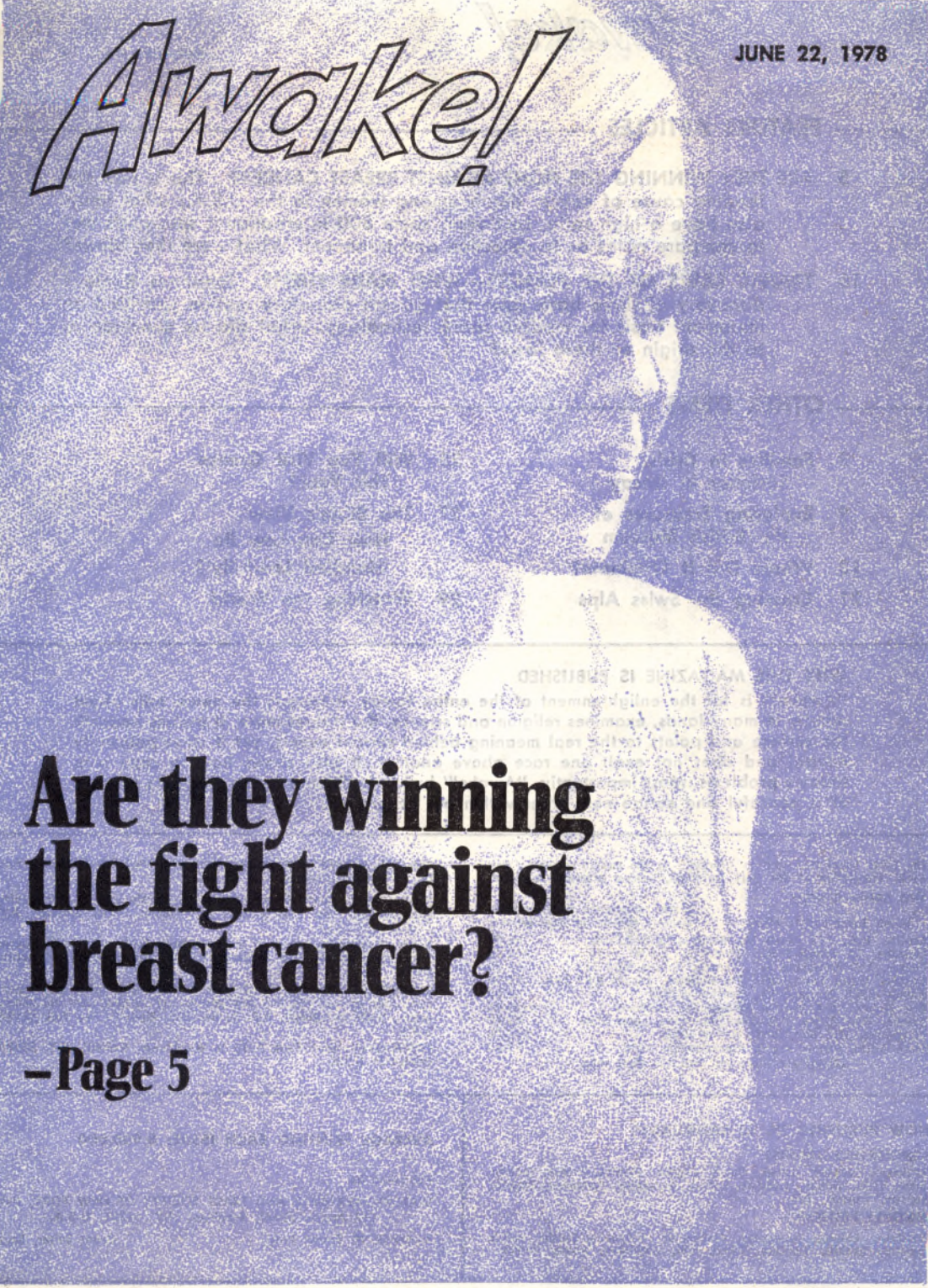


Awake!



JUNE 22, 1978

Are they winning the fight against breast cancer?

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- 16 TRAFFIC LAWS OF THE PLANETS—WHO MADE THEM?** Johannes Kepler's discovery of three basic laws that govern planetary motion provided an important basis for modern space technology. What did he conclude as to the origin of these laws?

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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.

The Bible translation used in "Awake!" is the modern-language "New World Translation of the Holy Scriptures," unless otherwise indicated.

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FAMILIES IN CRISIS, SOCIETIES IN DECAY

MORE than half of all serious crimes in the United States are committed by children 10 to 17 years old. Murder, rape, aggravated assault, robbery, burglary, car theft—you name it; the kids have done it. Youth crime is rising twice as fast as adult crime, and girls are rapidly getting involved in violent crime. From 1970 to 1975, girl offenders increased 40 percent, to compare with 24 percent for boys.

Juvenile courts and laws governing youthful criminals make them a privileged class. They are spewed out by the courts about as fast as they are brought in, and are again preying on the very young, the very old, the lame and the blind—or, in gangs, and armed with knives and guns—on anyone. Daily it is drummed into us that punishment is no deterrent to crime. Yet lack of it removes restraint on youthful criminals. A 12-year-old who specialized in robbing elderly women, later said: "I was young, and I knew I wasn't gonna get no big time. So, you know, what's to worry?" Another boy, 15, recalled why he shot a man: "Wasn't nothin'. I didn't think about it. . . . I was young. The most I could have got then is 18 months."

Doubtless there are several factors responsible for this modern epidemic of young criminals. *Time* magazine, July 11, 1977, ran a cover story on "The Youth Crime Plague," and said: "Most important is the breakdown in the family." One judge, who hears a thousand juvenile cases a year, was reported as saying: "We look for quick solutions, but fam-

ily stability is the long-term answer."

Many contend that a big factor in violent crime is what is offered on television. It saturates youthful viewers with sex, violence and murder, and it certainly has its bad effect. However, an interesting article was published in the January 28, 1978, *TV Guide* magazine. Among its statements were the following: "Japanese television is very much like our own, violence and all." "The Japanese are plugged into TV as irrevocably as we are." "Japanese TV puts enough violence out on the airwaves every week to turn the entire younger generation of that country into killers, addicts and sadists—if. Curiously, however, that is not what has happened." The magazine quotes others as saying: "Television simply does not have that kind of effect on Japanese youth." "There is no way to relate TV violence to crime in Japan because there is so little crime."

And why is this? For the answer, the article quotes Dr. Iwao as saying: "Mass media do not have the same impact in Japan. The family is still too strong, too influential in the lives and conduct of young people. In Japan, if a member of a family, even a juvenile, commits a crime, the act brings shame to all members of the family. This is a powerful deterrent to bad behavior." The family is too strong. It provides immunity to the virus of television violence. The family must not be shamed. It reminds us of the Bible proverb: "A boy let on the loose will be causing his mother shame."—Prov. 29:15.

The Family in History

In Part II of Will Durant's *The Story of Civilization*, it is shown how, in ancient Greece, moral decay destroyed the family. Prostitution, homosexuality, dances of naked women—everything was acceptable. Athenian life was portrayed in plays as a round of triviality, seduction and adultery—reminiscent of today's television "soap operas." As women became emancipated, they revolted against wholesale maternity. Families were limited by abortion, which was punishable only if practiced without the husband's consent, or at the instigation of the woman's seducer. After relating these conditions, Durant continues: "We have tried to show that the essential cause of the Roman conquest of Greece was the disintegration of Greek civilization from within. No great nation is ever conquered until it has destroyed itself."—Pp. 567, 568, 659.

In Part III of Durant's history, he tells of the strength of the family in Roman times, how it hardened the Roman character and made the empire strong and enabled it to conquer the world. But as centuries passed family life weakened and the Empire's strength waned. Page 364 says of the family erosion: "Contraception was practiced in both its mechanical and chemical forms. If these methods failed there were many ways of procuring abortion. Philosophers and the law condemned it, but the finest families practiced it. 'Poor women,' says Juvenal, 'endure the perils of childbirth, . . . but how often does a gilded bed harbor a pregnant woman? So great is the skill, so powerful the drugs, of the abortionist!' Nevertheless, he tells the husband, 'rejoice; give her the potion . . . for were she to bear the child you might find yourself the father of an Ethiopian.'" 

