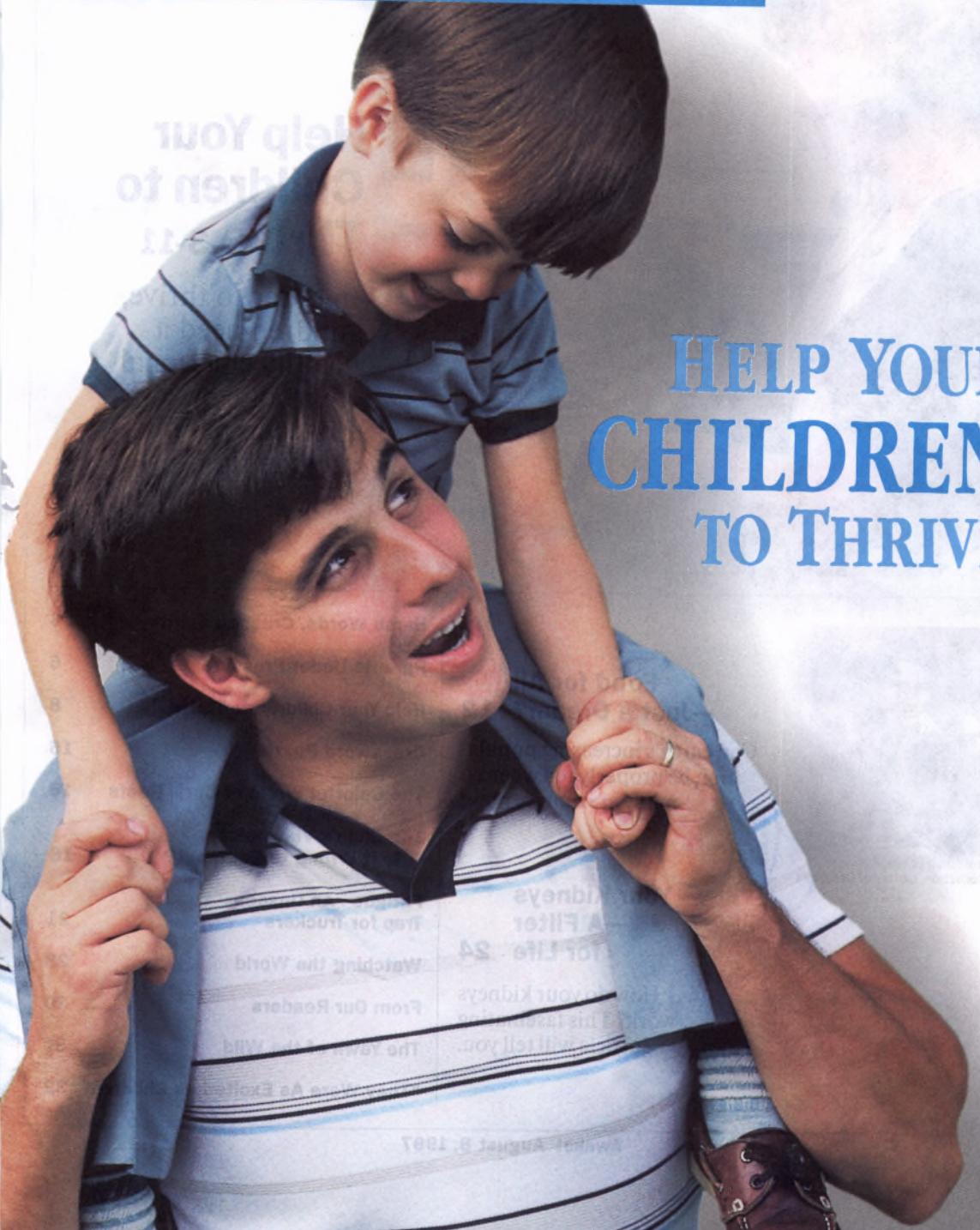


Awake!

August 8, 1997

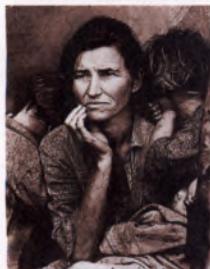
A color photograph of a man with dark hair and a slight smile, wearing a blue and white striped polo shirt. He is carrying a young boy of approximately 5 years old on his shoulders. The boy has short brown hair and is looking down at the man. They appear to be indoors, with a plain wall in the background.

HELP YOUR
CHILDREN
TO THRIVE



Help Your Children to Thrive 3-11

In order to thrive, children need a healthy emotional environment. How can parents provide this?



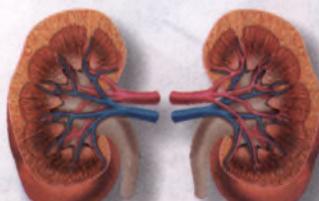
Dorothea Lange, FSA Collection, Library of Congress

Food for All —Just a Dream? 12

Can earth's increasing population be properly fed when so many are hungry now?

Your Kidneys —A Filter for Life 24

How do your kidneys work? This fascinating article will tell you.



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"You stupid slowpoke!"* A woman in Japan remembers those words all too well—they were flung at her frequently when she was a small child. By whom? Schoolchildren? Siblings? No. By her parents. She recalls: "I used to get depressed because the name-calling cut me deeply."

A man in the United States remembers that as a child, he felt fearful and anxious whenever his father came home. "To this day I can still hear the sound of the tires on the driveway," he recalls, "and it goes through me like a chill. My little sister would hide. My father was a perfectionist and constantly browbeat us for not doing a good enough job on all the chores we had to do."

This man's sister adds: "I don't remember either of my parents ever hugging us, kissing us, or saying anything like 'I love you' or 'I'm proud of you.' And to a child, never hearing 'I love you' feels the same as hearing 'I hate you'—every day of his life."

OME might say that the distress these people suffered as children was minor. Certainly it is not unusual for children to be on the receiving end of harsh, unkind words and mean treatment. This is not the stuff of lurid newspaper headlines and sensational tabloid TV shows. The damage is not visible. But if parents

HARSH WORDS, CRUSHED SPIRITS

* In Japanese, *noroma baka!*

mistreat their children in such ways day after day, the effects may be devastating nonetheless—and last for a lifetime.

Consider the 1990 follow-up to a 1951 study that examined the parenting practices used on a group of five-year-old children. Researchers managed to track down many of these children, now in mid-life, to gain insight into the long-term effects of their upbringing. The new study concluded that the children who ended up having the hardest time in life, who lacked emotional well-being, and who had a hard time in marriage, friendships, and even at work, were not necessarily the children of poor parents nor of rich parents nor even of obviously troubled parents. They were children whose parents were distant and cold and showed little or no affection.

This finding is only a pale reflection of a truth that was written down nearly 2,000 years ago: "You fathers, do not be exasperating your children, so that they do not become downhearted." (Colossians 3:21) Verbal and emotional abuse from parents certainly does exasperate children and can indeed cause them to become downhearted as a result.

According to the book *Growing Up Sad*, it was not long ago that doctors thought there was no such thing as childhood depression. But time and experience have proved otherwise. Today, the authors assert, childhood depression is recognized and not at all un-

common. Among its causes are rejection and mistreatment by parents. The authors explain: "In some cases the parent has subjected the child to a constant barrage of criticism and humiliation. In other cases there is simply a void in the parent-child relationship: the parent's love for the child is never expressed. . . . The result is particularly tragic for the children of such parents because to a child—or to a grown-up, for that matter—love is like sunshine and water to a plant."

Through parental love, if expressed clearly and openly, children learn an important truth: They are lovable; they have worth. Many mistake this concept for a form of arrogance, a love of self over others. But in this context, that is not what is meant. One author says in her book on the subject: "Your child's judgment of himself influences the kinds of friends he chooses, how he gets along with others, the kind of person he marries, and how productive he will be." The Bible acknowledges how important it is to have a balanced, unegotistical view of self when it lists as the second greatest of the commandments: "You must love your neighbor *as yourself*."—Matthew 22:38, 39.

It is hard to imagine any normal parent wanting to shatter something as important and fragile as a child's self-worth. Why, then, does it happen so often? And how can it be prevented?

Awake!

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

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

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PARENTS UNDER PRESSURE

NEW parents often seem almost beside themselves with excitement. Nearly everything about their baby seems to thrill them. Baby's first smile, first words, and first steps are momentous occasions. They regale friends and relatives with stories and photographs. No question, they love their child.

In some families, though, a tragedy unfolds as the years pass. The parents' playful cooing gives way to harsh and mean words; affectionate hugs give way to angry blows or an absence of touch altogether; parental pride gives way to bitterness. "I never should have had children," many say. In other families the problem is still worse—the parents failed to show love even when the child was a baby! In either case, what happened? Where is the love?

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Children, of course, are not very good at figuring out the answers to such questions. But that will not stop them from reaching their own conclusions. Deep in the heart, a child may well conclude, 'If Mommy or Daddy doesn't love me, it's because there's something wrong with me. I must be very bad.' This may become a deeply held belief—one that can cause all manner of damage throughout life.

The truth, though, is that parents may fail to show children the love they need for a wide variety of reasons. It must be admitted that parents today face tremendous pressures, some of them on an unprecedented scale. For parents who are not prepared to deal with them appropriately, these pressures can take a real toll on the job they do as parents. One ancient wise saying declares: "Mere oppression may make a wise one act crazy."—Ecclesiastes 7:7.

"Critical Times Hard to Deal With"

A Utopian age. That is what many people have expected to see develop in this century. Imagine—no more economic pressures, famines, droughts, wars! But such hopes have gone unfulfilled. Rather, today's world has turned out the way a Bible writer prophesied back in the first century C.E. He wrote that in our days we would face "critical times hard to deal with." (2 Timothy 3:1-5) Most parents would be the first to agree with those words.

