremiah 10:23) Clearly, man is in need of divine help. And you can be confident that such help is on the way.

The Bible record states: "Jehovah God proceeded to take the man and settle him in the garden of Eden to cultivate it and to take care of it." (Genesis 2:15) Yes, it was our Creator's command that gave birth to agriculture! Centuries later, God brought his people the Israelites into the land of Canaan. Regarding that land the inspired record states: "Of the rain of the heavens it drinks water; a land that Jehovah your God is caring for. The eyes of Jehovah your God are constantly upon it, from the beginning of the year to the close of the year." (Deuteronomy 11:11, 12) Jehovah also provided laws that protected the Promised Land from misuse. For example, the Israelites were to let their fields, vineyards, and olive groves lie fallow every seventh year. (Exodus 23:10, 11) Thus the land's fertility was preserved.

We can be confident that in the future under the rule of God's Kingdom—a heavenly government headed by Jesus Christ—the earth will enjoy unprecedented agricultural productivity. (Isaiah 35:1-7) While on earth, the appointed Ruler of this Kingdom, Jesus Christ, demonstrated his ability to control the natural forces that affect agriculture. (Mark 4:37-41) Psalm 72 describes the conditions that will exist when he exercises this power to heal the earth and its inhabitants. It assures us: "There will come to be plenty of grain on the earth; on the top of the mountains there will be an overflow. His fruit will be as in Lebanon, and those who are from the city will blossom like the vegetation of the earth." (Psalm 72:16) Unusually abundant harvests, reaped with exquisite joy, await God's people in that promised new world.

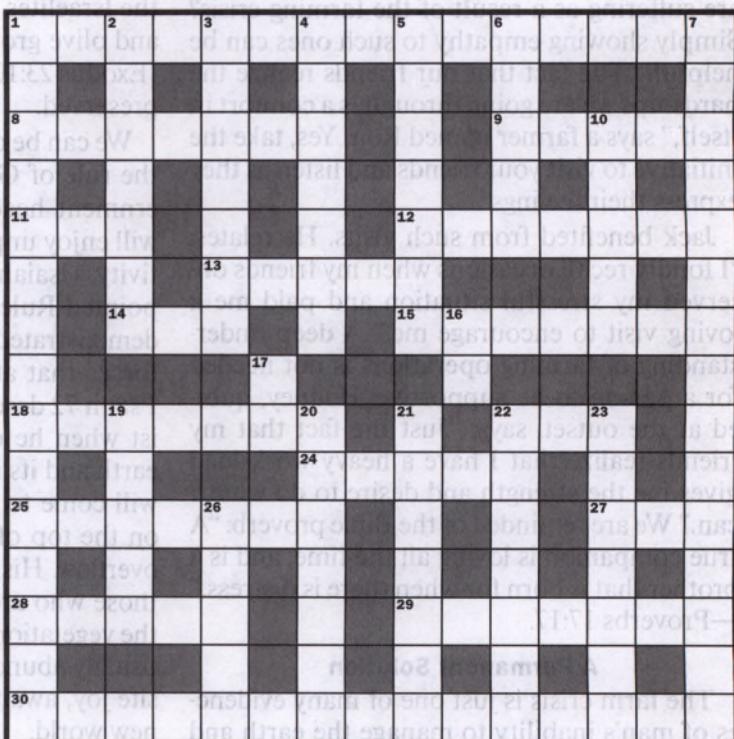
Crossword Puzzle

Clues Across

- This couple were the first in the Bible record to be buried in the cave of Machpelah, near Hebron [3 words] (Genesis 49:31)
- A son of David noted for his outstanding beauty (2 Samuel 14:25)
- Paul's citizenship from birth (Acts 22:25-28)
- What Adam was warned would happen to him if he ate the forbidden fruit (Genesis 2:17)
- King Rehoboam sent this superintendent to the rebellious northern tribes, where he was stoned to death (2 Chronicles 10:18)
- What Jesus said that no one can do for two masters (Matthew 6:24)
- When the sun became this, the miraculous manna melted (Exodus 16:21)
- Extended (Revelation 1:13)
- What Judas Iscariot is noted for being (Luke 6:16)
- Possesses (Job 1:11)
- The son of Enan who was the chieftain of the tribe of Naph-tali during the wilderness wandering (Numbers 2:29)
- The principal idol god of the Ammonites (Zephaniah 1:5, *King James Version*)
- The part of the human body used figuratively in the Bible to represent the ability to exert great strength or power (Jeremiah 32:17)
- One who disperses seed by hand (John 4:36)
- A son of Ur and one of David's mighty men (1 Chronicles 11:35)
- Prevailing states of affairs (Colossians 1:26)

Clues Down

- "Death ruled as king" during this period of time [4 words] (Romans 5:14)
- One of Joshua's ancestors (1 Chronicles 7:25)
- Most sacred (Psalm 46:4)
- He proposed to King Ahasuerus that Vashti be deposed and replaced with another queen (Esther 1:16-20)
- Not the one or the other (1 Kings 22:31)
- First-named son of Zebulun (Genesis 46:14)
- Paul emphatically told the Athenians that God, who created the world, does not dwell in these [2 words] (Acts 17:24)
- Moses caused the bitter water at this wilderness location to become sweet (Exodus 15:23-25)
- This son of Jesus was an ancestor of Jesus Christ (Luke 3:28, 29)
- Used to call attention to (Isaiah 8:22)
- Permit (Ephesians 4:27)
- The starting point of the Israelites' Exodus march (Exodus 12:37)
- That identical one (Revelation 21:3)
- Levite son of Shimea (1 Chronicles 6:30)
- Josiah's royal secretary, who reported to him on the progress of the temple repair work and read to the king from the "book of the law" that was found there (2 Kings 22:8-10)
- This one was fiery-colored and pictured man-made war (Revelation 6:4)



The Bible's Viewpoint

"...to know power", that our Creator gave him
and people say that of those who need it.
—Psalm 33:30, Hebrews 4:16

Allow the great Potter of Mind You

ALTERNATIVE LIFE-STYLES —DOES GOD APPROVE?

“WHEN will I know my sexual preference?” So wrote a 13-year-old girl to a teenage advice column. Her question echoes the attitude of many who feel that people are free to pursue any sexual life-style they choose.

Some people may genuinely struggle with confusion regarding their sexual feelings. Others openly embrace alternative life-styles such as homosexuality. Still others boldly act and dress as one of the opposite sex. Some undergo sex-change operations. There are even individuals who argue that adults should be allowed to have carnal relations with children.

Are sexual practices and gender really a matter of personal choice? What does God’s Word have to say on these issues?

“Male and Female He Created Them”

According to the Bible book of Genesis, God himself created the differences between males and females. The record states: “God proceeded to create the man in his image ... Male and female he created them. Further, God blessed them and God said to them: ‘Be fruitful and become many and fill the earth and subdue it.’”—Genesis 1:27, 28.

God created humans with free will and provided opportunities for them to enjoy their

freedom. (Psalm 115:16) Entrusted with the responsibility of caring for all other living things on earth, man was even allowed to choose appropriate names for them. (Genesis 2:19) However, when it came to issues of sexuality, God gave specific guidelines.—Genesis 2:24.