However, in the deteriorating Roman world, "the family life of the Jews was exemplary, and the little Christian com-

munities were troubling the pleasure-mad pagan world with their piety and their decency." (P. 366) The Jewish communities were following Biblical principles concerning family life, as were also the Christian families. Today that 'exemplary family life' is not so much in evidence. The *New York Times*, in a report on 'Crisis in the Orthodox Jewish Family,' said:

"Orthodox Jewish-American families, even with their adherence to tradition, are now experiencing an upswing in nonmarital sex, alcoholism, drug abuse, breakdown of the extended family, rebelliousness of youth and, particularly, divorce. Rabbi Wurzbarger said a recent survey of the religious divorce court (Beth Din) indicated that four out of ten Jewish marriages were dissolving. While the rate was somewhat lower among Orthodox families, Rabbi Wurzbarger called the trend 'the most formidable threat to Jewish survival facing us today.' . . . deviance was traditionally handled within a secure family and community framework—with general agreement on right and wrong. Now that unilateral authority seems to be eroding faster than ever, and the leaders were not sure what will take its place."

Nothing will take its place. Greece found nothing to replace it. Rome found nothing. This present world is now undergoing a similar moral collapse and erosion of family stability. History is emphatic: when the family arrangement erodes, the strength of communities and nations decays. *The World Book Encyclopedia* (1978), under "Family" (Vol. 7, p. 24), thus sums up the matter:

"Family is the oldest human institution. In many ways it is the most important. It is society's most basic unit. Entire civilizations have survived or disappeared, depending on whether family life was strong or weak. Families have existed since earliest times, and will undoubtedly exist as long as people live on the earth."

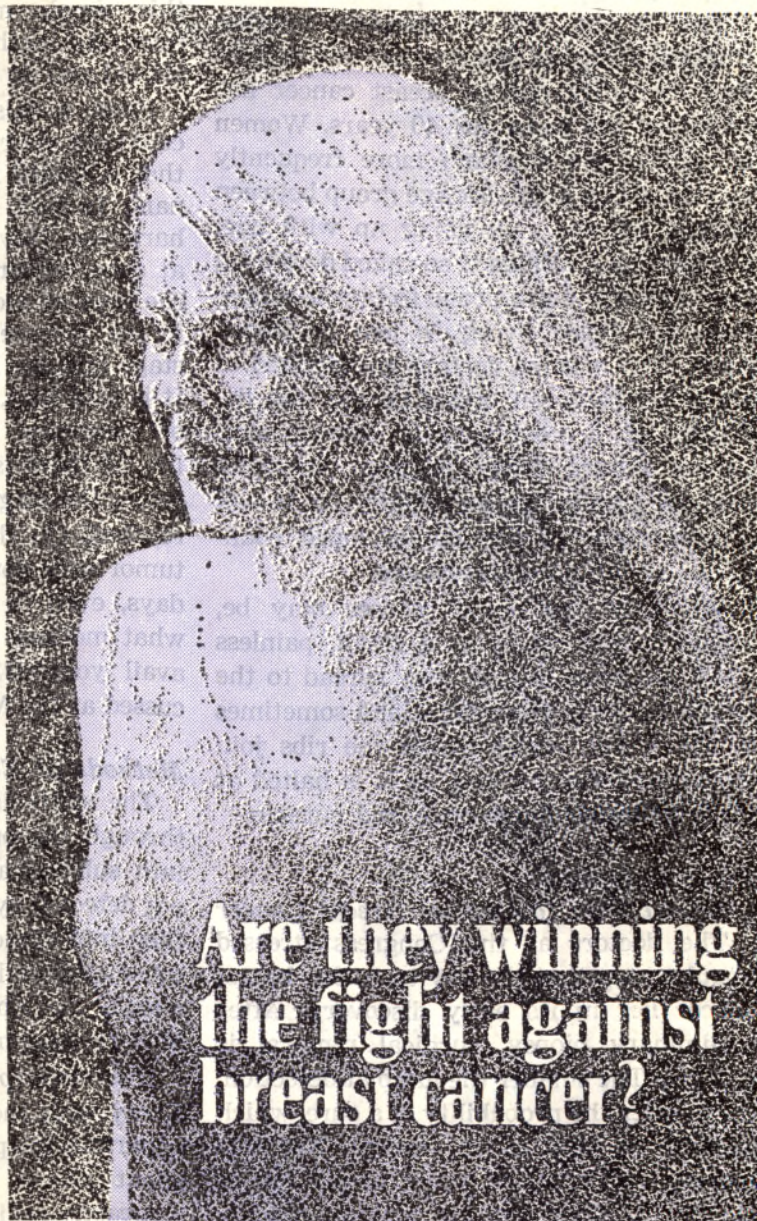
Basically, the breakdown of family life in our society today is the root cause of the epidemic of youthful criminals.

YOU may be one of the many women world wide asking this worrisome question. Will there be a positive answer soon? What conclusions were drawn at the Fourth Mastology Congress in Campinas, Brazil?

In February of 1977 some 500 international specialists met there to share their findings in the field of mastology, the medical science dealing with the breast and its diseases. The program focused on breast cancer, its diagnosis, prevention and treatment. We invite you to consider some of the highlights.

Prevalence and Cause

Breast cancer has become a scourge of our times. In the United States alone, it has reached epidemic proportions, with 90,000 cases a year. Unhappily, the disease catches up with one in every 13 American women. Although there is a chance of a cure, if discovered in time, breast cancer is now the leading cause of cancer death among women in the United States, killing 26 in every 100,000. Other countries, such as England and France, are not much better off. In fact, about 4 percent of all adult wom-



**Are they winning
the fight against
breast cancer?**

By "Awake!" correspondent in Brazil

en in the Western world are affected. Only in Latin America are the women more afflicted by cancer of the uterus and skin, while breast cancer ranks in third place, with 10 fatalities in 100,000. For yet unknown reasons, Oriental women are less subject to breast cancer.

Despite the lack of complete international data, it was observed at the Congress that mortality due to breast cancer has remained the same for 40 years. Women of middle age succumb more frequently and there is a high-risk age group between 40 and 65, the risk going up with age. Furthermore, women in so-called developed countries are more prone to breast cancer than are those living in less developed lands. Hence, some doctors are inclined to see a link between breast cancer and the degree of a community's development. Others regard fewer children, artificial feeding, greater intake of fatty foods—all characteristic of life in developed countries—as the potential causes.

Whatever the actual causes may be, breast cancer starts as a small, painless lump. It grows in size, may spread to the lymph nodes in the armpit and sometimes to the lymph nodes where the ribs join the breastbone. As long as it is halted at these nodes, it is operable and curable.

Early Detection

—Surest Way to Combat Breast Cancer

The doctors at the Congress stressed unanimously that the key to curing breast cancer lies in its early discovery. After preliminary biopsy, surgical removal is possible. The smaller the lump at detection, the greater the probability of a cure, which may be as high as 95 percent. For this reason, the countries where breast cancer is killer number one are making concentrated efforts to help women to detect

cancer when it is still small. Publicity campaigns alert the women, teach self-examination and advise periodical medical checkups.

In the United States, the women themselves discover 90 percent of the lumps by palpating (feeling) the breast. But besides this simple method, there are modern scientific methods of diagnosis. So what should you do if you discover a lump?

First, a false sense of shame or fear could put your life in jeopardy. Remember that a tumor may or may not be malignant. In fact, most lumps are said to be harmless. Nevertheless, consult a doctor at once. Never forget that if it is cancer, the hope of successful treatment is greater if the disease is diagnosed at an early stage and the lump is surgically removed. It is said that, in most cases, the removal of cancerous lumps prolongs a person's life. If there is no new cancer after some years, the stage of "no comeback" may be reached. On the other hand, a malignant tumor may double in size every 55 to 110 days, even in as few as 22 days. So, of what methods of early detection can you avail yourself? The following were discussed at the Mastology Congress.

Methods of Early Diagnosis

The epithelial tissue in the breast goes through various stages until it develops into subclinical cancer, that is, the type not detected by the usual clinical tests, and then into clinically detectable cancer. Discovery before it reaches the palpable stage would, therefore, be far more desirable. Modern equipment makes this possible.