Many new parents find themselves flabbergasted at the sheer cost of raising children in

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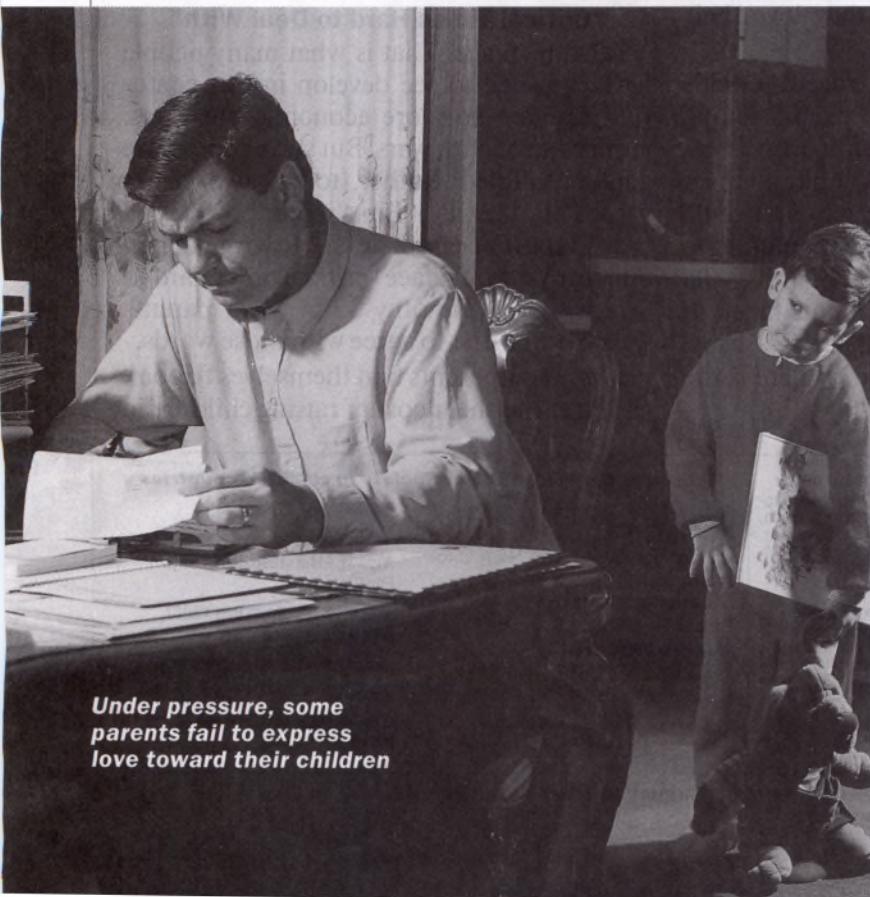
today's world. Often, both parents must work outside the home just to make ends meet. Medical expenses, clothing, schooling, day-care, and even food and shelter all may contribute to a monthly wave of bills that leaves many parents feeling as if they were about to drown. The economic situation reminds Bible students of the prophecy in Revelation foretelling a time when people would spend a whole day's wage just to buy the necessities to last them one day!—Revelation 6:6.

Children cannot be expected to understand all these pressures facing their parents. No, by their very nature, children are needy, hungry for love and attention. And the pressure they absorb from the media and from schoolmates to own the latest in toys, clothes, and electronics often translates into pressure put onto parents to supply an ever-growing list of wants.

Another pressure upon parents, which seems to be growing worse these days, is rebelliousness. Interestingly, the Bible prophesied widespread disobedience of children to parents as another indication of our troubled times. (2 Timothy 3:2) True, discipline problems with children are nothing new. And no parent can rightly blame abusive treatment of a child on the child's misbehavior. But would you not agree that parents today must contend with raising children in an entire *culture* of rebelliousness? Popular music that promotes rage, revolt, and despair; TV programs that paint parents as bumbling fools and children as their smart-alecky superiors; movies that glorify acting on violent impulses—children today are bombarded by such influences. Children who absorb and imitate this culture of rebellion can put terrific strains on their parents.

"Having No Natural Affection"

There is another aspect to this same ancient prophecy, though, that bodes even more trouble for today's family. It indicates that a great many people would have "no natural affection." (2 Timothy 3:3) Natural affection is what holds the family together. And even those most skeptical about Bible prophecy would have to concede that our times have seen a shocking breakdown in family life. All over the world, divorce rates have soared. In many communities, single-parent families and stepfamilies are



Under pressure, some parents fail to express love toward their children

more common than traditional families. Single parents and stepparents sometimes face special challenges and pressures that can make it hard for them to show children the love they need.

There is a deeper impact, though. Many of today's parents have themselves grown up in homes where there was little or no "natural affection"—homes sundered by adultery and divorce; homes blighted by coldness and hatred; perhaps even homes where verbal, emotional, physical, or sexual abuse was commonplace. Growing up in such homes not only damages children but can damage the adults they become. Statistics paint a grim picture—parents who were abused as children are more likely to abuse their own children. In Bible times the Jews had a saying: "Fathers are the ones that eat unripe grapes, but it is the teeth of the sons that get set on edge."—Ezekiel 18:2.

However, God told his people that things did not have to be that way. (Ezekiel 18:3) An important point must be made here. Do all these pressures upon parents mean that they simply cannot help but mistreat their own children? Far from it! If you are a parent and find yourself struggling with some of the aforementioned pressures and you worry as to whether you can ever be a good parent, take heart! You are not a statistic. Your past does not automatically write your future.

In line with the Scriptural assurance that improvement is possible, the book *Healthy Parenting* makes this comment: "Without [your] taking deliberate steps to behave differently than your own parents, the patterns of your childhood will repeat themselves regardless of whether or not you want them to. To break this cycle, you need to be-

come aware of the unhealthy patterns you are perpetuating and learn how to change them."

Yes, if necessary, you can break the cycle of abusive parenting! And you can deal with the pressures that make parenting so difficult today. But how? Where can you learn the best, the most reliable, standards of healthy parenting? Our next article will consider this matter.

Parents should express the love their children need



HELP YOUR CHILDREN TO THRIVE

WHEN it comes to child rearing, many parents search high and low for answers that are, in fact, readily available to them in their own home. Countless families have a Bible, but it gathers dust on a bookshelf instead of being put to use in child rearing.

True, many today are skeptical about using the Bible as a guide in family life. They dismiss it as out-of-date, old-fashioned, or overly harsh. But an honest examination will reveal that the Bible is a practical book for families. Let us see how.

The Right Environment

The Bible tells the father to view his children as "slips of olive trees all around [his] table." (Psalm 128:3, 4) Tender saplings would not grow up into fruit-bearing trees without careful cultivation, without being given the right nourishment, soil, and moisture. Likewise, successful child rearing requires work and care. Children need a healthy environment to grow to maturity.

The first ingredient for such an environment is love—between marriage mates and between parents and children. (Ephesians 5:33; Titus 2:4) Many family members love one another but see no need to express such love. Consider, though: Could you rightly

speak of having communicated with a friend if you wrote him letters that you never even addressed, stamped, or sent? Similarly, the Bible shows that real love is far more than a feeling that warms the heart; it expresses itself through words and actions. (Compare John 14:15 and 1 John 5:3.) God set the example, putting his love for his Son into words: "This is my Son, the beloved, whom I have approved."—Matthew 3:17.

Commendation

How can parents show such love to their children? As a start, *look for the good*. It is easy to find fault with children. Their immaturity, inexperience, and selfishness will show up in countless ways, day in and day out. (Proverbs 22:15) But they will do many good things each day. Which will you focus on? God does not dwell on our faults but remembers the good that we do. (Psalm 130:3; Hebrews 6:10) We should deal with our children in the same way.

One young man remarks: "In all my life at home, I can never recall any form of commendation—whether for accomplishments at home or in school." Parents, do not ignore this vital need in your children! All children should be commended regularly for the good things they do. That will reduce the risk of their growing up "downhearted," convinced that nothing they do will ever be good enough.—Colossians 3:21.

Communication

Another good way to express love to your children is to follow the counsel of James 1:19: "Be swift about hearing, slow about speaking, slow about wrath." Do you draw your children out and *really listen* to what they have to say? If your children know that you will lecture them before they are even finished talking or will get angry when you learn how they really feel, then they may keep their feelings to themselves. But if they

know that you will really listen, they will be far more likely to open up to you.—Compare Proverbs 20:5.

What, though, if they reveal feelings that you know to be wrong? Is it time for an angry response, a lecture, or some discipline? Granted, some childish outbursts can make it hard to be “slow about speaking, slow about wrath.” But consider again God’s example with his children. Does he create an atmosphere of morbid fear, so that his children are afraid to tell him how they really

How to Help Children Thrive

- Provide a secure environment in which they feel loved and wanted
- Commend them regularly. Be specific
- Be a good listener
- Take a break when anger flares
- Set clear, consistent boundaries and limits
- Adapt discipline to the needs of each child
- Do not expect more from your child than is reasonable
- Care for spiritual needs through regular study of God’s Word

feel? No! Psalm 62:8 says: “Trust in [God] at all times, O people. Before him pour out your heart. God is a refuge for us.”

So when Abraham was worried about God’s decision to destroy the cities of Sodom and Gomorrah, he did not hesitate to say to his heavenly Father: “It is unthinkable of you that you are acting in this manner . . . Is the Judge of all the earth not going to do what is right?” Jehovah did not rebuke Abraham; He listened to him and soothed his fears. (Genesis 18:20-33) God is remarkably patient and gentle, even when his children pour out feelings that are entirely unjustified and unreasonable.—Jonah 3:10-4:11.

Parents likewise need to create an environ-



ment in which children feel safe to reveal their innermost feelings, no matter how disturbing these may be. So if your child makes an impassioned outburst, listen. Instead of scolding, acknowledge the child’s feelings and draw out the reasons. For example, you might say: ‘You sound angry at so-and-so. Do you want to tell me what happened?’

Managing Anger

Of course, no parent is as patient as Jehovah is. And children can certainly try their parents’ patience to the limit. If you feel angry at your children from time to time, do not worry that this makes you a bad parent. At times, you will be quite right in feeling angry. God himself rightly gets angry with his children, even some who are very dear to him. (Exodus 4:14; Deuteronomy 34:10) His Word, though, teaches us to control our anger.—Ephesians 4:26.

How? Sometimes it helps to take a break for a few moments so that your anger has a

chance to cool down. (Proverbs 17:14) And remember, *This is a child!* Do not expect adult behavior or mature thinking. (1 Corinthians 13:11) Understanding why your child acts a certain way may soften your anger. (Proverbs 19:11) Never forget the vast difference between doing something bad and being bad. Yelling at a child for being bad may cause the child to wonder, ‘Why even try to be good?’ But lovingly correcting a child will help the child to do better next time.

Maintaining Order and Respect

Teaching children a sense of order and respect is one of the great challenges that parents face. In today’s permissive world, many wonder if it is even right to restrict their children at all. The Bible answers: “The rod and reproof are what give wisdom; but a boy let on the loose will be causing his moth-

er shame.” (Proverbs 29:15) Some shy away from the word “rod,” thinking that it implies some kind of child abuse. But it does not. The Hebrew word for “rod” referred to a staff, such as the one a shepherd used to guide—not assault—his sheep.* So the rod stands for discipline.

In the Bible, to discipline primarily means to teach. That is why the book of Proverbs says some four times, ‘listen to discipline.’ (Proverbs 1:8; 4:1; 8:33; 19:27) Children need to learn that doing what is right brings a reward and that doing what is wrong brings bad consequences. Punishment may help to impress negative lessons, just as rewards—such as commendation—may reinforce positive ones. (Compare Deuteronomy 11:26-28.) Parents do well to imitate

* See *Awake!*, September 8, 1992, pages 26-7.

Ahead of Its Time

BIBLE precepts helped the people of ancient Israel to enjoy a standard of family life that was far superior to that of the surrounding nations. Historian Alfred Edersheim comments: “Beyond the boundaries of Israel, it would be scarcely possible to speak with any propriety of family life, or even of the family, as we understand these terms.” For example, among ancient Romans the law gave the father absolute power in the family. He could sell his children into slavery, make them work as laborers, or even execute them—with impunity.

Some Romans thought that the Jews were strange for treating their children gently. In fact, the first-century Roman historian Tacitus wrote a hateful passage against the Jews, saying that their customs were “at once perverse and disgusting.” However, he did acknowledge: “It is a crime among them to kill any newly-born infant.”

