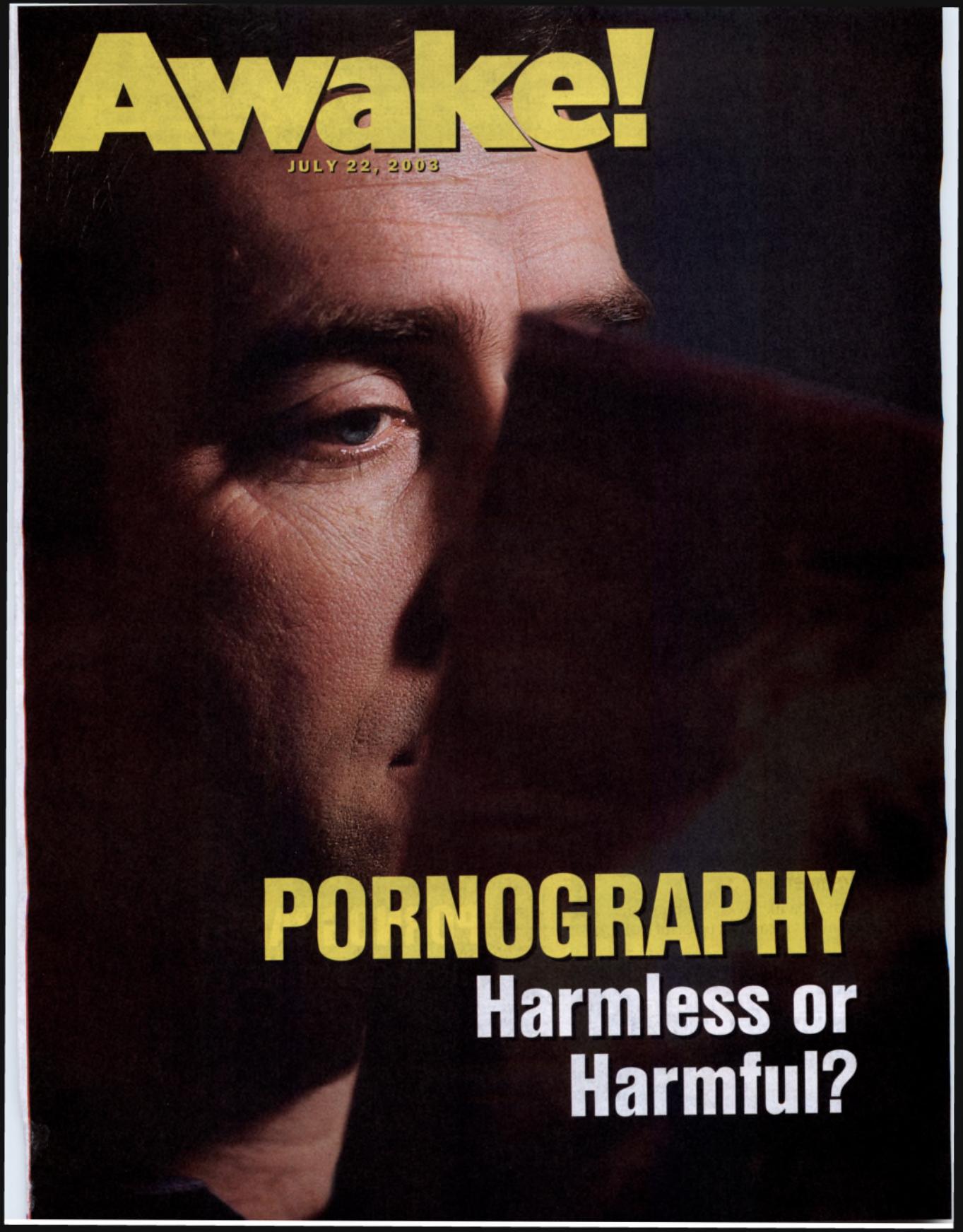


Awake!

JULY 22, 2003

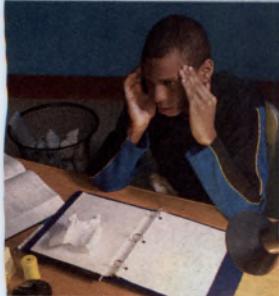


PORNOGRAPHY
Harmless or
Harmful?

Awake!

AVERAGE PRINTING 22,755,000
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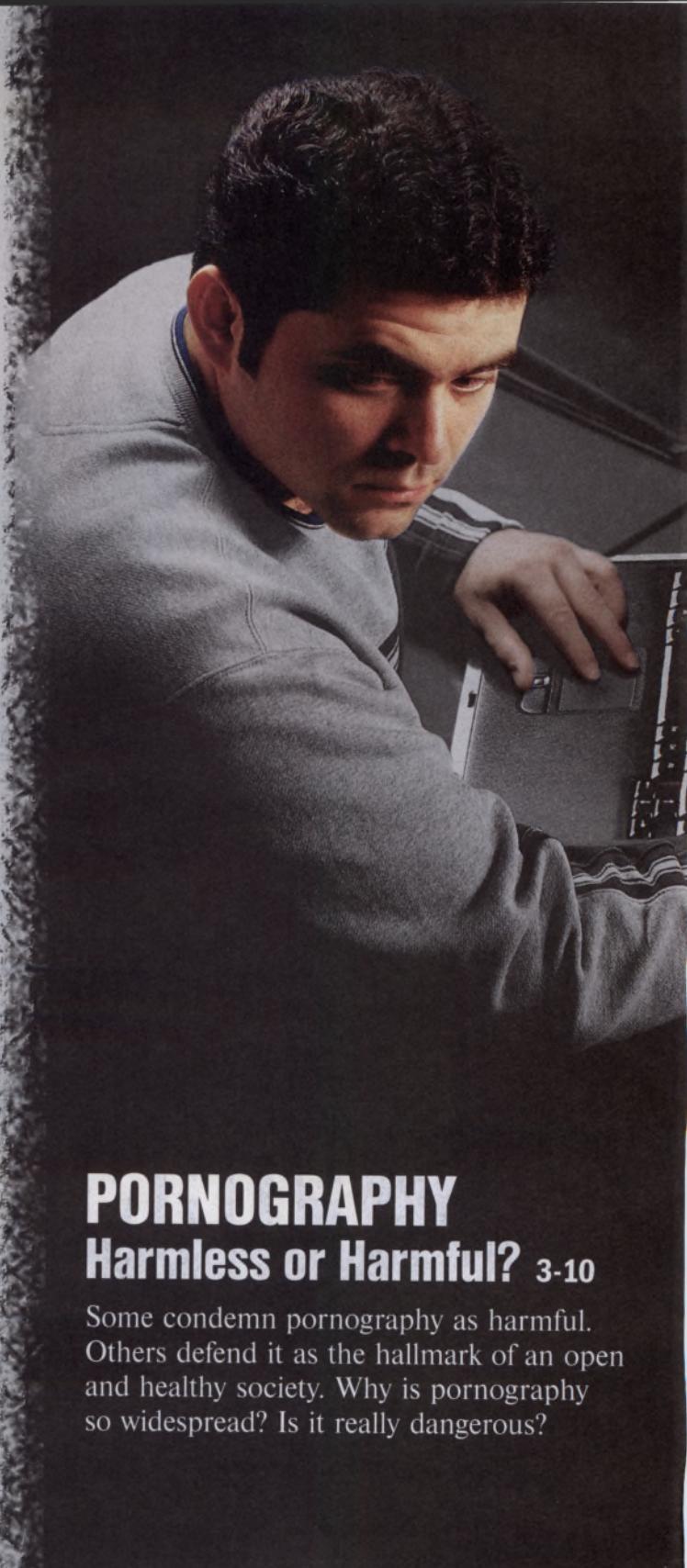
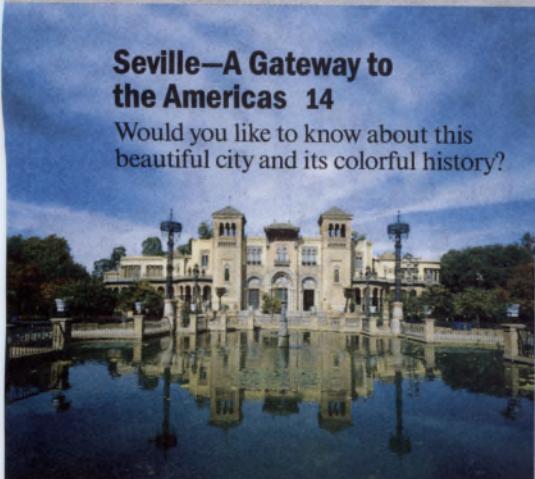


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PORNOGRAPHY Harmless or Harmful? 3-10

Some condemn pornography as harmful.
Others defend it as the hallmark of an open
and healthy society. Why is pornography
so widespread? Is it really dangerous?



PORNOGRAPHY

Opposing Viewpoints

"It creates appetites that should not exist, it stimulates cravings that should never be satisfied."—Tony Parsons, columnist.

JOHN never intended to become addicted to 'Internet sex.'* Like many other people who are accidentally exposed to pornography and sex chat rooms, he was using the Internet one day when he stumbled upon a site offering such chat rooms. Soon, he was completely absorbed in cybersex. "I would wait for my wife to go to work," he remembers, "hop out of bed and spend hours in front of the computer." During marathon sessions, he would not even stop to eat or drink. "I had no awareness of [being] hungry," he says. He began to lie to his wife about his secret activities. It started to affect his concentration at work, and he became more and more paranoid. His marriage began to suffer, and when he finally arranged to meet one of his cybersex partners in real life, his wife became aware of it. Today John is being treated for his addiction.

Antipornography activists point to stories like this as proof of the degrading effects of pornography. It destroys relationships, they claim, demeans women, abuses children, and engenders a perverted and harmful view of sex. On the other hand, supporters defend pornography as free expression and view the detractors as prudish. "People should not be ashamed of their sexual orientation or desires," writes one proponent. "Pornography can be used to start and stimulate open discussions about sex." A few even suggest that the proliferation of pornography is the hallmark of an open, healthy society. "A society mature enough to cope with the explicit depiction of sex between consenting adults is likely to be one comfortable with sexual diversity and women's equality," says writer Brian McNair.