Mammography. This is conventional X ray with the use of special film and an apparatus adapted to the breast. But what about recent press reports that mammography radiation itself may induce cancer?

Dr. Philip Strax of the United States pointed out to the Congress that most of such findings were based on women who had previously undergone some radiological treatment for other diseases. At the same time, he highlighted the effectiveness of new low-dosage mammography equipment, which transmits less than one rad in the average mammogram. Former president of the American Cancer Society Dr. Benjamin F. Byrd, Jr., corroborates this view, saying: "There are no conclusive data on the effects of such low doses of radiation. . . . More to the point: risk must be placed beside benefit. The results of mammography in discovering early, curable breast tumors are indisputable."

It is held, therefore, that yearly low-dosage mammography screening for women in the high-risk age group, or for women with cancer symptoms, or for those who have a family history of cancer, would not induce a nonexistent cancer. Rather, the American Cancer Society fears that some women may endanger their lives by delaying a mammogram until the advantages of early detection are lost.

Thermography, or heat scanning, looks for tumors by means of infrared radiation. It is based on the principle that carcinomas give off a higher temperature than the normal breast tissue or than benign tumors. This method has been improved and produces a photographic temperature map of the breast in just two minutes. The main drawback seems to be its high cost.

Plate Thermography works by placing on the breast a plate containing liquid crystals. According to the coloration of the crystals, the physician can make his diagnosis. However, some doctors claim that the older chamber thermography is more accurate.

Xeroradiography has been in use for some 25 years. It is a simple X ray but

with a selenium-coated aluminum plate. Details of tissue are made visible and may be examined in a single exposure.

Treatment plus Compassion

There are experiments under way with the implantation of isotopes, and some women prefer radiation treatment to a mastectomy. However, at the present time, such means are inferior to surgery as a cure for breast cancer. In view of the psycho-social aspects of breast cancer, surgeons now are apt to follow a more compassionate approach toward their patients. Involved is, not only the specter of cancer itself, but also the fear of losing feminine attractiveness. This may even be a reason why many women wait—often too long—rather than subject themselves to checkups.

Some doctors advocate better surgeon-patient relationship and open discussion of treatment options. In a private interview during the Congress, a *Brazil Herald* reporter heard Dr. Henry Jenny's belief that biopsies of most tumors are possible under local anesthetic and that more definite tests can be carried out within 48 hours. Says the newspaper: "Besides eliminating the fear of undergoing general anesthetic without knowing the outcome, the more definite tests give the woman time to discuss treatment options with her doctor, or

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◆ A Man Who Found It

◆ Coping with Hypoglycemia

ask for the opinions of other specialists. If breast reconstruction is desired, the surgery can be planned with the help of a plastic surgeon to maximize the potential for later cosmetic treatment."

Two British doctors also presented to the assembled specialists reports on their own compassion-oriented approach. Dr. Peter Maguire has had excellent results from a program employing trained nurse-counselors for three treatment phases of preoperative, hospitalization and home recovery. Anxiety reactions have been considerably reduced. The other surgeon, Dr. Richard Handley, received acclaim for the use of conservative radical mastectomy. Instead of removing extensive muscle tissue, as in the standard radical mastectomy, he only eliminates the breast tissue and armpit lymph nodes, but leaves the pectoral muscle between the arm and the shoulder, thus assuring recovery of maximum possible muscle function. A similar technique has been developed by Brazilian surgeon Dr. Fernando Gentil of São Paulo.

Although the compassionate approach is highly commendable, one authority states that "in cancer of the breast early and complete operation easily holds the first place for success so far as present knowledge goes." At the same time, dependent upon the advance of the disease, palliative treatment is possible with radiation methods, intended to destroy the cancer cells. There is also hormone therapy and chemotherapy. The latter makes use of toxic radicals together with chemical substances. Cancer cells absorb these substances and may be killed. Polychemotherapy, a more recent development, is said to offer another potential weapon in the tough fight against breast cancer.

Value of Nursing

It cannot yet be stated categorically that natural feeding of infants either provokes

or prevents breast cancer, but there is evidence that the incidence of cancer is lower in women who nurse their babies. Besides, lactation has a direct bearing on the growth, development and physical, perhaps even mental, health of the newborn baby. It may also affect the mother's health.

A recent survey in Brazil revealed that 50 percent of all newborn babies are weaned after two and a half months, and 20 percent leave the hospital already accustomed to bottle-feeding. Incidence of child illnesses was 10 times as great as that among the group that was not breast-fed. It is true that some mothers feel pains in the breast after nursing, or they may even get cracked nipples. But this should be no reason to stop breast-feeding without first consulting a doctor. According to Dr. José Aristodemo Pinotti, Mastology Congress president and director of Campinas University's medical faculty, bottle-feeding as a modern status symbol must be replaced by breast-feeding as a status symbol. There is no medical substantiation for the phrase "My milk is weak." Nor is there any evidence that breast-feeding alters the appearance of the breast.

Hope for a Permanent Cure

The Congress and our brief review have showed up the slowness of human efforts, however commendable. But there is one sure hope of a permanent cure of all diseases, in the near future. It is foretold in the Bible.

Under the imminent millennial rule of Christ Jesus, this promise of divine healing will come true: "And he [God] will wipe out every tear from their eyes, and death will be no more, neither will mourning nor outcry nor pain be anymore." (Rev. 21: 4) Then, at last, the fight against cancer will have been won.

Exploring treasures of the British Museum



By "Awake!" correspondent in the British Isles

WHAT does the word "museum" mean to you? Never-ending corridors lined with cases of stuffed birds, faded paintings and pieces of stone? Please leave those thoughts behind, for you will not be bored as we tour the British Museum in London.

Are you carrying a camera? Fine! You can use it to compile 'photographic essays' in slides or prints.

The Building with the Muses

The tour starts in the forecourt of the museum. First, note its impressive height and length. The statues at the top of this building represent Greek goddesses, patrons of such arts as dancing, poetry and music. These goddesses were called the "Muses" and their temples "Museums."

Customs in the City of Ur

Eagerly we enter the museum itself and go up to the Babylonian Room. It contains exhibits unearthed at the Hebrew patriarch Abraham's native city of Ur. Note this magnificent *headdress* of interwoven gold beech leaves. Those large gold lunate *earrings* once hung from pierced Chaldean ears. It is a pleasure to see beauti-

ful necklaces, like these made of lapis lazuli, and even shells containing *eye shadow*.

These items were discovered in the tomb of a queen. Buried with her were numerous attendants. Yes, they were buried alive with the dead queen! It was considered an honor to accompany their royal mistress and serve her in the "hereafter."

Exhibited evidence indicates that both a belief in the immortality of the human soul and the worship of *mother and child* were current in Ur 4,000 years ago. Inside Case 14 we read: "Sumerian religion passed on many of its gods, religions, beliefs and practices to the Babylonian Semites who succeeded them."

Egyptian Exhibits

Joseph, a son of Jacob and a descendant of Abraham, was taken to Egypt, the first world power of Bible history. Summoned to interpret Pharaoh's dreams, Joseph first shaved off his beard. (Gen. 41:14) While shaving, he may have used *copper razor blades* that resembled small ax heads. And Joseph probably made use of a polished metal *mirror* like this one made of copper.

Under divine direction, Joseph told Pharaoh that Egypt would experience seven years of plenty followed by seven years of famine. In appointing that Hebrew as second ruler in the land, 'Pharaoh gave his own signet ring to Joseph, clothed him with fine linen garments and placed a necklace of gold about his neck.' (Gen. 41: 41, 42) Appropriately, we stop to admire



some Egyptian *signet rings* and beautiful *necklaces of gold*.

Embalming

After Jacob, also called Israel, died in Egypt, "Joseph commanded his servants, the physicians, to embalm his father." (Gen. 50:2, 3) On display here are quite a few embalmed persons. These *mummies* are, indeed, a sight to behold.