The Bible provided a lofty standard. It taught the Jews that children were precious—actually to be viewed as an inheritance from God himself—and were to be treated accordingly. (Psalm 127:3) Evidently many lived by such counsel. Even their language was revealing in this connection. Edersheim notes that besides the words for son and daughter, ancient Hebrew had nine words for children, each applying to a different stage of life. For example, there was a word for a child who was still breast-feeding and another for one who had been weaned. For slightly older children, there was a word implying that these were becoming firm and strong. And for older youths, there was a word that literally meant ‘to shake oneself free.’ Edersheim comments: “Assuredly, those who so keenly watched child-life as to give a pictorial designation to each advancing stage of its existence, must have been fondly attached to their children.”

God's example when it comes to punishment, for he told his people that he would chastise them "to the *proper degree*." (Jeremiah 46:28) Some children need little more than a few stern words to bring them into line. Others need firmer measures. But chastisement "to the proper degree" would never include anything that might do a child real harm emotionally or physically.

Balanced discipline should include teaching children about boundaries and limits. Many of these are clearly defined in God's Word. The Bible teaches respect for the boundaries around personal property. (Deuteronomy 19:14) It sets up physical boundaries, making it wrong to love violence or deliberately harm another. (Psalm 11:5; Matthew 7:12) It establishes sexual boundaries, condemning incest. (Leviticus 18:6-18) It even acknowledges personal and emotional boundaries, forbidding us to call someone vile names or use other forms of verbal abuse. (Matthew 5:22) Teaching children about these limits and boundaries—both by word and by example—is essential to creating a healthy family environment.

Another key to maintaining order and respect in the family lies in understanding family roles. In many families today, such roles are blurred or confused. In some, a parent will confide burdensome problems to a child, problems the child is not equipped to handle. In others, children are allowed to be little dictators, making decisions for the entire family. Such is wrong and harmful. Parents are obliged to provide for the needs of their young children—whether physical, emotional, or spiritual—not vice versa. (2 Corinthians 12:14; 1 Timothy 5:8) Consider the example of Jacob, who adjusted the pace of his whole family and entourage so as not to be too hard on the little ones. He understood their limitations and acted accordingly.—Genesis 33:13, 14.

Look for some way to give your child specific commendation regularly

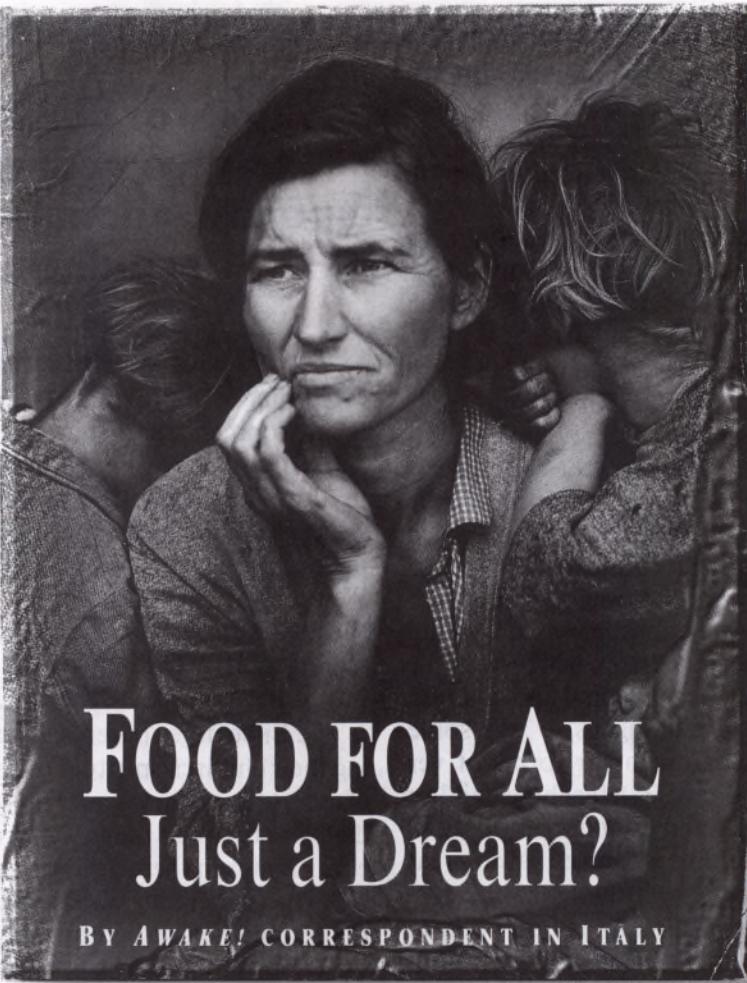
Tending to Spiritual Needs

Nothing is more vital to a healthy family environment than spirituality. (Matthew 5:3) Children have a great capacity for spirituality. They are full of questions: Why do we exist? Who made the earth and its animals, trees, oceans? Why do people die? What happens afterward? Why do bad things happen to good people? The list seems endless. Often, it is the parents who prefer not to think of such things.*

The Bible urges parents to spend time giving their children spiritual training. It speaks of such training in warm terms as an ongoing dialogue between parents and children. Parents may teach their children about God and his Word when they walk together, sit in the house together, at bedtime—whenever possible.—Deuteronomy 6:6, 7; Ephesians 6:4.

The Bible does more than recommend such a spiritual program. It also provides the materials you will need. After all, how would you answer the children's questions mentioned above? The Bible contains the answers. They are clear, they are fascinating, and they give a great deal of hope in this hopeless world. Better yet, a grasp of the Bible's wisdom can give your children the sturdiest anchor, the surest guidance in today's confusing times. Give them that, and they really will thrive—now and into the future.

* The book *The Secret of Family Happiness* is designed for family study and contains much practical guidance from the Bible on marriage and child rearing. It is published by the Watchtower Bible and Tract Society of New York, Inc.



FOOD FOR ALL Just a Dream?

BY AWAKE! CORRESPONDENT IN ITALY

EVERY man, woman and child has the right to be free from hunger and malnutrition" proclaimed the World Food Conference sponsored by the Food and Agriculture Organization of the United Nations (FAO) back in 1974. A call was then made to eradicate hunger from the world "within a decade."

However, when representatives of 173 nations met at FAO headquarters in Rome late last year for a five-day World Food Summit, their purpose was to ask: "What went wrong?" Not only has there been a failure to

provide food for all but now, more than two decades later, the situation is worse.

The major issues of food, population, and poverty are urgent. As recognized by a document released at that summit, unless these problems are resolved, "social stability of many countries and regions may well be seriously affected, perhaps even compromising world peace." One observer was more explicit: "We will see the destruction of civilization and national cultures."

According to FAO Director-General Jacques Diouf, "more than 800 million peo-

Dorothea Lange, FSA Collection, Library of Congress

ple today do not have adequate access to food; among them are 200 million children." It is estimated that by the year 2025, today's world population of 5.8 billion will have risen to 8.3 billion, with most of the increase coming in developing countries. Diouf laments: "The sheer number of men, women and children deprived of their inalienable right to life and dignity is unacceptably high. The cries of the hungry are matched by the silent anguish of degraded soil, denuded forests and increasingly depleted fishing grounds."

What remedy is proposed? Diouf says that the solution lies in "courageous action," providing "food security" for food-deficit countries as well as the skills, investment, and technology that will enable them to feed themselves.

"Food Security"—Why So Elusive?

According to a document issued by the summit, "food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."

How food security can be jeopardized was illustrated by the Zaire refugee crisis. While a million Rwandan refugees were starving, UN agencies had stocks of food available to feed them. But the transportation and distribution arrangements required political clearances and the cooperation of local authorities—or local warlords if they controlled the refugee camps. The emergency in Zaire shows once again how difficult it is for the international community to feed the hungry, even when food is available. One observer noted: "A host of organizations and entities have to be consulted and wooed before anything can happen."

As pointed out by a U.S. Department of Agriculture document, food security may

be seriously undermined by any number of root causes. Apart from natural disasters, these include war and civil strife, inappropriate national policies, inadequate research and technology, environmental degradation, poverty, population growth, gender inequality, and poor health.

There have been some accomplishments. Since the 1970's, the average dietary energy supply, an indicator of food consumption, has risen from 2,140 to 2,520 calories per person per day in developing nations. But according to FAO, in view of a population growth of several billion by the year 2030, "simply to maintain present levels of food availability will require rapid and sustainable production gains to increase supplies by more than 75 percent without destroying the natural resources on which we all depend." The task of providing food for starving populations is thus a grim one.

'We Need Action, Not More Summits'

Numerous criticisms were leveled at the proceedings of the World Food Summit and the commitments it made. One Latin-American representative condemned the "modesty" of a pledge to reduce the number of undernourished people to only half the present level as "shameful." Fifteen nations expressed differences in interpretation of proposals approved by the summit. Even to arrive at the drafting of a modest declaration and plan of action, said the Italian newspaper *La Repubblica*, "two years of confrontations and negotiations were necessary. Every word, every comma was weighed so as not to make the opened wounds . . . begin bleeding again."

Many who helped prepare the summit documents were unhappy with the results. "We are extremely skeptical as to whether the fine proposals announced will be realized," said one. A bone of contention was

whether access to food ought to be defined as an "internationally recognized right," since a "right" can be defended in courts of law. A Canadian explained: "The rich States feared that they would be forced into giving aid. This is why they insisted that the text of the declaration be watered down."

Because of the interminable talking at UN-sponsored summits, one European government minister said: "Having resolved so much at the Cairo conference [on population and development, held in 1994], we have found ourselves at each succeeding conference going back over the same ground." She recommended: "Implementing action plans for the benefit of our fellow human beings must be at the top of all our agendas, not more Summits."

Observers also pointed out that even attendance at the summit represented a heavy expenditure for some nations that can ill-afford it. One small African nation sent 14 delegates plus 2 ministers, all of whom stayed in Rome for more than two weeks. The Italian newspaper *Corriere della Sera* reported that the wife of one African president, in whose country the average annual income does not exceed \$3,300 per person, had been on a \$23,000 spending spree in Rome's most fashionable downtown shopping district.

Is there reason to believe that the Plan of Action adopted at the summit will succeed? A journalist answers: "All we can hope for now is that governments will take it seriously and take steps to see that its recommendations will be carried out. Will they? . . . History offers little reason for optimism." The same commentator pointed out the disappointing fact that despite agreeing at the 1992 Rio de Janeiro Earth Summit to raise contributions for development assistance to 0.7 percent of gross domestic product,

"only a handful of countries have met that nonbinding target."

Who Will Feed the Hungry?

History has amply demonstrated that despite all mankind's good intentions, "to earthling man his way does not belong. It does not belong to man who is walking even to direct his step." (Jeremiah 10:23) So it is unlikely that on their own humans will ever provide food for all. Greed, mismanagement, and egotism have led mankind to the precipice. FAO Director-General Diouf commented: "What is required in the final analysis is the transformation of hearts, minds and wills."

