

JANUARY 8, 1981

Awake!

a
Better
Life—
just
a
Dream?



FEATURE ARTICLES

People everywhere long for a better life. For most of them it is just a dream. But for millions of persons worldwide it has become reality, and they have sound reasons for confidence in even finer things to come. What they have found you can share, and these articles show how.

- 5 A BETTER LIFE—JUST A DREAM?
- 6 LIFE CAN BE BETTER NOW!
- 9 THE BEST LIFE—SOON TO COME

OTHER ITEMS

- 3 Have You Ever Wondered—
Why Bad Habits Are So Hard
to Break?
- 12 Photography in Three Dimensions
- 16 Hard Realities Faced by
Working Women
- 20 A Search for Knowledge
- 24 Crossword Puzzle
- 25 Water—An Extraordinary
Substance
- 26 Should You Observe the Sabbath?
- 28 Not 'Desecrating the Sabbath'
- 29 Watching the World

WHY THIS MAGAZINE IS PUBLISHED

"Awake!" is for the enlightenment of the entire family. 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 stays politically neutral and does not exalt one race above another. It also shows how to cope with today's problems. Most importantly, "Awake!" builds confidence in the Creator's promise of a peaceful and secure new order within our generation.

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Have You Ever Wondered—



Why Bad Habits Are So Hard to Break?

AT THE beginning of a new year some people resolve to make a fresh start by breaking a bad habit. Making "New Year's Resolutions" is quite popular in some countries. Yet many persons end up the year with making resolutions again—the SAME ones. Has this ever happened to you? Yes, bad habits are hard to break.

WHY DO WE HAVE BAD HABITS?

There are basically two reasons: (1) the influence from our environment and (2) various weaknesses with which we were born, and flaws of personality we have developed.

Our environment, which includes where we live, how we were reared, the type of friends we have, even what we look at for entertainment—all of these definitely influence the kind of habits we

form. Additionally, most persons, if honest, will agree that we were also born with a natural inclination to do what is bad. The Bible itself says: "The inclination of the heart of man is bad from his youth up." (Gen. 8:21) This "inclination" makes it easy to develop bad habits, some relatively harmless, others potentially deadly.

WHAT IS NEEDED TO BREAK BAD HABITS?

We must have a strong reason—an incentive—to break them. Several things can provide motivation. The prospect of a reward is at times sufficient. The promise to a child of a pretty new dress or a new pair of roller skates for breaking the bad habit of fingernail biting has been known to bring about amazing results.

Concern for one's own welfare can be a powerful incentive. A person may know that smoking is bad for his health, and yet not stop. But when he begins to have difficulty in breathing, coupled with suspicious chest pains, and his doctor says that smoking is to blame, love of self may provide the incentive for him to stop.

Love for others can also give motivation. For instance, a young single man who squanders his money gambling may be willing to go without proper food and clothing. However, if married, one of his neglected children may plead: "Dad, I'm hungry and there's no food in the house!" Love for his family may cause him to cease gambling. This concern for others is what may incite one to stop a habit that he now senses is annoying to others, a habit that may have been acquired from his previous environment or upbringing.

Yet at times love both for one's self and for others fails. There is, however, another type of love that has provided even greater incentive and has succeeded where the others did not.

WHAT IS THE STRONGEST INCENTIVE?

This type of love can be illustrated by the words of one mother to her young daughter. The girl previously wanted very much to play the piano, but now bemoaned: "How I hate this everlasting practising!" The mother responded: "Think how delightful it will be, by and by, to entertain father when he comes home tired from the office! You know how he loves music. So keep up your courage, little daughter, for father's sake." The child never forgot those words "for father's sake." It gave her the extra incentive to do what was already in her heart. She loved her daddy!

Likewise, love for our heavenly Father can provide the strongest incentive to rid ourselves of habits that displease him. Such action brings joy to his heart. "This is what the love of God means," explains the Bible, "that we observe his commandments."—1 John 5:3.

One young woman who had tried for months to quit smoking explained that this love really worked in her case: "I acknowledged in prayer to Jehovah that I really did enjoy smoking, but that I wanted to give it up to please Him. Then by keeping my mind continually on pleasing God, I finally broke free from the habit."

Yet the Bible is very realistic in recognizing that breaking bad habits is not easy. One of its faithful writers sighed: "For the good that I wish I do not do, but the bad that I do not wish is what I practice. Miserable man that I am!" (Rom. 7:18-24) Since breaking bad habits is such a difficult task, even with the right motivation, it is only natural to ask:

WHERE DO YOU START?

Since we are greatly affected by our environment, endeavor to change it. This does not necessarily mean moving, but it means exercising care about what we let influence our minds. Are there items in our home that would tempt us to continue in our bad habit? Get rid of them!

Or, some may have trouble coping with the harmful habit of a bad temper. "Do not have companionship with anyone given to anger," recommends the Bible. And why? "That you may not get familiar with his paths." (Prov. 22:24, 25) Isn't it true that when you're around rough persons you sometimes speak harshly? On the other hand, if you're around calm, self-controlled persons, it also rubs off. Also, would reading books or watching TV shows or movies where violence is featured make the task easier or harder? So to overcome some bad habits we may have to change from some of our present "friends" to new ones, and we may need to avoid certain types of entertainment.

Many persons have found an environment conducive to developing good habits by attending the meetings of Jehovah's Witnesses and associating with them. The Witnesses have been willing to help them through a free personal study of the Bible to learn more about God and thereby grow to love him even more.

Yet many may wonder, since it still is a constant fight to rid ourselves of bad habits, will the day ever come when such will be completely overcome? Will even the weaknesses we were born with and that are so hard to manage ever be fully removed? Happily, the answer is "Yes." Why not read the article "The Best Life—Soon to Come" in this magazine for a satisfying explanation of the reason why this is so.

a Better Life—just a Dream?

"My

'lives' are ruined," confessed Ronald, a 47-year-old who for six years led a double life. His life was now shattered by a decision he made over a decade earlier.

Though at the time married and with two children, he sought to "improve" his life by a secret love affair. He set up his lover with a home and soon had two children by her. After six years of juggling his time and money, and trying to cover up with lies, he finally felt too torn at heart to continue. He divorced his wife and lived with only his lover. But then she left him. Now he had no one. "I'm living in a slum in a three-room flat with my parents," sobbed Ronald. "It's degrading."

One's life can be easily ruined. The bad decisions you make may come back to haunt you. On the other hand, right decisions increase your happiness, making for a better life.

Even if we avoid gross errors such as Ronald's, there are many things that can

hinder our having a better life. Chronic illness has ruined the lives of countless millions. Others have been abandoned by a marriage partner and have had to make it in life alone.

Ours is an age of frustration and discontent. Multitudes turn to alcohol abuse, drugs and promiscuous sex in an attempt to escape from reality. Their lives become even worse. Many wonder: How can I increase the happiness in my life?

What Is Needed to Be Really Happy?

Over 100,000 persons were asked, "What would make you happy?" From the variety of answers, two needs stood out. One "attitude that is important for adult happiness is a certainty that life has meaning and direction" and that one is 'progressing toward lifetime goals,' stated *Psychology Today*, the source of one poll. While *Redbook* magazine concluded from its poll: "Women of all ages most highly prize being at peace with themselves . . . to reach inner harmony."

How true! If your life is not accomplishing anything really meaningful or you cannot live with yourself because of overwhelming guilt and weaknesses, you probably yearn for a better life. But how do we put our lives together so they are happy? A certain decision or course of action may seem to lead to a better life, but time and experience often prove it to be disappointing.

TO BE HAPPY

- You need to know that your life is accomplishing something meaningful and that you have worthwhile goals
- You need inner harmony, having self-esteem and control over your emotions

—Based on surveys involving over 100,000 persons

However, millions worldwide have found notable happiness by following the "world's best seller"—the Bible. Could this *really* be how our lives can be guided to lasting happiness?

"But what about the hundreds of millions who have the Bible and whose lives are no better than mine?" many respond. Having the finest mountain guide in the

world is valueless if the climbers refuse to follow him. So with the Bible, for it says: "If you know these things, *happy* you are if you do them."—John 13:17.

But will a careful study and application of the Bible really make *your* life better—even during this age of frustration? If so, why? The following article provides a substantial answer.

Life Can be better Now!

Many people think the Bible offers a better life only in heaven after death, and that their present life is destined to be as it is. However, the publishers of this magazine receive letters from all over the world showing that thousands of persons have been helped to a better life *right now* by following the Bible. Consider the following true-life examples.

Better Mental Balance

A plague of mental illness is sweeping the earth. For example, according to of-

ficial statistics one out of every three Germans in the Federal Republic has suffered from or is presently suffering from a mental disorder. Worldwide there are 1,000 suicides *each day*.

In the United States, where up to one quarter of the population is said to suffer from mental imbalance, one young woman in New York city complained: "My life lacked any significance. For this reason I began to drink heavily and participated in wild parties." Yet rather than this bringing the happiness she so desperately sought, she adds: "I became so disgusted with life that I decided to commit suicide. With this in mind, I obtained a bottle of barbiturates to mix with alcohol."

"That night," reveals the woman, "I prayed to God and told myself that if God really exists, he should stop me from taking my life. It was at this precise moment that somebody knocked at my door. A lady offered to study the Bible with me."

"My initial reaction," she confessed, "was that I slammed the door in her face. However, realizing what I had done, I went after the lady and begged her not to leave me. I then made arrangements to study the Bible with this woman who was one of Jehovah's Witnesses."