Does society's ambivalence make pornography acceptable? Why is it so widespread? Is pornography really a dangerous pursuit? The following articles will consider these questions.

* Names have been changed.

Why Is Pornography So Widespread?

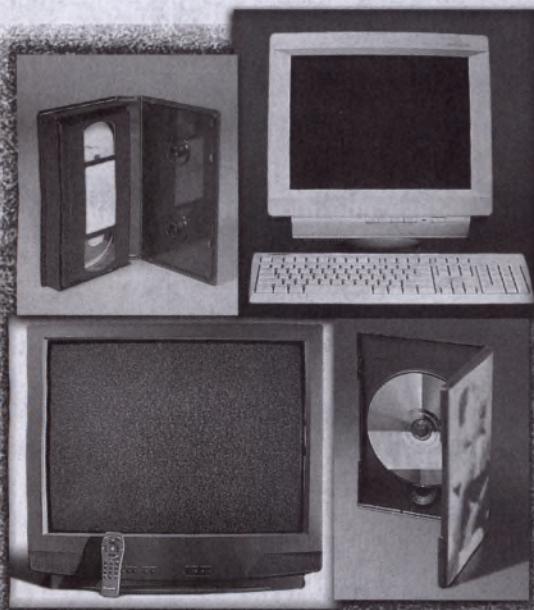
ASCIVIOUS material designed to arouse sexual feelings dates back thousands of years. But during much of its history, pornography was difficult to produce and was therefore available primarily to the rich and the ruling classes. Mass printing and the invention of photography and moving pictures

changed all that. Pornography became affordable and available to the less affluent.

The development of the videocassette recorder escalated this trend. Unlike cinema reels and old photographs, videocassettes were easy to store, copy, and distribute. They also allowed for private viewing at home. Recently, the proliferation of cable systems and the Internet has made pornography even more readily available. The consumer who is afraid that his neighbor will see him in the adult section of a video store can now "stay at home and order by pushing a button on his cable system, or his direct TV," says media analyst Dennis McAlpine. Easy access to this kind of programming has, according to McAlpine, contributed to "a lot more acceptability."

Pornography Becomes Mainstream

Many are ambivalent toward pornography because it has now entered the mainstream. "It is already a vastly bigger cultural presence than all our opera, ballet, theatre, music and



Pornography has become more accessible

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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fine art put together," says writer Germaine Greer. Modern attitudes toward pornography may be reflected by the 'prostitute-chic' fashions many celebrities sport, the music videos that increasingly flaunt sexual imagery, and the advertising media's adoption of a "porno aesthetic." McAlpine concludes: "Society is accepting what is being spoon-fed to it. . . . That's helping create the idea that all of this is good." As a result, "people don't seem to have a sense of outrage," laments author Andrea Dworkin. "They don't seem to care."

Pornography's Rationale

Echoing author Dworkin's comments, retired FBI agent Roger Young points out that many people "just don't see the big picture of obscenity and the problems that it causes." Some are swayed by those who defend pornography, claiming that there is no proof that pornographic images have a negative effect on people. "Pornography is fantasy after all," writes author F. M. Christensen, "a fact that its opponents seem to have difficulty keeping in focus." But if fantasy has no power, then upon what is the advertising industry based? Why would corporations spend millions of dollars producing commercials, videos, and printed ads if they have no lasting impact on people?

The fact is that like all successful advertising, pornography's main purpose is to create appetites where none existed before. "Pornography is about profits, pure and simple," write researchers Steven Hill and Nina Silver. "And in this marketplace gone amok, anything is

Internet Pornography Facts

- About 75 percent of Internet pornography originates in the United States. Close to 15 percent originates in Europe.
- It is estimated that some 70 million people a week visit pornographic Web sites. About 20 million of these users are in Canada and the United States.
- A study revealed that during a recent one-month period, Germany had the largest audience for on-line pornography in Europe, followed by Great Britain, France, Italy, and Spain.
- In Germany, Internet pornography users spend an average of 70 minutes each month viewing pornographic sites.
- Among European viewers of Internet pornography, those above 50 years of age spend the most time connected to adult Web sites.
- According to one source, 70 percent of Internet pornography traffic occurs during the day.
- It is estimated by some that 100,000 Internet sites include material on child pornography.
- About 80 percent of the Internet's commercial child pornography originates in Japan.

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considered an exploitable and expendable resource, particularly women's bodies and human sexual relations." Greer compares pornography to highly addictive fast food, devoid of nutrition and laced with taste-enhancing additives and chemicals. "Commercial fast sex," she says, "is fake sex... Food advertising sells fantasy food and sex advertising sells fantasy sex."

Some doctors claim that pornography can spark an addiction that is far more difficult to overcome than drug addiction. Treatment for drug addicts usually starts with detoxification

to remove the substance from the body. But addiction to pornography, explains Dr. Mary Anne Layden of the University of Pennsylvania, "produces mental imagery which is permanently implanted in the mind of the user and is scaled in by brain chemistry." That is why individuals can vividly recall pornographic images from years past. She concludes: "This is the first addictive substance for which there is no hope for detoxification." But does that mean it is impossible to break free from pornography's influence? And what specific harm does pornography cause?

The Harm Pornography Causes

SEXUAL material of all kinds is easily accessible through television, movies, music videos, and the Internet. Is this relentless intrusion of pornographic, sexualized imagery harmless, as many would have us believe?*

Pornography's Effects on Adults

Despite what its defenders say, pornography has profoundly negative effects on people's views of sex and sexual behavior. Researchers at the National Foundation for Family Research and Education concluded that "exposure to pornography puts viewers at increased risk for developing sexually deviant tendencies." According to the report, "the rape myth (belief that women cause and enjoy rape, and that rapists are normal) is very widespread in habitual male users of pornography."

Some researchers say that the repeated use of pornography can interfere with the ability to enjoy and participate in normal marital intimacy. Dr. Victor Cline, a specialist in treating sex addiction, has noticed a recurring progression in the use of pornography. If left unchecked, what starts as casual viewing of pornography can eventually lead to an escalation to more hard-core, aberrant material. This, he claims, can lead to deviant sexual acts. Behavioral scientists agree. Dr. Cline reports that "any type of sexual deviation can be acquired in this way... and that it can-

* For a detailed discussion of the dangers of Internet pornography, please see the series of articles entitled "Internet Pornography—What Harm Can It Do?" in the June 8, 2000, issue of *Awake!* pages 3-10.

not be eliminated even by massive feelings of guilt." Eventually, the viewer may try to act out the pornography-based, immoral fantasies, often with devastating results.

The course of this problem may be gradual and undetected, concluded Cline. He states: "Like a cancer, it keeps growing and spreading. It rarely ever reverses itself, and it is also very difficult to treat and heal. Denial on the part of the male addict and refusal to confront the problem are typical and predictable, and this almost always leads to marital or couple disharmony, sometimes divorce, and sometimes the breaking up of other intimate relationships."

The Damage to Young People

Statistics show that the primary consumers of pornography are boys between the ages of 12 and 17. In fact, for many, pornography is their primary source of sexual education. This has very disturbing ramifications. "Teen pregnancy and sexually transmitted diseases like AIDS," notes one report, "are completely

nonexistent in porn, giving a false belief that there are no adverse consequences to behaviors depicted in pornography."

Some researchers say that exposure to pornography can also affect the natural development of a child's brain. Dr. Judith Reisman, president of the Institute for Media Education, concludes: "Health-based neurological observations about the instinctual brain-imprinted response to pornographic sights and sounds indicates that viewing pornography is a biologically significant event that overrides informed consent—and that is *harmful* to children's [moldable] 'plastic' brains because it compromises their grasp of reality and thus their mental and physical health, their well-being and their pursuit of happiness."

The Effects on Relationships

Pornography shapes attitudes and influences behavior. Its messages are enticing primarily because they are fantasy and thus presented as more exciting than the real thing.

Some researchers say that exposure to pornography can affect the natural development of a child's brain



(See the box "Which Message Will You Accept?") "Individuals using pornography set themselves up for unrealistic expectations leading to damaged relationships," notes one report.

Pornography can destroy trust and openness, essential qualities in a marriage. Because it is primarily viewed in secret, pornography use often leads to deception and lying. Mates feel betrayed. They do not understand why their marriage partner no longer finds them desirable.

Spiritual Harm

Pornography use causes serious spiritual damage. It can become a real impediment for an individual seeking to have a relationship with God.* The Bible links sexual appetite with covetousness and idolatry. (Colossians 3:5) The one coveting something desires it so much that it becomes the dominant thing in his life, eclipsing everything else. In essence, those addicted to pornography put their sexual desire above God. They thus make an idol of it. Jehovah God's command states: "You must not have any other gods against my face."—Exodus 20:3.

* For a discussion of the Bible's view of pornography, please see the July 8, 2002, issue of *Awake!* pages 19-21.

Pornography destroys loving relationships. The apostle Peter, himself a married man, urged Christian husbands to assign honor to their wives. A husband who fails to do so will find that his prayers to God are hindered. (1 Peter 3:7) Would secretly viewing indecent images of women be treating one's own wife honorably? How would she feel if she found out? And what would the God who will bring "every sort of work into the judgment" and who makes "an estimate of spirits" think? (Ecclesiastes 12:14; Proverbs 16:2) Could one who uses pornography have any reason to expect that his prayers would be listened to by God?

The insistence on selfish gratification at all costs is inherent in pornography use. Hence, viewing pornography is unloving. It undercuts a Christian's fight to maintain chastity

**Pornography
can destroy trust
and openness in
a marriage**



and a clean moral standing before God. "This is what God wills," wrote the apostle Paul, "that you abstain from fornication; that each one of you should know how to get possession of his own vessel in sanctification and honor, not in covetous sexual appetite . . . , that no one go to the point of harming and encroach upon the rights of his brother." —1 Thessalonians 4:3-7.