Because of Adam’s disobedience, we have all inherited imperfection. We must therefore battle fleshly weaknesses and strong desires that are out of harmony with God’s original

When it came to issues of sexuality, God gave specific guidelines

purpose. Thus, in the laws given through Moses, God specified sexual practices that were abhorrent to him—namely, adultery, incest, homosexuality, and bestiality. (Leviticus 18:6-23) God also specifically forbade portraying oneself as a member of the opposite sex for immoral purposes. (Deuteronomy 22:5) The Bible consistently teaches that the only sexual relations approved by God are with a member of the opposite sex within the marriage arrangement. (Genesis 20:1-5, 14; 39:7-9; Proverbs 5:15-19; Hebrews 13:4) Are such standards reasonable?

Who Chooses?

The Bible likens man's position before his Creator to clay in the hands of a potter. It says: "O man, who, then, really are you to be answering back to God? Shall the thing molded say to him that molded it, 'Why did you make me this way?'" (Romans 9:20) It is obvious from the way God made men and women that it is natural for them to be sexually attracted to one another. Sexual attraction to a member of the same sex, to an animal, or to a child is therefore unnatural.

—Romans 1:26, 27, 32.

For this reason, people who pursue such unnatural sexual inclinations find themselves contending with God. The Bible contains this warning: "Woe to the one that has contended with his Former, as an earthenware fragment with the other earthenware fragments of the ground! Should the clay say to its former: 'What do you make?'" (Isaiah 45:9) Surely it is reasonable for the Maker of humans to give direction on sexual matters. Is it not also reasonable that humans should follow such direction?

Getting Possession of One's Own Vessel

The Bible writer Paul used a similar illustration when giving guidance to Christians on sexual behavior. He said: "Each one of you should know how to get possession of his own vessel in sanctification and honor, not in covetous sexual appetite." (1 Thessalonians 4: 4, 5) Paul compares a person's body to a vessel. Getting possession of that vessel means bringing one's thoughts and desires into harmony with God's moral laws.

Admittedly, this may not be easy. One who has experienced childhood sexual abuse, one who had parents or other caretakers who provided a distorted example of masculinity or femininity, or one who had exposure to pornography at an early age may understandably have difficulties. Genetic, hormonal, and

psychological factors may also play a role in distorting sexual feelings. It is comforting to know, however, that our Creator can provide help and support to those who need it.
—Psalm 33:20; Hebrews 4:16.

Allow the Great Potter to Mold You

A piece of clay has to be centered on the potter's wheel before the potter can begin to mold and shape it. Then, as the wheel rotates, the potter skillfully applies gentle pressure

Some Christians in the first-century congregation at Corinth were previously "men kept for unnatural purposes" and "men who lie with men." Yet, they changed

with his fingers to work the clay into a desirable shape. Before we can be molded into a desirable person in God's eyes, we need to be centered on the timeless principles and laws of God. Once we start making the effort, God lovingly applies gentle pressure through the Bible, his holy spirit, and the Christian brotherhood. A person then begins to feel and experience God's personal care in his life.

Of course, we must develop confidence in the Creator's wisdom, trusting that he knows what is best for us. This trust is developed through prayer and an earnest study of the Bible. A person who approaches the issue of improper sexual feelings with that frame of mind becomes moldable in the hands of the Creator. First Peter 5:6, 7 says: "Humble yourselves, therefore, under the mighty hand of God, that he may exalt you in due time; while you throw all your anxiety upon him, because he cares for you."

Regularly reading the Bible acquaints us with a long line of faithful servants of God who contended with fleshly desires but nev-

er gave up. How encouraging these examples are! We can sense the frustration the apostle Paul felt with himself at times when he exclaimed: "Miserable man that I am! Who will rescue me from the body undergoing this death?" Yet, he also directed us to the main source of help when he answered his own question: "Thanks to God through Jesus Christ our Lord!"—Romans 7:24, 25.

A Force for Change

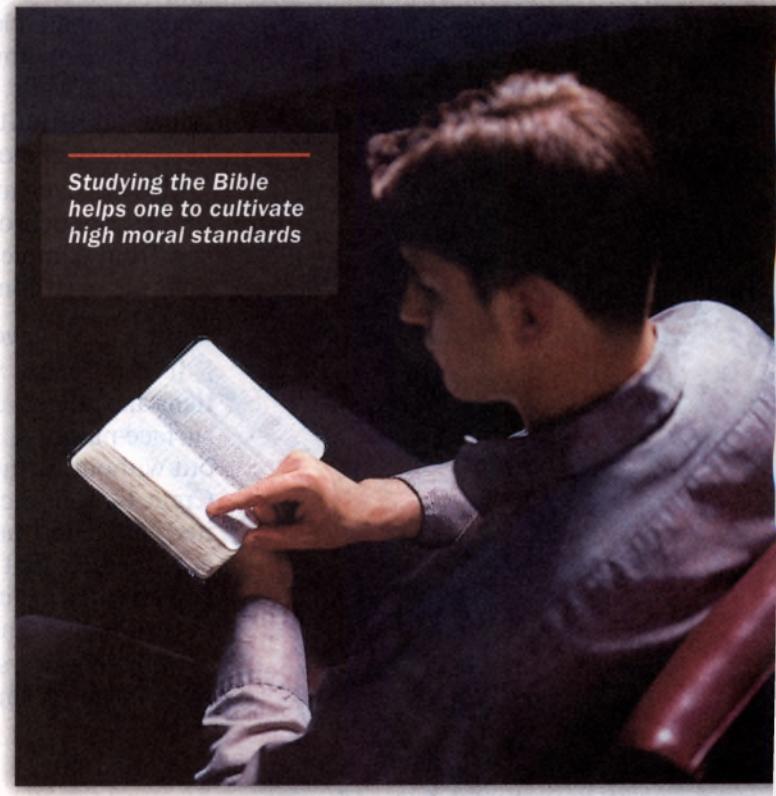
We can also avail ourselves of God's holy spirit. This is a powerful force for change. Holy spirit helps us to "put away the old personality" and "put on the new personality which was created according to God's will in true righteousness and loyalty." (Ephesians 4:22-24) Our loving heavenly Father never fails to respond when sincere requests are made for holy spirit to assist with making this change. Jesus assures us that the Father will "give holy spirit to those asking him." (Luke 11:13) Persistence in prayer is necessary, though, as indicated by his words: "Keep on asking, and it will be given you." (Matthew 7:7) This would be especially true when bringing powerful sexual desires under control.

God also helps us by means of the true Christian brotherhood, which is made up of people from all backgrounds. Some Christians in the first-century congregation at Corinth were previously in the category of "men kept for unnatural purposes" and "men who lie with men." Yet, they changed. The blood of Christ cleansed them, and they became acceptable in God's sight. (1 Corinthians 6:9-11) Some today need to make similar changes. And such ones can receive support in their fight against wrong desires from the Christian congregation.

Does this mean that becoming a Christian will automatically cure a

person of all deviant desires or confusion over gender? Not necessarily. Persistent application of Bible principles has enabled some to live normal lives. Even so, these Christians often have had to wage a day-to-day struggle against wrong desires. Such ones thus serve God despite having a figurative "thorn in the flesh." (2 Corinthians 12:7) As long as they continue to battle wrong inclinations and maintain righteous conduct, God views them as faithful servants and as clean in his eyes. They can look forward to the time in the future when all mankind "will be set free from enslavement to corruption and have the glorious freedom of the children of God."—Romans 8:21.