That is something only God's Kingdom can do. Centuries ago, in fact, Jehovah prophesied with regard to his people: "I will put my law within them, and in their heart I shall write it. And I will become their God, and they themselves will become my people."—Jeremiah 31:33.

When Jehovah God prepared mankind's original garden home, he provided man with "all vegetation bearing seed which is on the surface of the whole earth and every tree on which there is the fruit of a tree bearing seed" as food. (Genesis 1:29) That provision was abundant, nutritious, and accessible. It was what all mankind needed to satisfy their food needs.

God's purpose has not changed. (Isaiah 55:10, 11) Long ago he gave assurance that he alone will satisfy mankind's every need through his Kingdom by Christ, providing food for all, eradicating poverty, controlling natural disasters, and eliminating conflicts. (Psalm 46:8, 9; Isaiah 11:9; compare Mark 4:37-41; 6:37-44.) At that time "the earth itself will certainly give its produce; God, our God, will bless us." "There will come to be plenty of grain on the earth; on the top of the mountains there will be an overflow."—Psalm 67:6; 72:16.

CROSSWORD PUZZLE

Clues Across

2. Though Jehovah allowed them to defeat his unfaithful people, he later took vengeance against these (Nahum 1:2)
8. The name Rachel gave her second son as she lay dying (Genesis 35:18)
9. When comparing a Christian's spiritual weapons to those of fleshly warfare, Paul likened faith to this (Ephesians 6:16)
10. The father of King Achish of Gath, with whom David found refuge from Saul (1 Samuel 27:2)
11. The fluid part of a plant (Job 8:16)
13. One of the cities assigned to the tribe of Benjamin (Joshua 18:24)
14. For one — of worship, the Devil promised Jesus all earth's kingdoms (Luke 4:5-7)
16. The 23rd letter of the Greek alphabet
17. The ones being addressed (Isaiah 43:12)
19. Phinehas' quick action with this brought an end to the scourge that killed 24,000 Israelites (Numbers 25:7-9)
21. By saying that he escaped death with "the skin" of these, Job indicated that he had escaped with next to nothing (Job 19:20)
22. Dark wood used with ivory in inlay (Ezekiel 27:15)
25. Acting on a bribe from King Ahaz, As-syrian King Tiglath-pileser captured Damascus and took the exiles to this place (2 Kings 16:7-9)
28. When David began to do this after hearing that his first son by Bathsheba had died, it astounded his servants (2 Samuel 12:21)
29. Jesus spoke of it as "the lamp of the body" (Matthew 6:22)
30. The means by which Jehovah said he would lead Gog to his final attack upon God's people (Ezekiel 38:4)
32. A hard-shell fruit (Song of Solomon 6:11)
33. Michael the archangel had a dispute with the Devil over his body (Jude 9)
35. One of Haman's ten sons (Esther 9:9)
36. His son Pagiel became chieftain of the tribe of Asher after the Exodus from Egypt (Numbers 7:72)
37. God provided this plant to shade the prophet Jonah (Jonah 4:6)

Clues Down

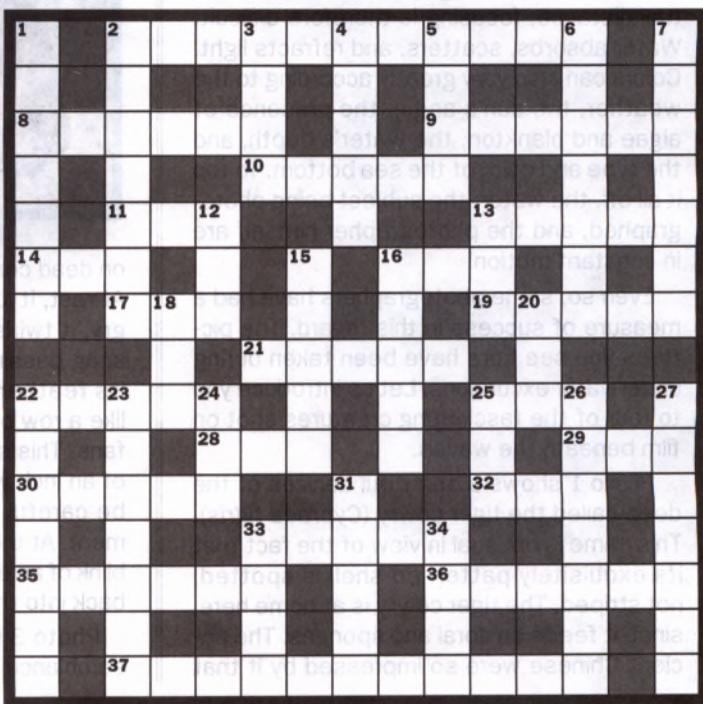
1. A city in the Judean wilderness (Joshua 15:62)

2. Ahasuerus was so pleased when Esther became his queen that he granted this to his jurisdictional districts (Esther 2:18)
3. A people noted for their giantlike stature (Deuteronomy 2:10)
4. He was pressed into service to help carry Jesus' torture stake (Luke 23:26)
5. A son of Benjamin listed as being in Egypt with Jacob's household (Genesis 46:21)
6. Having no sons, he gave his daughter in marriage to his Egyptian servant in order to continue his line of descent (1 Chronicles 2:34, 35)
7. Before Rachel died in childbirth, she was assured by this one that her son would be born alive (Genesis 35:17)
12. The city where Edomite King Hadar resided (Genesis 36:39)
13. The substance used in the beauty treatments given Esther and the women with her (Esther 2:12)
15. What Jesus cautions us to be so that

our "light" does not prove to be "darkness" (Luke 11:35)

16. He brought up the matter of a replacement for unfaithful Judas (Acts 1:15-22)
18. "Mind your — business" (1 Thessalonians 4:11)
20. Abbreviation of King Hezekiah's mother's name (2 Kings 18:2)
22. Jezebel's father, the king of the Sidonians (1 Kings 16:31)
23. The chief assistant of Bezalel in constructing the tabernacle (Exodus 31:6)
24. Jesus said that when you say this word, you should mean it (Matthew 5:37)
25. One's relatives (See Ruth 2:1)
26. Withdrew (Luke 4:13)
27. A place near Shiloh (Judges 21:19)
31. Emerge (Mark 7:15)
33. In the Bible, only Jesus makes mention of this strongly scented herb (Matthew 23:23)
34. A Judean city captured by the Philistines during the rule of King Ahaz (2 Chronicles 28:18)

Crossword Solutions Page 26



The COLORFUL WORLD of Coral Reefs

CORAL reefs line virtually the entire coast of Papua New Guinea. In bygone days sailors viewed them as little more than a hazard. But to those who have explored the waters surrounding them, coral reefs are the gateway to a world of great beauty, color, and tranquillity—an underwater kaleidoscope!

Attempting to capture this underwater world on film is a real challenge. For one thing, objects under water appear to be located at about three quarters of their actual distance; focusing is therefore difficult. Water absorbs, scatters, and refracts light. Colors can also vary greatly according to the weather, the sun's angle, the presence of algae and plankton, the water's depth, and the type and color of the sea bottom. To top it all off, the water, the subject being photographed, and the photographer himself are in constant motion!

Even so, some photographers have had a measure of success in this regard. The pictures you see here have been taken during underwater excursions. Let us introduce you to four of the fascinating creatures shot on film beneath the waves.

Photo 1 shows a beautiful denizen of the deep called the tiger cowry (*Cypraea tigris*). This name is unusual in view of the fact that its exquisitely patterned shell is spotted, not striped. The tiger cowry is at home here, since it feeds on coral and sponges. The ancient Chinese were so impressed by it that

they used its shell as a form of currency. Here in Papua New Guinea, cowry shells are still used as small change in some native markets. For the most part, though, local residents collect them simply for their polished beauty.

Photo 2 is the beautifully colored tube worm (*Spirobranchus giganteus*). It may live



on dead coral or may burrow into living coral. At rest, it looks like a flower. But when hungry, it twirls its tentacles to form a "net" to snag passing morsels of food quickly. With its feathery tentacles in motion, it looks like a row of miniature dancers waving their fans. This specimen was only three eighths of an inch wide. But the photographer must be careful not to make any sudden movement. At the first indication of danger, in the blink of an eye, these dainty miniatures snap back into their skeleton home.

Photo 3 is the sponge. It bears little resemblance to the synthetic type that floats

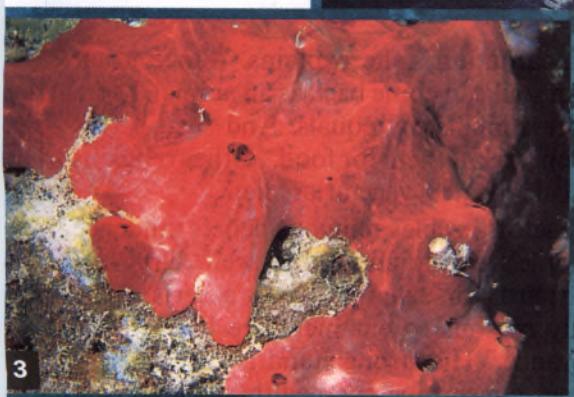
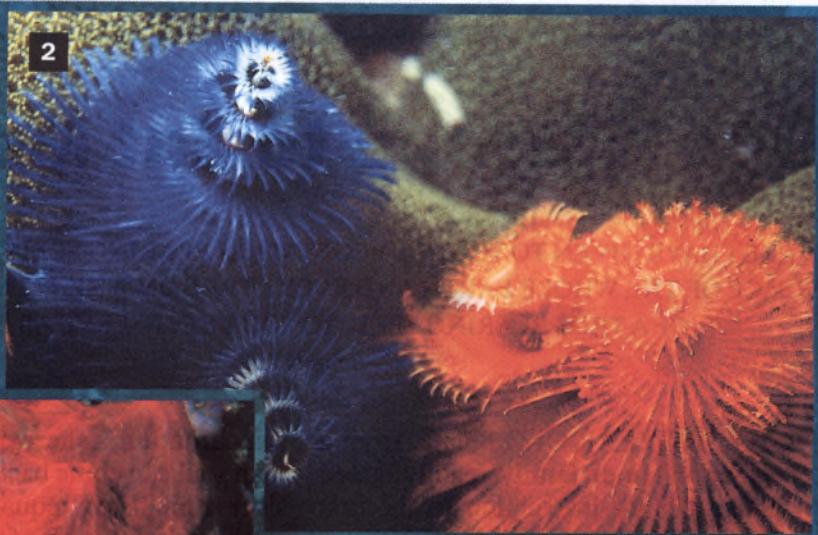
BY AWAKE! CORRESPONDENT IN PAPUA NEW GUINEA

1. The tiger cowry is still used as money

2. These "flowers" are really tube worms

3. The sponge is an animal, not a plant

4. The clam feeds on plankton (mouth shown)



in your bathtub. A sponge is actually a living animal, not a plant. It is a porous mass of cells that function together in a most peculiar way. The book *The Undersea* says that the cells of sponges "are neither closely organized nor interdependent. Thus, if a living sponge is torn into pieces, each part eventually forms a new sponge. Even if the individual cells are separated, they wriggle along like amoebas until they come together and build up into whole sponges again."