Pornography especially exploits women and children. It demeans them and robs them of their dignity and rights. One who uses pornography participates in and supports that exploitation. "No matter how good a . . . man thinks he is," point out researchers Steven Hill and Nina Silver, "his tacit approval of

pornography makes him at best [insensitive], at worst misogynistic, toward the very person he professes to care about."

Breaking Free of the Pornography Habit

What if you are presently struggling with an addiction to pornography? Can anything be done to break free? The Bible provides hope! Before coming to know Christ, some of the early Christians had been fornicators, adulterers, and greedy persons. "But you have been washed clean," noted Paul. How was that possible? He answered: "You have been sanctified . . . with the spirit of our God." —1 Corinthians 6:9-11.

Never underestimate the power of God's holy spirit. "God is faithful," the Bible says,

Which Message Will You Accept?

Pornography's Message

- Sex with anyone, anytime, under any circumstances, and in any way is good and has no negative consequences.
- Marriage is an obstacle to sexual fulfillment.

- Women have only one purpose—to satisfy the sexual needs of men.

- Men and women are slaves to their sexual urges.

The Bible's View

■ "Let marriage be honorable among all, and the marriage bed be without defilement, for God will judge fornicators and adulterers."—Hebrews 13:4.

"He that practices fornication is sinning against his own body." —1 Corinthians 6:18; see also Romans 1:26, 27.

■ "Rejoice with the wife of your youth . . . With her love may you be in an ecstasy constantly."—Proverbs 5:18, 19; see also Genesis 1:28; 2:24; 1 Corinthians 7:3.

■ "I [Jehovah God] am going to make a helper for him, as a complement of him."—Genesis 2:18; see also Ephesians 5:28.

■ "Deaden, therefore, your body members that are upon the earth as respects fornication, uncleanness, sexual appetite, hurtful desire, and covetousness, which is idolatry."—Colossians 3:5.

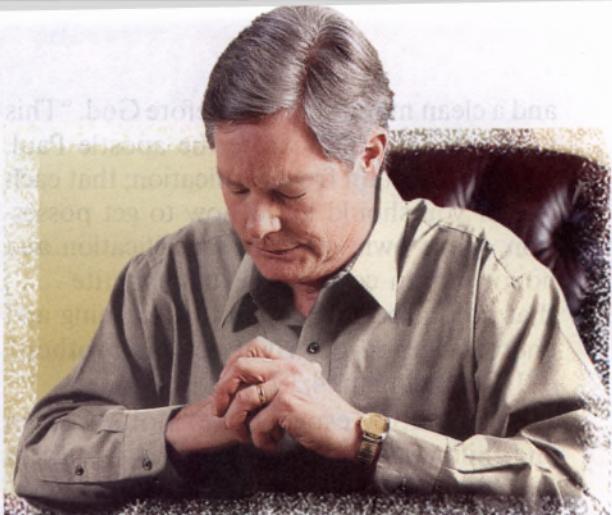
"Each one of you should know how to get possession of his own vessel in sanctification and honor."—1 Thessalonians 4:4.

View the "older women as mothers, younger women as sisters with all chasteness."—1 Timothy 5:1, 2; see also 1 Corinthians 9:27.

Getting Help

The struggle to break free from pornography should not be underestimated; it may be a difficult battle. Says Dr. Victor Cline, who has treated hundreds of sex addicts: "Promises don't work. Good intentions mean nothing. [A sex addict] literally cannot do this by himself." A prerequisite to successful treatment, according to Cline, is involving the mate, if the person is married. "It goes faster if both are involved," he claims. "Both are wounded. Both need help."

If the person is single, often a trusted friend or family member can be a pillar of strength. Regardless of who is involved in the treatment, Cline has one unalterable rule: Talk openly about the problem and any relapses. "Secrets 'kill you,'" he says. "They create shame and guilt."



Fervent prayer will produce results

"and he will not let you be tempted beyond what you can bear." Indeed, he will provide the way out. (1 Corinthians 10:13) Fervent prayer—persistently setting your problem before God—will produce results. His Word encourages: "Throw your burden upon Jehovah himself, and he himself will sustain you." —Psalm 55:22.

Of course, you have to act in harmony with your prayers. You need to make a deliberate and heartfelt decision to reject pornography. A trusted friend or family member can be an invaluable aid, providing needed support and encouragement to stick to your resolve. (See the box "Getting Help.") Remembering that such a course of action is sure to please God can help you stay committed to your course. (Proverbs 27:11) In addition, knowing that your viewing pornography offends God can also serve as an added impetus to giving it up. (Genesis 6:5, 6) It will not be an easy struggle, but it is one that can be won. The pornography habit can be broken!

The dangers of using pornography are real. It is harmful and destructive. It corrupts those who produce it and those who use it. It is an insult to men and women, a danger to children, and a practice that should be rejected.



Young People Ask . . .

Why Do I Feel That I Have to Be Perfect?

"Since my father was a teacher, everyone expected me to have straight A's. Sometimes I cried myself to sleep."—Leah.*

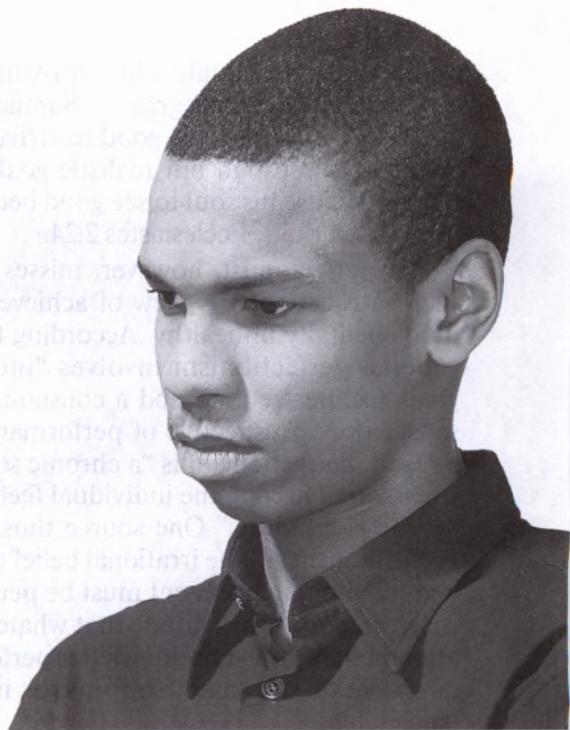
"I'm a perfectionist. I have to be the best at something or do it in a completely different way from anyone else or there's no point in doing it."—Caleb.

DO YOU feel that you always have to be perfect? Do you constantly worry that no matter how hard you try, you are never quite good enough? Are you unable to handle any kind of criticism? When things go wrong, do you blame yourself, accusing yourself of being stupid, inferior, or unworthy? If you want something done right, do you feel that you have to do it yourself? Are you sometimes so afraid of failure that you procrastinate or become immobilized?

What about your relations with others? Do you find yourself friendless because no one around you is perfect enough? Are you obsessive about the failings and shortcomings of others? If the answer to any of these questions is yes, then you may be struggling with something called perfectionism. And if that is the case, you are hardly alone. The trait is common in youths—particularly among gifted or high-achieving youths.*

* Some of the names have been changed.

According to one study, 87.5 percent of the gifted students at one school had perfectionist tendencies.



What causes perfectionism? Researchers have only theories. The book *Perfectionism—What's Bad About Being Too Good?* suggests: "Perfectionism isn't a disease; you didn't catch it. Perfectionism isn't hereditary; you weren't born with it. So how did you end up being a perfectionist? Some experts believe that perfectionism develops during childhood. Family pressure, self-pressure, social pressure, media pressure, and unrealistic role models combine in a Big Push that propels some people into a lifetime of worrying, feeling guilty, and working too hard."

Whatever its cause, a need always to be perfect can damage your life. Let us take a closer look at perfectionism and why it can harm you.

What Is Perfectionism?

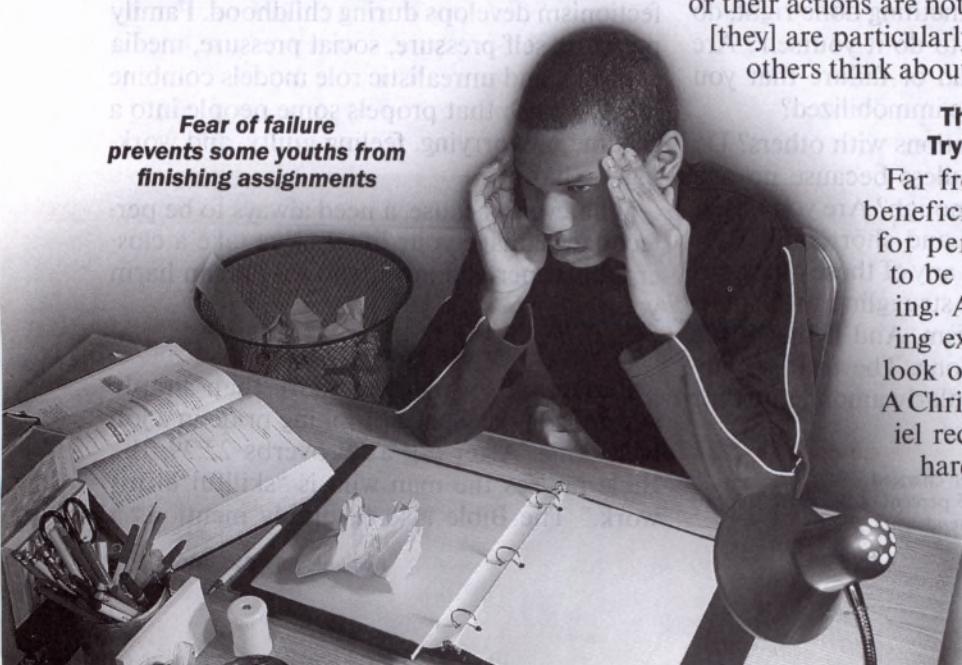
Perfectionism involves more than simply striving for excellence or taking pride in a job well done. After all, at Proverbs 22:29, the Bible praises the man who is "skillful in his work." The Bible also favorably mentions a

number of individuals who cultivated various skills to a high degree. (1 Samuel 16:18; 1 Kings 7:13, 14) So it is good to strive for excellence, to set high but realistic goals. Thus one can “cause his soul to see good because of his hard work.”—Ecclesiastes 2:24.