In the meantime, all those who wish to please God must adhere to his righteous standards. True Christians choose to serve God—not follow their own selfish inclinations. Those who humbly submit to God's will in all areas of life will be rewarded with eternal joy and happiness.—Psalm 128:1; John 17:3.



*Studying the Bible
helps one to cultivate
high moral standards*

BY AWAKE! WRITER IN ITALY

MOSAICS

Paintings in Stone

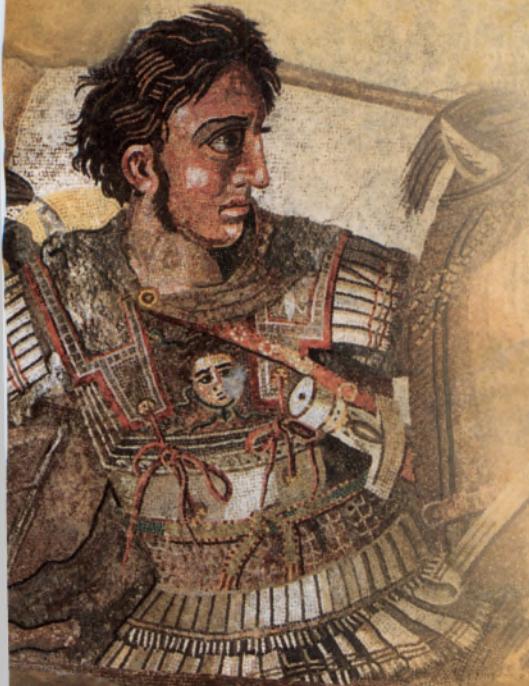


**Map of Jerusalem
(sixth century C.E.)**

Garo Nalbandian

**Alexander the Great
(second century B.C.E.)**

Erich Lessing/Art Resource, NY



MOSAIC has been called “a bizarre art-form,” a “striking” ornamentation technique, and one of “the most durable forms of decorative art to have survived from antiquity.” Fifteenth-century Italian artist Domenico Ghirlandajo called it the “true way of painting for eternity.” Whatever you think of mosaics, they have a truly fascinating history.

Mosaic may be defined as the art of embellishing a surface—such as a floor, a wall, or a vault—with designs made of small, closely set pieces of stone, glass, or tile. From ancient times, mosaics have been used to adorn floors and walls. Mosaics have also decorated baths, pools, and fountains—places where humidity would have damaged more delicate art forms.

Mosaics can vary greatly in appearance, ranging from simple monochrome floors to black and white designs and from complex polychrome floral patterns to ambitious pictorial compositions.

Invention and Development

It is not clear who invented mosaics. Ancient Egyptians and Sumerians adorned their buildings with colored surface-patterns. However, the art seems to have died out without further development. Asia Minor, Carthage, Crete, Greece, Sicily, Spain, and Syria have all been credited with being the birthplace of mosaic, leading one writer to theorize that the technique was “invented, forgotten, and invented again at different times and in several places of the Mediterranean basin.”

Early mosaics, some as old as the ninth century B.C.E., were made of smooth pebbles arranged in simple pat-

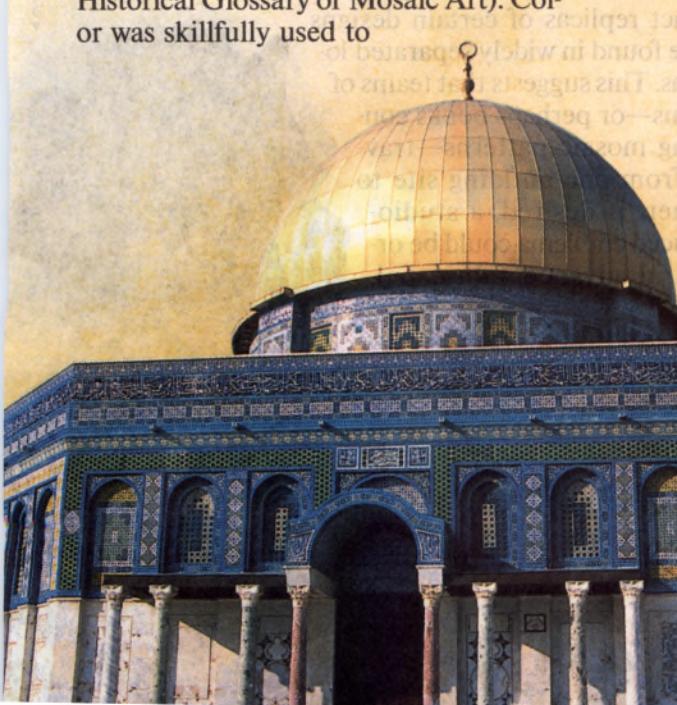
terms. Local stones provided the range of colors. The stones usually measured one half to three quarters of an inch in diameter, but some detailed sections used pebbles as small as a mere one quarter of an inch. By the fourth century B.C.E., artisans began cutting pebbles into smaller pieces, permitting greater precision. Stone cubes, or tesserae, gradually superseded pebbles. Tesserae offered a greater range of tints and were more easily laid and adapted to the required design. They produced even surfaces, which could be ground and waxed to enhance the brilliance of their colors. By the second century C.E., extensive use was also being made of small pieces of colored glass, which greatly enriched the mosaicist's palette.

The Hellenistic period (c. 300 B.C.E. to c. 30 B.C.E.) produced particularly fine pictorial mosaics. "By employing the widest possible range of colours and by reducing the size of the tesserae to one cubic millimetre . . . , the works executed by Greek mosaicists came to vie with wall painting," says the book *Glossario tecnico-storico del mosaico* (Technical-Historical Glossary of Mosaic Art). Color was skillfully used to



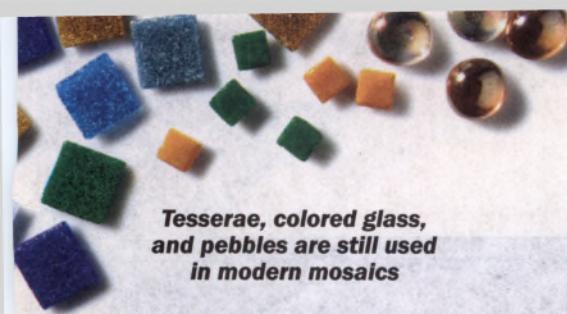
"Dionysos," Antioch (about 325 C.E.)

Museum of Art, Rhode Island School of Design, by exchange
with the Worcester Art Museum, photography by Del Bogart



Dome of the Rock,
Jerusalem
(built 685-691 C.E.)





**Tesserae, colored glass,
and pebbles are still used
in modern mosaics**



**Mosaic displayed at
Lynn Heritage State Park,
Massachusetts**

Kindra Clineff/Index Stock Photography

**Mosaics designed by Antoni Gaudí
in Barcelona (1852-1926)**



obtain subtle illusions of light, shade, depth, volume, and perspective.