From the Bible she learned of a Creator who takes a personal interest in each of us. "Throw all your anxiety upon [God]," says the Bible, "because he *cares for you*." (1 Pet. 5:7) He promises to rid

the earth of wickedness soon and to establish a "new earth" wherein will be an "abundance of peace."—2 Pet. 3:13; Ps. 37:10, 11.

Such knowledge brought meaning into this young woman's life. She now had self-esteem and hope for the future. After studying for two years she concluded: "My life is now filled with real joy and significance." Not everyone receives an answer to prayer as quickly as this woman did. But God is "not far off from each one" who turns to him with a desire to know his will and he *does answer* such sincere pleas for help.—Acts 17:26, 27.

Coping with Bad Health

"All my life I had been weak in health," wrote an older man from Sweden who had suffered through the Spanish flu, several operations and presently was distressed by an eye defect.

"The turning point in my ability to cope with my bad health," beamed this elderly man, "came when I was only 22. Your magazine [*Awake!*] helped me to turn to the Bible." From the Bible he learned that soon God will remove permanently all sicknesses from the earth. (Rev. 21:1, 3, 4) "Since that time," continued the man, "I have experienced years of happiness, for despite my many physical handicaps I have a real hope for the future. Also, I'm accomplishing something, as I have been able to help many others to get the same bright outlook on life." Thousands of similar cases prove that the Bible can fill one's life with hope and meaningful activities. This really helps one to endure sickness cheerfully.

Better Habits

'A habit,' it has been said, 'may at first be but as the spider's web, easily broken

through, but if not resisted, it soon binds us with chains of steel.' How many are those held back from a better life by such "chains of steel," bad habits, such as drunkenness, drug abuse, gluttony, thievery and others!

"I was listed as 'wanted' by 18 police centers," began a young man in Spain. His bad habits included street fighting, drug abuse and drunkenness; he also forged checks and engaged in illegal gambling and drug trafficking. He was in and out of jail.

He read one of the Bible publications of Jehovah's Witnesses and saw the need to change if he wanted to be happier. "But it wasn't easy for me to change. All I wanted were revelries and 'kicks,'" he admitted; yet he hated the kind of person he had become. "I had many ups and downs. On one occasion, in frustration, I ripped up a Bible and threw it against the wall."

Nevertheless, the Bible's counsel gradually began to reach his heart. "With the help of Jehovah God I have changed completely," concluded this man. Now, not only can he live with himself, but he even assists others to make similar changes.

Better Family Life

One newly married man became fed up with his family life and walked out after 18 months of marriage. He then searched the world for happiness. After seven years, which included living in a hippie commune and indulging in drug abuse, he felt that his life was a failure and attempted suicide a number of times.

"It was then while in Australia that I was contacted by one of Jehovah's Witnesses who was kind to me both materially and spiritually," reported this young man. He began to study the Bible with the Witness and was shown from the Bible how he could have a successful marriage. He was convinced it would work, so he contacted his wife. Noting his changed way of life,

she decided to join him. Now the two of them live by the Bible and declare: "We are both happy and have a very contented homelife."—Eph. 5:33.

Better Economy

"We figured out we spent more money on smoking, drinking and gambling per month than on housing, food and clothing for our family. Our smoking habits alone cost us more than the rent for our cramped housing," admitted one couple in Sweden.

"A Bible study with Jehovah's Witnesses motivated us to quit our excessive habits," continued this couple, who now had gained an inner harmony by cultivating self-control. "We now have a larger flat, we eat better, dress better, feel better, sleep better, and we have both money and energy left for more spiritually and physically uplifting activities." Countless others world wide have been assisted similarly.

Additionally, Bible guidelines concerning honesty, industriousness and contentment have helped many to attain a better life economically as these became trusted and valued employees. By learning not to love money, but to respect it, they make better use of it. As the Swedish couple

concluded: "That God-given book brings balance to everything in life."—Heb. 13:5, 18; compare Proverbs 18:9.

These preceding cases show how the Bible can help a person to enjoy a better life now. But you may think: "Those were exceptional persons. I could never, by simply reading the Bible, make all those changes." Neither could they. More was involved.

Peace and Brotherhood

The persons referred to above all received free personal help from Jehovah's Witnesses. One American newspaper called their organization "a model of peace and brotherhood." Association with these people was a forceful incentive to imitate their good conduct.

One young American woman testifies to the value of such association. Her former life-style included drinking at bars, smoking "pot" and fighting. "I was just mean," she said, and tells why. "Never underestimate what *bad associations* can do!" Her "friends" brought out the worst in her. Then she and her husband began to study the Bible and enjoy the company of Jehovah's Witnesses. "I got rid of my hang-ups and developed a good conscience," she reports. "We found that we don't need our old associations anymore, because we have hundreds of new faithful friends that we can trust." This is not to say that this organization of people is perfect. But at least they are *trying* hard to live by the Bible, and the results are notable.

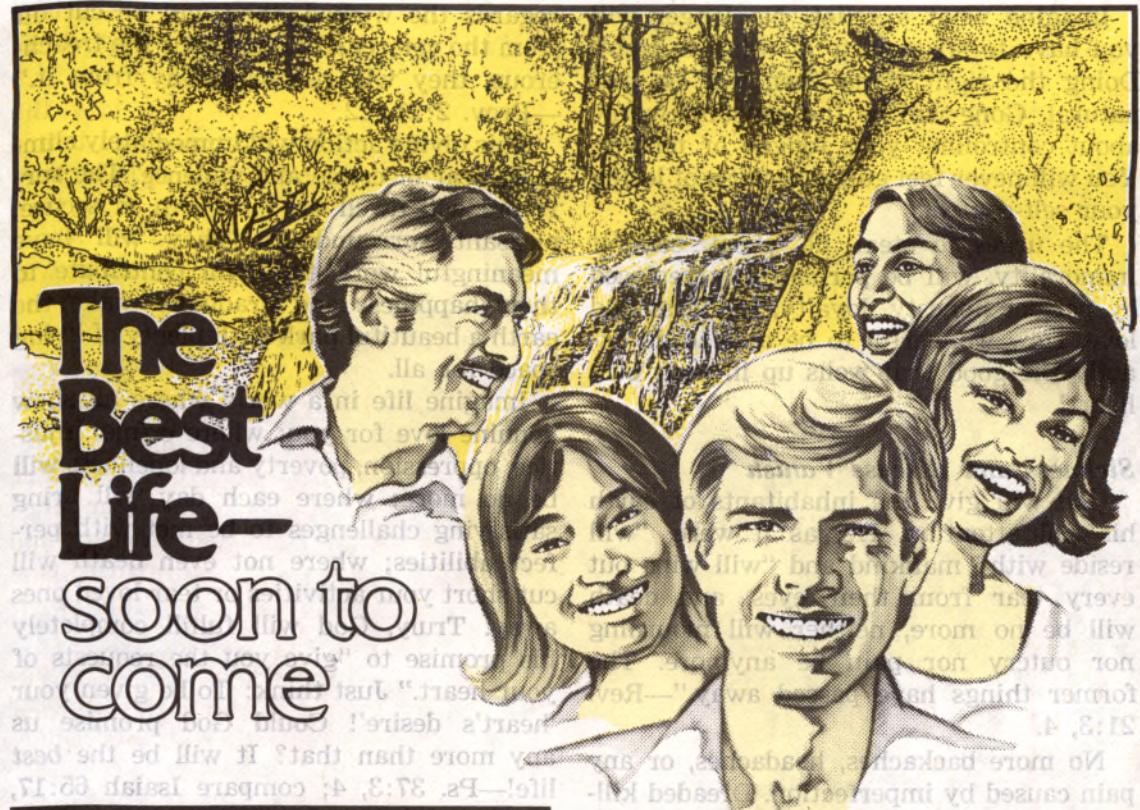
Yet, even if we enjoy a better life now, it is not perfect. Try as we may, we still make mistakes and at times lose our self-control. Additionally, sickness and death can bring to us unavoidable pain. We also struggle against a bad environment. Will the time ever come when our lives will be completely happy?

In Future Issues

■ Death in the Family— How Can You Cope?

■ The Search for Life in Outer Space

■ Incest—the Hidden Crime



The Best Life— soon to come

'So what if the Bible promises the best life in the near future. You can't believe everything in that book.' That's how many feel. To them, a change from their lifetime of problems would take an unbelievable miracle.

One man who trusted the Bible was taunted: "Surely a sensible man like you cannot believe in the miracles that the Bible tells about. You cannot, for instance, believe that this Jesus of yours turned water into wine." The man simply replied: "Whether He turned water into wine or not, I do not know; but in my own house, I have seen Him turn beer into furniture."

You see, this man had been a former drunkard and wasted his family's money drinking. The Bible helped him to change. Those who have seen their own lives greatly improved by following Bible guidelines are convinced of its truthfulness. They

look for the realization of its future promises—regardless of their apparent unlikeliness. But what does the Bible promise?

'Rescued' Completely from an

Inner Conflict

"Miserable man that I am!" sighed one Bible writer because of the inner struggle between the desires of his body and his Bible-educated mind. "Who will rescue me from the body undergoing this death?" The Bible shows how God will help us out of this aggravating situation. Though he gives much help now so that we can resist bad desires, he will in the near future remove completely all such bad tendencies. Obedient mankind will be brought to perfection and will be granted everlasting life amid paradisaic conditions on a cleansed earth.—Rom. 7:21-25; 5:21; Luke 23:43; 2 Pet. 3:13.

Imagine what a relief! No longer will you have to struggle to do what is right. Doing the right thing then will be just natural. Gone will be the constant worry about controlling your tongue or temper. You will never feel guilty because of losing your self-control.