The perfectionist, however, misses out on such satisfaction. His view of achievement is fundamentally unhealthy. According to some experts, perfectionism involves “intangible goals (i.e. perfection), and a constant lack of satisfaction, irrespective of performance.” As a result, perfectionism is “a chronic source of stress, often leaving the individual feeling that he/she is a failure.” One source thus defines perfectionism as “the irrational belief that you and/or your environment must be perfect.” It is “an all pervasive attitude that whatever you attempt in life must be done letter perfect with no deviation, mistakes, slip ups, or inconsistencies.”

But didn’t Jesus say: “You must accordingly be perfect, as your heavenly Father is perfect”? (Matthew 5:48) Yes, but Jesus was not saying that one could be perfect in the absolute sense. After all, the Bible teaches that “all have sinned and fall short of the glory of God.” (Romans 3:23) What, then, did Jesus mean? In the Bible the word “perfect” carries the idea of

**Fear of failure
prevents some youths from
finishing assignments**



being complete. (Matthew 19:21) When Jesus said that we must be perfect, he was discussing love and encouraging his followers to be more complete in their love. How? By expanding their love to include even their enemies. The Bible writer Luke records Jesus as saying: “Continue becoming merciful, just as your Father is merciful.”—Luke 6:36.

Perfectionists, however, labor under the illusion that it is possible to be perfect in the absolute sense. They may therefore place heavy demands on other people. According to the book *Never Good Enough—Freeing Yourself From the Chains of Perfectionism*, perfectionists are “people who are frustrated by the way that others seem to do their jobs . . . In their opinion, the people around them neither care about doing a good job, nor take pride in their performance.”

Carly, for example, does well academically, having been enrolled in a program for gifted students. However, in personal relations she has been less successful. Because she wants everything to be perfect, she has lost most of her friends. “I think that they were too imperfect,” she explains.

Others may seek perfection, not from others, but from themselves. The book *Never Good Enough* explains that such ones feel that “they or their actions are not good enough . . . , and [they] are particularly concerned with what others think about them.”

The Problem With Trying to Be Perfect

Far from being healthy and beneficial, then, the quest for perfection often proves to be unhealthy and damaging. And far from promoting excellence, such an outlook often promotes failure. A Christian man named Daniel recalls working long and hard on an oral presenta-



**Perfectionism can breed depression
and low self-esteem**

tion that he was assigned to give in a class at a local Kingdom Hall of Jehovah's Witnesses. Many in the audience commended him for a job well done. Daniel then received some tactful, helpful pointers from the instructor. The Bible encourages us to "listen to counsel and accept discipline." (Proverbs 19:20) But instead of welcoming constructive criticism, Daniel felt like a failure. "I wanted to crawl into a hole," he recalls. For weeks he experienced sleepless nights.

Perfectionism can therefore impede the learning process. In an article appearing on a youth-oriented Web site, a young girl named Rachel writes: "When I started high school I was determined to do well. I always was a straight A student and I didn't see any reason why that should change." But Rachel soon found that she had difficulties with algebra and received "only" a B plus. "To everyone else this was a good grade," Rachel recalls, "but to me . . . it was an embarrassment. I started to panic and worry . . . I was afraid to ask for help from my teacher because I thought that if I admitted I needed help on my homework it would be acknowledging that I didn't understand it. . . . Sometimes I almost convinced myself that dying would be better than failing."

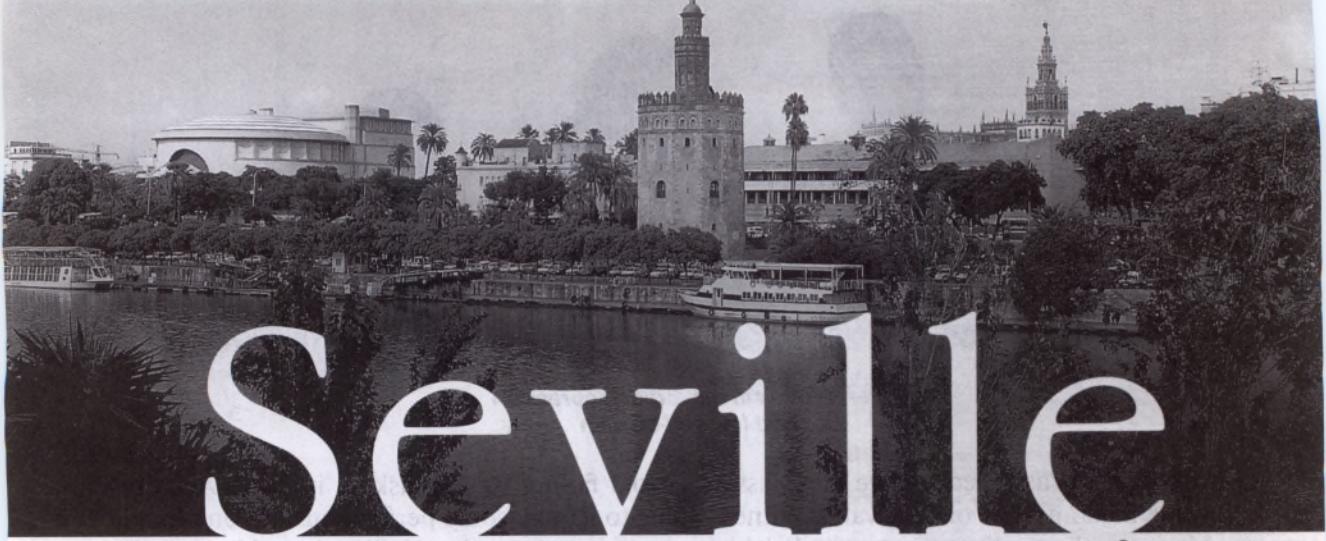
Driven by the fear of failure, some youths have even considered suicide. Fortunately, most youths do not contemplate taking such a drastic step. But as mental-health expert Sylvia Rimm observes, they may try to

avoid failure by not risking it at all. According to Rimm, some perfectionists "don't hand in assignments, they don't take pride in their work, they forget their homework, they make excuses."

On the other hand, other youths may go to extremes to assure themselves of success. "I would stay up late at night working on school projects to get them just right," confesses Daniel. The problem is, such extremes are usually counter-productive. A sleepy student is more apt to perform poorly.

Little wonder, then, that perfectionism has been linked with chronic anger, low self-worth, guilt, pessimism, eating disorders, and depression. Most serious of all, though, perfectionism can harm one spiritually. For example, the Bible commands Christians to express their faith to others. (Romans 10:10; Hebrews 10:24, 25) However, a youth named Vivian held back from commenting at Christian meetings because of fear that she might not word things just right. A young woman named Leah expressed similar fears. She says: "If I say the wrong thing, others will come to the wrong conclusion about me. So I keep my thoughts to myself."

Clearly, then, the need to be perfect is harmful and unhealthy. And if you possess any of the traits described in this article, you may see a need to make some changes in your thinking. A future article will discuss how you can do so.



Seville

A Gateway to the Americas

BY AWAKE! WRITER IN SPAIN

IN THE year 1493, a flotilla of at least 17 ships sailed from the Spanish city of Cádiz. Christopher Columbus was embarking on his second journey of discovery, together with 1,500 sailors, adventurers, priests, and colonizers. The expedition had as its goal nothing less than the colonization of the Americas.

Following this historic journey, another Spanish city, Seville, came to be a gateway to the New World. Before long, Seville obtained the royal monopoly on trade with the colonies. Spanish galleons departed from Seville and returned laden with silver bullion from the mines of Bolivia, Mexico, and Peru. Within a few decades, the city became one of the largest and most prosperous in Europe. And the memories of that bygone age still linger in the rooms of Seville's ancient buildings.

To organize the burgeoning trade with America, Spanish King Philip II erected an impressive market hall alongside the Guadalquivir River, where wealthy merchants could do business. (The archbishop had complained about their using the cathedral for this purpose.) Two centuries later this same building became the Archivo General de In-

dias, General Archive of the Indies, and today it houses practically all the records of Spain's colonization of the New World.*

Treasure hunters in search of sunken galleons still visit this archive in Seville to study the old maritime records. Historians, however, may be more interested in browsing through some of the original letters of Christopher Columbus.

A Weather Vane and an Orange Garden

Seville, however, had another golden age long before the discovery of America, and several of its magnificent buildings date from that earlier period. For several centuries the Moors—most of whom came from Morocco—ruled vast areas of Spain. During the 12th century, the Almohad dynasty made

* The archive contains 86 million manuscripts and 8,000 maps and drawings.



Godo-Foto



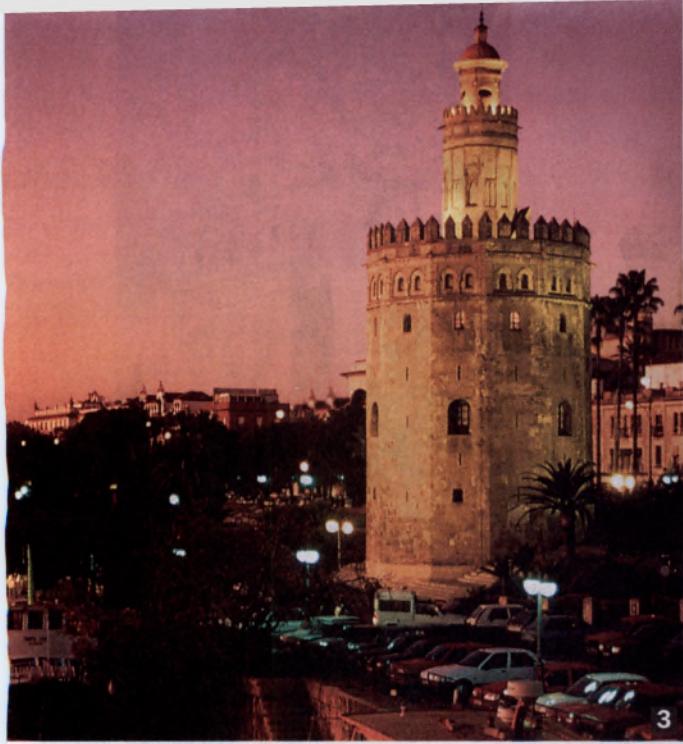
Seville its capital, and during this period it built a mosque whose minaret still overlooks the modern city.