Typical of Greek works is the highly refined central inset, or emblema—often a virtuoso reproduction of a famous painting—surrounded by ornate borders. Some insets have tesserae so tiny and well-fitting that they seem to have been created with brush strokes rather than with individual pieces of stone.

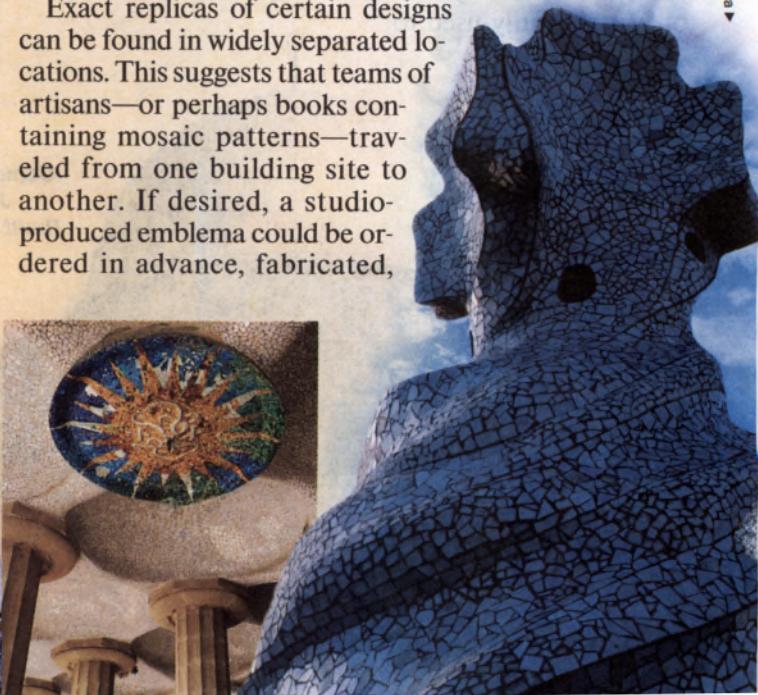
Roman Mosaics

Mosaic is often considered to be a Roman art because of the wealth of mosaics found in Italy and provinces of the Roman Empire. “Pavements of this type have been found by the hundred thousand in buildings of the Roman period from northern Britain to Libya, from the Atlantic coast to the Syrian desert,” says one source. “They are sometimes regarded as one of the identifying features of Roman presence in an area, so closely is the peculiar technique associated with the spread of Roman culture.”

However, multicolored pictorial mosaics proved ill-suited to the needs of the early empire. Great urban growth during the first century C.E. led to increased demand for quicker and cheaper mosaic work. This spurred on the introduction of mosaics that used only black and white tesserae. Production boomed, and according to the *Enciclopedia dell'arte antica* (Encyclopedia of Ancient Art), “there was not a well-to-do house in any city of the empire without a m[osaic].”

Exact replicas of certain designs can be found in widely separated locations. This suggests that teams of artisans—or perhaps books containing mosaic patterns—traveled from one building site to another. If desired, a studio-produced emblema could be ordered in advance, fabricated,

Foto: Por cortesía de la Fundació Caixa Catalunya ▶



transported to the construction site on a marble or terra-cotta tray, and then installed. All other mosaic work was done on site.

Careful planning was needed to fit designs and borders into their setting. Attention was paid to the foundation and its surface to make sure it was smooth and level. Then a thin layer of fine mortar (called the setting bed) was spread over an area small enough to be worked before it dried—perhaps less than a square yard. A sketch might be scored onto the surface as a guide. The tesserae were cut to size, and the artisan began laying them in place.

One by one, tesserae were pressed into the mortar, which squeezed up between the pieces. Once an area was covered, a setting bed would be laid in a successive area, and then another, and so on. Master craftsmen worked on the more complex sections, leaving their assistants to fill in some of the plainer areas.

The Mosaics of Christendom

In the fourth century C.E., mosaics began to be used in Christendom's churches. Often depicting Bible stories, such mosaics served to instruct worshipers. Flickering lights reflected on gold and colored-glass tesserae created an aura of mysticism. Says *Storia dell'arte italiana* (The History of Italian Art): "Mosaic art was in perfect harmony with the ideology of the time, which was greatly influenced by . . . Neoplatonism. In mosaic art there took place a process by means of which matter loses its dullness and is transformed into pure spirituality, pure light and pure space."^{*} What a radical departure from the simple form of worship taught by Christianity's founder—Jesus Christ!—John 4:21-24.

Byzantine churches contain some outstanding examples of mosaic work. In some houses of worship, tesserae cover almost every inch of the interior walls and vaults. What are described as "masterpieces of Christian mosaic" can be seen in Ravenna, Italy, where gold

* Among other things, the unscriptural Neoplatonic philosophies promoted belief in the immortality of the soul.

backgrounds dominate, portraying divine light and mystic inaccessibility.

Mosaic continued to be used prominently in Western European churches throughout the Middle Ages and was masterfully used in the Islamic world. In Renaissance Italy, workshops attached to great cathedrals, such as St. Mark's in Venice and St. Peter's in Rome, became production centers for mosaics. In about 1775, artisans in Rome learned how to cut molten glass threads of every shade imaginable into tiny tesserae, making it possible to execute miniature mosaic reproductions of paintings.

Modern Methods and Use

Modern mosaicists use the so-called indirect method. This consists of gluing tesserae facedown onto a full-size paper pattern in a workshop, leaving their reverse side exposed. The mosaic is carried section by section to the installation site, where the backs of the tesserae are pressed into the setting bed. When the mortar dries, the paper and glue are washed off, leaving the viewing side uppermost. This method reduces time and labor, but the flat finish lacks the sparkle of the Medieval productions.

Even so, countless 19th-century city halls, opera houses, churches, and the like were ornamented using this method. In addition, the method has been used extensively in museums, subway stations, shopping malls, and parks and playgrounds, from Mexico City to Moscow and from Israel to Japan. Smooth, yet faceted, mosaic surfaces have also been considered ideal for decorating the large unbroken facades of modern buildings.

Sixteenth-century Italian artist and art historian Giorgio Vasari wrote: "Mosaic is the most durable picture that exists. Other painting fades through time, but mosaic continually brightens with age." Yes, the workmanship that went into many mosaics captures our attention. Mosaics are indeed fascinating paintings in stone!



W I N D

R e m i n d e r s o f

LANDSCAPES painted and etched by Jacob van Ruisdael, Meindert Hobbe-ma, Rembrandt van Rijn, and other Dutch masters of the 17th century often feature windmills—and no wonder! Back then some 10,000 mills dotted the country's landscape. These picturesque structures, though, did more than just inspire artists. From the early 1400's to the late 1800's, they did what diesel and electric engines do today. They provided power needed to pump water, grind grain, saw timber, and perform numerous other industrial tasks. However, unlike today's engines, windmills generated power without producing pollution.