The urges to steal, lie, cheat, commit immorality, will be permanently replaced by perfect honesty, loyalty, kindness and love. How wonderful to be able to do exactly the good that wells up in your own heart!

Sickness and Disease Vanish

God will give the inhabitants of earth his full attention. He, as it were, "will reside with" mankind and "will wipe out every tear from their eyes, and death will be no more, neither will mourning nor outcry nor pain be anymore. The former things have passed away."—Rev. 21:3, 4.

No more backaches, headaches, or any pain caused by imperfection. Dreaded killers such as cancer, heart disease and snail fever (schistosomiasis) will be permanently eliminated. Imagine each morning to rise refreshed and physically able to do your very best at whatever task you undertake.

Bad Environment Removed

Do you ever recall being so flustered because of surrounding noises or background annoyances that, before you realized it, you lashed out at someone? Our environment can greatly affect how we think and act. Living in a climate of poverty, crime, overcrowding, insecurity and hostility can breed frustration and cause us to react in ways we otherwise might not.

God knows this, so he promises in the Bible: "The upright are the ones that will reside in the earth, and the blameless are the ones that will be left over in it. As

regards the wicked, they will be cut off from the very earth; and as for the treacherous, they will be torn away from it."

—Prov. 2:21, 22.

This divine action will immediately eliminate fear of crime and violence. The survivors will dwell on the earth in secure, pleasant surroundings. They will have meaningful work that will contribute to their happiness and gradually make the earth a beautiful park with plenty of living space for all.

Imagine life in a world where all show genuine love for you; where crime, injustice, oppression, poverty and loneliness will be no more; where each day will bring satisfying challenges to be met with perfect abilities; where not even death will cut short your activities or tear loved ones away. Truly, God will fulfill completely his promise to "give you the requests of your heart." Just think: To be given your 'heart's desire'! Could God promise us any more than that? It will be the *best* life!—Ps. 37:3, 4; compare Isaiah 65:17, 21-25.

But How Soon?

For millenniums of time people have looked forward to this "best life." Why do we say it is "soon to come"? Because the Bible contains detailed prophecies that pinpoint the very generation of people that would see the fulfillment of these precious promises.

The beginning of this "sign" was to be marked by a dramatic change in war. The highly symbolic book of Revelation (6:4) predicted a figurative horseman who would "take peace away from the earth." The result would be 'nation rising against nation.' Peace taken, not merely from a few nations, but from the earth means global warfare.—Matt. 24:7.

Suddenly, without any anticipation of its eventual enormity, World War I shattered the "Golden Years" that led up to its

start in 1914. It was "The War That Changed the World." This "bloodiest and costliest conflict in the history of mankind" up to that time "included every major state and left unrepresented no part of the globe," according to authorities. It certainly fulfilled the Bible's prophetic description of a global war.

That same "generation" saw World War II, as well as the fulfillment of scores of other parts of the "sign" of the last days. (Note accompanying chart.) "This generation," said Jesus, "will by no means pass away until all things occur." Since we see these prophecies coming true, we can

do what Jesus recommended: "As these things start to occur, raise yourselves erect and lift your heads up, because your deliverance is getting near." Yes, the best life is soon to come!—Luke 21:10, 11, 28-32.

Since these blessings are truly near at hand, why not accept the free help of Jehovah's Witnesses to become better acquainted with your Bible. Write the publishers of this magazine, or go to the local Kingdom Hall and ask for a free home Bible discussion. That is the first step you can take toward a better life now and the best life in the near future.

SIGN OF LAST DAYS

"NATION WILL RISE AGAINST NATION"

—Matt. 24:7

"The Great War became a pivotal moment in modern Western history. It did more than decimate a generation; it changed the world." (Boston Sunday "Globe," 1978) This was followed by World War II, costing 55 million lives and 4 trillion dollars (U.S.). From then till 1978, 150 wars have been fought, with only 26 DAYS when there was no war going on.

"THERE WILL BE FOOD SHORTAGES"—Matt. 24:7

Not having enough food "now afflicts a thousand million people"! "There have always been famines, but the scale and ubiquity of hunger today is on a totally new scale. . . . as many as 400 million live constantly on the brink of starvation."

—London "Times" (1980).

"EARTHQUAKES IN ONE PLACE AFTER ANOTHER"—Matt. 24:7

"During a period of 1,059 years (from 856 to 1914) reliable sources list only 24 major earthquakes causing 1,973,000 deaths. However . . . we find that 1,600,000 persons have died in only 63 years, as a result of 43 earthquakes which occurred from 1915 to 1978. . . . Our generation

is an unfortunate one."—Italian journal "Il Piccolo" (1978).

"INCREASING OF LAWLESSNESS"—Matt. 24:12

We are experiencing what some call an "epidemic of violence" and a "worldwide wave of terrorism." Authority Walter Laquer said: "Today's terrorism has become indiscriminate—far more brutal than in the past. Terrorists leave a bomb in a supermarket and couldn't care less who gets killed. You see, the period up to the first World War was, on the whole, more humane. I'm sorry to say that human life has become cheaper in our time."

"IN ONE PLACE AFTER ANOTHER PESTILENCES"—Luke 21:11

"The Spanish-influenza epidemic of 1918 sped over the earth, took 21 million lives, and vanished," reports "Science Digest" (1977). It adds: "In all history there had been no sterner, swifter visitation of death . . . had the epidemic continued its rate of acceleration, humanity would have been eradicated in a matter of months." Even since then cancer, heart disease, venereal disease, snail fever, river blindness (onchocerciasis) are at epidemic levels; they maim and kill scores of millions.

PHOTOGRAPHY in Three Dimensions

VISITORS to London's Royal Academy of Arts in March 1977 saw demonstrated a new and fascinating concept of photography, a 20th-century photographic miracle called "holography." On display at the exhibition was a floating three-dimensional image of a telephone, suspended in thin air, and so realistic that you would be excused for attempting to make a call with it.

The exhibition, designed to impress the public with the science and fun of laser beams, was fittingly named "Light Fantastic." As the visitors came to realise, with holography, instead of having the picture on a flat card, an image is projected in full three-dimensional form in space. You can actually look at it from various angles to see different parts of it.

You may have heard the word "holography" or "hologram" in connection with the recent uses of laser beams for entertainment purposes. In laser beam light-shows, swirling, darting, twisting multi-coloured laser beams are choreographed to music, and sometimes the 3-D imagery of holography is used for special effects.

How It Works

The word "holography" is used to describe the process, because the prefix "holo" means "entire" or "complete." Holography takes the picture in a much more complete manner than is achieved with an ordinary camera.

We can understand the basic principle behind holography by comparing it with

By "Awake!" correspondent in the British Isles

sound recording and reproduction. Consider, for example, a symphony orchestra playing a piece of classical music. The musical notes and tones generated by various instruments result in a complex pattern of sound emerging from the orchestra. This pattern can, of course, be recorded, the record "storing" the sound in a coded form (actually by variations in its grooves). When the record is played, a pattern of sound is produced that duplicates the original notes that came from the orchestra. The identical sound waves have been regenerated.

In a similar manner holography records light waves for later reconstruction. Let us see how this is possible.

First of all, what is involved in seeing another person, a scene or an object? As we cannot see in the dark, light is necessary from the sun or from some other source. In fact, every tiny part of an object we are looking at reflects the light, but in varying amounts and in varying colours. A complex pattern of light is thus produced, emerging from the object like the sound emerging from the orchestra. We see the object when this pattern reaches our eyes and is interpreted by the brain.

Let us suppose that the pattern of light waves emerging from a friend sitting opposite to you is interrupted and recorded, or "stored," similar to the gramophone record's "storing" the sound. Your friend gets up and leaves. On "playback" of this "light-record" the identical pattern of light could be regenerated and thus, to the eye

and brain, the person would seem to reappear. Furthermore, since the regenerated light duplicates the original (as in the case of sound reproduction), the image that is seen is in full 3-D form, exactly like the person.

This is the key difference between photography and holography. Photography involves making a flat image thus arriving on the plate of a scene or of a person, like an artist's painting, but from two directions, producing a very detailed recording of the pattern on the plate.

Making the Hologram

The record on which the light waves are "stored" is known as the "hologram." It is essentially similar to the film for an ordinary camera but is of better quality and generally in the form of a photographic plate made of glass.

Figure 1 shows how the recording is done. An expanded beam of light from a laser is first divided into two parts by a special mirror. One part (called the "reference beam") travels directly to the photographic

plate, while the other part illuminates the object to be photographed. The complex pattern of light reflected from the object then also travels to the

photographic plate. Light is recorded on the plate. Light is

Figure 2 shows how the playback process is done to give the 3-D image. The plate is first developed (as in ordinary photography) and the object removed. A single beam of light is now directed onto the plate. The light passes through the plate, but in so doing it is modified by the pattern embedded in the plate.

The result is that the emerging light exactly duplicates the original light that came from the object, and so the object seems to reappear. To the viewer, the photographic plate is like a window through which the object is seen in full depth. By looking through the "window" in different directions, the object is seen from different angles. The image manifests such vivid realism that the viewer may be tempted to reach out and touch it, but, of course, nothing is there!