When the Moors were expelled from Seville, the citizens dismantled the city's mosque to make room for the **cathedral of Seville**, the third-largest cathedral in Europe (photo No. 1). The elegant minaret, however, seemed too good to lose, so it became the bell tower of the cathedral, which was erected alongside it. The tower's harmonious proportions, intricate brickwork, and elaborate windows provide a pleasing contrast to the massive cathedral.

Some 500 years ago, earthquake damage led to a renovation of the upper part of the tower, and a bronze weather vane replaced the original dome. The weather vane gave the minaret its Spanish name, **La Giralda** (photo No. 2), and the tower has become the most familiar landmark of Seville. The Giralda also offers a magnificent panorama of the city to those energetic visitors willing to climb to the top.

At the foot of the cathedral tower lies a small Moorish courtyard that formed part of the original mosque, the Patio de los Naranjos. This square, adorned with rows of orange trees, has become a prototype of many similar Andalusian courtyards.* And since many of the streets and squares in Seville are also lined with orange trees, the smell of orange blossoms pervades the whole city

* Andalusia is the southernmost region of Spain, where nearly eight centuries of Moorish influence is most noticeable.



3

Godo-Foto



4

during the spring. Groves of orange trees—first brought to Spain by the Moors—still surround the city, and their fruit is prized for use in making marmalade.

The Guadalquivir River, which flows through the city, has always been a lifeline for the merchants of Seville. It enabled the city to become the principal Spanish port for the New World, and ships still use the inland harbor. The riverbanks near the city center are lined with gardens. And on one bank lies another reminder of Seville's Moorish past, **La Torre del Oro**, the Golden Tower.—Photo No. 3.

The tower's name harks back to the time when golden-colored tiles covered its exterior. Its main purpose, however, was defense rather than decoration. A heavy chain once stretched from the Golden Tower to a twin tower on the opposite bank, enabling defenders to control all river traffic. Appropriately enough, it was here that the ships from the Americas unloaded their gold and silver. Nowadays, tourist boats rather than galleons

discharge their cargo alongside the Golden Tower.

Gardens, Courtyards, and Tiles

The Moors built palaces as well as mosques, and they planted gardens to grace their palaces. Thus, Seville boasts one of the most beautiful palace-garden complexes in Spain, the **Reales Alcázares**, the Royal Palace (photo No. 4). The palace dates back to the 12th century, although extensive alterations were made in the 14th century. The Moorish style, however, has been preserved, and visitors are constantly impressed by the exquisite decoration of the rooms and courtyards, with their delicate arches, colorful tiles, and intricate plasterwork.

Surrounding the palace is a delightful garden replete with fountains and palm trees. The Moorish ruler even constructed a ten-mile-long aqueduct to ensure that his garden would be properly watered. Such is the charm of the palace and its gardens that the Spanish royal family have used it as one of their official residences for the last 700 years.



5



6



7

Godo-Foto

Just as orange trees lend their shade and aroma to the streets of Seville, colorful tiles give character to the city's houses. The Moors also brought this style to Spain. They invariably lined their interior rooms with tiles decorated with geometric patterns. Today decorative tiles of every sort embellish the exteriors of houses, shops, and stately homes.

Tiles are not the only colorful note in the narrow streets of old Seville. Small balconies and flower boxes full of geraniums or roses brighten up the whitewashed walls. And thanks to the mild climate, the flowers bloom practically throughout the year, adding their special touch of *alegría* (lively charm) to the city.

International Events in Seville

Over the past century, international events have cemented Seville's links with the Americas. The graceful **Plaza de España**, the Square of Spain (photo No. 5), was built in 1929 for the International Hispanic Fair, and it remains a popular tourist site. On one side of

the square, the walls of a vast semicircular building display artistic tilework representing each province of Spain.

In 1992, five centuries after Columbus first sailed for America, Seville hosted a World Trade Fair known as Expo '92. In harmony with its theme, "The Age of Discoveries," the exhibition displayed a life-size replica of **Columbus' flagship** (photo No. 6), whose small proportions reminded visitors of the hazardous nature of those epic voyages. Another historic exhibit of the Expo, which now houses an art museum, is the restored monastery **La Cartuja** (photo No. 7), where Columbus prepared for one of his transatlantic voyages and where he was initially buried.

Seville's new Olympic Stadium will be the site of another important gathering in 2003—an international convention of Jehovah's Witnesses. This occasion will provide delegates from Europe and the Americas a chance to get better acquainted with Seville—a gateway to the Americas.



“Don’t Forget Your Brolly!”

BY AWAKE! WRITER
IN BRITAIN

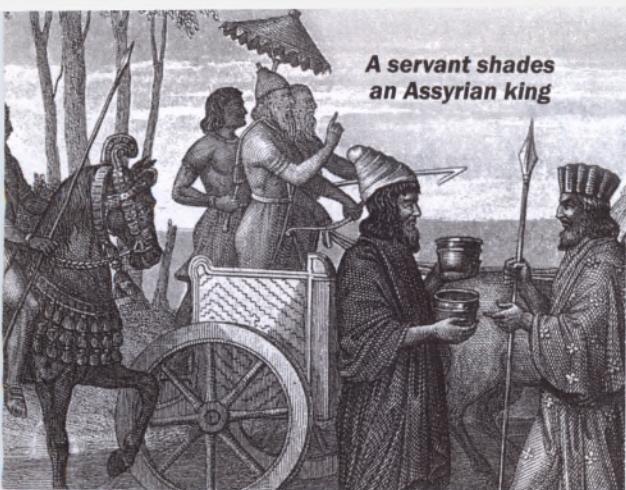
ON AN average day in Britain, many people carry an umbrella. You just can't be sure it won't rain. “Don't forget your brolly!” we call to one another as we leave home—and then we may absentmindedly leave it on the bus or train or in a shop.* Yes, we tend to take our portable shelter for granted, since we can always buy another one. But the umbrella wasn't always viewed so lightly.

A Distinguished History

The first umbrellas evidently had nothing to do with rain. They were emblems of rank and honor, reserved for important people. Sculptures and paintings thousands of years old from Assyria, Egypt, Persia, and India show servants holding sunshades over rulers to protect them from the sun. In Assyria, only the king was allowed to have an umbrella.

Down through history the umbrella continued to represent power, especially in Asia. A ruler's status increased according to the number of umbrellas he owned, as shown by a Burmese king who was called Lord of the Twenty-Four Umbrellas. Sometimes the number of tiers

* “Brolly” is the British colloquial expression for an umbrella. The American equivalent, though seldom used, is “bumbershoot.”



A servant shades
an Assyrian king

was important. The umbrella of the emperor of China had four tiers, and the king of Siam's had seven or nine. Even today the umbrella remains a symbol of authority in some Oriental and African countries.

Religious Umbrellas

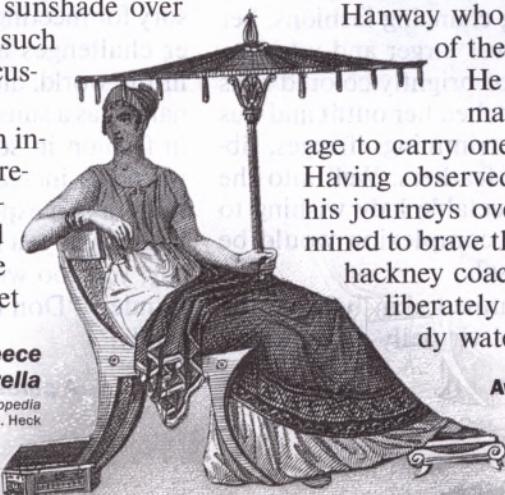
Early in its history, the umbrella became associated with religion. The ancient Egyptians thought that the goddess Nut sheltered the whole earth with her body, just like an umbrella. So people walked under their own portable "roofs" to receive her protection. In India and China, people believed that an open umbrella represented the vault of heaven. Early Buddhists used it as a symbol for the Buddha, and domes of their monuments are often surmounted by umbrellas. Umbrellas feature in Hinduism too.

Umbrellas spread to Greece by 500 B.C.E., where they were carried over images of gods and goddesses at religious festivals. Athenian women had servants carry a sunshade over them, but few men would use such an object. From Greece the custom spread to Rome.

The Roman Catholic Church included the umbrella in its ceremonial regalia. The pope began to appear under a red and yellow striped silk model, while cardinals and bishops had violet

A woman of ancient Greece holding an umbrella

Drawings: The Complete Encyclopedia of Illustration/J. G. Heck



or green versions. Basilicas to this day have a chair for the pope with an *ombrellone*, or umbrella, over it in the papal colors. The cardinal who acts as head of the church between the death of one pope and the election of the next also has an *ombrellone* as his personal emblem during that time.

From Sunshade to Rain Shield

Today we distinguish between the umbrella, which shields us from the rain, and the parasol, which shields us from the sun, but neither word originally had any connection with rain. The English word "umbrella" comes from the Latin *umbra*, meaning "shade" or "shadow," and the expression "parasol" comes from words meaning "to shield" and "sun." It was the Chinese or possibly the women of ancient Rome who began to oil and wax their paper shades as a protection against the rain. However, the idea of a sunshade or a rain shield disappeared from Europe until the 16th century when the Italians, and later the French, rediscovered their use.