Unlike a plant, which manufactures its own food, the sponge " hunts" for its food. It draws in surrounding water and filters it for organic material. Like any other animal, it digests its food and expels its wastes. You will find sponges attached to rocks or to shells on the seabed.

Finally, in photo 4 there is the lowly clam. It is sedentary and can easily be found in

coral rocks or simply lying on the seabed. Most feed by filtering plankton out of the water. The clam is called a bivalve mollusk because it has two shells, or valves. These are held together by a ligament and are opened and closed by two powerful muscles. When a clam needs to move, it opens up and its fleshy foot emerges a bit. But should an enemy approach, it retreats into its shell and 'clams up'!

These pictures give but a glimpse of the glorious sights that can be seen in the coral seas—yet another place where Jehovah's creative wisdom is on display.—Romans 1:20.

Is It Wrong to Eat Meat?

"HERE I HAVE GIVEN TO YOU ALL VEGETATION BEARING SEED WHICH IS ON THE SURFACE OF THE WHOLE EARTH AND EVERY TREE ON WHICH THERE IS THE FRUIT OF A TREE BEARING SEED. TO YOU LET IT SERVE AS FOOD."

—Genesis 1:29.

EIGHTEEN-YEAR-OLD Sujata, from a vegetarian Hindu family, readily agreed with God's dietary instruction to the first man, Adam. But she immediately asked: "Why, then, do people kill animals for food when there are so many other things to eat?"

Many people around the world echo these sentiments. Hundreds of millions in the East follow a meatless diet. In addition, the number of vegetarians in the West is increasing. In the United States alone, about 12.4 million people claim to be vegetarian, about 3 million more than a decade ago.

Why do so many prefer a meatless diet? What is the proper view of animal life? Does eating meat show disrespect for life? In view of what is stated at Genesis 1:29, is it wrong to eat meat? First, consider why some do not eat meat.

Why Do Some Not Eat Meat?

For Sujata, her diet involves her religious beliefs. "I grew up as a Hindu, believing in the doctrine of

reincarnation," she explains. "Since a human soul can come back as an animal, I consider animals my equals. And so it seems wrong to kill them for food." Other religions also advocate a vegetarian diet.

Factors besides religious beliefs influence people's eating choices as well. Dr. Neal Barnard, for example, flatly asserts: "The only reasons to eat meat are habit or ignorance." His strong stand is based on his views concerning the health risks of meat consumption, such as heart disease and cancer.*

In the United States, teenagers are said to be the fastest growing segment of vegetarians. And concern for animals is one reason. "Kids love animals," says Tracy Reiman of People for the Ethical Treatment of Animals. "When they start learning about what happens to animals before they are killed for food it just reinforces the compassion they feel."

Many environmentally conscious individuals also

* See *Awake!* of June 22, 1997, pages 3-13.



make the connection between their diet and the tremendous demand made on natural resources in raising animals for food. It takes, for example, about 390 gallons of water to produce just one pound of beef and 375 gallons per pound of chicken. For some, this then becomes a reason to avoid meat.

What about you? Should you abstain from eating meat? Before answering that question, consider another viewpoint. As found at Psalm 50:10, 11, Jehovah God, the Maker of all things, says: "To me belongs every wild animal of the forest, the beasts upon a thousand mountains. I well know every winged creature of the mountains, and the animal throngs of the open field are with me." Since all animals really belong to God, it is important to understand how the Creator feels about animal life and man's use of it for food.

Is It Wrong to Kill Animals?

Some who, like Sujata, consider animals to be man's equals feel strongly that taking the life of an animal for any purpose is wrong—killing them for food even more so. Nevertheless, the Scriptures indicate that God differentiates between animal life and human life and allows the killing of animals for various reasons. In Israel an animal could be killed, for example, when it posed a threat to human life or one's livestock.—Exodus 21:28, 29; 1 Samuel 17:34-36.

From earliest times, God approved of offering animals as sacrifices in worship. (Genesis 4:2-5; 8:20, 21) He also instructed the Israelites to memorialize their Exodus from Egypt by celebrating the Passover annually, which included sacrificing a lamb or a goat and eating its flesh. (Exodus 12:3-9) And under the Mosaic Law, there were other occasions for animal offerings.

Reading the Bible for the first time, a 70-year-old Hindu woman found the thought of animal sacrifices unpleasant.

But as she progressed in her knowledge of the Scriptures, she could see that sacrifices commanded by God had a purpose. They pointed forward to the sacrifice of Jesus Christ, which was to fulfill the legal requirement for forgiveness of sins. (Hebrews 8:3-5; 10:1-10; 1 John 2:1, 2) In many cases the offerings also served as food for the priests and at times for the worshipers. (Leviticus 7:11-21; 19:5-8) God, to whom every living creature belongs, could rightfully institute such an arrangement for a purpose. Of course, once Jesus died, the animal sacrifices were no longer required in worship.—Colossians 2:13-17; Hebrews 10:1-12.

Using Animals for Food

What, though, of killing animals for food? It is true that man's original diet was vegetarian. But Jehovah later expanded it to include animal flesh. Some 4,000 years ago—in the days of righteous Noah—Jehovah caused a global deluge and brought an end to the then existing wickedness on earth. Noah, his family, and the living creatures he took into the ark survived the Flood. After they emerged from the ark, Jehovah for the first time stated: "Every moving animal that is alive may serve as food for you. As in the case of green vegetation, I do give it all to you." (Genesis 9:3) At the same time, however, God gave the law: "Anyone shedding man's blood, by man will his own blood be shed, for in God's image he made man." (Genesis 9:6) Clearly, God did not place animals on the same level as humans.

Actually, Sujata's conviction about animals was based on her belief in the doctrine of reincarnation. In this regard the Bible explains that although humans and animals are souls, the soul is not immortal. (Genesis 2:7; Ezekiel 18:4, 20; Acts 3:23; Revelation 16:3) As souls, both humans and animals die and cease to exist. (Ecclesiastes 3:19, 20) Humans, though, have a marvelous

hope of resurrection in God's new world.* (Luke 23:43; Acts 24:15) This too indicates that animals are not man's equals.

"Still, why the change in diet?" Sujata wanted to know. The earth's climate evidently had undergone drastic changes because of the Flood. Whether Jehovah introduced the addition of meat to man's diet because he anticipated the needs of future generations living in the areas where vegetation would be scarce, the Bible does not say. But Sujata could accept that the Owner of all living things had a right to introduce a change.

Showing Respect for Animal Life

Yet, Sujata wondered, 'Shouldn't we at least show some respect for animal life?' Yes, we should. And the Creator of all things has told us how we may do this. "Only flesh with its soul—its blood—you must not eat," states his decree at Genesis 9:4. Why the restriction on eating blood? "For the soul [life] of the flesh is in the blood," says the Bible. (Leviticus 17:10, 11) Jehovah has stipulated: 'You should pour the blood of the slain animal out upon the ground as water.'—Deuteronomy 12:16, 24.

This is not to say that the provision to eat meat is a license to indulge in the needless spilling of animal blood for the sheer thrill of the hunt or to display personal prowess. Nimrod evidently did this. The Bible identifies him as "a mighty hunter *in opposition to Jehovah.*" (Genesis 10:9) Even today, excitement over hunting and killing animals can easily develop in some. But such a spirit goes hand in hand with wanton disregard for animal life, and God does not approve of it.[#]

Being Compassionate Toward Animals

Some vegetarians today also have sincere

* See *The Watchtower* of May 15, 1997, pages 3-8, published by the Watchtower Bible and Tract Society of New York, Inc.

[#] See *The Watchtower* of May 15, 1990, pages 30-1.

concern over the treatment of animals by the modern meat industry. "Agribusiness has little interest in the natural instincts of animals," comments *The Vegetarian Handbook*. "Raised in horribly close quarters and unnatural environments," the book notes, "modern-day animals are exploited more completely than animals have ever been before."

While the use of animals for food is not against the will of God, their cruel treatment is. "The righteous one is caring for the soul of his domestic animal," says the Bible at Proverbs 12:10. And the Mosaic Law enjoined proper care of domestic animals.—Exodus 23:4, 5; Deuteronomy 22:10; 25:4.

Should a Christian Be a Vegetarian?

As shown in the foregoing, the question of becoming a vegetarian—or remaining one—is strictly a matter for individual decision. Because of health, economics, ecology, or compassion for animals, a person may choose to follow a vegetarian regimen. But he must recognize it as only one way of eating. He should not criticize those who choose to eat meat, just as one who eats meat should not condemn a vegetarian. Eating meat or refraining from it does not make one a better person. (Romans 14:1-17) Neither should one's diet become the prime concern in his life. "Man must live," Jesus said, "not on bread alone, but on every utterance coming forth through Jehovah's mouth."—Matthew 4:4.

As for cruelty to animals and misuse of earth's resources, Jehovah has promised to bring an end to this corrupt and greedy system and to replace it with the new world of his making. (Psalm 37:10, 11; Matthew 6:9, 10; 2 Peter 3:13) In that new world, man and animals will be forever at peace with one another, and Jehovah will 'satisfy the desire of every living thing.'—Psalm 145:16; Isaiah 65:25.

FATIGUE

An Unseen Trap for Truckers

BY A WAKE! CORRESPONDENT IN GERMANY



AS THE hours go by, the monotonous drone of the powerful engine and the whine of 14 wheels on the road combine to make the truck driver's struggle against fatigue difficult. The road markers slip silently by in the beam of the headlights. Suddenly, the trailer sways from side to side; it has started to drift off the road.

With a wrench of the steering wheel, the driver maneuvers his 40-ton vehicle back onto the road. Shaken to his senses, he realizes that he has no recollection of the past few seconds. He is suffering from fatigue.*

Anyone fighting fatigue at the wheel can easily doze off momentarily. Given today's

crowded roads, that can be extremely dangerous—even for other road users. For instance, in South Africa, of all accidents involving heavy-goods vehicles that occurred between January 1989 and March 1994, more than 35 percent were caused by drivers falling asleep at the wheel.

Professor G. Stöcker, a researcher into driver behavior, said in the German magazine *Fahrschule* that increasing fatigue leads to drowsiness and has effects that are similar to those caused by alcohol. Of course, his comments are relevant to drivers of all vehicles, not only of trucks.

Causes of Fatigue

Why do accidents related to fatigue occur so often, when in many countries the law

* As only a small number of the truck drivers in Germany are female, the male gender is used in this article.

recommends, or even stipulates, the maximum number of hours a truck driver can be at the wheel? To start with, we must look at the total working hours of truck drivers, which include time spent not only driving but doing other tasks as well. These working hours are often long and irregular.

Most truck drivers enjoy seeing a task through from beginning to end, which means transporting goods to a customer in any sort of weather. Performance is measured in distance traveled and freight transported. Working hours may be well above average. In Germany most people work less than 40 hours a week, but many truck drivers work twice that.