Interesting Properties

Holograms and the images they produce have many curious and fascinating properties. The hologram plate is equivalent, in holography, to the negatives obtained from an ordinary film. However, it is

Figure 1

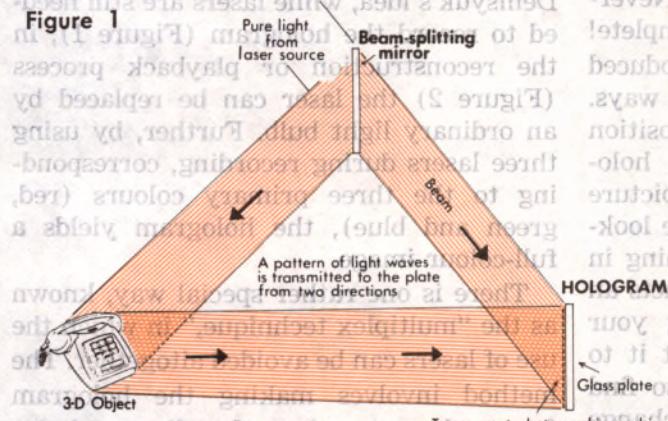
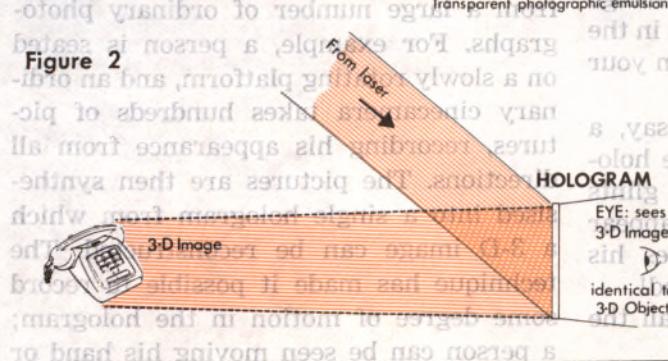


Figure 2



quite different in certain respects. For example, if you have some black-and-white negatives available, hold them up to the light and you will notice that they contain the picture (actually, in reversed form—the dark areas are light and the light areas dark). Hold the hologram plate up to the light and you will find that it bears absolutely no resemblance to any picture. Only under a microscope can the pertinent information be seen, but, even then, just as a highly irregular, unintelligible pattern of lines, blobs and whorls.

If part of an ordinary negative is damaged or cut away, then, obviously, that portion of the picture will be ruined or missing in prints made from the negative. Smash the glass hologram plate, however, and you will be surprised. The *whole* image can be reconstructed from any of the pieces! The quality will be impaired somewhat, depending on the size of the piece. Nevertheless, the image will always be complete!

The 3-D realism of the image produced from holograms is evident in several ways. If you change your viewing position through the "window" (the glass hologram plate), the perspective of the picture changes just as it would if you were looking at the original scene. If something in the foreground of the picture obstructs an object behind it, then by moving your head to the side you can look past it to see the hidden object. You will also find that the focus of your eyes will change when you look at near and far points in the scene and if you are nearsighted then your spectacles will help!

An interesting effect occurs if, say, a diamond ring is photographed. In the photographic image the diamond reflects glints of light from its facets and these appear and disappear as the viewer moves his head—exactly like the real diamond!

In short, the reconstruction has all the visual properties of the real thing.

Some Developments

Although the basic principles of holography have been known for over 30 years (holography was invented by Dennis Gabor in 1948), it was not until the invention of lasers in the 1960's that the full capabilities of holography could be demonstrated. A laser is a source of pure, regular or "coherent" light and, in general, this type of light is necessary for recording holograms of 3-D objects. However, the use of lasers has disadvantages when practical applications of holography are considered. They are expensive and in some cases hazardous. Could their use be minimised in any way?

A major advance in this regard was made by the Russian investigator Yu. N. Denisyuk. He had the remarkable idea of combining holography with a form of colour photography invented by the French physicist Gabriel Lippmann in 1891. With Denisyuk's idea, while lasers are still needed to record the hologram (Figure 1), in the reconstruction or playback process (Figure 2) the laser can be replaced by an ordinary light bulb. Further, by using three lasers during recording, corresponding to the three primary colours (red, green and blue), the hologram yields a full-colour image.

There is one rather special way, known as the "multiplex technique," in which the use of lasers can be avoided altogether. The method involves making the hologram from a large number of ordinary photographs. For example, a person is seated on a slowly rotating platform, and an ordinary cinecamera takes hundreds of pictures, recording his appearance from all directions. The pictures are then synthesised into a single hologram from which a 3-D image can be reconstructed. The technique has made it possible to record some degree of motion in the hologram; a person can be seen moving his hand or

giving a smile. It's rather like the early days of moving pictures, but this time it's in true 3-D!

Practical Applications

Making and viewing holograms is fascinating, but what practical applications does holography have?

One might immediately think of 3-D movies and television, where holography would provide the ultimate in reality. While it may be possible in principle to produce such a system, for the moment it is a long way off. The problem is due to the vast information content of the hologram plate. A 200-mm (8-inch)-square hologram plate has a potential information content over 300,000 times as great as a single static television picture. Present television systems come nowhere near the ability to handle such a vast amount of information.

At present, holography is finding application as a display and advertising medium. A company responsible for many of the billboards on the London Transport Underground has expressed its interest in using holograms for advertisement purposes. And the sales representative of the future may well carry holograms as samples of bulky or heavy products.

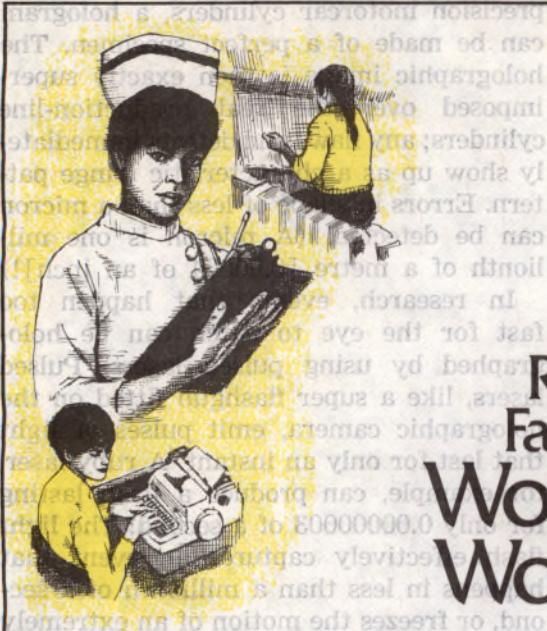
In museums, treasures can be replaced by holographic replicas. This technique has been pioneered in the U.S.S.R., and the Hermitage Museum, Leningrad, is now making a library of holograms for loan to other museums. Production of 3-D portraits will no doubt be an important application in the near future.

Holography has also found some important applications in industry and research. For example, in the production of high-

precision motorcar cylinders, a hologram can be made of a perfect specimen. The holographic image is then exactly superimposed over the real production-line cylinders; any flaws and defects immediately show up as a characteristic fringe pattern. Errors in shape of less than a micron can be detected. (A micron is one millionth of a metre [0.00004 of an inch]!)

In research, events that happen too fast for the eye to catch can be photographed by using pulsed lasers. Pulsed lasers, like a super flashgun fitted on the holographic camera, emit pulses of light that last for only an instant. A ruby laser, for example, can produce a flash lasting for only 0.00000003 of a second! The light flash effectively captures an event that happens in less than a millionth of a second, or freezes the motion of an extremely fast-moving object. The event is re-created in the holographic image. Vibrations in objects, such as machinery or musical instruments, can be studied, and the method offers possibilities for analysing rapid chemical reactions.

Holography is still a rather expensive and cumbersome operation when compared with ordinary photography. It is also somewhat limited, at present, as regards the size of hologram that can be made. So rather than replacing photography, holography has emerged as an advanced form of photography for use in certain special areas. It represents another use of natural laws—actually, laws of the Creator—for the benefit and enjoyment of mankind. As further improvements are made in the process and in reducing the cost, there is no doubt that new ideas will be conceived for using holography to touch our lives much more than at present.



Hard Realities Faced by Working Women

THE high cost of living has changed the way of life of millions of women. There are things that the family may need but cannot afford, yes, and many more that they want. When the income of the family head no longer supports the lifestyle to which they have been accustomed, a choice must be made—either increasing their income by having more family members work, or accepting a lower standard of living.

Over a meal of leftovers the wife may raise the subject: "Dear, why don't I try to get a job? Mother said she would help with the children."

From Great Britain to South Korea, all around the world, people are feeling an economic squeeze. As one source put it, "The most prominent feature of the world economy during 1979 was an acceleration in inflation." And the cost of living did not improve in 1980.

Women Go to Work

In the United States millions of housewives have joined the labor force in the

past decade—an influx that has been called unprecedented. More American women are working now than at any time in the nation's history—51 percent of all women aged 16 or over! But this trend is by no means limited to the United States. In Sweden 60 percent of all women with children have jobs, an even higher figure than in the U.S. Women today make up one third of the world's paid labor force.

Jobs are generally becoming more available to women. In many countries, especially developing countries, large corporations, "in search of cheap and abundant labor, invariably turn to women. In Singapore, for instance, the percentage of women working in export industries . . . increased by 118 percent, while the percentage of male workers in these industries increased by only 36 percent," during the same period of time.—*World Press Review*, June 1980.

Should I Go to Work?

If you are a woman, likely you are either presently working outside your home or could find work if you wanted to. Although you will probably not be as well paid as your husband or your father, nevertheless you may feel that taking on a job in these inflationary times is the only thing that will save the family budget.

It would be unwise and unfair to assert that women, even wives and mothers, should not work under any circumstances. But it is equally unwise to look for a job without a realistic idea of what it will cost

you to work. Only by comparing the benefits of your job, or prospective job, with its costs can you accurately gauge its real worth to you. While conditions vary from country to country, you may well find it worth while to consider some of the following factors if you are a woman thinking about getting a job.