During the embalming process, a long *iron hook* was used to remove part of the brain through the nose, the remainder being destroyed by means of drugs. The kidneys, liver, intestines and lungs were removed, rinsed with palm wine, and then placed in *four canopic jars*. This palm wine also was used with *fragrant herbs* and *spices*. Next, the body was steeped in *natron* (sodium carbonate). Since natron absorbs water, over the course of many days it would dehydrate the body. Ultimately, the entire corpse was wrapped with clean *linen bandages*. Hot pitch was applied between some layers of bandaging. Incidentally, the finished product is called a "mummy" because the Egyptian word for "pitch" is *mumiyah*. Preparing a mummy required knowledge of anatomy and chemistry, and this vindicates the Bible's statement that "physicians" embalmed Israel, or Jacob.

Egyptian Beliefs

The purpose of Jacob's mummification apparently was to preserve his body until it could be buried in the Promised Land. (Gen. 50:4-14) Unlike the Israelites, however, the Egyptians believed that the human soul was immortal, and their embalming activity was associated with that false idea. (Ezek. 18:4) In a picture on a wall

of the next room that we visit, the *soul* appears like a bird flying above a deceased person lying on a couch between two candles, one at the head and the other at the feet. Notice, too, that the "soul" is holding the upper part of a cross that had been cut in two because the ancient Egyptians said that life was cut off at death.

Inside a coffin are the *signs of the zodiac*. A *map*, drawn in another coffin, indicates the route that the "soul" had to follow. Offerings were made on *sacrificial tables* in order to appease the soul and to prevent it from returning to trouble a survivor in a dream. Egyptian religion also embraced *trinities of gods*, as well as adoration of *mother and child*. Hence, these practices did not originate with the true God.

The ancient Egyptians also believed that the purchase of an *indulgence letter* would spare them torments after death, bring them forgiveness of sins, and secure for them a better place in the "hereafter." In the King's Library there is a *letter of indulgence* written in Latin. You may recall that the sale of similar letters was partly responsible for the religious Reformation of the 16th century.

Sex worship is indicated by the *Egyptian cross*, the *crux ansata*. This symbol represents the male and female sex organs united, thus constituting the key of life. On one wall appears a picture of a *god holding a cross* to signify that he is giving Pharaoh life. Interestingly, *Syrians* visiting Egypt nearly 2,000 years before the Common Era were wearing crosses similar to those of today. That the cross was passed on to the apostate Egyptian Christians is evident from their *tombstones* dating from the fifth to the ninth centuries of our Common Era.



The Ten Plagues

False religion certainly suffered a humiliating stroke when Jehovah God brought 10 blows, or plagues, on Egypt, proving that the Egyptian deities were powerless. The first plague—turning the Nile River and all the waters of Egypt into blood—brought disgrace upon the Nile god Hapi. (Ex. 7:19-21) Visualize Egyptians praying in front of this statue of Hapi. But Hapi could not even protect his own arms. See! He has lost them!

All 10 plagues upon Egypt proved to be judgments against Egyptian deities, but this was especially true of the last blow, the death of the firstborn. (Ex. 12:12) The ram was sacred to the god Amon-Ra, the "King of the Gods," so that the splashing of the blood of the Passover lamb on the doorposts and lintels of Israelite homes would be a blasphemous act to the Egyptians.—Ex. 12:6, 7.

During their enslavement in Egypt, the Israelites had been compelled to make bricks containing straw. (Ex. 5:7, 8) So, it is very interesting to see the type of bricks that they were forced to make. But we recall that when about to depart from that land of bondage, the people of Israel asked the Egyptians for "articles of silver and articles of gold," perhaps quite similar to those here displayed.—Ex. 12:33-38.

Of all the British Museum's exhibits from Egypt, one that has occupied the most prominent position since 1802 is the famous *Rosetta Stone*. It contains a decree issued by Egyptian priests in 196 B.C.E. to honor the "god" Ptolemy V Epiphanes. The decree was written in (1) Egyptian hieroglyphic script, (2) Egyptian demotic script (the simplified writing of the people) and (3) Greek, the latter language providing the key for unlocking the mystery of the hieroglyphics.

The glory of ancient Egypt exists no longer. Her pharaohs are dead, like this

dehydrated slave whose skin has been preserved because of the action of the dry sand. But look at these replicas of a pharaoh and Egyptian soldiers. They all have the left foot forward. It appears that the Egyptian army started marching with the left foot, a custom that has been passed on to practically every military force of the world!

Phoenician Influence on the Israelites

The beautiful Phoenician ivories bear unmistakable traces of Egyptian influence. Clothing, head cloths, gods and the cross of Egypt were passed on to the Phoenicians. Additionally, they had the *sacred pole*, a religious symbol of the male sex organ. But, even worse, the Phoenicians practiced the depraved religion centered around the fertility god Baal. It involved abhorrent rites of child sacrifice, the babies' ashes being placed in *cinerary urns*.

The Scriptures say that King Ahab of Israel married Jezebel, the daughter of King Ethbaal of Sidon (the principal city of Phoenicia) and began serving Baal. Ahab "set up an altar to Baal at the house of Baal that he built in Samaria" and "went on to make the sacred pole."—1 Ki. 16:31-33.

Exhibited in the Old Palestine Room are ivories in Phoenician style. Where were they found? In ancient Israel's capital Samaria, where Ahab built his palace using costly ivory and, hence, making it a veritable "house of ivory."—1 Ki. 22:39.

The Assyrians

Assyrian aggressors closed in on Israel during the rule of Ashurnasirpal II, a man noted for cruelty and ruthless military campaigns. Interestingly, his *stele* shows him adorned with a cross. His successor, Shalmaneser III, is the first king of Assyria to record direct contact with Israel, doing so on the famous *Black Obelisk*. On it he

is depicted standing to receive tribute from King Jehu of Israel, perhaps by means of an emissary. The obelisk also shows 13 Israelites carrying tribute, thus representing all the tribes of Israel, including the Levites.

Noteworthy, too, is the *Nonagonal Prism*. It chronicles King Sargon's expeditions and mentions the conquest of Samaria that is recorded at 2 Kings 18:9-12.

In a palace room (known as the Lachish Room) Sargon's heir Sennacherib is shown sitting on his throne during the surrender of the city of Lachish. Assyrian officers have come before the king for commendation, while prostrate Israelite prisoners beg for mercy as others receive the cruel treatment of *flaying* and *impalement*. Actual slingstones and a sling can also be seen here.

On view in the Room of Writing are the famous *Lachish Letters*. One of them, addressed to "Ya'ush the military governor of Lachish from Hosha'yahu," contains God's name, Jehovah, in Hebrew Tetragrammaton form (YHWH). This clearly indicates that the early Israelites were not afraid to use the name Jehovah.

Old Bibles and Manuscripts

Now let us browse through the King's Library and the Historical Manuscripts Room. There is much to see, but we will pick out some outstanding exhibits.

It is difficult to imagine that anybody would attempt to throw away the *Codex Sinaiticus*, a Greek Bible manuscript written about the fourth century C.E. Yet, when the German biblical scholar Tischendorf visited the Greek monastery of St. Catherine on Mount Sinai in 1859, he found 43 sheets of this magnificent volume in a wastepaper basket.

At one time, the *Codex Alexandrinus* was in the library of the Patriarch of Alexandria. This vellum manuscript was

presented to King Charles I of England in 1627. It dates from the first half of the fifth century C.E.

Look carefully at the *Hebrew Pentateuch*, a manuscript of the 10th century. In several places, you will see the Divine Name, the Tetragrammaton יהוה. Compare this with the beautifully written *Wycliffe Bible* of 1380 to 1384—the first complete handwritten Bible in the English language. Both are such fine examples of exquisite penmanship! The bold printing of the *Gutenberg*, or 42-line Bible, believed to be the first substantial book ever printed from movable type, stands out in clear contrast.

The word "polyglot" comes from Greek and means "many tongues." Two outstanding Polyglot Bibles are displayed. One is the *Complutensian Bible* of the early 16th century, giving the text in Hebrew, Aramaic, Greek and Latin. And the other was completed by *Christophe Plantin* in 1571, with the text in the same four languages, as well as in Syriac. About 1,200 copies of this Bible were printed, 13 of them on vellum, as was this copy.

In one display case, four famous translations are seen together. Here we find *Martin Luther's New Testament*, a popular German rendering of 1522 that formed the basis for *William Tyndale's New Testament* of 1525. The *Geneva Bible* was prepared for private reading and study by a group of English and Scottish Protestant refugees living at Geneva in 1557. Next, our attention is drawn to the first edition of the *King James Version*, printed in 1611.