Setting the Sails

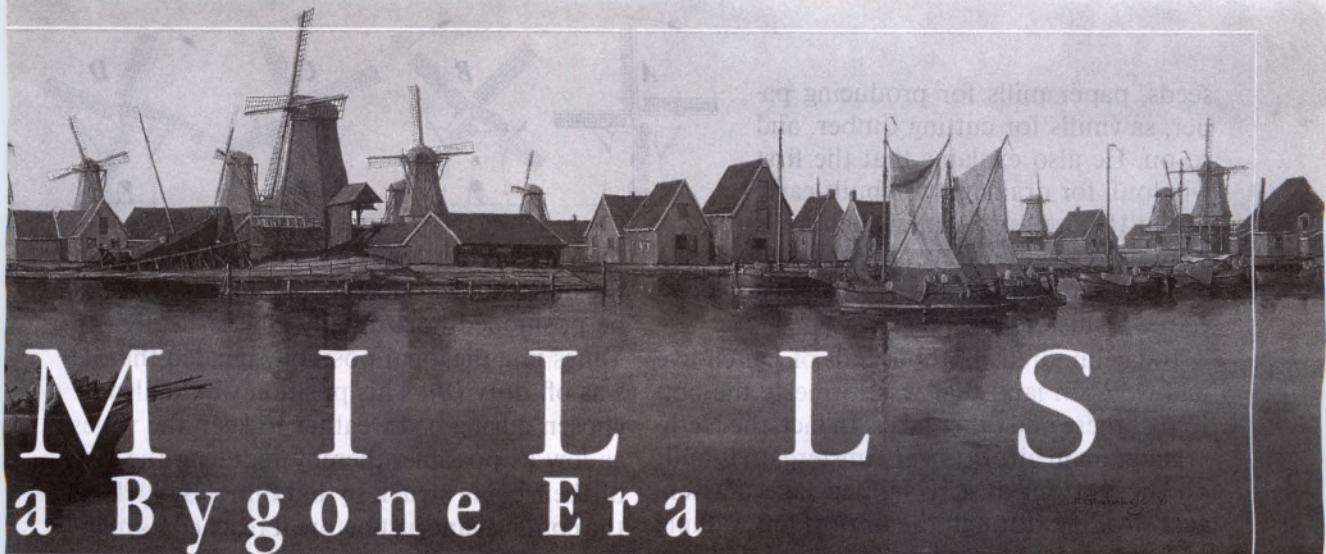
When you visit the Netherlands today, you can still admire those centuries-old structures, although their number has dwindled to about 1,000. Would you like to learn a bit more about them? Come with us as we visit a 350-year-old windmill standing along the scenic Vechte River in central Netherlands.

It is a beautiful spring morning. Jan van Bergeijk, a miller, welcomes us with a cup of steaming hot coffee and tells us that the weather is ideal for putting the mill to work. First, however, the roof of the mill needs to be turned to face the wind. Jan explains how

this is done as he steps on the spokes of a wooden wheel that is twice his size. This wheel is connected to the mill's cap, or roof. By turning the wheel, Jan rotates the cap until it has reached the position where each of the 43-foot-long vanes catches the most wind. Then the wheel is chained to the ground so that it will not shift. Next, Jan rolls out a piece of canvas sail and fastens it to the latticework of each vane. After installing a safety chain, Jan releases the brake, the sails catch the wind, and the four vanes slowly begin to turn. For a while we watch in awe as the vanes swoosh by. Then Jan invites us to see the mill's inner workings.

Taking a Close Look

We scale a steep stairway and arrive in the mill's cap, where we see a horizontal, or upper, wooden axis, which is attached to the vanes. With the help of wooden wheels with cogs and rods, this axis drives the vertical shaft called the vertical king pivot. We note a piece of white lard hanging nearby. Jan explains that it is used to grease the stone bearings in which the wooden axis is turning. But to grease the oak cogs, he uses beeswax. Here we also see how the speed of the rotating vanes can be slowed down. Around one of the wheels is a string of wooden blocks. When



MILLS

a Bygone Era

De Saen painting by Peter Sterkenburg, 1850;
Kooijman Souvenirs & Gifts (Zaanse Schans Holland)

tightened, the blocks act as brakes; when lifted, they recede and allow the vanes to turn.

As we gingerly descend the steep stairway, we get a close look at the main shaft, which runs right through the mill from top to bottom. We smell the scent of aged wood and hear the creak of moving gears. At the foot of the king pivot is another construction of wooden wheels with cogs and rods. This contraption drives a waterwheel. We stop by the turning wheel and listen to the sound of sloshing water and the swoosh of turning sails. It is as if we have traveled back in time. We are impressed and savor the moment.

Living in a Windmill

Some mills, such as gristmills, had no room for living quarters. The mill's mechanical parts took up all the space. The miller and his family usually lived next door. However, a mill like the one we are touring could double as a home.

Living in a mill may seem cozy today; in the past it was anything but comfortable. The ground floor served as living room and bedroom. It contained a box bed for two people, a kitchen alcove, and some storage space. Until the middle of the 20th century, a

mill would have a small outhouse above a ditch. Jan explains that millers with large families, some with more than ten children, had to create sleeping places everywhere. Sometimes, the youngest child would sleep underneath the parents' bed, while the other children slept either in the living room, on the second floor, or on the third floor—right under the clamoring cogwheels!

Some mills served as pumps for draining polders—tracts of lowland that may formerly have been the floor of a lake or of the sea. The mill had to pump day and night. Standing in open pasture, the mill would catch a great deal of wind—making the inside drafty and cold. Add to that the dangers of gales and electrical storms, and it is clear that windmill residents led a harsh existence. Currently, some 150 windmills in the Netherlands are still inhabited, often by qualified millers.

Multipurpose Windmills

While the windmill is scooping water, we go outside and sit on a bench. Jan tells us about the different purposes windmills have served—gristmills for grinding grain, polder mills for pumping water into a river or a reservoir, oil mills for extracting oil from

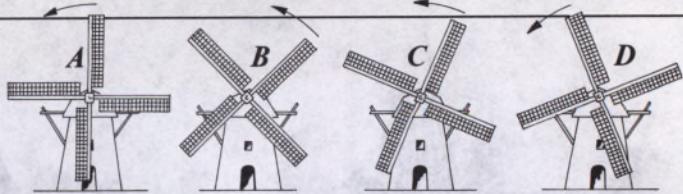


seeds, paper mills for producing paper, sawmills for cutting timber, and so on. He also explains that the first windmill for drainage was built early in the 15th century. Later, such mills were used to drain several lakes, such as the Schermer, Beemster, and Wormer lakes, located near Amsterdam.

Today hundreds of thousands of Dutch live and work on land that was formerly the bottom of these and other lakes. In fact, the Netherlands' main airport near Amsterdam is built on the bottom of a reclaimed lake. Passengers strolling through the airport are walking 13 feet below sea level! But you need not worry that your airplane trip will turn into a sea voyage. Pumping stations powered by diesel or electric engines (the successors of windmills) work around the clock to keep your feet dry.

Talking Windmills?

As the vanes are swooshing by us, Jan asks whether we have heard of talking mills. "Talking mills? No," we say. He explains that on the flat Dutch landscape, windmills could often be seen for miles, enabling the miller to send a message to far-off neighbors by positioning



the vanes in certain ways. For instance, when the miller took a short break, the vanes would be positioned horizontally and vertically (**A**). Vanes in a diagonal position signaled that he was off duty (**B**). This position would also be chosen during bad weather to keep the vanes as low as possible, thereby reducing the risk of their being struck by lightning. By locking the coming vane just before it reached its highest point, the miller expressed joy and expectation (**C**). Sorrow and mourning were expressed by locking the passing vane just after it had passed its highest point (**D**).