Financial Costs

Suppose that a married woman with a preschool-age child is offered a job that pays \$15,000 a year. How much of that money will she really bring home? Half? A third? In many countries the answer could well be *one fifth!*

Hard to believe? Look at the financial records of one such working wife and mother, as reported by the publishers of *Changing Times* magazine and as shown here under the heading "It Costs Money to Work."

If you are a working woman, why not take a few minutes and make a list of where *your* money is going? Take your daily expenses, such as bus fare and lunch at work, and multiply them by 250 if you work five days a week, or by 300 if you work six days. Does your work require you to own and maintain a car that would not otherwise be needed? Figure that in.

IT COSTS MONEY TO WORK	
gross income	\$15,000
federal taxes	5,238
social security taxes	908
state taxes	862
child care	2,080
household help at \$25/wk	1,250
workday lunches at \$15/wk	750
clothes for work (\$200 initial expense, then \$25 per month)	500
transportation at \$7.50/wk	375
Total expenses	11,963
Net income	\$3,037 = 20.2% of \$15,000

Do you need special clothes for the office? Child care? The total cost of your work may surprise you.

As you can see, the largest single expense for this woman was taxation. Of course, taxes in your country may not be as high as they are in the United States. But if you live in Europe, quite likely they are even higher. In Sweden, for example, taxes take 60 percent of total production. Notice, too, the extra travel and clothing expense this woman incurred because of her job. Such expenses are quite common.

The family of this working woman should not consider even her net income of \$3,037 to be all gain. It should be balanced against the loss to the family of her services as a full-time wife and homemaker. How much are those services worth? More than many women realize!

"You Pay with Your Pride"

A study showed that in 1972 it would cost \$6,417 to hire someone for a year to do all the things around the house done by an average 30-year-old housewife. In 1980 dollars, that would be about \$12,000. Of course, a working wife still does many things at home, but she certainly doesn't have the time or energy to do what she formerly did.

"You just can't give 100 percent at work and then keep house the way you used to," said one working mother. "Even if your husband is very helpful, as mine is, you still can't avoid losing some of the quality of your housekeeping. You pay with your pride." While it would be difficult to put a monetary value on harried housekeeping, there is little doubt that it affects the family's quality of life.

Maturity and communication are especially needed when both husband and wife have jobs outside the home. For example, family unity may suffer if the husband feels that his position as head of the family is threatened by his wife's income, es-

pecially if the wife earns as much money as he does, or more. This situation isn't helped when the wife takes the position that "I earned this money myself, and I'll spend it as I see fit."

The marriage may also suffer if the wife looks upon her job primarily as an escape from the "boredom" of the home. Without realizing it, she may pour her energies into her job to the extent that her housekeeping suffers and the husband objects. On the other hand, the husband may fail to appreciate that his wife needs more help around the house now that she is working. Communication is important on both sides. The problem is that communication may suffer when both parties are exhausted after a hard day's work, followed by the "overtime" of necessary housework.

It is helpful if both husband and wife agree beforehand on just why the wife is working, and what will be done with the money she makes. The agreement may be flexible, and subject to review, but it is a valuable safeguard against later misunderstandings.

Emotional Costs

"I have a problem at work with men who make suggestive remarks," complained one working mother. "It's the sort of thing that can send you home in a rotten mood." Many working women echo this complaint. "It's a constant battle," said a young woman who works in a bank. "These guys will do almost anything to break down my resistance. It ranges from inviting me out to lunch to asking me to run away to Florida with them. What bothers me most is that it seems to be getting worse."

Although women's groups are winning legal battles against such behavior, "no one believes that legalities will eliminate sexual harassment," as *Newsweek* magazine pointed out recently. The emotional cost can be severe. "In one study, women who felt sexually harassed reported suffering from headaches, nausea, and sleeplessness." This is a cost that must be weighed, even when a woman works in a "nice location"—such as a bank.

New mothers who return to work find themselves paying an unexpected emotional cost. "I naively thought it would be easy to go back," said Margaret, who returned to work only five weeks after the birth of her son. "I was all primed to return, and then Justin started smiling for the first time—that was when he was a month old—and all of a sudden motherhood seemed so marvelous that all I could think was: 'I can't go back and miss all these fantastic subtle things that are happening to him.... I can't go back because I might damage him.' Well, I did go back, and it was agony."

Costs to Children

Sarah, a young mother of two, quit work after the birth of her second child. "I quit for the kids," she says. "I feel very strongly that a mother should spend as much time as possible with her own children. I don't want to jeopardize the unity of my family for an extra dollar."

Asked if she felt that not working had made a difference in her family life, she replied emphatically: "I've been able to see a big difference in my kids since I quit working. They are much more open with me. We communicate better. When I was working I could see my daughter



"I quit for the kids"

drifting away from me. What should you expect? She was spending all day at her grandmother's house. Now I can see a real difference between my kids and the children of working mothers I know."

Of course, adjustments had to be made when this working mother quit working. "We had to cut down on some things," she admits. "My big weakness is clothes and I've had to learn to wait for sales instead of just buying something when I feel like it. My husband takes his lunch to work in a bag instead of eating out now, and that helps too."

True, not all working mothers can afford to quit working and spend more time with their children.

In some cases economic fluctuations have cost the husband his job, and the wife's job is the family's sole income. With the rising divorce rate in most countries, more and more mothers find themselves raising children without the help of a mate, and with insufficient alimony.

Nevertheless, in many cases, wives and mothers are working—not for the family's survival, but simply to maintain the family's accustomed standard of living. Here, especially, is where the question needs to be asked: *Is it worth it?*

Robert Coles, child psychiatrist, made these observations about family life in the United States: "Family life has become, for a lot of people, a matter of materialism: How much does this family own, and how much can it hold on to? People are living very comfortably in the sense that they have several cars and an air-conditioning unit and a television; yet they are tearing one another's souls apart." Doesn't this indicate that a review of priorities is needed?



Working together to reduce expenses can benefit the whole family

A Better Alternative

Nobody wants to be poor, or to starve. If the alternative is grinding poverty or malnutrition, then it would be foolish not to work for a decent standard of living. But many people today are not working for their next meal; they are working for their second automobile, their stereo, their summer home—tearing their own souls apart in order to have certain material possessions.

This brings to mind some excellent common-sense advice that is over 2,500 years old. "Give me neither poverty nor riches." (Prov. 30:8) Just as poverty brings frustration, debasement and misery, the other ex-

treme of too many material things can crowd more important values, such as the family, or the worship of God, out of one's life. If people are exhausting themselves to pay for a life-style that drains them of time for their loved ones, or interest in matters that refresh the human spirit—are they really any better off than persons oppressed by poverty?

Rather than fighting desperately to maintain a more affluent life-style you will probably be much happier if you let a few extras go and content yourself with a simpler way of life. In many cases, not working reduces a wife's work-related expenses. Hence, less belt-tightening is required than might have been anticipated, although this will vary. Why not take advantage of the challenge to work together *as a family* to conserve, to reduce expenses? Psychiatrist Coles notes: "Parents forget that what children need perhaps more than anything is discipline and a sense of commitment to something larger than themselves.

Children need to be asked of as well as given to." So why not include the children in family efforts to reduce unnecessary expenses, or to take better care of family possessions? A sense of family purpose and cooperation can be cultivated.

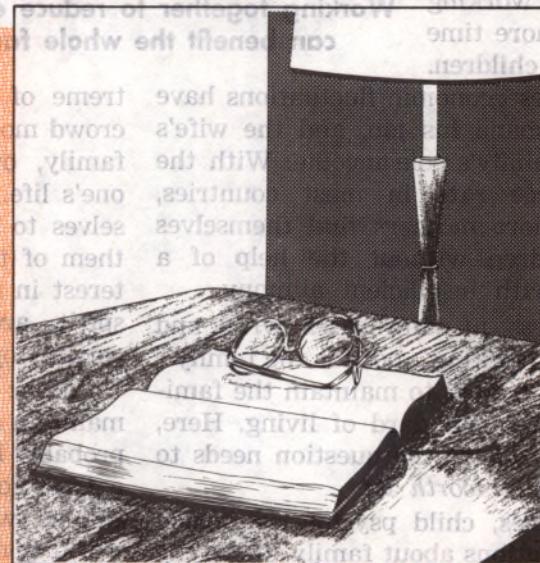
Where it is necessary for all in the family to pitch in to care for genuine family needs, doing one's part brings a sense of satisfaction. But the effect is quite different when getting a job reflects simply a spirit of restlessness or concern largely for self.

Real happiness does not come from earning enough money so that each adult in the family can have his own car. It is not having a TV or a stereo in your own room or being able to buy new clothing more freely that brings true contentment. There is much more to life. Spiritual interests enrich one's life in a way that material possessions never can. Whether you find that you as a woman must hold a secular job or not, your greater happiness will come from being rich in such spiritual pursuits.—Luke 12:20, 21; Matt. 13:18-23.

A Search for Knowledge

BY THE time I had traveled around the world a few times and had seen the plight of much of humanity, I decided that religion was illogical and confusing. But I had a yearning for knowledge and understanding. There seemed to be so much evidence pointing to the existence of a God, and yet, at the same time, other things indicated that none could exist.

I immigrated to New Zealand, married and took a job in radio and, later, television. By specializing in documentary production I was able to satisfy to some extent my thirst for knowledge, spending many hours doing research in libraries and newspaper offices. Partly with a view to advancement in my job and partly because philosophy promised to in-



that man's faulty thinking lay at the roots of the world's problems.

But What Is Truth?