There is much more to see, but we must draw our interesting tour to a close. A visit to the British Museum is always worth while. Many of its exhibits are unique. So, if you are planning to attend the "Victorious Faith" International Conventions of Jehovah's Witnesses in London this year, be sure to include it in your itinerary!

THE handwriting was on the wall,' but he escaped 'by the skin of his teeth.' To people not familiar with the English language, this may sound like strange speech indeed.

Idioms and figurative expressions undoubtedly add color and depth to a language. How descriptive of plenty it is to say that a land is 'flowing with milk and honey'! Or, how significant to describe a person facing a dilemma as being 'between the Devil and the deep blue sea'! Then, too, the futility of a project may be likened to the 'flogging of a dead horse.'

To have had your teeth set on edge has deeper meaning than merely saying that you have had an irritating experience. And it is quite descriptive to speak of a deceitful person as one who likes to 'run with the hare while hunting with the hounds.'

Have you ever had the uncomfortable experience of trying to sleep on a bed that you had made carelessly? Well, to suffer the consequences of your own actions is well expressed by the saying 'you must sleep on the bed you make.'



The little bird that tells the secret

Where did it originate?

By "Awake!" correspondent in Rhodesia

And what about Damocles? In Greek legend, he was a courtier of King Dionysius and often praised the monarch for his wealth and happiness. One day, to show Damocles how precarious such happiness was, the king invited him to a banquet. Damocles was seated at the table, but over his head hung a sword suspended by a single hair. Hence, 'the sword of Damocles' is an expression used to describe the circumstances of a person in imminent danger of losing his life, or at least it pertains to one's finding oneself in an extremely insecure position.

Have you ever wondered how various unusual expressions originated? Knowing this often helps one to understand the depth of meaning intended by them.

The Bible's Contribution

It may come as a surprise to many



Does "Damocles' sword" hang over your head?



Spare the rod, spoil the child

that Bible events have made a generous contribution to the English language. For instance, the miraculous handwriting on the wall of King Belshazzar's palace meant doom for mighty Babylon. (Dan. 5:1-6, 17-31) To 'escape by the skin of one's teeth' reminds a Bible reader of the expression used by the godly man Job, who endured many painful experiences and said "I escape with the skin of my teeth." (Job 19:20) So near death did Job come that he could truly say that he escaped with (not *by*) the skin of his teeth. Interestingly, scientists have come to realize that the enamel covering of the teeth is not just a dead shell. Rather, they speak of it as a "superskin" produced by epithelial (skin) cells.

Speaking of teeth calls to mind how the Bible book of Ezekiel aptly illustrated the fact that the people of ancient Israel were suffering because of the sins of their forefathers. Accordingly, through the prophet Ezekiel, Jehovah God cited the proverbial saying: "Fathers are the ones that eat unripe grapes, but it is the teeth of the sons that get set on edge."—Ezek. 18:1, 2.

Solomon, wise king of ancient Israel, spoke of the 'fly in the ointment,' to show the detrimental effect that "a little foolishness" has on a person previously noted for "wisdom and glory." (Eccl. 10:1) The Bible also indicated that 'to spare the rod is to spoil the child.' (Prov. 13:24) It speaks about 'the little bird that tells the secret.' (Eccl. 10:20) And the prophet Jeremiah wrote that 'a leopard cannot change its spots,' even as wicked people do not improve their personalities.—Jer. 13:23.

Sometimes entertainers of today are spoken of as 'bringing the house down,' with the raucous laughter of an audience. Well, Israel's judge Samson *literally* did this while serving as entertainment for the Philistines who were making sport of him. Though Samson was blind, he was led by a boy to the two main pillars of the large

building teeming with thousands of spectators. Then, at the height of the merriment, Samson brought the house down in a scene of death and destruction by applying his God-given strength to the pillars.—Judg. 16:25-30.

Other Origins

Interesting is the expression "hocus-pocus," often denoting speech or actions employed to hide deception. This term is thought by some to come from the Latin words used by Catholic priests while consecrating the Eucharist. As the priest raised the bread above his head, he said "*Hoc est corpus*," meaning "this is the body." The Roman Catholic Church teaches that at the moment that the bread is raised above the head a miraculous change takes place, with the bread literally becoming the fleshly body of Jesus Christ. Evidently, some could see through the deception and labeled it "hocus-pocus."—Compare Luke 22:19.

Along different lines, "Uncle Sam" has come to represent the American government. How did this originate? Well, a man named Elbert Anderson once identified his stores on the Hudson River as E.A.—U.S. (Elbert Anderson—United States). At the same time, a government inspector by the name of Samuel Wilson had become known as "Uncle Sam." One day an employee was asked the meaning of "U.S." and jokingly replied "Uncle Sam." Such a simple origin and yet it stuck!

The Irish have contributed "Blarney stone" to the English language. In 1602 Cormack Macarthy held the Castle of Blarney, but made an armistice with Carew, the lord president, on condition of surrendering the fort to the English garrison. Daily, Carew would look for fulfillment, only to be consoled with protocols and soft speeches until he became the laughingstock of Queen Elizabeth's ministers. So, blarney has come to mean soft,

meaningless speeches intended to gain some end. In the castle lies an inscribed slab, and to this day hundreds of visitors yearly make their way there to kiss the Blarney stone, at least some of them with the idea of gaining the power of eloquence and persuasive flattery.

Africa Makes Its Mark

Here in Africa the English language has been influenced by many new words taken from the vernacular languages. While some of these terms are employed only in Africa, others have become widely used—*safari*, for example. *Safari* is a Swahili word meaning 'to go on a hunting expedition.' Usually it denotes a trek through thick jungle, along dusty, rough roads, under a hot tropical sun. However, in England today you may go 'on safari' in the comfort of modern transport on tarred roads, viewing animals in beautiful parks.

"Mumbo Jumbo" was the name of a West African divinity, and has come to mean senseless talk. On the other hand, "Jumbo" was the name of an elephant, but now is used to refer to anything huge.

In America you may enjoy going to a barbecue, but here in Africa you would be invited to a *braaivleis*. This is a social occasion when juicy steaks or whole chickens are roasted on a grill over an open fire. A special feature of the menu is *boerwors*, a well-seasoned, homemade sausage. You

may also be invited to try a little liquid refreshment, as well as some *sadza* and *nyama*, mealie-meal porridge with roasted meat in a rich sauce of onions and tomatoes. Yes, indeed, your first *braaivleis* would be a memorable occasion.