By the 18th century, women in Britain were beginning to carry umbrellas, though men still refused to bear what they viewed as effeminate fripperies. The exceptions were coffeehouse owners, who realized the advantage of having an umbrella at the ready to shield customers from the elements as they stepped outside to their carriages. Clergymen too found them very useful in churchyards when they conducted burial services in the pouring rain.

It was traveler and philanthropist Jonas Hanway who changed the history of the umbrella in England. He is said to be the first man who had the courage to carry one publicly in London. Having observed men using them in his journeys overseas, he was determined to brave the angry jeering of the hackney coachmen who would deliberately splash him with muddy water from the gutter as

Buying and Taking Care of Your Umbrella

Make your choice between convenience and strength. The cheaper folding style that slips into a large pocket likely has fewer ribs but is less robust in strong winds. On the other hand, the conventional stick umbrella may cost more, but it usually withstands the weather and lasts longer. Indeed, a good umbrella can last many years. Whichever type you choose, protect it from mildew and rust spots by leaving it open to dry completely before folding it up again. Storing it in its outer sleeve will keep it clean and dust-free.

Today's umbrellas

they drove by. Hanway and his umbrella were regularly seen together for 30 years, and by the time he died in 1786, men as well as women were happily carrying umbrellas.

Using a rain umbrella in those days was a real challenge. Such umbrellas were large, heavy, and clumsy. Their oiled silk or canvas covers and their ribs and shafts of cane or whalebone made them difficult to open when wet, and they leaked. Nevertheless, their popularity grew, especially as it was cheaper to buy an umbrella than to hire a carriage when it rained. Umbrella makers and shops multiplied, and inventors turned their attention to improving the design. In the middle of the 19th century, Samuel Fox patented the Paragon model, which had a light but strong steel frame. Lighter fabrics such as silk, cotton, and wax-glazed linen replaced the old bulky covers. The modern umbrella had arrived.

Fashion Accessory

The parasol now became very popular as an elegant fashion accessory for the stylish lady in England. Reflecting changing fashions, her dainty parasol grew ever larger and was covered with all manner of brightly colored silks and satins. It often matched her outfit and was embellished with lacy trimmings, fringes, ribbons, bows, and even feathers. Well into the 20th century, no respectable lady wishing to preserve her delicate complexion would be seen without her parasol.

In the 1920's, suntanned skin became the vogue, and the parasol virtually disappeared.

Now came the era of the city gentleman with his unofficial uniform of bowler hat and black, rolled umbrella, which doubled as a debonair walking stick.

After the second world war, new technology brought improved umbrella designs to the market, such as the telescopic folding model, as well as waterproof nylon, polyester, and plastic covers. A few shops survive that make fine hand-finished, expensive umbrellas. But nowadays, factories mass-produce umbrellas cheaply in all colors and sizes, ranging from the huge golf and patio styles down to the collapsible six-inch model that fits neatly into a purse.

Although once viewed as a luxury and a status symbol, the umbrella is now readily affordable, and it regularly comes near the top of lists of lost property items. It is a very useful accessory for meeting weather challenges anywhere in the world, and its original use as a sunshade is back in fashion in some lands, as warnings increase about the risks of sun exposure. So perhaps when you leave home today, you too will hear the reminder: "Don't forget your brolly!"



A parasol, about 1900

Culver Pictures

The **SWEAT BATH**

Then and Now

FOR centuries various cultures have enjoyed sweat baths. Some of the many types of sweat baths are the *inipi* of the North American Indians, the *bania* of the Russians, the *hamman* of the Turks, and the *mushiburo* of the Japanese.

There were also the baths of ancient Rome, which included a hot room and a steam room. Among the most beautiful and luxurious of the Roman baths that have been unearthed are the Caracalla baths. These covered 28 acres and could accommodate 1,600 bathers.

We invite you to examine two kinds of sweat baths still in use today. One is the *temescal* of Mexico. The other is the Finnish sauna, and after reading about it, you just might want to try it!

The Temescal

The pre-Hispanic *temescal* of Mexico was used by the Aztecs, the Zapotec, the Mixtec, and the Maya for therapeutic and purification purposes—coming-of-age rites, childbirth, the burial of a relative, and other tribal ceremonies. *Temescal* comes from the indigenous Nahuatl word *temazcalli*, meaning “bath-house.” The *temescal* was a rectangular or round adobe structure with a vaulted roof. In it volcanic rocks were heated, and steam was produced by throwing herbal teas, such as rosemary and eucalyptus, on the rocks. The bather was gently whipped with ritual or medicinal plants, and the ceremony was ended by aspersion with cold water.

A “temescal” sweat bath



Baths of Caracalla in Rome

Courtesy of James Grout/
Soprintendenza Archeologica
di Roma



The Spanish friars fought against this custom during the viceroyalty because they considered mixed-gender bathing inappropriate. Nevertheless, the *temescal* survived and is still used in certain parts of Mexico, mainly for bathing, for alleviating illness, or for recovery after childbirth. However, there is an increasing interest in reviving the traditional religious aspects of the *temescal* as part of the country's heritage.

The Finnish Sauna

Perhaps the best-known sweat bath is the Finnish sauna. In fact, "sauna" is a Finnish word. The sauna has been in existence for some 2,000 years, the earliest consisting of a crudely covered hole in the ground with a fire pit in the center or the corner. Outdoor cabin-type saunas appeared in the early 12th century C.E.

In modern Finland the average home has a sauna, paneled with wood and heated electrically or by firewood. Wood-burning saunas are still very common in cabins and rural areas. Whether electric or wood burning, the stoves are topped with a bed of rocks. Bathers then increase the humidity by throwing water on the heated stones with a ladle. An important difference between a Finnish sauna and the Roman or Turkish baths is that most saunas are paneled with and furnished with wood. Because wood is a poor heat conductor, high temperatures can be achieved without bathers getting burned by the benches, rails, or walls.

The sauna is so much a part of Finnish culture that there is 1 sauna for every 3 Finns, according to estimates. Most Finns take a sauna about once a week. While enjoying summer vacations, often at a lake, many take a sauna almost every day! Usually the bathers alternate between the hot sauna and a swim in the cool lake waters. For those who enjoy this back-and-forth sauna ritual all year round, there are plenty of saunas located near frozen bodies of water, where a hole in the ice is kept open for quick dips.

Health Benefits of the Sweat Bath

The Finns have long been advocates of the sauna for its health benefits. A Finnish proverb says: "The sauna is the poor man's apothecary." Indeed, in addition to being a bathing room, the sauna served as a kind of hospital and maternity ward until the 19th century.

A typical sauna lasts about 10 to 15 minutes a session at 180 to 212 degrees Fahrenheit. Many bathers enjoy repeated sessions, resting or showering in between. Stimulated by the heat, blood flow is increased, the pores are opened, and wastes such as lactic acid are excreted, producing a cleansing or detoxifying effect. A sauna is often taken to relieve aches and pains after exercise and to bring relief from allergies, colds, and arthritic pain. Although there are mixed opinions about these health benefits, sauna enthusiasts say that such a bath does create a feeling of well-being, a sensation of lightness and cleanliness. Some enjoy a sauna at the end of the day for its relaxing and sedative effect. Others find that alternating between hot and cold is rejuvenating and thus prefer it during the day.*

Saunas are becoming ever more popular throughout the world, especially in hotels and sports facilities. A word of caution: Unfortunately, in some countries the term "sauna" is used to designate certain places of prostitution. Hence, make sure that the sauna you visit is a real one, used for decent purposes.

In some places saunas are not operated properly. For instance, if a stove does not have an adequate amount of rocks and water is thrown on it, this could result in a rapid surge of steam that could prove uncomfortable. Also, the water could leak onto the fire or electrical coils and eventually damage the stove. Hence, always make sure that the manufacturer's instructions are followed and that the sauna is kept clean and is properly ventilated. If you have access to one that meets these requirements, you may wish to try this ancient yet modern bath.

* If you are elderly or pregnant or have heart problems, consult a doctor before taking a sauna.

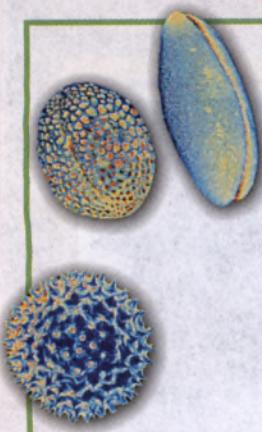
Tips for Sauna Bathing

- Avoid alcohol and heavy meals before the sauna.
- Begin with a shower.
- Sit on a towel.
- Remember that the lower the bench, the cooler the temperature.
- Adjust humidity by throwing

small amounts of water on the stones of the stove.

- Do not engage in competitions in which bathers dare one another into enduring extremely high temperatures or dangerously long sessions.
- Finish with a cool shower.





BY AWAKE!
WRITER IN
AUSTRALIA

Pollen Menace or Miracle?

Ah-choo! That sound, combined with watery, itchy eyes and a drippy, irritated nose, heralds the arrival of spring for millions of people. Their allergy usually results from an atmosphere laden with pollen. The *BMJ* (formerly *British Medical Journal*) estimates that 1 in 6 people in the industrialized world suffers from seasonal pollen allergies, also called hay fever. That number is hardly surprising considering the staggering amount of pollen that plants release into the air.

Scientists estimate that the spruce forests in just the southern third of Sweden release about 75,000 tons of pollen each year. A single ragweed plant, the bane of North American hay-fever sufferers, can produce a million grains of pollen a day. Carried by the breeze, ragweed pollen has been found 2 miles above the earth and up to 400 miles out to sea.

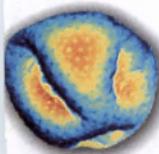
But why does pollen trigger an allergic reaction in some people? Before we consider that question, let us take a close look at pollen and see the amazing design found in these minute grains.

Tiny Grains of Life

Pollen, says *The Encyclopædia Britannica*, is "formed in the anther, or male apparatus, in seed-bearing plants and transported by various means (wind, water, insects, etc.) to the pistil, or female structure, where fertilization occurs."