New Zealand has great natural beauty, and one day I was so moved by the sheer magnificence of creation that I felt impelled to praise the Creator. I asked that I might be allowed the privilege of knowing him.

A week or two later, a small boy, one of Jehovah's Witnesses, offered me the *Watchtower* and *Awake!* magazines. I had never seen them before and had never heard of Jehovah's Witnesses, but I still had memories of self-righteous, ignorant and dogmatic people who had tried to foist impossible, self-contradictory religious ideas on me. I refused to take the magazines. But the boy was back some two weeks later with another set of them. This time he was accompanied by his father, who engaged me in conversation.

In an effort to end the discussion quickly, I asked him four of the knottiest questions that I kept for ministers and theologians. Experience had taught me that these were certain to cross the eyes of anyone with religious beliefs. Far from crossing his eyes, my questions were answered—three of them, at any rate—from the Bible he carried. Amazed, I agreed to talk with him again but I did not expect his performance to stay at this high level. Meantime, my studies at the university were continuing. One of my greatest interests lay in trying to establish Truth.

What is Truth? I found almost as many answers to this fundamental question as there are philosophers.

The Doctrine of Empiricism said: "If you want to know what the universe is like, the only correct way to do it is to go and look for yourself, to collect facts which come to you through your senses." The Doctrine of Rationalism had an opposite view and argued that pure reason-

ing alone is the ultimate authority in establishing truth. Existentialism ran across this belief, saying that the will is more important than reason. "God does not exist," said Kierkegaard. "He is eternal." Pragmatism suggested that "those beliefs are true which it is expedient for us to

If God is good and all-powerful, how can evil exist?

act upon and believe." Wittgenstein felt that the limits of his language meant the limits of his world, thus he could not know more than words could convey. Descartes' Intuitionism taught that one can only acquire theoretical knowledge by means of intuition connecting self-evident truths and that, if a person had an unclouded and attentive mind, he would get a feeling of confused conception if what he was considering was untrue.

By now I had a thoroughly confused conception about Truth. I was down to one unit of knowledge that alone seemed reliable, the one contained in the Cartesian dictum: "I think, therefore I am." Could one know any more than that? Since all perception beyond one's own thinking processes comes through the senses, was knowledge of the exterior world possible? Sight, hearing, touch, taste and smell were all ultimately electrical impulses in my brain. Could the exterior world be my own invention?

Some Light Begins to Shine

By this time, my wife and I had agreed somewhat reluctantly to study the Bible with two of Jehovah's Witnesses. On the subject of Truth, we were shown a statement by Jesus Christ that was so simple it seemed at first as though he was being evasive. He said, in prayer to God: "Your word is truth."—John 17:17.

In studying philosophy's Coherence The-

ory, I had come across the suggestion that truth, ultimately, is beyond man, since all things are interconnected to such a degree that we cannot hope to attain to so much knowledge. It had said: "Presumably there is, ideally, one exhaustive and all-embracing truth—no judgments we can make can be thus exhaustive, our judgments may at best be partially true—fragments of an unattainable whole which alone would be adequate to reality." Where else could such an all-embracing truth be

After having tried every conceivable form of government, why has mankind not yet produced one that truly satisfies people?

but in the mind of the Creator, the possessor of all knowledge?

It was a thrilling idea, but was it provable? The only way was to put knowledge purporting to come from that Creator to the test. Since the Bible purported to be knowledge from the Creator, it seemed good to put the Bible to the test seriously.

For some time I had swung indecisively between the Doctrine of Optimism, which says that the universe is constantly tending toward a better state, and Pessimism, the belief that the world and life are essentially evil. With strong arguments for both theories, the only way to settle the paradox seemed to be Augustine's most unsatisfactory conclusion—that everything in the universe is good, even things that appear evil.

However, once again our Bible study gave us a logical explanation for a problem that has occupied the minds of the world's greatest philosophers: If God is good and all-powerful, how can evil exist? Jehovah's Witnesses showed us that an evil creature (Satan) presently rules the earth with temporary permission on the part of the Supreme God, Jehovah, for the

purpose of settling a universal issue.—Job 1:7-12; John 12:31; 14:30; Rev. 12:9.

Why the General Dissatisfaction with Government?

In its very wide scope of interest, philosophy also has much to say about what constitutes good government. Plato considered that democratic government was rather like sending your television set to the butcher for repair. He felt that the mass of the people were not expert at the craft of government, so governing should be, not in their hands, but in the hands of philosopher-kings. John Stuart Mill said the test of good government was the degree to which it promotes the general mental advancement of the community and the degree to which it organizes the worth already existing in the community.

Every conceivable type of rulership has been put forward, each one, in turn, torn down by the next philosopher in line. It seemed to me that, with all the brainstorming on the subject over the centuries, we should by now have arrived at a near-perfect system of government. But there is more dissatisfaction with governments today than ever before.

The Bible cleared up the entire field in just two propositions: (1) That man is incapable of ruling himself (Jer. 10:23) and (2) That Almighty God has, in any case, already decided man's future in this regard by arranging for a government of His own. (Dan. 2:44) I seemed to be getting a good deal more knowledge from two or three hours of Bible study than from months of delving into human philosophies.

However, I was committed to finishing the university year, so on I went.

What Moral Standards?

I had hoped to get some clear thinking on the subject of morality. But, here again, after my studies I was less convinced about anything to do with morality than before.

The Formal Principle of Morality, according to Kant's Moral Philosophy is: "Act only on that maxim through which you can at the same time will that it should become a universal law." But, as other philosophers pointed out, the individual observation and experience of life of any two people would probably differ and so their conclusions as to what should become universal law would also vary. Multiply that by the earth's population and you have moral chaos.

Aristotle's moral philosophy accepted the concept of slavery because, he said, some men are slaves "by nature." Utilitarianism claims that all actions must be determined by "two sovereign masters"—pain and pleasure. What was pleasurable was good; what was painful, bad. Because that was oversimplification, later philosophers added "higher pleasures and lower pleasures" so that choosing moral standards became rather like supermarket shopping. Any number of small pleasures could never equal one large economy-size pleasure. If now imprisoning an innocent man brings him a large dose of pain but

was also directed to Jesus Christ's Golden Rule—"Just as you want men to do to you, do the same way to them." It is such a simple sounding statement, but when one really thinks it out, it is a profound piece of wisdom on the subject of morality. What absolutely beautiful philosophy! —Luke 6:31.

Superior Wisdom

My study of philosophy was nearing its end. While I had not come to believe that all philosophers are fools, I had come to realize that more than intellectual capacity is needed in order to gain true wisdom. God, the "all-embracing truth" source, has not revealed all of his knowledge to man.

Man may stumble on some scraps of truth independently of God, but a very wise man of ancient times, Solomon, said: "The fear of Jehovah is the beginning of knowledge." (Prov. 1:7) Most philosophers, great intellectuals though they may be, show no interest in Jehovah, and so he shows no interest in their search for knowledge. In fact, Jesus Christ told his followers that God actually keeps knowledge from them. (Matt. 11:25) The apostle Paul said that their worldly knowledge is foolishness with God.—1 Cor. 3:19.

Even some philosophers are ready to admit to a Principle of Nonsense in their field. Thomas Hobbs once wrote that one of man's distinctive abilities was "the privilege of absurdity to which no living creature is subject, but man only. And, of men, those are of all most subject to it that profess philosophy." But, strangely, many people prefer nonsense to truth. They do not wish to be accountable to God for their actions.

I go along with King David—that Jehovah's laws, reminders and decisions constitute such superior wisdom that their value is far greater than much gold. (Ps. 19:7-11)—Contributed by an "Awake!" reader in New Zealand.

Is there not a more lofty basis for morality than the pain or the pleasure of humans?

the entire community receives twice as much pleasure from the injustice, then it is morally right to imprison him, according to the Principle of Utility.

Surely there must be a more lofty basis for morality than the pain or pleasure of humans. I learned from the Bible that God made clear to the first human pair that he is the One who decides what is good and what is bad, thus setting moral standards, that life depends on obedience to those standards, and that death results from disobedience. (Gen. 2:15-17) Surely that is the way it should be! My attention

CROSSWORD puzzle

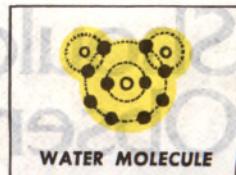
Clues Across

3. Though men may worship it, in God's eyes it is nothing (1 Corinthians 8:4-6)
5. Even in prison, Paul prayed for an '----' of utterance so that he might give a witness (Colossians 4:1-4) [2 words]
6. Mediterranean (Joshua 15:12) [2 words]
7. Connected to liver and offered on the temple altar to Jehovah (Leviticus 3:1-5)
8. First given at Pentecost, later passed away (Acts 2:1-13; 1 Corinthians 13:8-10) [3 words]
9. Job knew it was foolish to ----- with God (Job 13:1-9)
10. She was disrespectful to her husband David (2 Samuel 6:14-23)
11. Faithful spy who entered Promised Land (Numbers 13:30-33; 14:20-38)
13. Blow #2 against Egypt (Exodus 8:1-15) [3 words]
12. Heavenly messenger (Psalm 104:1-4)
14. Symbolic religious harlot due for destruction (Revelation 17:1-6; 18:1-8) [3 words]
15. "Rod" by which Jehovah punished the Northern Kingdom (Isaiah 10:5-9)
20. Animal kinds with which Jesus compared people (Matthew 25:31-46) [3 words]
22. "Is it for nothing that Job has ----- God?" (Job 1:9)
24. Noah received this kind of warning (Hebrews 11:7; Genesis 6:9-21)
25. Nathanael was one (John 1:43-51)
26. Riddle or mystery

Clues Down

1. His spear was like a weaver's beam (1 Chronicles 20:5)
2. She was the mother of six tribes in the nation of Israel (Genesis 29:15-35; 30:16-21)

WATER— An Extraordinary Substance



WATER MOLECULE

AN EXTRAORDINARY substance. Anomalous [not what would naturally be expected] in nearly all of its physical-chemical properties," say scientists. Are they talking about some newly discovered exotic chemical?