In other lands conditions are no better. In South Africa wages are low, so drivers try to supplement their earnings by driving longer hours. Reports from India indicate that although transport firms allow drivers enough time to complete their journey, many truckers add to their earnings by taking additional freight to more places, requiring more time at the wheel. They then need

to cut down on sleep to be back at the firm on time.

Within the European Union, by utilizing the maximum number of hours permitted by law, a truck driver can spend 56 hours at the wheel in a week. But in the following week, his maximum driving hours are reduced to 34. His working hours, including time spent loading and unloading, are recorded by a monitoring device. This record makes it possible to check whether each driver is keeping within regulations.

Another factor that affects the amount of time spent in the driver's seat is the viewpoint of the owner. His truck represents an expensive investment that has to be put to good use, if possible 24 hours a day with no unladen journeys. Competition among transport firms is growing, and managers put drivers under pressure to voluntarily work longer hours.

Fatigue results when working hours are long but also when they begin at unusual times. For instance, it is common to start work between one and four in the morning. That is a time when many drivers are at their lowest ebb and their concentration is at its weakest. Pressure increases where firms keep stock to a minimum, demanding deliveries 'just in time.' This means that the driver has to arrive at the customer's premises with the freight at precisely the agreed time. Heavy traffic, bad weather, and road repairs may cause delays that the driver somehow has to make up for.

Despite restrictions on the number of hours permissible at the wheel, random checks by police still reveal violations of the law. According to the magazine *Polizei Verkehr & Technik*, "almost 1 driver in 8 of all trucks, buses, and dangerous cargo transporters does not keep to the number of hours prescribed for driving and resting." During a traffic check in Hamburg,

Warning Signs That Require Immediate Action

- Do you have burning eyes or drooping eyelids?
- Do you imagine things or find yourself daydreaming?
- Does the road seem to be narrower, causing you to drive along the middle line?
- Is your recollection of certain parts of the journey missing?
- Is your use of the steering wheel and brakes more jerky than normal?

Answering yes to just one of the above questions means that you need immediate rest

the police discovered one truck driver who had spent 32 hours at the wheel of his truck without a break.

Recognizing the Danger

A long-distance driver who transported international freight for 30 years was asked about the problem of fatigue. He observed: "Pride and overconfidence can lead a driver to ignore tiredness. That's how accidents happen." Signs of fatigue are listed in the box on page 22.

Recognizing early warning signs can save lives. A study in the United States by the National Transportation Safety Board revealed an alarming statistic: Of 107 single-truck accidents, 62 were fatigue related. Hence, the industry attaches great importance to the development of technical aids that give a warning whenever the driver is falling asleep.

A Japanese firm is working on an electronic system using a video camera that observes how frequently the driver blinks his eyes. Too many long blinks, and a prerecorded voice warns him of his dangerous situation. A European company is working on a device that measures how smoothly the vehicle is being steered. Should the truck sway, a warning sounds in the cabin. It will be some time, however, before effective aids are in production.

Counteracting the Danger

Fatigue has been an uninvited and unwelcome passenger in almost every vehicle. The question is how to evict it. Some drivers sip caffeine drinks by the liter, only to discover that fatigue still follows in merciless pursuit. Others turn to other stimulants. Needless to say, these involve risks to health. In Mexico some drivers eat bites of chili (a very hot pepper) to stay awake.

Before an early start, it is good to get sufficient sleep. And, as a matter of principle,

On Long-Distance Journeys

- Get enough sleep
- Do not rely on stimulants
- Take rest periods regularly, exercising to limber up
- Bear in mind that monotonous stretches of road are especially dangerous
- Do not start a journey hungry. Train yourself in good eating habits: a light and healthy diet
- Drink plenty of fluids, but avoid alcohol

one should keep to the prescribed number of hours at the wheel. In South Africa, experts recommend a pause after five hours of driving. On monotonous stretches of road, the driver ought to keep his mind active and focused. Some drivers listen to the radio or speak to other drivers on CB radio. One driver, who is one of Jehovah's Witnesses, listens to cassettes with Biblical themes, such as *The Watchtower* and *Awake!* and passages from the Bible. Other tips can be found in the box on this page.

Earning enough to meet the cost of living is becoming increasingly hard, so being balanced is not easy. Some firms or managers underestimate the danger that the fatigue trap poses for drivers. Everyone connected with the transport business, then, would do well to bear in mind what has been learned so far about fatigue. In addition, drivers often have useful tips from their own experience, which can help others combat drowsiness.

The best way to stay alert, of course, is to pay the body the tribute it demands: If you detect any warning signs, stop at the next possible rest area and get some sleep. Thereafter, take up the challenge of driving once more. Do not fall into the unseen fatigue trap!

YOUR KIDNEYS

A FILTER FOR LIFE

BY AWAKE! CORRESPONDENT IN IRELAND

THE earth and the human body have something in common: To sustain life, both require a filter. The earth needs protection from the constant bombardment of harmful rays from the sun. The ozone layer of our atmosphere filters these out, allowing life-sustaining light to pass through to the earth. And your body? Many of the chemical processes in your body release toxic substances and waste into your bloodstream. If allowed to remain, these would cause serious problems for you, even death. They have to be continuously filtered out and removed.

This filtering is one of the principal functions of your kidneys. But how can these little organs identify, isolate, and remove harmful substances, yet at the same time make sure that vital elements remain to feed and nourish your body? And how can you help your kidneys keep you healthy?

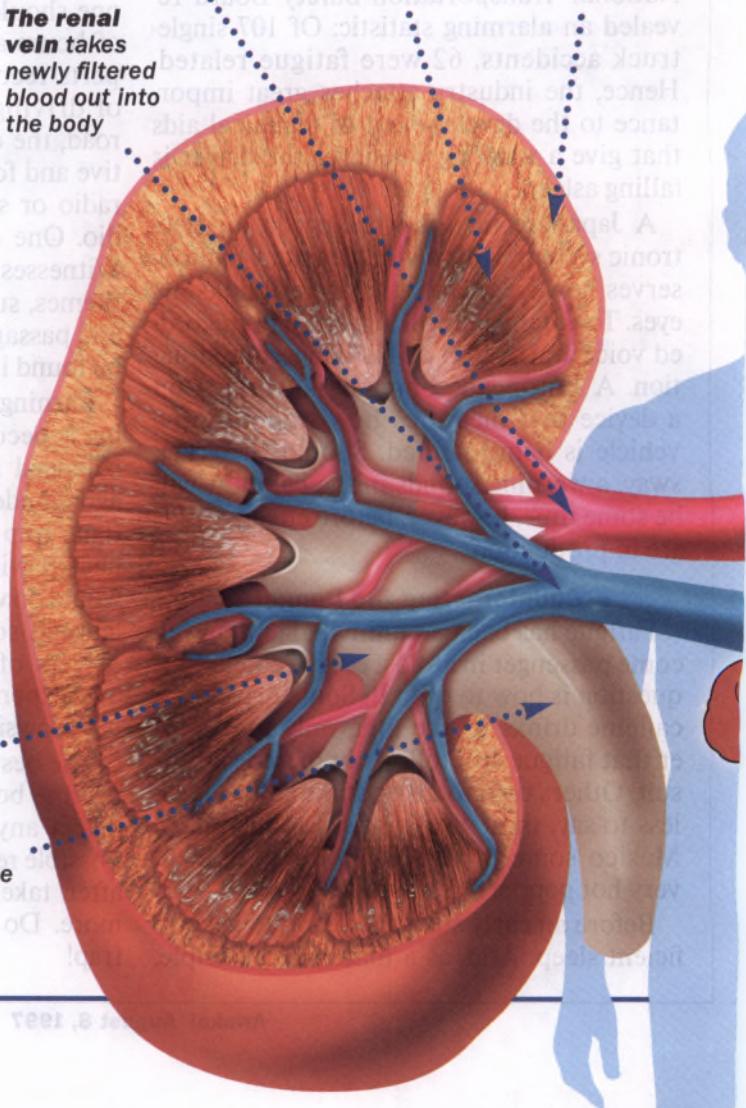
The renal pelvis is a funnel that collects urine and channels it to the ureter

The ureter delivers urine from the kidney to the bladder

The renal artery takes unfiltered blood to the kidney

The renal pyramids are conical structures that deliver urine to the renal pelvis

The cortex contains the glomerulus of each nephron

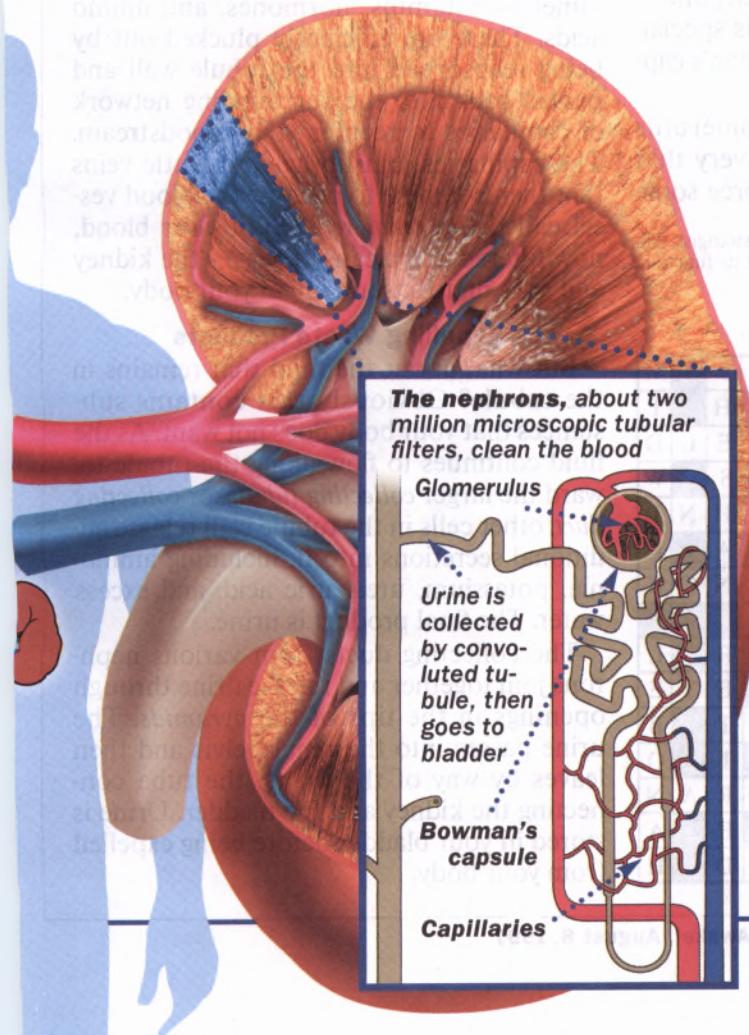


What's Inside Your Kidneys?

Humans normally have two kidneys—one situated on either side of the spine in the lower part of the back. Each is about four inches long, two inches wide, and one inch thick and weighs from four to six ounces. Bisecting the kidney from top to bottom reveals several well-defined features, seen in the accompanying diagrams.