There were many local customs too. North of Amsterdam, mills were sometimes decorated for happy occasions, such as weddings. Then the vanes were positioned diagonally, off duty, with ornaments and trimmings strung between them. During World War II, when the country was occupied by the German army, local people used the vane positions to warn those in hiding that an army raid was imminent. Hearing all these and other fascinating facts about mills made our visit with miller Jan a memorable experience.

Some years ago windmill preservation efforts received a boost when a group of 19 mills in Kinderdijk, near the harbor city of Rotterdam, were placed on the World Heritage List by the United Nations Educational, Scientific, and Cultural Organization. As a result, what were at one time little more than ordinary factories have now become cultural monuments. Moreover, numerous dedicated volunteers maintain and protect the mills throughout the country. Through their efforts, today tourists from around the world can still enjoy some of the same windmills that inspired famous painters in the past.

Crossword Solutions

A	B	R	A	H	A	M	A	N	D	S	A	R	A	H
D	E	E	O	E	E	A	L	O	M	I	R	O	M	A
A	B	S	A	L	O	M	I	R	O	M	A	N		
M	H	H	I	I	U	T	E	A	D	O	R	A	M	
D	I	E	E	E	C	H	A	D	O	R	A	M		
O	P	H	O	T	N	R	E	A	G	H	E	D		
N		L				R								
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O	L	A	H	I	R	A	H							
M	A	L	C	H	A	M	M	G	A	R	M			
O	O	O	O	E	S	G	P	P						
S	O	W	E	R	S	E	L	I	P	H	A	L		
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Export Ban on Windmills

Some 300 years ago, windmill technology was in demand. Parts of mills were leaving the Netherlands by the boatload. On top of that, foreigners spied out the country in search of millwrights, luring them to jobs abroad. Before long, Dutch windmill technology was seen at work in the Baltics, England, France, Germany, Ireland, Portugal, and Spain. In fact, by the middle of the 18th century, the windmill technology drain had become so critical that the government of the Netherlands decided to step in. In February 1752 the authorities imposed a ban on the export of windmills. From then on, according to Dutch historian Karel Davids, no one was allowed to help a foreigner buy, construct, or transport "any part of a Dutch windmill" or "to export any tool that could be used to build them." Who said that trade barriers and industrial espionage are modern-day phenomena?

Below: Jan turns the cap of the mill to face the wind; wooden cogs and toothed wheels; the living room

All photos: Stichting De Utrechtse Molens



The Pitch Lake of Trinidad and Tobago

BY AWAKE! WRITER IN TRINIDAD

WHAT do Hong Kong's Cross Harbour Tunnel, Austria's Transalpine Highway, and England's Jubilee Way Viaduct have in common? They have all at some time been paved with a mixture containing a unique asphalt*—one that comes from the Pitch Lake of Trinidad and Tobago.

The great Pitch Lake is a natural surface deposit of asphalt. In 1814 one geographical dictionary described it as "a most wonderful phenomenon." See for yourself as we pay a visit to its location near the southwestern coast of Trinidad.

* The terms *bitumen*, *asphalt*, *tar*, and *pitch* are often used interchangeably. However, *bitumen* is a generic term for a class of dark, heavy hydrocarbon compounds found in tar, pitch, and petroleum. *Tar* is a dark sticky substance obtained as a condensate from the destructive distillation of materials such as wood, coal, and peat. Further evaporation of tar yields *pitch* as a semi-solid residue. Tar and pitch have a relatively low bitumen content.

Petroleum, or crude oil, when evaporated leaves a residue composed almost entirely of bitumen. Petroleum-derived bitumen is also called *asphalt*. However, in many places "asphalt" refers to bitumen mixed with mineral aggregates like sand or gravel, often used in the paving of roads. For the purpose of this article, "asphalt" refers to either the crude or the refined product from the Pitch Lake.

A Walk on the Lake

As we enter the village of La Brea (Spanish for "the pitch"), we notice that sidewalks appear to be sinking into the ground. Even some houses are strangely misaligned, as if they were buckling under their own weight. We have little time to wonder why this is the case, for stretching before us is something that looks like an immense abandoned parking lot. We have reached the Pitch Lake. Our guide informs us that the lake covers approximately 115 acres and is about 250 feet deep at the center. "Let's have a closer look," he suggests.

We gingerly take our first steps on the lake and find that its surface is unexpectedly solid, although uneven. In fact, the lake can easily support the weight of a truck and other heavy machinery! (These would, however, slowly sink if left for a long time in one spot.) We must watch our step, though! In the midst of this terra firma, there randomly occur small

The Pitch Lake is a natural surface deposit of asphalt

patches of sticky bitumen that can present the unsuspecting visitor with an unpleasant and gooey surprise.

Since our arrival, we have caught occasional whiffs of a pungent odor. "Hydrogen sulfide," we are told. Small amounts form in the lake, together with methane, ethane, and carbon dioxide. Our guide breaks open a lump of asphalt, and we see that it looks like Swiss cheese—full of holes formed by trapped bubbles of gas.

The Pitch Lake is also an important wildlife habitat. Some pools of water that collect on its surface and in the grassy fringes around it are home to the rare masked duck (*Oxyura dominica*). Likely, we will not see this small bird today, as it often remains motionless or silently submerges when approached. When we walk past some chest-high grasses, up flashes another bird, the wattled jacana (*Jacana jacana*). Its dark body is a contrast to the pale yellow beneath its wings. The purple gallinule (*Porphyrula martinica*) and other marsh-dwelling



An asphalt refinery

species are also found here. Small freshwater fish inhabit the aquatic areas, and caimans are occasionally seen.

Used for 400 Years

Pointing toward the coast, our guide relates that in 1595, British explorer Sir Walter Raleigh anchored in this area. At that time the lake, which now lies in a low depression, was a level plain with streams of asphalt reaching to the coast. Raleigh used the asphalt to caulk his leaking ships and declared it to be "most excellent good," noting that it "melteth not with the sunne as pitch of Norway, and therefore for shippes trading south portes very profitable."*

In 1846, Canadian Dr. Abraham Gesner, later dubbed the Father of the Oil Industry, distilled a new illuminating oil from Trinidad's asphalt. He called it kerosene. Unfortunately, the sulfur in this asphalt gave the oil a rather disagreeable odor. Gesner later found another source of asphalt that was essentially odorless.

Trinidad's lake asphalt really came into its own when its value for paving roads was discovered. In 1876, engineers suggested that it be used to pave Pennsylvania Avenue in Washington, D.C. Despite heavy traffic, the pavement reportedly remained in excellent condition for 11 years. This helped to establish the reputation of Trinidad's asphalt.

* The Bible also acknowledges the waterproofing property of asphalt or bitumen. Noah, on being instructed to build the ark, was told to "cover it inside and outside with tar." (Genesis 6:14) And according to Exodus 2:3, the papyrus ark in which Moses was concealed was coated with "bitumen and pitch."



In recent years oil companies have been able to produce cheaper bitumen as a by-product of petroleum refining. Yet, engineers have continued to use Trinidad's natural asphalt in building highways, bridges, airports, and seaports. Why?