No. They are talking about ordinary water!

What makes water so special? The shape of the water molecule, for one thing. The two hydrogen atoms stick to the oxygen atom like the ears on a teddy bear, so the molecule is lopsided. This makes each water molecule act like a *tiny magnet*, with its negative pole down by the oxygen atom and its positive pole up around the hydrogen atoms.

If you magnetize things they can stick together, and so do water molecules. This gives water a high degree of "surface tension." That is why water beads up on a smooth surface, forming little water mountains that seem to defy gravity. Try to get another liquid with less surface tension, such as rubbing alcohol, to do that!

Heat makes all molecules vibrate and separate from each other, but the "sticky" water molecules can absorb a great deal of heat without becoming "unglued," that is, evaporating. Suppose you could take *all* the heat out of a block of ice and a block of gold—freezing them down to what is called absolute zero, 460 degrees below zero Fahrenheit (-273 degrees C). Now start heating up both the gold and the ice

at the same rate. The same amount of heat raises the temperature of the gold much faster than that of the ice. When the gold melts, the ice is still "ice-cold" at 300 degrees below zero Fahrenheit (-184 degrees C)!

Because water can absorb so much heat we can be glad that it covers most of our planet. During the day a great deal of heat bombards the earth's surface. At nightfall the heat supply is suddenly cut off. Such drastic changes every 24 hours could make life here miserable if the water in the oceans did not absorb most of the heat and gradually release it, moderating the sun's effects.

The shape of the water molecule also affects the way it freezes, so that frozen water requires more space than liquid water—meaning that ice floats.

Imagine what would happen if water were not unusual in this respect. Every winter more and more ice would sink to the bottom of the oceans where the sun's rays could not melt it the following summer. Soon the oceans might be frozen solid, except for a thin layer of water during the summers. With less water available for evaporation, the land areas would suffer drought. Little life would remain.

In many ways our lives depend on the unusual shape of the water molecule. Did it just happen that way? Or does it reflect the superior wisdom of a loving Creator?

Should You Observe the Sabbath?

1981

January

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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4	5	6	7	8	9	10
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"WHO cares about the Sabbath?" So say many people today who regard it simply as an opportunity to enjoy themselves. But for Jews and members of certain religions of Christendom the Sabbath is a serious matter. To illustrate: In Jerusalem Jews have recently been stoned for driving cars on the Sabbath (Saturday) by other more strict Jews who claim that combustion or fire in car engines is against sabbatical law.

Some Protestants still have great respect for Sunday, which they view as the Sabbath. For example, many people in South Africa piously refrain from such things as sports and disapprove of swearing on Sundays. However, they see nothing wrong in driving cars to church nor for their servants, often fellow Protestants, to work hard preparing a Sunday dinner. Generally speaking, Catholics take a lenient view. Pope John said that sports after Sunday church services can be good for body and spirit.

Obviously there are very divergent views about the Sabbath. Is it Saturday or Sunday? And should Christians observe it? To answer, let us go back to the origin of the Sabbath as told in the most reliable history book of all time—the Bible.

In the year 1513 B.C.E. the Israelites were on trek in the wilderness en route to Mount Sinai and were running out of food. So God provided manna for them for six consecutive days but none on the seventh. (Ex. 16:22-30) For the first time Jehovah made it a law for his people to rest on the seventh day.

Later, at Mt. Sinai, this law was incorporated into the Ten Commandments, the fourth of which stated: "Remembering the sabbath day to hold it sacred, . . . do all your work six days. But the seventh day is a sabbath to Jehovah your God." It also applied to servants and domestic animals. (Ex. 20:8-11) It was to be a day of complete rest, no wood was to be gathered or fires lit, and the penalty for breaking it was death. (Ex. 35:1-3) Moreover, it was an arrangement only for Israel: "Between me and the sons of Israel it is a sign to time indefinite."—Ex. 31:16, 17.

Was all of this just a lot of ritual? No, the Sabbath was very beneficial for the Israelites. Physically the weekly rest was good for them. More importantly, the Sabbath provided an opportunity for activities that renewed the spirit, such as reading and discussing God's Word. The Sabbath was good for families as well, affording opportunity for parents to teach their children about God.

Did Israel keep the Sab-

bath? Sometimes. However, after their return from exile in Babylon (537 B.C.E.), the Jewish religious leaders imposed many added man-made restrictions. They even made it unlawful to catch a flea on the Sabbath! With such a petty, fanatical attitude on their part, it is no wonder that Christ offended the religious leaders of his day. Because he did not uphold their concept of the Sabbath they were "beside themselves with anger," and planned to murder Jesus.—Matt. 12:9-14; Luke 6:6-11, *The New English Bible*.

After Jesus' death profound changes took place. Under the guidance of God's spirit the early Christians realized that they were no longer under the Law and that "Christ is the end of the Law." (Rom. 10:4; 6:14, 15) Hence, they were no longer bound to make animal sacrifices, pay tithes, be circumcised or keep the Sabbath. The apostle Paul wrote: "By means of his flesh he [Christ] abolished . . . the Law of commandments."—Eph. 2:15.

Again and again the Bible makes it clear that Christians are not under the Law, that it was 'taken out of the way,' nailed to Christ's torture stake. "Therefore let no man judge you in eating and drinking or in respect of a festival . . . or of a sabbath."—Col. 2:13-16.

Of course, the apostles did use the Sabbath as an occasion to preach to the Jews assembled in their synagogues. But they were no longer under obligation to keep the Sabbath. When Gentiles became Christians they were not put under any sabbatical law; nevertheless, they did receive holy spirit. (Acts 10:44, 45) Interestingly, at a council in Jerusalem to discuss the requirements for Gentiles, some believers who had been Pharisees wanted Gentile converts "to observe the law of Moses," which included both circumcision and the Sabbath. But the decision of the apostles included neither. (Acts 15:1, 2, 5, 28, 29) Hence, Paul wrote to both Jewish and

Gentile Christians "at Rome: 'One man judges one day as above another; another man judges one day as all others; let each man be fully convinced in his own mind.'"—Rom. 14:5.

In the second century C.E., the foretold apostasy crept in among Christians. Later, in 321 C.E., the Roman emperor Constantine, anxious to favor the already corrupted Christianity of his day, made a law that Sunday should be observed. He insisted that the day was sacred to the sun. This was pagan, not Christian. Apostate Christendom today, with flagging zeal and varying views, still recognizes *dies solis*, the day of the sun!

From a careful study of the Bible these important points clearly emerge: that if a day should be observed it would be Saturday, the seventh day;* that the Sabbath law was only for ancient Israel; that it was never repeated or given to Christians (as was the law concerning sanctity of blood—Acts 15:19, 20); and that "Christ

* Christ was resurrected on the first day of the week (Sunday); but the Bible contains absolutely no instruction to set aside that day of the week as sacred.

CROSSWORD SOLUTIONS

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is the end of the Law," including the Sabbath. (Rom. 10:4) Hence, for those "scrupulously observing days and months," the apostle Paul wrote: "I fear for you, that somehow I have toiled to no purpose respecting you."—Gal. 4:10, 11.

But the Sabbath was admittedly a beneficial law. If Christians don't have to keep it, are they not going to miss out on the benefits? Not at all.

For example, in areas where Sunday church attendance is popular, people complain about "Sunday Christians." By this they mean persons who feel that going to church on what they consider the Sabbath makes up for a week of conduct that is anything but Christian. Such persons are not fooling God, are they? They have missed the point of the Sabbath.

What was the point of the Sabbath?

By stopping their other activities on the Sabbath, God's ancient faithful people showed that His worship was the most

important thing in their lives. As they read and discussed God's Word on that day they showed their belief that "man must live, not on bread alone, but on every utterance coming forth through Jehovah's mouth."—Matt. 4:4.

Really, shouldn't Christians show they believe these things *every* day of their lives? If a Christian refuses to let his secular job interfere with his service to God, is he not keeping the spirit of the Sabbath? How about the Christian who buys out time *every* day to read God's Word and apply its principles to his daily conduct?

Jesus healed people on the Sabbath as well as on other days, so isn't *every* day a good day to apply the exhortation, "Really, then, as long as we have time favorable for it, let us work what is good toward all"? (Gal. 6:10) Sincere Christians doing these things may not keep a special day—but they truly honor God's Sabbath!

NOT 'DESECATING THE SABBATH'

JEHOVAH'S WITNESSES visit people in their homes to discuss the Bible *every* day of the week. In this they imitate Jesus Christ and the apostles.

From time to time local communities have charged the Witnesses with 'desecrating the Sabbath,' because they make house-to-house calls on Sunday. How have the courts viewed this matter? Typical are the following quotes from the Iowa Supreme Court:

"We are not prepared to hold that the calling at private homes in the middle of the Sabbath day, however unwelcome the caller may be, in itself, constitutes a desecration of the Sabbath."