To visualize how the kidney works, imagine a stadium with thousands of spectators coming in for an event. First, the crowd must divide into numerous small lines. Then, the people in each line pass one by one through security gates, where individuals without tickets are turned aside. The spectators with tickets pass through to their assigned seats.

Similarly, all the many elements making up your blood



need to circulate throughout your entire body. As they do so, however, they must repeatedly pass through your kidneys by means of large blood vessels, the *renal arteries*, one for each kidney. (See the illustration on page 24.) After entering the kidney, the renal artery fans out into smaller vessels in the kidney's inner and outer layers. The various elements in your blood are thus channeled into smaller and more manageable "lines."

Finally, the blood arrives at tiny clusters, each consisting of about 40 tightly looped, minute blood vessels. Each cluster, called a *glomerulus*, is

The Nephron

The Basic Filtration Unit

THERE are over a million *nephrons* in each kidney. The tubular system found within each individual nephron averages about 1.2 inches in length and a mere .002 inch in width. Yet, if it were possible to unravel all the tubules of a single kidney, they would extend for about 19 miles!

Bowman's capsule is actually the indented end of the *convoluted tubule* of the nephron. This tubule is surrounded by a network of very small blood vessels called *capillaries*. The tubule runs into a larger *collecting duct*, which carries away the waste and toxic substances filtered out by the nephron.

surrounded by a two-layer membrane known as *Bowman's capsule*.^{*} Together, the glomerulus and Bowman's capsule make up the first part of your kidney's 'security gate,' a *nephron*—the basic filtration unit of your kidney. There are over a million nephrons in each kidney. But they are so small that you would need a microscope to examine one!—See the diagram of a nephron, greatly enlarged, on page 25.

Two-Stage Filtration of Your Blood

The blood cells and proteins in your bloodstream are indispensable. They provide your body with vital services such as oxygen supply, defense, and damage repair. To prevent the loss of blood cells and proteins, the first stage of filtration separates them from all other elements. This specialized task is accomplished by Bowman's capsules. But how?

Blood vessels entering the glomerulus split up into tiny capillaries with very thin walls. Thus, blood pressure can force some

* In the early 1840's, English surgeon and histologist William Bowman described this small capsule and its function. It came to be named after him.

CROSSWORD SOLUTIONS

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| H | S | A | P | | N | | O | P | H | N | I | |
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| H | O | O | K | S | | I | N | U | T | B | | |
| B | L | | M | O | S | E | S | | I | O | | |
| A | R | I | S | A | I | S | O | C | H | R | A | N |
| A | A | | N | U | C | | E | | A | | | |
| L | B | O | T | T | L | E | G | O | U | R | D | H |

water and other small molecules through their fine membranes, out of your bloodstream, and into Bowman's capsule and the coiled tube connected to it. This tube is called the *convoluted tubule*. The larger protein molecules and all the blood cells remain in the bloodstream and continue to flow through the capillaries.

Now filtration becomes more selective. Your kidneys must make absolutely sure that nothing of value to your body escapes! The fluid flowing through the tubule at this point is a watery mixture, consisting of dissolved useful molecules along with wastes and unwanted substances. Specialized cells along the tubule's inner wall recognize useful molecules, such as water, salts, sugars, minerals, vitamins, hormones, and amino acids. These are efficiently plucked out by being reabsorbed into the tubule wall and passed back into the surrounding network of capillaries to reenter your bloodstream. The capillaries join up again as little veins that then combine to become the blood vessel called the *renal vein*. By it your blood, now filtered and cleansed, leaves the kidney and goes on to sustain life in your body.

Expelling Waste Products

But what about the fluid that remains in the tubule? Obviously this contains substances that your body does not want. As the fluid continues to flow along the tubule toward the larger *collecting tubule*, or *collecting duct*, other cells in the tubule wall release additional secretions into it, including ammonia, potassium, urea, uric acid, and excess water. The final product is urine.

The collecting ducts from various nephrons join together and release urine through openings in the tips of the *pyramids*. The urine passes into the renal pelvis and then leaves by way of the *ureter*, the tube connecting the kidney and the bladder. Urine is stored in your bladder before being expelled from your body.

Despite their microscopic size, the more than two million nephrons in your kidneys do a very impressive job. *The New Encyclopædia Britannica* states: "Nephrons . . . filter the entire five-quart water content of the blood every 45 minutes." By the time various substances have been reabsorbed and the many processes completed, a normal, healthy body can expel about two quarts of waste in the form of urine every 24 hours. What a hardworking and thorough filtration system!

Take Care of Your Kidneys!

Your kidneys are self-cleaning and self-maintaining, capable of operating for a long time. However, you have a part to play in helping them do their work. A great deal of water must pass through your kidneys for your body to remain healthy. Indeed, adequate water intake is considered a primary means of preventing kidney infections and the formation of kidney stones.* Drinking water also aids your digestive and cardiovascular systems, points out Dr. C. Godec, chairman of the Urology Department of Long Island College Hospital, New York.

How much water? Dr. Godec and many other doctors recommend that in addition to taking in other foods and drinks, each person should drink at least two quarts of water every day. "Most people are dehydrated," Dr. Godec told *Awake!* He noted that as long as your kidneys or your heart are not diseased, water is good for them. "But you have to drink enough," Dr. Godec said. "Most people don't."

Some find water more palatable with a little flavor added, such as lemon. Others prefer the taste of springwater or water that has been filtered through activated charcoal. In any case, plain or very lightly flavored water is better for your kidneys than any other bev-

erage. In fact, the sugar in fruit juices and sweetened drinks increases the body's need for water. Drinks containing alcohol or caffeine cause the body to lose water.

Getting into the habit of drinking two quarts of water a day can surely be a challenge. For one thing, many people find it inconvenient or embarrassing to have to relieve themselves more often than usual. But your body will thank you for making the extra effort. Besides helping to preserve your health, drinking sufficient water can even improve your appearance. Doctors point out that good nutrition and a high fluid intake are more effective at keeping your skin good-looking than any external skin preparation.

Unfortunately, our thirst mechanism is imperfect, and it becomes even less sensitive as we get older. Thus, we cannot rely on thirst alone to tell us how much water we need. How can you be sure to take in enough? Some start their day by drinking two glasses of water, and then at regular intervals they drink another glass. Others keep a transparent container of water in view and within reach—a reminder to take a sip periodically throughout the day. Whatever method you use, drinking plenty of pure, clean water is a good way to show appreciation for your kidneys—the marvelous filter that keeps you alive.

IN OUR NEXT ISSUE

The Water Crisis—A Global Problem

Something Better Than World Acclaim

Jehovah's Witnesses in Russia

* See *Awake!* issues of August 22, 1993, pages 20-2, and March 8, 1986, page 18.

WATCHING THE WORLD

Crime—A Lucrative Business

Organized crime in Italy takes in an estimated \$200–240 billion every year, says the 1997 Report of the Commercial Confederation, an association of Italian businessmen. At least \$18 billion is said to come from drug trafficking, \$11 billion from prostitution, and \$15–18 billion from usury and racketeering. "Three out of every ten commercial enterprises are managed by individuals or companies connected to criminal organizations; 20 to 25 percent of the banking transactions that take place every day have an obscure origin," states the newspaper *La Repubblica*.

Book Reading Remains Popular

Computer technology has yet to change British reading habits, according to a survey by the Policy Studies Institute. As reported in *The Times*, "nearly half of those surveyed said that they were currently reading a book for pleasure, a proportion that has changed little since 1989." Women read more than men, and people over 55 are the biggest readers. Cookbooks are the most popular, followed by crime or thriller stories, romance novels, and 20th-century fiction. Although 30 percent of households own a computer, only 7 percent are equipped to run CD-ROMs, the book's competitor. And unlike a laptop computer, says *The Times*, an interesting book is not spoiled by grains of sand in its works on a vacation beach or by jostling crowds in a busy subway, and a beautifully produced book can

be "as aesthetically pleasing as its contents are nourishing."

Back to Water

"The long search for a fire-fighting chemical that does not damage the ozone layer has finally led to . . . water," states *New Scientist*. "After dousing a hundred experimental fires, the Norwegian Fire Research Laboratory in Trondheim has come to the conclusion that fine sprays of water are a suitable



substitute for ozone-destroying halons, which are still widely used in fire extinguishers." Halons—compounds of carbon, bromine, and fluorine—suffocate the fires. Water droplets do the same, vaporizing and expanding 1,700 times their original volume to displace the oxygen. The only time they were found to be less effective than halons was in small, smoldering fires that did not reach a sufficient temperature to vaporize the water. But artificial substitutes for halons are still being sought, as water poses another problem: Not much money can be made in selling it.

Now—Hepatitis G

Doctors in Japan have confirmed that within a month of receiving blood transfusions, patients became infected with

the hepatitis G virus, a new strain identified in 1995 in the United States. By reexamining the blood of liver-cancer patients who underwent surgery between 1992 and 1994 at Tokyo's Toranomon Hospital, the doctors discovered that 2 of the 55 patients had been infected before surgery and that 7 others became infected after the operation. The contaminated blood that each of the 7 patients received came from an average of 71 donors, the doctors said, indicating that 1.4 percent of the blood supply used was contaminated with the new virus. Very little is known about the hepatitis G virus or what percentage of the carriers will yet develop hepatitis or liver cancer, says the *Asahi Evening News*.

"The Millennium Bug"

"Known as the Millennium Bug, the Year 2000 Problem, or simply 'Y2K,'" it is "one of the most potentially crippling forces known to modern computing," says *U.S. News & World Report*. It began in the 1960's when computers were expensive and their memory was limited. To save space, programmers wrote dates using only the last two numbers of the year. To the computer, the year 1997 was simply "97." The problem? "On Jan. 1, 2000, some 90 percent of the world's computer hardware and software will 'think' it's the first day of 1900." Mistakes have already been made. "At one state prison, the bug made computers miscalculate the sentences of several inmates who were then released," says *Newsweek*. "Some credit cards

have been refused at stores and restaurants when their '00' expiration dates confused computers. And in several states truckers have found their interstate licenses canceled when computers couldn't handle renewal applications with dates past the millennium." Corporations worldwide will have to spend an estimated \$600 billion to change the date codes—and they hope they can do it in the remaining two years.

Record-Breaking Animals

During the summer of 1996, a common tern established a record for "the longest flight ever made by an animal in the course of migration" for which we have evidence, says the Italian newspaper *Corriere della Sera*. After setting off from Finland, where it was ringed, the tern was captured 18 weeks later in the state of Victoria in Southeast Australia—after a journey of 15,200 miles, covering an average of 120 miles a day. The previous record was held by an arctic tern that flew 14,000 miles from Russia to Australia in 1955. Some other animals whose migrations cover thousands of miles are red salmon, eels, monarch butterflies, green turtles, and humpback whales.

Humpback whales normally take about 102 days to migrate from Alaska to Hawaii, but researchers have discovered one that took just 39 days to swim the 2,775 miles! The journey represents an average speed of three miles per hour. The same whale has also been sighted in Mexico. Humpback whales migrate to Hawaii to breed because their calves have little fat to withstand the freezing waters of Alaska. Their migra-

tion is one of the longest that marine mammals make, reports *The Times* of London.