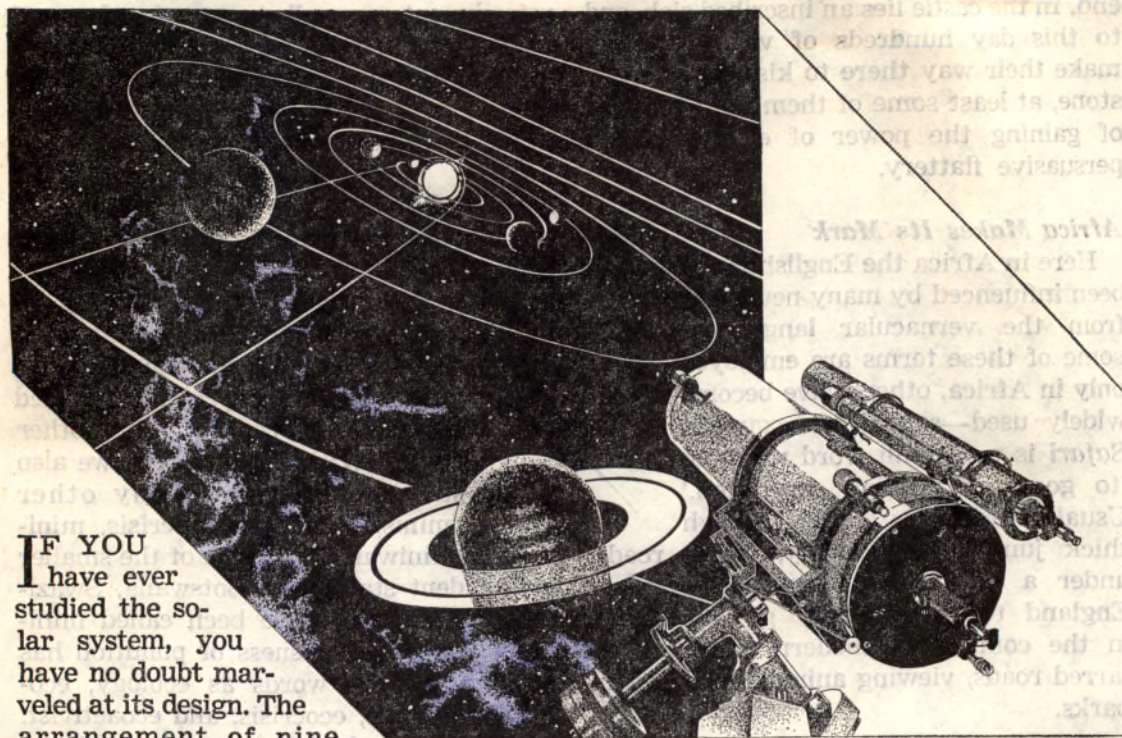
New Additions

Language continues to grow, with new expressions being added all the time. For example, with the Russian launching of the Sputnik spacecraft in 1957, that word became part of the English language. Also, apparently suggested by it were "beatnik" and other "niks." With the miniskirt we also saw the birth of many other "minis," such as minicrisis, minibus and miniwar. Now some of the smaller independent states like Botswana, Swaziland and Lesotho have been called mini-states. Our consciousness of pollution has resulted in such words as ecology, ecosystem, ecocide, ecocrisis, and ecoactivist.

Language truly is interesting, and unusual expressions and idioms do add color to it. Knowing their origins will help us to understand things read, and may aid us to be more expressive in our own writing and speaking. Although we have discussed the origin of only a few unusual English expressions, you may wonder where others originated. If your curiosity gets the better of you, however, be careful not to waste too much time, for your quest may be fruitless. You may find yourself on a 'wild-geese chase.'

Finding Comfort in the Right Place

Calling at a home, two of Jehovah's Witnesses found the householder upset because she had lost a check representing a large sum of money. The Witnesses expressed sympathy for her and suggested that, since they represented the 'God of comfort,' she get her Bible, and they would share some thoughts with her. The Witnesses mentioned that this 'God of comfort' has a name and she could read it in her Bible at Psalm 83:18. When the woman turned to this verse, her check fell out of the Bible. She was elated, agreed to study the Bible and the study soon was going well!



IF YOU have ever studied the solar system, you have no doubt marveled at its design. The arrangement of nine planets whirling and spinning around the sun reminds a person of the movements of a fine jeweled watch. The spectacular order and symmetry of the solar system have moved some men to devote much of their lives to investigating the motion of the planets. One such man was a German astronomer of the 16th/17th centuries by the name of Johannes Kepler. Interestingly, he was motivated in his examination of the planetary movements by a firm belief in a Creator, a Master Architect, and the more he studied these movements, the stronger his faith became. His discoveries, which paved the way for Isaac Newton in uncovering the law of universal gravitation, can strengthen our confidence in the Creator and in his Word, the Bible.

Johannes Kepler was born in the year 1571 in Weil, a small town in Germany. In

Traffic Laws of the planets —who made them?

spite of a lowly background and a sickly nature, he was able to graduate from Tübingen University, one of the foremost colleges in Europe. Originally Kepler intended to enter the Protestant ministry, but his talents in mathematics and astronomy led him in a different direction.

Kepler became a mathematics teacher in the city of Graz, Austria, in 1594, but only six years later he was forced to leave, due to pressures from the religious leaders of the Catholic Church. Kepler and his wife then moved to Prague, where he be-

came associated with the eminent Danish astronomer Tycho Brahe. About a year after Kepler's arrival, Brahe died and Johannes Kepler was appointed his successor in the office of Imperial Court mathematician to Emperor Rudolf II, and subsequently to Emperor Matthias. While serving at this post, Kepler discovered the three principles actually made by the Creator to govern planetary motion. Consequently, they became known as "Kepler's Laws."

Kepler's Laws

For centuries astronomers had felt that planetary orbits involved some form of circular motion. This belief, however, had not proved true in actual observation, and scientists were led to extremely complex

diagrams and equations to explain the discrepancies. Kepler, after years of calculation, primarily with regard to the planet Mars, arrived at the conclusion that this planet's orbit was not circular but a geometric figure called an ellipse. What is an ellipse? you may be asking. Well, why don't we make one!

If you wish, go and get the following items: two thumbtacks, a pencil, a piece of cardboard, and a piece of string about 18 inches (46 centimeters) long. First, tie the two ends of the string to make a loop. (See Figure 1.) Next, put the thumbtacks in the cardboard as shown in the diagram and put the loop of string around them. Then put the pencil within the loop, pull taut on the string and trace out the path around the tacks. The figure that you have

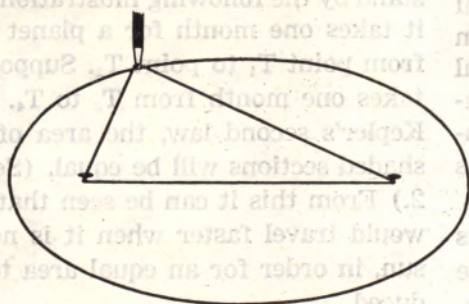


Fig. 1

MAKE AN ELLIPSE

To draw an ellipse, put two thumbtacks into a piece of cardboard. Put a loop of string around them, draw the string taut with a pencil, and move the pencil around the tacks. The thumbtacks will be at the two focal points of the ellipse.

KEPLER'S 2ND LAW

If it takes the same amount of time for a planet to travel from T_1 to T_2 as it does from T_3 to T_4 , then shaded sections will have equal areas.

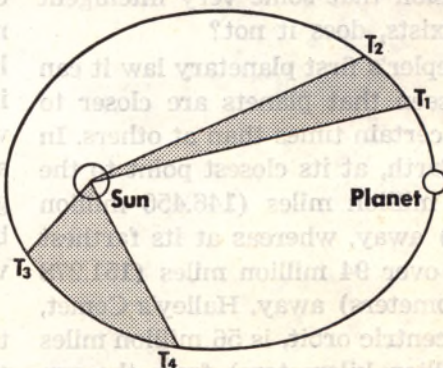


Fig. 2

drawn is an ellipse. The two tacks mark what mathematicians call the focal points of the ellipse.

The farther away these two points are from each other, the flatter our ellipse becomes. If the two focal points are close together, however, the ellipse becomes rounder. Actually, a circle is just a round ellipse that has its two focal points at the same place, namely, at the center of the circle.

Most of the planets travel in orbits that are nearly circular, the earth's orbit being almost a perfect circle. A few planets, however, have elliptical paths that are quite eccentric, that is, they are flatter or less round. Pluto and Mercury are the most eccentric of the major planets, but some comets, such as the famous Halley's Comet, have extremely eccentric orbits.

Kepler deduced from a study of the orbit of Mars that all planets travel in elliptical paths. Moreover, he concluded that in every case the sun is at one of the focal points of the planet's orbit. These conclusions have since been verified, and constitute what has come to be known as Kepler's first law of planetary motion.

What a remarkable law this is! It shows that the planets do not move in some strange, irregular, and random pattern. Rather, their paths are a smooth mathematical curve. This law certainly points to the conclusion that some very intelligent lawgiver exists, does it not?

From Kepler's first planetary law it can easily be seen that planets are closer to the sun at certain times than at others. In fact, the Earth, at its closest point to the sun, is 91 million miles (146.450 million kilometers) away, whereas at its farthest point it is over 94 million miles (151.278 million kilometers) away. Halley's Comet, with its eccentric orbit, is 56 million miles (90.123 million kilometers) from the sun

at its nearest approach but over 3,200 million miles (5,149.900 million kilometers) when farthest away.