A Unique Blend

When included in paving mixtures, this asphalt is known to impart strength, durability, stability, and nonskid properties to the paved surfaces—not to mention a mat-gray finish that enhances visibility for night driving. Lake asphalt has been successfully used for road surfaces where temperatures exceed 100 degrees Fahrenheit in summer and fall below minus 20 degrees Fahrenheit in winter. Airport runways built with this asphalt have performed well, in spite of the stresses placed on them by the constant takeoff and landing of heavy aircraft. These pavements are also resistant to degradation from deicing fluids as well

Mining asphalt from the lake



as fuel and oil leaks. Many of these paved surfaces have lasted more than 20 years with little or no maintenance.

The characteristics of Trinidad's lake asphalt have been attributed to its special composition. The bitumen in it is composed of 63 to 67 percent malthenes and 33 to 37 percent asphaltenes. Malthenes are a class of sticky petroleum chemicals that give bitumen its adhesive properties. Those present in this lake asphalt have been described as "extremely sticky and cementitious rather than oily, as in the case of certain [refinery-] derived bitumens." Asphaltenes are another group of hydrocarbons that help to make bitumen a thermoplastic material—one that softens and flows when heated and hardens as it cools. The character and relative proportions of all these components give the asphalt properties that are not easily duplicated by refineries.

Mining and Refining

The rumble of heavy machinery draws our attention, and we turn to see mining equipment driving onto the lake. This is basically a huge tractor fitted with strong metal tines, or prongs, that rip asphalt from the lake's surface. The fragmented asphalt is then loaded into cable-drawn railcars for transport to a nearby factory. Well over nine million tons of asphalt have been mined from this site since the late 1800's! At the current rate of consumption, the estimated ten million tons that remain are projected to last another 400 years.

After several tons of asphalt has been removed from the lake, the hole that was formed shrinks and disappears within a few weeks. This gives the impression that the lake replenishes itself. However, the "solid" asphalt is really a very viscous fluid and adjacent material simply flows into the depression. The entire lake is thus in a state of constant but imperceptible motion.

Do you remember those tilted houses that we saw earlier? Their displacement is partly due to subterranean veins of asphalt that ex-

tend outward from the lake. People who build in this area must choose their location carefully.

"Let's go up to the factory," our guide suggests. The refining process is really quite simple. The raw asphalt is dumped into large vats, each with a capacity of over 100 tons. Here the asphalt is melted by coils of pipe carrying steam that is heated to about 330 degrees Fahrenheit. This liberates trapped gases and drives off the excess water that constitutes about 30 percent of the raw asphalt's weight. Next, the asphalt is screened to remove bits of wood and other vegetable matter. Finally, the hot asphalt is drawn off into fiberboard drums lined with silicone paper. The drums are made right here at the factory, and each holds about 530 pounds. The entire refining process takes approximately 18 hours.

"The purified asphalt is called Epuré," says our guide. It blends readily with refinery bitumen and other materials to produce high-performance paving mixtures. In recent years it has also been used to make a variety of paints, as well as cementing, insulating, and waterproofing products. Thus, it has found its way into many homes and buildings around the globe.

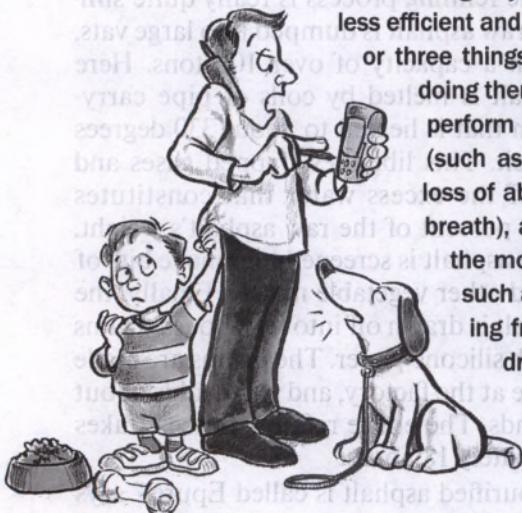
One author summed matters up well when he wrote: "There is something of a peculiar . . . interest which seems to hover over this wonderful work of God, filling the student of nature with awe and admiration." Yes, the Pitch Lake of Trinidad and Tobago is truly a fascinating place to visit!

In Our Next Issue

- Jehovah's Name in the Pacific
- My Foundation for a Purposeful Life
- How Can I Come Out From Under My Parents' Shadow?

Watching the World

Perils of Multitasking



Multitasking—trying to do more than one thing at a time—"can actually make you less efficient and, well, stupider," states *The Wall Street Journal*. "Trying to do two or three things at once or in quick succession can take longer overall than doing them one at a time, and may leave you with reduced brainpower to perform each task." Some warning signs are short-term memory loss (such as forgetting what you just did or said), gaps in attentiveness, loss of ability to concentrate, symptoms of stress (such as shortness of breath), and problems in communicating with others. Efficiency suffers the most when the tasks require use of the same parts of the brain, such as when both talking on the phone and listening to a child calling from the next room. Multitasking is especially dangerous while driving. Activities such as eating or drinking, reaching for an item, carrying on an intense conversation with a passenger or on the phone, applying makeup, or even just adjusting the radio or another control can momentarily distract you and result in an accident.

Not Interested in Religion

"It does not appear that [Japanese] people are turning to religion for answers as they struggle to cope with the current gloomy conditions," reports the *IHT Asahi Shimbun* newspaper. Responding to the question "Do you believe or have some interest in religion or some type of faith?" only 13 percent of both men and women answered yes. An additional 9 percent of men and 10 percent of women said that they were "somewhat" interested. "Particularly noteworthy is low interest among women in their 20s, who posted a mere 6 percent," the newspaper adds. The annual survey revealed that 77 percent of men in Japan and 76 percent of women say that they have no interest at all in religion or in any form of faith. Japanese interest in religion has dropped by almost half from a similar poll taken in 1978. Generally, it was the old-

er respondents who claimed to have some interest, particularly those over 60 years of age.

Depression Linked to Other Diseases

"The World Health Organization predicts that by 2020 depression will be second only to heart disease as the leading cause of disability worldwide," states *U.S. News & World Report*. Increasingly, this serious public-health problem is not considered to be "strictly psychological." According to Philip Gold, the chief of clinical neuroendocrinology at the National Institute of Mental Health, "depression is really the only systemic disease that affects—and complicates—almost all other diseases." Depression might even trigger such disorders as heart disease and diabetes. For example, research shows that people with depression "have more rigid hearts, less able to respond

to the changing demands of the body for blood and oxygen," the article points out. Also, "a depressed brain sends out signals that it needs more energy, which can trigger cortisol production, thereby raising blood sugar." Links are also seen between depression and osteoporosis and cancer. Studies are being carried out to see if treating depression can change the outcome of such medical disorders.

Marriage and the Heart

"Research has shown that the quality of a person's marriage can help predict their recovery from heart surgery," states *The Daily Telegraph* of London. According to Dr. James Coyne, of the University of Pennsylvania, U.S.A., a happy marriage can give a patient reason for fighting his way back to health, but "a bad marriage can be worse for a patient than no marriage at all." Dr. Coyne and

his team videotaped the arguments that couples had at home and found that heart patients who were negative with their mates were nearly twice as likely to die within four years as were those who interacted less negatively. Dr. Linda Waite, a University of Chicago sociology professor, concludes that a good marriage can be put "in exactly the same category as eating a good diet, getting exercise and not smoking."