That Elusive Fly!

Why is it so difficult to swat a fly? How does it manage to get away so quickly? The secret lies in a structure in its brain called the giant fiber. This is a ribbonlike cell that communicates electrically, rather than chemically, with other parts of the fly's brain. As a result, the current flows rapidly to the part of the brain that activates jumping and flying, enabling the fly to move out of danger in a few thousandths of a second. In



a typical human, for example, it takes about a quarter of a second before the hand can respond to something seen by the eye. Armed with this knowledge of flies, researchers at Britain's Sussex University are hoping to develop an insecticide that will successfully disable the fly's reaction, reports *The Times* of London.

Sea-Turtle Crisis

Sea-turtle populations are reaching dangerously low levels because of overhunting in Asia-Pacific waters, reports *The Weekend Australian*. This led Australia and Indonesia to cohost a conference in Java with a view to improving conservation methods. Because turtles are migratory and carry no national

banners, the best conservation programs in one country are of little value if another country on the migratory route hunts the turtles without thought for future stocks. "An estimated 50,000 turtles are killed each year in Bali alone for the tourist trade," says the newspaper, "and hundreds of thousands of turtle eggs are harvested for food." Papua New Guinea also trades in marine turtles, including the endangered loggerhead and vulnerable leatherback and green turtles. Other species at risk are the hawksbill, flatback, and Oliver Ridley turtles.

Morse Code Near Death at 150 Years

Over 150 years ago, Samuel Morse, an American inventor, assigned each letter of the alphabet a specific code of dots and dashes. This enabled messages to be tapped out over radio waves by means of a device known as a Morse key. Thousands of lives have been saved at sea when ships in distress used the emergency code SOS. The armies of the world have also made use of this simple means of communication, as have countless amateurs in transmitting messages for pleasure. The great advantage of the Morse code lies in its clarity, an essential factor when a radio operator has a strong accent or cannot speak the language where his message will likely be heard. But Morse messages have steadily been replaced by voice radio contact and satellite communication systems. In 1993 the code was no longer required on seagoing ships. France abandoned the Morse system earlier this year, and by 1999 it will have been phased out worldwide.

FROM OUR READERS

Verbal Abuse The series "From Words That Hurt to Words That Heal" (October 22, 1996) is just part of a long line of articles that have shown how much Jehovah cares for us. The articles on "Help for Alcoholics and Their Families" (May 22, 1992), "Women—Deserving of Respect" (July 8, 1992), "Help for Children of Divorce" (April 22, 1991), and "Will Domestic Violence Ever End?" (February 8, 1993) have all kept me going through years of emotional abuse at the hands of an alcoholic husband. I have read these articles with tears of joy and sadness. My heart overflows with appreciation for a God who knows our most intimate fears, pains, and traumas.

J. C., Canada

The articles moved me deeply. They exactly described the situation I was in with my husband. I can readily agree with every sentence. You treat women very lovingly, and this confirms for me that this organization is being used by Jehovah.

P. S., Germany

The articles encouraged me to continue fighting my weakness by controlling my tongue. Now I know how I should be treating my husband. I read the articles with tears in my eyes.

G. I., Austria

I have been the victim of verbal violence from my husband for years. I've managed to avoid falling into desperation by cultivating the fruits of God's spirit and by busying myself in the full-time preaching work. Your articles made me feel less alone—that someone understands the problem.

M. N., Italy

I have read many of your articles before, but these touched something deep in me. Looking at the photograph on page 9 was

like looking at my mother or my sister, who for many years have suffered at the hands of their husbands. I made copies of these articles and sent them to others who I know are suffering in this way. We look forward to God's new world, where abusive speech of every kind will be done away with.

B. P., Kenya

When I gave the magazine to my uncle who abused his wife verbally, he read it several times. Afterward, we noticed that he no longer abused his wife and that there was no longer any commotion in their home. Both he and his wife keep thanking me for helping them to understand themselves. I want to pass the thanks on to *Awake!*

F. F., Nigeria

Former Addict I am grateful for the article "The Truth Gave Me Back My Life." (October 22, 1996) I am 19 years old, and even though I'm a regular pioneer, or full-time evangelizer, I have sometimes felt that I was missing out on certain things. Dolly Horry's experience helped me to see that the world's attractiveness is just an illusion.

R. M. A., Bolivia

I want to tell you how moved I was by this article. As I read the life story of Dolly Horry, tears rolled down my face. I pray that this article will move others in Dolly's former way of life to turn to a meaningful life now.

O. S. O., Nigeria

As one of Jehovah's Witnesses, I feel honored to have Dolly Horry as a Christian sister. In my teens I put Jehovah in second place in my life. My mother never gave up on me, though, and she was tremendously joyful at my baptism last year.

B. B., Australia

THE YAWN OF THE WILD

When someone yawns publicly, people may think he is impolite—or at least extremely bored. Rules of etiquette notwithstanding, yawning actually serves quite a useful purpose. A yawn is an involuntary inhalation. We usually yawn in the evening when we are fatigued by the day's activities or in the morning after we wake up. A deep yawn serves to increase our supply of oxygen and may refresh us momentarily; it is often part of the awakening process.

But did you know that animals also yawn, although not always for better ventilation? The reason they do so is often quite fascinating. Monkeys, for example, sometimes yawn in order to communicate a message. The wide open mouth and fierce display of teeth is a way of flashing a warning to a rival male monkey or a would-be predator. The message: 'I have a fearsome bite. Keep your distance!'

It has also been observed that predatory cats of the African plains will often stretch and yawn before setting out to hunt. As with humans, the cats' yawn serves a physiological function—that of taking extra air into the

lungs. This increases the oxygen in the blood. The heart then rushes it to other parts of the body, providing instant energy for short high-speed chases.

Why, even fish have been observed yawning! The book *Inside the Animal World* tells of fish that sometimes "yawn as a prelude to moving quickly. . . . A fish may yawn also when it is excited or when it sees an enemy or sees food, all occasions when rapid action is needed."

Probably the most impressive yawn of all is that of the hippopotamus, or Behemoth. This bulky creature can stretch open its huge cavern of a mouth an incredible 150 degrees! The yawn enables an old bull hippo to show everyone else in the hippo pool who is boss. It also serves as a toothy warning to any intruders who would dare trespass into his river domain.

So while it may not evoke the drama of a lion's roar, a yawn—whether a sleepy yawn, a threatening yawn, or simply an energizing yawn—does serve a beneficial purpose. It is just one more example of the astonishing creativity of the Designer of the animal kingdom!



Невероятная клетка

Живая клетка – это здание, сконструированное Богом. Ее роль – обеспечивать деятельность, но в конечном итоге, что это возможно лишь до определенного предела, сказала: «Поскольку это очень склонно, читателю не стоит быть над всеми деталями».

Инструкция к ядру ДНК клетки, «как выпустить из заполненного бы теснью книгу в 600 страниц наизнанку», – писал в журнале *National Geographic* (Мироздание) Алан Гарднер: «Живая клетка – это мир, имеющий чуть ли не всеми атомами триллионы прощечных атомных групп... молекул... Если представить «мир» нации 46 граждан, то их длины составят бы около двух метров. Одна из ядер, в котором они содержатся, имеет диаметр меньше одной сотой миллиметра».

Чтобы дать представление о жизнедеятельности клетки, в журнале *Наука и жизнь* («Наука») приводится следующее описание: «Каждая из этих ста триллионов клеток функционирует, как окруженный стенной город. Электростанция производит电能 для клетки этого города. Фабрики производят белки – необходимые для жизнедеятельного творчества продукты. Сложные транспортные системы доставляют определенные знания изнутри клетки от одного места к другому, а также проверяют экспорт и импорт контролируя внешний мир относительно природы опасности. Дисциплинированные биологические вооруженные силы стоят наготове, чтобы принять необходимые меры против захватчиков. Централизованное правительство поддерживает порядок».

Когда современная теория эволюции была впервые предложена, учёные не имели представления о немыслимой сложности живой клетки. На следующей странице описываются некоторые детали типичной клетки. Все они помещены в сосуд диаметром всего лишь 1/1000 сантиметра.

Life— How did it get here? By evolution or by creation?

Был ли человек создан или же из него



ЖИВАЯ КЛЕТКА
– это удивительная, сконструированная, что из неё

Омы
– это вода

– это плодоносится

ЧАСТИЧНЫЙ УПРАВЛЕНИЕ
– оболочка, покрывающая клетку изнутри и что из неё

ХРОМОСОМЫ
Они содержат ДНК клетки – ее генетический строительный план

ЯДРЫШКО
Место, где как спираль размещены хромосомы

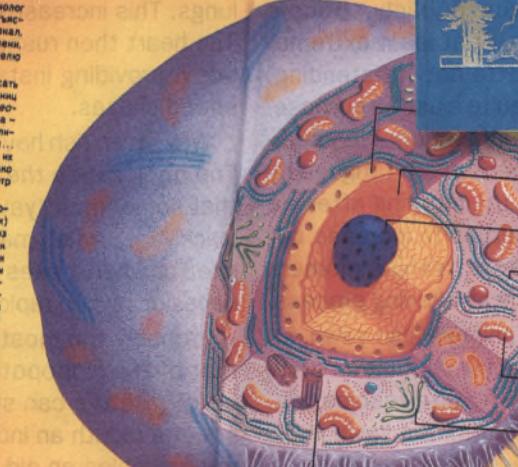
ЭНДОПЛАЗМАТИЧЕСКАЯ СЕТЬ
Многие мембранные каналы, в которых находятся белки, которые могут перемещаться из них ребристые (неподвижные) ребристые (свободно плавающие в клетке)

МИТОХОНДРИИ
Центры производства энергии, обеспечивающие клетку энергией

КОМПЛЕКС ГОЛЬДРИ
Группа уплощенных мембранных мешков, которые упаковывают и распределяют производимые клеткой белки

ЦЕНТРИОЛИ
Они расположены близко к ядру и играют важную роль в делении клетки

Являются ли твои 100 000 000 000 000 клеток просто случайностью?



“They Were As Excited as Children”

That is how 32-year-old Sergei, the father of three children, described the reaction of his friends when he showed them the book *Life—How Did It Get Here? By Evolution or by Creation?* Sergei, who lives in Tatarstan, Russia, describes what happened:

“To begin with we looked at the pictures and read the captions. Absorbing discussions followed. All my friends are young fathers and mothers . . . We all attend church at Easter and for baptisms, but that is the limit of our interest.

“On the other hand, what an interest we have in your literature! The colorful, beautifully designed cover of the book quickly attracts attention. When you start reading, it is difficult to stop. You want to share with neighbors what you have learned. Moreover, you feel satisfied and content after reading and discussing the

information. At last, we have found something enjoyable, intelligent, and beneficial to talk about.

“Indeed, we are living in a spiritual vacuum. Everyone talks about money, problems, worries, and intrigue. These things only devastate the heart. After thinking about them, you can’t fall asleep right away, and in the morning you don’t want to wake up and be plunged into the garbage dump of human troubles.”