From the time of the ancient Greeks it was thought that all planetary motion was uniform. In other words, they believed that a planet's speed was the same at every point in its path. Once again, however, observed facts proved otherwise, and scientists had extreme difficulties in explaining the differences. Johannes Kepler, after combing through mountains of observations made by Tycho Brahe, made another fascinating discovery. Planetary motion is not uniform; a planet travels faster when it is closer to the sun and slower when farther away. Furthermore, Kepler showed that a very curious law holds true: the line drawn between the sun and any planet will sweep out equal areas in equal periods of time. This is somewhat easier to understand by the following illustration: suppose it takes one month for a planet to travel from point T_1 to point T_2 . Suppose it also takes one month from T_3 to T_4 . Then, by Kepler's second law, the area of the two shaded sections will be equal. (See Figure 2.) From this it can be seen that a planet would travel faster when it is nearer the sun, in order for an equal area to be produced.

Accordingly, we see that the speed of the planets is not some unpredictable, chaotic, jerking motion. While they do move more rapidly at certain times and less rapidly at others, the changes of velocity are smooth and stable and in accordance with mathematical law. Each planet goes swinging back and forth in its orbit in graceful motion. How we marvel at this beautiful design! Surely we must also marvel at its Designer.

By means of his first two planetary motion laws, Kepler had derived formulas for the shape and the speed of a planet's orbit.

The answer to another perplexing question remained: What relation is there between a planet's distance from the sun and the time it takes to complete a circuit? He knew that planets that are closer to the sun travel at greater speeds than those farther away. After nearly 10 years of labor he discovered a formula that expressed this relationship. This came to be known as his Third Law. This law states that the squares of the periods of revolutions of any two planets are in the same ratio as the cubes of their average distances from the sun.

An example of this relationship can be seen in the case of the planet Jupiter. Jupiter is approximately 5.2 times as far from the sun as is the Earth. Correspondingly, it takes Jupiter about 11.8 earth years to make one orbit around the sun (called its "period" in the chart below), which is one Jupiter year. Let us prove the accuracy of the Third Law by applying it in the case of the planet Jupiter.

To square a number is to multiply it by itself; to cube a number is to multiply this result again by the original number. So going back to the example of Jupiter, what do we find? If we square the period (Jupiter's period of orbit around the sun is 11.8 earth years), we get 11.8 times 11.8, which equals nearly 140. Now, if we cube the distance, we get 5.2 times 5.2 times 5.2, which also equals approximately 140. This equality holds true for each one of the

planets. You can easily prove this for yourself by carrying out the same calculation for the rest of the planets on the accompanying chart.

Kepler called his third law the "harmonic law" because he believed that it revealed the harmony that the Creator had manifested in the solar system. After discovering this law, Kepler exclaimed: "I feel carried away and possessed by an unutterable rapture over the divine spectacle of the heavenly harmony." Indeed, we also feel a sense of awe as we think about the heavenly Musician and the harmony that he has composed.

It was this third planetary motion law, the harmonic law, that started Isaac Newton toward his discovery of the law of universal gravitation. Newton desired to know what sort of force would produce the curious relationship between the distances and the periods of the planets. His discovery was that all bodies generate a gravitational force just like the one that makes an apple fall to the ground. He demonstrated that the gravitational field of the sun is what governs the planet's movements and that Kepler's laws are based on this phenomenon.

Kepler's three laws of planetary motion have proved very useful to men in the scientific field. These laws are essential, along with the law of gravitation, in calculating the position and velocity of any planetary body.

Planet	Distance from Sun	Period
Mercury	.39	.24
Venus	.72	.61
Earth	1.0	1.0
Mars	1.5	1.9
Jupiter	5.20	11.86

(Earth, as 1.0, is the unit of measurement used. Distances and periods are here carried to one or more decimal figures. Therefore calculations with these figures will give only approximate results. A period equals one revolution around the sun in proportion to earth's at 1.0.)

In 1976 American space technologists successfully landed the Viking I and Viking II spacecrafts on the surface of Mars. They were able to do this because they could determine exactly where Mars would be and at what speed it would be traveling when touchdown was made. If Johannes Kepler were alive today, he certainly would be amazed to see the startling feats that men have performed, using the laws he discovered!

Interestingly, it has been proved over the years that the three laws of planetary motion hold true in many more cases than just in those involving the nine major planets of the solar system. These laws also describe the elliptical orbits of the asteroids, a group of nearly 2,000 small planet-like masses lying in a belt between Mars and Jupiter. Also, the motion of comets, fiery balls of matter that periodically sweep across the heavens, can be determined by applying the laws of Kepler. Even in the vast spiral galaxies, unimaginably remote from our solar system, the shape of the arms reveals a tendency to conform to these laws. Shifting our focus from the incomprehensibly great to the infinitesimally small, we find that the movements of electrons in an atom can also be described mathematically as following elliptical paths, like tiny planets in orbit around the nucleus.

Kepler's laws of planetary motion, therefore, serve as celestial traffic laws that must be obeyed throughout the universe. Who set up these traffic laws? There is no question but that one majestic Sovereign, familiar with the workings of everything from the submicroscopic atom to the astronomically huge galaxies, is the Originator of them.

Kepler's Belief in God

Johannes Kepler himself realized that God was responsible for these remarkable

laws that he discovered. Kepler remarked on one occasion: "Just like a human architect, God has approached the foundation of the world according to order and rule." He appreciated, too, that God's laws and regulations work for the good of man. As Kepler expressed it: "Most causes for the things in the world can be derived from God's love for man." Moreover, unlike many scientists today, Kepler was confident that the Bible is in harmony with true science. On one occasion he wrote a paper demonstrating the agreement between the Scriptures and scientific fact, but because of pressure from the clergy, the paper was not published.

In contrast with the harmony of the heavenly world that Kepler studied, the human world of his day was in constant discord. Kepler lived during the opening years of the Thirty Years' War in which Catholic and Protestant factions fought bitterly with each other. Unable to agree fully with either side, Johannes Kepler lived his life in unending turmoil. Several times he and his family had to flee their home to avoid persecution. Amid such circumstances Kepler died in 1630 at the age of 59.

Like Johannes Kepler, we can appreciate the glorious harmony manifest in the creation around us. The laws he discovered vividly testify to the order and symmetry of the movements of the planets. If this motion were the product of blind chance, the result would be chaos and disorder. Only a Supreme Lawgiver, a Master Architect, would have composed this harmony. Our hearts should be filled with the deepest love and respect for him. Should we not be moved to serve him with every fiber of our being and give him the honor he deserves? Yes, and if we do, he will reward us with life in a new order that will bring to the human race the order and harmony it so greatly needs.



CROSSING THE SWISS ALPS

By "Awake!" correspondent in Switzerland

IF YOU look at a map of Europe, you will have no difficulty in locating the Alps, which form a crescent-shaped curve from the Mediterranean Sea to Switzerland before turning east. With an overall length

of about 750 miles (1,200 kilometers), this mountain system extends from France across Switzerland, Italy and Austria into Yugoslavia. In Austria, it attains a maximum width of 125 miles (200 kilometers).

If your map is a fairly detailed one, you will notice that in Switzerland several peaks of this impressive mountain system rise to more than 13,000 feet (4,000 meters), though the highest peak, Mount Blanc, 15,770 feet (4,807 meters), is in France. The Alps cover over three fifths of the surface of Switzerland, and about one tenth of the Swiss Alps is buried under ice.

In the heart of the Alps rises the towering St. Gothard massif, known as Europe's water tower because three great European rivers have their source there: the Rhine (flowing toward the North Sea), the Rhone (emptying into the Mediterranean Sea) and the Ticino, the main tributary of the Po (terminating at the Adriatic Sea). If you follow their courses, you will see that the Alpine valleys of these rivers facilitate east-west communications. The Rhone and Rhine Rivers separate the Swiss Alps into four main ranges, two on each side of the Gothard. But the transverse valleys, allowing for trade between northern Europe and Italy, are the most important, as far as crossing the Swiss Alps is concerned.

A Brief Outline of Transalpine Roads

Long before our Common Era, travelers, primarily traders, crossed the Alps on their way northward from Italy. But the construction of the Swiss road network dates from the time of the Roman Empire. Indeed, the Romans, for military reasons, were the first to build international roads across the Alps. For them, the Great St. Bernard Pass in western Switzerland was *Mons Jovis*, or Mount Jupiter. They built a temple there to honor their god of that name.