"Violin Trees" Endangered

"For high-quality violin bows, a special kind of wood is needed—but this wood is becoming scarce," notes the German science magazine *natur & kosmos*. The tree producing this wood is the *Caesalpinia echinata*, also known as the Pernambuco or pau brasil. Its natural habitat is the coastal forest of Brazil. But this forest is shrinking fast as land is being cleared for agricultural purposes. The trees now cover only 4 percent of their original area and are on the list of endangered species. Moreover, only trees that are 20 years old or more develop the

yellow or red-brown heartwood that is suitable for bowmaking. The article states that according to master bowmaker Thomas Gerbeth, no comparable substitute exists, as "synthetic material has not yet reached this level of refined quality." Bowmakers and musicians alike are now promoting the conservation of their "violin tree."

An Old Curse That Has Not Disappeared

"More than 700,000 new cases of leprosy have been detected worldwide during 2002, according to the figures from the World Health Organization," reports the Spanish newspaper *El País*. Since Biblical times, leprosy has been a dreaded disease. Nowadays, the modern form of the illness can be cured. In fact, some 12 million people have recovered from leprosy over the last 20 years. However, "we cannot yet assume leprosy is a thing of the past," states researcher Jeanette Farrell. Health authorities have not succeeded in wiping out the disease, and a steady number of new cases continue to appear. Principal countries still

affected by leprosy are Brazil, India, Madagascar, Mozambique, Myanmar, and Nepal. With the recent deciphering of the human genome, scientists hope to find a suitable vaccine.

"Alarming Gender Imbalance" In China

"According to China's fifth national census, the [boy to girl] birthrate ratio now stands at 116.9:100 in favor of male infants, as compared with 113.8:100 in 1990," says the magazine *China Today*. "Both these figures are far in excess of the international norm of 105:100, and indicate a worsening of the already alarming gender imbalance in China." It is predicted that in the future some 50 million Chinese men will be unable to find mates when they reach a marriageable age. The article adds: "Zheng Zizhen, chief of the Sociology and Demography Institute of Guangdong Province, is quoted as saying that this sustained abnormality in the birth gender rate will have a negative affect on the structure of the Chinese population, society, and morals."

Never Shake a Baby!

Vigorously shaking a baby causes a sudden whiplash motion that "can cause bleeding inside the head and increased pressure on the brain, causing it to pull apart," says the *Toronto Star* newspaper. Since a baby's muscles are not fully developed and brain tissue is exceptionally fragile, "shaking a baby for only a few seconds can injure for life. Injuries can include brain swelling and damage, cerebral palsy, mental retardation, developmental delays, blindness, hearing loss, paralysis and death." Dr. James King, a pediatrician at the Children's Hospital of Eastern Ontario, has researched the effects of shaking babies. He says that the public needs to be educated, as in many cases the injuries are not readily apparent and the baby may be diagnosed as having a flu or a viral illness. "The message that you should never shake a baby has to go out and be loud and clear," says Dr. King. "New parents have to know this."



From Our Readers

Child Prostitution I am not able to put into words my thankfulness for the series "Child Prostitution—A Tragic Reality." (February 8, 2003) This series exposed the problem in all its ugliness. I feel it should be re-

printed in the secular press so that more people can know that this sort of slavery exists.

M. K., Czech Republic

Awake!



CHILD PROSTITUTION
A Tragic Reality

apostle Paul. Information like this helps us to broaden our knowledge and to understand what servants of God in the past had to face.

T. S., United States

Staying Fit I want to thank you for all the observations on exercise and weight loss that have come out in the feature "Watching the World." I particularly appreciated the item "Staying Fit." (February 8, 2003) It showed that even *some* exercise can help to improve your health. This was encouraging to me because a medication that I take causes me to tire easily and I have to keep my workouts brief. Thanks for this health-and-fitness tip.

G. P., United States

Crossword Puzzles Just a line to thank you very much for putting the crossword puzzles in your magazines. I am totally hooked on them! They are fun, educational, and a good way for me to unwind at the end of the day.

J. G., United States

I have always enjoyed doing crossword puzzles, and when you started featuring them in *Awake!* I started to look forward to them. At first, I had to look up most of the scriptures, but I can do many of the puzzles now without doing so! As a result, I have learned quite a few Bible verses and Bible characters.

E. G., United States

Smiling I used to be nicknamed Smile by my family and friends. I was even given a photo of myself with the caption: "If you ever see anyone without a smile, give him one of yours." However, some tragedies that recently befell my family left me quite depressed. The article "The Power of a Smile" (January 22, 2003) changed my outlook. Now I can once again make people happy by smiling. I thank Jehovah for using this article to help set me back on my feet.

O. F., Nigeria

Garbage In the series "Garbage—Will It Bury Us?" (August 22, 2002), you quote an Italian environmental association's estimate of decomposition times for various items in seawater. I believe their estimate of 500 years for metal cans is highly inaccurate. In the brackish water of Florida's Pelican Island National Wildlife Refuge, I have observed numerous aluminum and tin cans that disintegrate to powder when I tap them with my boot. These cans could not have been there for more than ten years—maybe even less. As anyone with an aluminum boat well knows, salt water corrodes aluminum.

S. S., United States

"Awake!" responds: It is true that other estimates are far more conservative. Still, "Elements of Marine Ecology," by R. V. Tait and F. A. Dipper, suggests that it may take as long as 80 to 100 years for aluminum cans and 50 to 100 years for tin cans to decompose. Metal cans that have been exposed to the air may decompose more rapidly than those exposed only to water.



“Women—Deserving of Respect”

A 17-year-old college student in India participated in a public-speaking competition organized by her school. She decided to use as her source material the cover series “Women—Deserving of Respect,” in the July 8, 1992, issue of *Awake!*

The theme of her speech was “Women—Are They Respected Today?” The result? “I won the first prize in the competition,” she reports. “I would like to express my deep appreciation for *Awake!*” she continues. “It is very helpful for youngsters like us because it keeps us well-informed and up-to-date. It also helps us to cope with the pressures of this world.”

Have you enjoyed reading this issue of *Awake!*? It is written for the enlightenment of the entire family, not just for the young ones. This magazine probes beneath the surface and points to the real meaning behind current events. It is published semi-monthly in English. Do not miss an issue!





Keys to a Successful Marriage



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"Cheating just enough: that is the key to a successful romantic relationship," states *La Presse*. The Canadian newspaper was reporting on a study that made a virtue of lying. The study was published in the *Journal of Social and Personal Relationships*. Professor Tim Cole, of De Paul University, Chicago, U.S.A., says: "By cheating [or lying] just enough, we can preserve the benefits of [a romantic] relationship without putting it in jeopardy."

However, is deception really a key to a successful marriage? The Bible exhorts Christians: "Now that you have put away

falsehood, speak truth each one of you with his neighbor." (Ephesians 4:25) Does this counsel work? When asked the question, What is the single biggest reason couples split up? a divorce attorney answered: "The inability to talk honestly with each other, bare their souls and treat each other as their best friend."