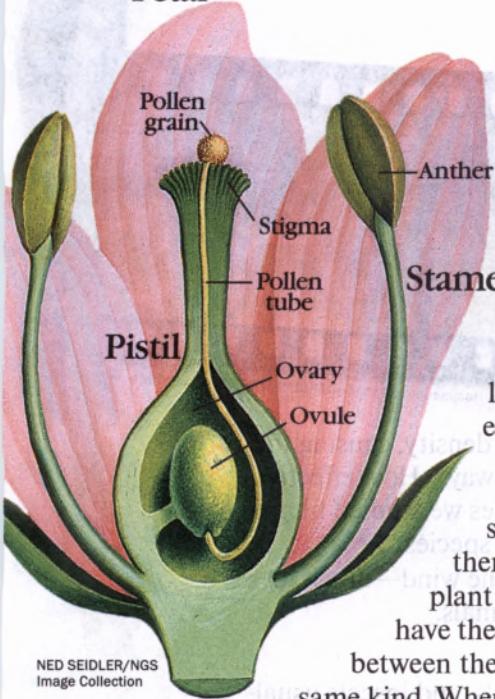
In flowering plants, pollen grains are made up of three distinct parts—a nucleus of sperm cells and two layers that make up the wall or shell of the grain. The tough outer layer is highly resistant to disintegration and able to withstand strong acids, alkalies, and even intense heat. Nevertheless, with few exceptions, pollen is viable for only several days or weeks. The tough shell, though, may last for thousands of years without decaying. Hence, pollen grains can be found in abundance in the earth's soil. In fact, scientists have learned much about the earth's botanical history by studying pollen found in soil samples taken from various depths.





That history can also be quite accurate, thanks to the distinctive designs found on the outer shell of pollen grains. Depending on the type of pollen, the shell may be smooth, wrinkled, patterned, or covered with spines and knobs. "Thus, for purposes of identification, the pollen of each species is as reliable as a human fingerprint," says professor of anthropology Vaughn M. Bryant, Jr.

Petal



NED SEIDLER/NGS
Image Collection

How Plants Pollinate

Once a pollen grain comes in contact with the stigma, a part of the pistil in female plants, a chemical reaction causes the pollen grain to swell and to grow a tube that reaches down to the ovule. Sperm cells from inside the pollen grain then travel down the tube to the ovule, causing a fertilized seed to form. When the seed is mature, it simply needs to settle in the right environment in order to germinate.

While some seed-bearing plants grow as either male or female, most produce both pollen and ovules. Some plants self-pollinate; others cross-pollinate by transferring pollen to other plants of the same species or of a closely related one. Those that cross-pollinate "often avoid self-pollination by shedding their pollen either before or after the stigmas on the same plant are receptive to it," says *Britannica*. Others have the chemical wherewithal to detect the difference between their own pollen and that of another plant of the same kind. When they detect their own pollen, they inactivate it, often by blocking the growth of the pollen tube.

In an area where there is a variety of vegetation, the air may be a veritable cocktail of pollens. How do plants sift out the pollen they require? Some employ complex principles of aerodynamics. Consider pine trees, for example.

Harvesting the Wind

Male pinecones grow in clusters and, when mature, release clouds of pollen to the wind. Scientists have discovered that female pinecones, in cooperation with the pine needles surrounding them, channel airflow in such a way that airborne pollen swirls and falls toward the reproductive surfaces of the cones. In receptive females these surfaces become exposed when the scales open slightly, separating from one another.



Microscopic view of various kinds of pollen

Pollen grains: © PSU Entomology/PHOTO RESEARCHERS, INC.

Researcher Karl J. Niklas conducted extensive tests on the aeronautical wizardry of pinecones. In the magazine *Scientific American*, he wrote: "Our studies reveal that the unique shape of the cone produced by each plant species results in idiosyncratic [distinctive] modifications of the airflow patterns . . . Similarly,

Part of the hammer orchid's flower resembles a female wasp



▲ Hammer orchid images: © BERT & BABS WELLS/OSF ▶

each type of pollen has a distinctive size, shape and density, causing the pollen to interact with the turbulence in a unique way." How effective are these techniques? Says Niklas: "Most of the cones we studied filtered their 'own' pollen from the air but not that of other species."

Of course, not all plants pollinate by harnessing the wind—much to the relief of allergy sufferers! Many make use of animals.

Seduced by Nectar

Plants that are pollinated by birds, small mammals, and insects usually employ things like hooks, spines, or sticky threads to attach pollen to the body of the foraging pollinator. A hairy bumblebee, for example, may find itself hauling off some 15,000 pollen grains in a single load!

Bees, in fact, are the preeminent pollinators of flowering plants. In return, plants reward bees by giving them both sweet nectar and pollen to eat, the latter providing proteins, vitamins, minerals, and fats. In an extraordinary act of cooperation, bees may visit over 100 flowers on a single trip, but they will collect pollen, nectar, or both from just one species until they have gathered enough or until supplies run out. This remarkable, instinctive behavior helps to ensure efficient pollination.



Pollen grains: © PSU
Entomology/PHOTO
RESEARCHERS, INC.

Fooled by Flowers

Instead of offering sweet treats, some plants rely on elaborate deceptions to coax insects to pollinate them. Consider the hammer orchid, which grows in Western Australia. The hammer orchid's flower has a lower lip that, even to the human eye, almost perfectly resembles the plump, wingless female thynnid wasp. The flower even emits a chemical copy of the sex pheromone, or sex attractant, of the real female wasp! Poised at the end of an arm just above this alluring decoy are sticky bags filled with pollen.

A male thynnid wasp, lured by the scent of the imitation pheromone, will grab the decoy and try to fly off with "her" in his grasp. As he takes off, however, his momentum flips him and his intended up and over, right into the sticky pollen sacks. After realizing his mistake, he releases the decoy—which is conveniently attached to a hinge, allowing it to fall back into place—and flies off, only to be fooled again by another hammer orchid.* This time, however, he pollinates the orchid with the pollen he picked up on his previous encounter.

But if female thynnid wasps are active, males will invariably choose one of them, not the impostor. Conveniently, the orchid blooms several weeks before female wasps emerge from their underground pupae, giving the flower a temporary advantage.

Why the Allergies?

Why are some people allergic to pollen? When tiny pollen grains lodge in the nose, they get trapped by a layer of sticky mucus. From there they move to the throat, where they are swallowed or coughed out, usually without any ill effects. Sometimes, though, pollen excites the immune system.

The problem lies in pollen protein. For some reason the immune system of an allergy

sufferer views the protein of certain pollens as a threat. The body reacts by setting off a chain reaction that causes mast cells, which are found in the body's tissues, to release histamine in inordinate amounts. Histamine causes blood vessels to dilate and become more permeable, so that they leak fluids that are rich in immune cells. Under normal circumstances, these immune cells migrate to the site of injury or infection, where they help to rid the body of harmful invaders. For allergy sufferers, however, pollen triggers a false alarm, which translates into irritated, dripping nostrils, swollen tissue, and watery eyes.

Researchers believe that people inherit the tendency to be allergic from their parents, although the tendency may not relate to a specific allergen. Pollution could also be a sensitizing factor. "In Japan a direct relation was found between sensitivity to pollen and proximity to areas with high levels of diesel exhaust particles in ambient air," said the *BMJ*. "Animal studies suggest that these particles increase allergic sensitisation."

Happily, for many sufferers, antihistamines can ease their symptoms.* As the name suggests, these drugs oppose the action of histamine. Despite pollen's irritating effects, however, one cannot help but be deeply impressed by the ingenuity evident in both the design and the dispersal of these tiny particles of life. Without them, planet Earth would be a barren place indeed.

* In the past, antihistamines tended to induce drowsiness and a dry mouth. Newer formulations have reduced these side effects.

In Our Next Issue

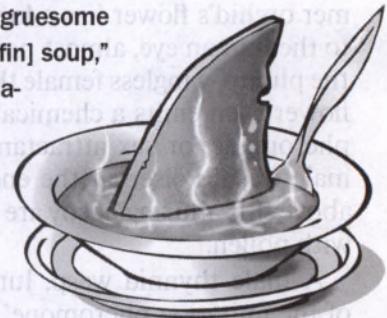
- **What's Happening to the Weather?**
- **Something No Storm Could Wash Away**
- **Is Ethnic Hatred Justified?**

* The flower is called the hammer orchid because the decoy (the labellum) pivots up and down on a hinge, which allows it to swing like a hammer.

Watching the World

Stripping Sharks

Worldwide, commercial fishermen are scouring the oceans for sharks, stripping them of their fins, and throwing the carcasses overboard. "This type of gruesome amputation is fueled by demand for nothing more than a pricey [shark fin] soup," reports *Science News*. In August 2002, the U.S. Coast Guard seized a Hawaiian vessel off the coast of Mexico after discovering it was stuffed with 32 tons of shark fins. No other shark parts were on board. "The grotesque load represents the slaughter of at least 30,000 sharks and the discard of some 1.28 million pounds of fish," says the magazine. "Around the globe, fishing fleets now take an estimated 100 million sharks annually." With shark fins fetching upwards of \$200 per pound on the open market, there is an unsustainable growing demand.



Diabetes Increasing in India

The World Health Organization estimates that more than 170 million people worldwide have diabetes. India is the country with the highest number of sufferers—32 million—and this figure is expected to exceed 57 million by 2005, reports the *Deccan Herald* newspaper. At an international congress on diabetes in Asia, held in Sri Lanka, experts pointed to diet and life-style changes as the primary reasons for this sharp increase, along with stress, genetic factors, low birth weight, and overfeeding of newborns. In India the cost of treating diabetes is one of the lowest in the world. Still, diabetes-related health complications and mortality remain high, in part because of both lack of awareness and late diagnosis of the disease. A study conducted in major Indian cities concluded that 12 percent of the adult population suffer from diabetes and 14 percent have impaired glucose tolerance, which often precedes diabetes.