How about the leaving of Bible literature for a nominal contribution? Is that 'selling on the Sabbath'? In this regard the court continued:

"[The Witnesses] were teaching and spreading their religious views without compensation and at their own expense. . . . The commercial aspect of sales was absent. We do not think the statute contemplates that the distribution of booklets of this nature and under these particular circumstances constitutes desecrating the Sabbath."—Supreme Court of Iowa, State v. Mead et al., 1941.

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Watching the World



War More 'Humane'?

◆ The drafting of a treaty on the rules of war recently was completed by a 72-nation conference in Geneva, Switzerland. It is supposed to make war less hard on civilians. For example, it bans incendiary bombing of civilian concentrations and forbids the use of booby traps that are planted in an "apparently harmless portable object." However, observed France's *Le Monde*: "This attempt to 'humanise' war quickly found its limits. The only weapons which have been banned from being used 'under any circumstances' do not seem to be in known arsenals."

Even under the new treaty, says the newspaper, "one can without feeling any shame place mines around a military target and even booby-trap utensils used in army kitchens." The treaty "does not deal with chemical weapons (consisting mainly of paralysing gases) which are at present enjoying a boom in superpower and other arsenals," notes *Le Monde*. "It would be quite risky to infer from it that the wars which are being waged today . . . are going to become 'humanised'."

Arms for the Poor

◆ While the two 'superpowers' spent more of the \$500,000,000 devoted to weapons in 1980 than other nations did,

the largest increase in arms spending has come in nations that can least afford it. In a recent 10-year period, military budgets of the developed countries grew by 5.8 percent (in constant prices). But England's *Guardian* reports that those of the 'Third World' countries went up by an average of 107.1 percent—nearly 20 times as fast! It is estimated that governments now spend eight times as much on new-weapons research alone as they do on solving energy problems.

Piltdown Conspiracy

◆ Writing in *Natural History* magazine, Harvard historian Dr. Stephen Jay Gould claims that famous Jesuit priest Pierre Teilhard de Chardin was a party to the "Piltdown man" hoax, "the most famous and spectacular fraud of twentieth-century science." The hoax began in 1912 when lawyer and amateur archaeologist Charles Dawson claimed that he had found an apelike human's remains near Piltdown, England. But in 1953 British scientists proved that "Piltdown man" was a fraud. Radioactive dating showed that the cranium came from the skull of a modern man. The jaw belonged to an orangutan. The teeth had been artificially filed down and the bones chemically stained to suggest age. Also, ancient animal bones from distant lands

had been placed in the same area to further the impression of age.

For a long time Dawson was accused of being a lone culprit in the hoax, but Gould asserts that his research shows that Teilhard, who had just been ordained as a priest and was then studying paleontology, was part of "the Piltdown conspiracy." Gould says that some of the bones found in the Piltdown pits came from other countries where Teilhard collected specimens on previous trips. Also, in letters sent by Teilhard to one of the scientists who uncovered the hoax, Gould asserts that Teilhard lied to cover up his part in the scheme.

Government Supports Organic Farming

◆ Two recent studies supported by unlikely sources, the U.S. Department of Agriculture and the National Science Foundation, are quite favorable to organic farming. According to the *New York Times*, in their examination of 69 farms in 23 states, one research team found that "almost all of them were efficient, productive, scientifically sound and cost-competitive with conventional farms." In another comparison of 51 farms, reports the *Times*, scientists learned that "although the cash value of crops was lower on organic farms, the organic farmers' expenses were 36 percent less than those of conventional farms. . . . farmers who used organic agricultural procedures consumed only about 40 percent of the energy required on farms that used chemical fertilizers and pesticides." The article notes that these findings "have angered and baffled some practitioners of traditional [chemical] farming."

Brazil Repeats History

◆ In circumstances reminiscent of America's old West, Brazil still has problems of

clashes between native Indian tribes and white settlers. The Indians claim that the whites are gradually invading their reserves and that their appeals for help have been heeded too slowly. After a massacre in September, policemen carrying machine guns were sent in to keep the peace. However, as *Veja* magazine observed: "Only the definite establishment of boundary lines between the properties of the whites and the Indians is going to prevent the continuing of a war which other countries suffered during the last century and which survives today only in nostalgic wild west stories."

Saliva Heals

◆ Animals are often observed licking their cuts and other wounds. A team of scientists headed by Dr. Michael Young of the University of Florida thinks it knows why: saliva contains a healing agent. The substance is called "nerve growth factor" (NGF), a protein. When NGF was applied to an open wound, either experimentally by the scientists or through licking by the hurt animal or its companions, the wounds healed four to five times as fast. Similarly, researchers in Australia reported that when mice were prevented from licking their wounds they healed much more slowly than those that could. Other animals, and humans, are also known to have NGF in their saliva. Efforts are being made to see if NGF can be used to make a wound-healing medication for use after surgery and in cases of severe burns and other trauma.

Catholics and Concubines

◆ Archbishop Emmanuel Milingo of Lusaka, Zambia, recently admitted that "more than 30 per cent of Catholics in the Archdiocese of Lusaka live with concubines." A church survey released by the archbishop to the *Times of Zambia* revealed that "about

3,225 out of 10,903 married couples live with concubines." How does the Church view children from such unbiblical arrangements? According to Archbishop Milingo's report, says the *Times*, "children born from marriages out of wedlock, but of Christian parents," or from a "Christian couple living in concubinage" or even "a second wife to a Christian married in church had a right to be baptised and religious ministers had an obligation to baptise them."

Inept Gunmen

◆ "For the second time in two days," reports the *New York Post*, "a holdup man has blasted off his own finger—leaving it at the robbery site as evidence for police." Apparently some gun-happy New York criminals are in a hurry to try out their weapons on the "job," before acquiring the ability to use them. Both of the inept gunmen ended up in local hospitals.

No Virgins Left

◆ A highly respected study by Johns Hopkins University professors Melvin Zelnik and John Kantner show that about 50 percent of the 10.3 million young women between the ages of 15 and 19 in the United States have taken part in pre-marital sex—fornication. This is about double the percentage since Zelnik and Kantner began their research in 1971. Observes Zelnik: "Things that supported remaining a virgin in the past . . . have disappeared." A high school senior in Louisiana said of the girls now in their first and second years of her high school: "By the time they graduate there aren't going to be any virgins left." One consequence of this immorality: one million teenage girls in the U.S. get pregnant each year, the sharpest increase being among those under 14. Another: venereal disease is rampant among adolescents, accounting for 25 per-

cent of the one million newly reported gonorrhea cases every year.

Priest Shortage Worsening

◆ "A survey of Canadian priests by the Roman Catholic Church's bishops shows that the institution is plagued by old age," says the *Toronto Star*. The church survey showed that 82 percent of all Canadian priests were over 40 years of age, with many nearing retirement. However, the *Star* reports, "the source of replacements, those below 30 years old, stands at a mere 2.4 per cent. . . . Given the shortage of men entering seminary, the survey's results indicate the crisis over manpower is vastly more serious than was hitherto believed."

As an example, the *Saskatoon Star-Phoenix* states: "During the last five years, only two Catholic priests have been ordained in Edmonton compared with more than 10 a year two decades ago. And no priests will be ordained this year. Rev. Mike McCaffrey, principal of Newman Theological College in nearby St. Albert, . . . says the church is attracting not only fewer but also poorer candidates for the priesthood."

Another priest, Les Drewicky of St. Joseph's Cathedral in Edmonton, says that the shortage of priests is a symptom of a larger disease: "The basic problem is that the church as a whole—each individual Christian—is losing a sense of mission." He called the situation in the church "a crisis of faith."

Old Seeds Grow

◆ Over 100 years ago, botanist William Beal began an experiment with plant seeds to see how long they could survive and still grow. Near his laboratory in East Lansing, Michigan, he buried 20 bottles, each containing 1,000 seeds of 20 plant varieties. After five years, he unearthed one of his

bottles, planted the seeds, and they sprouted. He did this every five years to 1920, and found that all the samples he unearthed germinated. At his death in 1924, his colleagues continued the experiments every 10 years. In 1980, over 100 years later, another bottle was unearthed and the seeds were planted. Twenty-nine of the seeds germinated, although six died. The 23 that grew were of three different varieties.

Fewer Nuns

◆ A Reuter's report from Spain states that in 1979 the number of Roman Catholic nuns in that country dropped to 62,200 from 82,000 six years before. In 100 of the religious orders for nuns, there are now no novices training. Church authorities also expressed great concern at the growing apathy and skepticism toward religion on the part of Spanish youth.

Boxing Slaughter

◆ Columnist James Wechsler, writing in the *New York Post*, notes that deaths in the "sport" of boxing are nearly one a month now. He says: "Since 1945, an Associated Press survey now reports, 330 professional and amateur boxers have died as a result of the beatings they suffered." He noted that "boxing is the only so-called sport in which the only test of achievement is inflicting maximum physical damage on an adversary." He adds: "Outlawing of boxing will not make the world safe for sanity. It would be a minimal affirmation that murder acquires no legal sanction because it is conducted in an arena with commercial sponsors."

World Subway Fares

◆ New York City residents often complain of the high cost

of a subway ride. A comparison of other subway systems shows the following for a six-mile (10-km) ride: London, \$1.93 (U.S.); Munich, 85 cents; Paris, 73 cents; Tokyo and New York, 60 cents; Mexico City, 5 cents; and Moscow, 3 cents. London has a zone fare system, shorter rides costing less.

Feel Safer Overseas

◆ A survey of American diplomats around the world revealed that many of them feel safer in their overseas assignments than they do in Washington, D.C. Of those who answered, 243 said that they felt less safe overseas, but more than twice as many, 541, said that they were more, or at least equally, frightened in the Washington area. The dangers most feared at home were burglary and street crime.

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