War Correspondents

Traumatized

"A significant number [of war correspondents] were severely traumatized by what they had witnessed and experienced," says *The New York Times*. The newspaper was commenting on "a study of [140] foreign correspondents from six major news organizations who regularly covered wars and other armed conflicts." The article explains that "the war reporters had substantially higher rates of serious depression and post-traumatic stress disorder than did [a comparison group of 107] reporters who did not cover wars." The symptoms "included flashbacks, recurring nightmares, irritability, difficulties in concentration and hypervigilance." Additionally, "the correspondents reported a range of social difficulties, . . . including an inability to adjust to civil society, a reluctance to mix with friends, troubled relationships and the use of alcohol as a hypnotic." On average, the men and women in the study "had spent 15

years in conflict zones including Bosnia, Rwanda, Chechnya, Somalia and Afghanistan."

Aging Europeans

"Old Europe does justice to its name more and more," reports the Spanish newspaper *El País*. In practically all countries of the European Union, at least 20 percent of the population is over 60 years of age. Demographers predict that by the year 2050, 4 out of every 10 citizens in some lands, such as Austria, Italy, and Spain, will be over 60. This progressive aging of the population will demand both social and economic adjustments, noted the Second World Assembly on Aging, held in Madrid, Spain. Pensions and health insurance will become more difficult to finance. For example, employers may have to hire older workers, organize flexible or shared work schedules, and offer staggered retirement plans. Furthermore, "since there will be fewer young people, companies that want to grow will have to direct their services and products to older

ones," observes Spanish businessman Josep Maria Riera.

Sex Education Needed More Than Ever

According to official figures in Germany, between 1996 and 2001, abortions increased by some 60 percent among 15- to 17-year-olds and by 90 percent among girls even younger, reports *Der Spiegel*. Norbert Kluge, of the University of Koblenz-Landau, states that while children are reaching sexual maturity at an ever earlier age, they are 'not properly educated in sexual matters—and especially not early enough.' Children need to be well informed about the facts of life before they reach the age of ten, but many parents shy away from their responsibility, says Kluge. According to the *Berliner Morgenpost*, the director of the Federal Parents Council in Bonn advises parents to dwell more on emotional themes, such as "love and relationships," when giving sex education to their children, rather than on the biological processes.

E-Mail and Social Skills

According to two researchers, employees are just as likely to speak to a coworker working on the same floor via E-mail as they would to counterparts working in different time zones, says Canada's *Globe and Mail* newspaper. Speaking of the effect E-mail can have on social skills, David Crystal, a professor of linguistics at the University of Wales, says: "Simultaneous feedback is a fundamental feature of conversation," and E-mail does not allow for this because of the time lag between receiving and responding to a message. Moreover, an E-mail writer can monop-

olize the conversation without being interrupted. "The ability to take turns in conversation," states the *Globe*, "is an essential social skill."

Two Sets of Nerves?

Humans are endowed with a special nervous system to sense love and tenderness, reports the German scientific journal *Bild der Wissenschaft*. Swedish scientists discovered that a woman who had lost her main touch receptors still felt a pleasant sensation when stroked with a soft paintbrush. This sense of pleasure, they found, was evoked

by a second nerve network in the skin, consisting of slow-conducting fibers called tactile C fibers. The network only responds to a gentle touch and activates those brain areas dealing with emotions. Commenting on why humans might have two different sets of nerves, the *International Herald Tribune* states: "The slow fibers function from the earliest hours of life, perhaps even in the womb, while the fast fibers develop slowly after birth. Newborns might be able to feel the love in a parent's touch before they can feel the touch itself."

Managing Time

A recent study concludes that "people who complain they don't have enough time are under an illusion," reports *The Australian*. The paper cites a study conducted by the University of New South Wales and the Australian National University and states: "Many of us are spending more time at work and doing household tasks

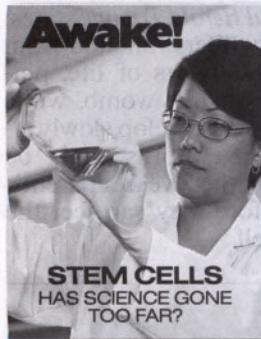
than is strictly necessary." Researchers calculated the amount of time a working couple without children needed to work in order to provide the bare necessities of life. They then compared the calculated time to the amount of time they actually spend on those activities. The study found that childless working couples "spent a combined 79 hours a week at work, 37 hours on house-



hold tasks and 138 hours on personal care, but they only needed to work 20 hours a week [10 hours each], do household tasks for 18 hours and spend 116 hours on personal care [including eating and sleeping]," says the paper. If a couple were willing to scale back, they could gain as many as 100 additional hours of free time a week. The study, according to *The Australian*, suggests that working couples without children "claim to be most pressured for time, but are, in fact, the least time-strapped of any group, with parents far more pressed for time."

From Our Readers

Stem Cell Research I rarely comment on your articles; I've grown accustomed to the consistently fine quality of *Awake!* However, I feel compelled to write and say that the series "Stem Cells—Has Science Gone



Too Far?" (November 22, 2002) is a flagship example of excellent writing on subjects difficult to understand. There has been so much in the media about stem cell research that the facts have proved difficult to piece together. Your articles explained things clearly while keeping in focus the moral, ethical, and social issues.

K. M., United States

Peer Pressure Thank you so much for the article "Young People Ask... Peer Pressure—Is It Really All That Powerful?" (November 22, 2002) I never thought of myself as one influenced by peer pressure. But where I live, many are getting married very young. I had always wanted to stay single a while and develop into a spiritual young woman. But people would come up to me and ask, "When are you getting married?" (I'm only 16.) I began to think that maybe it was wrong for me to be single! This article helped me to see how powerful peer pressure really is.

E. A., United States

Flood Relief Thank you very much for the article "Love in Action—A Marathon Relief Effort." (November 22, 2002) I was surprised to learn how great the flood damage was in Houston, Texas. I did not know about the sorrowful conditions that my Christian brothers and sisters there were facing. The well-organized relief work has given me a foregleam of how the earth will be returned to a beautiful state after Armageddon.

M. I., Japan

Genetic Code I would like to draw attention to the way the term "genetic code" is used in your publication. For example, in the article "How Did the Universe and Life Originate?" (June 8, 2002), you speak of "the recent mapping of the human genetic code." As a

biologist, I would like to point out that such usage of that term is inaccurate.

A. R., Russia

"Awake!" responds: Strictly speaking, our reader is correct. Scientists do not use the term "genetic code" to describe the genes themselves. Rather, the code refers to the mechanism or set of rules that allows cells to "read" or decode the genes and produce proteins. Nevertheless, "Awake!" is directed to the general public—not to scientists. In popular usage the term "genetic code" is often given a broader, nontechnical application.

Wastewater As the chief operator of a wastewater plant, I was extremely pleased to read the article "Where Does the Water Go?" (October 8, 2002) Wastewater treatment saves millions upon millions of people from pathogenic infections. In the past, typhoid, cholera, and other waterborne diseases ran rampant worldwide. Interestingly, modern wastewater treatment is a natural process, often using little or no chemical additives. In my plant ultraviolet light is used to disinfect treated wastewater. Thanks for showing the lifesaving process of wastewater treatment.

E. P., United States

Amber I really appreciated the article "Captured in a Golden Teardrop." (September 22, 2002) I must admit that I never used to pay any attention to amber. But since reading this article, every time I walk past a jewelry shop, I cannot stop myself from looking closely at the details of this marvel—something that I used to think was ordinary and without charm.

F. L., France

PESKY PURIFIERS

In the mid-1980's, a thumbnail-size mollusk called the zebra mussel was inadvertently introduced into the Great Lakes of North America in the ballast water of freighters from Europe. *Maclean's*, a Canadian newsmagazine, says that the shellfish has "become the poster creature for invasive aquatic species." Why?

A single female can produce 500,000 eggs a year. Moreover, these mussels attach themselves in colonies to any hard surface. As many as 600,000 can occupy one square yard. As a result, they clog intake pipes that draw water into water treatment plants and generating stations. They are also a costly problem for boat and dock owners.

Yet, there is a positive side to this much-maligned creature. Zebra mussels may soon be at work protecting our health. Environmental scientists, who have for a long time studied the creature's design and function, know that the zebra mussel is also a hardy water purifier. Parasitologist Thaddeus K. Graczyk, of Johns Hopkins University in Baltimore, and Environment Canada research scientist Yves de Lafontaine, of Montreal, have collaborated in their study of this shellfish. *Maclean's* reports that the zebra mussel is able to ingest "suspended particles containing everything

from tributyltin, a toxic ingredient in marine paint, to the lethal *Cryptosporidium* parasite and the *E. coli* bug."

◀ *Cryptosporidium* is the size of a human red blood cell and is difficult to remove from drinking water. It is immune to most common forms of disinfectant, such as chlorine and ozone. "Zebra mussels, however, can handily filter out particles that size," says

Maclean's. In fact, researchers say that "during the warm months, each adult mussel can filter a litre of water a day, removing algae, mineral particles, pollutants and other potentially life-threatening pathogens and bacteria." They estimate that a square-yard colony could digest ten million of such parasites in about two hours.

Indeed, what science is learning about the cleaning capacity of this mollusk is a marvelous testimony to the perfect balance of all of God's creative works.

Fingers holding zebra mussel: U.S. Geological Survey; all other mussels: © Rob and Ann Simpson/Visuals Unlimited; Cryptosporidium: H.D.A. Lindquist, U.S. EPA



A LETTER FROM A LOVED ONE

A reader from New York compared the book *Draw Close to Jehovah* to a letter from a loved one, explaining: "Each chapter just stirs the heart and fills you with love for Jehovah." She added: "Now that I have reached the end of the book, I can't wait to start reading through it again, the way you would a letter from someone you dearly love." Consider what others have had to say.

A reader in Kansas observed: "I can really feel myself drawing closer to my heavenly Father. My heart just swells with love . . . I look forward to reading more each morning, and I will read it over again many times."

A woman from Maine wrote: "It has done so much to increase the reality of the person of Jehovah! What a comfort the statement on page 74 is: 'For those who die, there is no safer place to be than in God's memory.' " A writer in Alaska concurs: "It touched me so deeply that tears flowed." She added: "I will certainly read and refer to it over and over."