This difficult route, rich in history, was taken by many armies, notably by Napoleon in the year 1800. Nowadays, a road suitable for motor traffic climbs to a height of about 8,100 feet (2,470 meters) and enables motorists to drive down to Italy dur-

ing the period from June to mid-October. To get an idea of the rugged climate in this impressive region of the Alps, consider the fact that a lake near the pass is frozen for an average of 265 days in the year.

For the Swiss, the Gothard road, in the heart of the Alps, is their lifeline, for it links central Switzerland, which is German-speaking, to southern Switzerland, where Italian is spoken. The present course of the road dates mostly from 1830, though the work of improving and widening it continues. As it is the shortest link between northern and southern Europe, this road is intensely busy during the short period when it is open, and strings of vehicles often stretch for several miles. Though normally blocked by snow from November to June, the Gothard Pass (altitude about 6,900 feet [2,100 meters]) is opened for the Easter holiday period by means of powerful snowplows.

The modern motorist may feel that the Gothard road goes through rather gloomy mountain scenery, though it crosses a central massif having eight large glaciers. From there 17 valleys radiate outward in all directions. For centuries viewed by the Swiss as the symbol of their freedom and independence, this massif in the heart of the Alps owes its name to a chapel erected around the year 1230 in honor of "Saint" Gothard, bishop of Hildesheim, Germany.

As early as the late 13th century, the German emperor was aware that the Gothard Pass would play an essential role in European politics and north-south trade. However, the Swiss soon realized that it was in the interest of their independence to keep foreign armies off the pass. They annexed the south slope of the pass in the year 1331, in order to prevent convoys from being plundered and merchants and pilgrims from being attacked. A document dating from 1370 testifies that foreigners and natives could go "body and goods" from the Gothard to Zurich without run-

ning any risk. In this connection, as early as 1240, the Gothard is mentioned in certain chronicles as the "usual way for pilgrims going from the north to Rome."

For centuries, travelers would use a mule track some 10 to 15 feet (3 to 4.5 meters) wide, made of flat stones and slabs of granite. Moreover, crossing the Gothard involved many unforeseeable risks—snowfalls, avalanches, falling stones, thunderstorms and gales, all of which caused delays and loss of life and goods. In winter-time, the pass remained closed for many months. Indeed, the Gothard was the most dangerous of all the Alpine passes.

From the year 1831, stagecoaches were able to cross the Gothard Pass, thanks to a road that had taken 10 years to build. It took 22 hours to travel the 95 miles (153 kilometers) from Fluelen to Lugano, "the land where the lemon tree blooms." On May 31, 1882, the day the Gothard railway was opened with a tunnel passage, the stagecoach crossed the pass for the last time, and because of the tunnel, silence enveloped the snowy summits, though not forever.

Today the Alpine roads, though greatly improved, are dangerous in summer because of the intense traffic and countless bends. In autumn and in spring, the peril is increased by snow and ice. Approach roads can be cut off abruptly by landslides or avalanches. But now provisions are made so that the motorist can be sure of driving conditions by inquiring at automobile clubs or by merely dialing a telephone number. Only recently, in 1975, the Swiss passes remained closed longer than in other years because of heavy snowfalls in May.

Farther west on the map of the Alps, the Simplon road was the first transalpine highway built in modern times. It was Napoleon who gave orders for this pass to be opened up to allow cannons to be taken

through. Its comparatively low altitude of about 6,600 feet (2,000 meters) and its relatively small snow layer led to this choice. The 26-foot (8-meter) roadway had a maximum gradient of one in 10. Nowadays this pass is open throughout the year, although formerly it was blocked by snow from December to May. No one could fail to be moved by the beauty of this road, which is well adapted to the topography and is rich in picturesque sites.

In 1974, the Swiss Alpine road network totaled 682 miles (1,098 kilometers). About half of it has been modernized. The passes are too numerous to review individually. However, before speaking of other possible ways of crossing the Alps, we should mention the yellow postal coaches that wind along the mountain roads. Their three-toned horn reminds everyone that these buses have the right-of-way.

Rail Links

With the advent of the railway, the Gothard soon became "Europe's turntable." Italy and Germany joined Switzerland in 1869 in order to bring about the shortest rail link between northern and southern Europe. Ten years were needed to bore the nine-mile (15-kilometer) Gothard rail tunnel, which reaches an altitude of 3,790 feet (1,155 meters). Trains have thundered through the tunnel day and night since 1882.

The Swiss are proud of "their" Gothard line, which is completely electrified, as is practically all the Swiss rail network. On the one hand, travelers admire the technical achievements and the numerous approach tunnels. On the other hand, they never weary of the wealth of landscape to be discovered in four or five hours' travel aboard the comfortable trains. Often the weather is dull or even rainy at the northern entrance to the Gothard Tunnel. Then, what a surprise to come out of the tunnel

under a radiant blue sky! A few more miles, and behold! Vines, chestnut trees, fig trees and peach trees, all testify to the mild southern climate, which is quite unknown north of the Alpine range. Truly, crossing the Gothard by train is an unforgettable pleasure.

In 1906, the Gothard Tunnel was supplanted as the longest by the Simplon Tunnel, which was to provide a more direct link between France and Italy across Switzerland. Construction began in 1898 on the first gallery, about 12.3 miles (19.8 kilometers) long, and it was opened to rail traffic in 1906. The second gallery, 20 yards (18 meters) longer, was begun in 1912, but could not be opened until 1922 because of the first world war. The Simplon Tunnel, which is the longest in the world, is situated at an altitude of 2,300 feet (700 meters), and the maximum depth of rock above the tunnel's vault is 7,000 feet (2,135 meters). Boring this tunnel was a particularly delicate operation, for seepage forced work to be abandoned on several occasions.

Not a few Swiss nostalgically recall the "Simplon Orient Express," an international train put into service in 1919 as a leg of the trip from London to Istanbul. This train that rumbled through the Simplon Tunnel took about 60 hours to cover the longest European rail distance of 1,881 miles (3,027 kilometers), starting at Paris, passing through France, Switzerland, Italy, Yugoslavia and Bulgaria, and terminating in Istanbul, Turkey.

Road Tunnels

Among several Alpine road tunnel projects under way, two are open to traffic, the privately built Great St. Bernard Tunnel in the west and the San Bernardino Tunnel in the east. The St. Bernard Tunnel, inaugurated in 1964, is a toll tunnel 3.6 miles (5.8 kilometers) long. The San Bernardino Tunnel, over 4 miles (about 6 kilometers) long, has been open since September 1, 1967. Being a part of the Swiss national road system, it is toll free.

At present, work is under way on the Gothard road tunnel, near the railway tunnel. Having a length of more than 10 miles (16 kilometers), it is expected to be the longest road tunnel in the world. It was scheduled to be opened by 1977, but, because of difficulties, a delay of 16 to 18 months was forecast.

Pending the opening of other road tunnels, motorists can cross the Alps by putting their cars on the train. Thanks to special flat trucks, the drivers and their passengers can stay in their vehicles. The Swiss federal railways gets them through the long Gothard rail tunnel in just a period of 15 minutes.

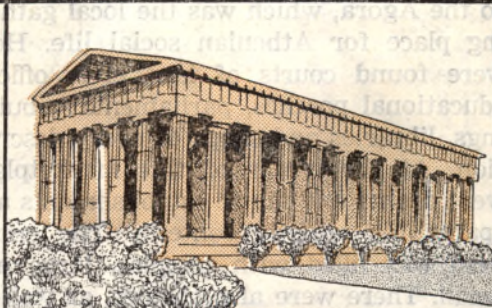
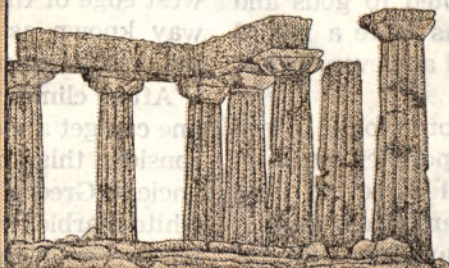
Of course, if the traveler is in a hurry, there are now several air routes open in practically all kinds of weather. More than 250 flights are made daily. But if a person wants a really awe-inspiring journey, he will have his highest expectations amply fulfilled by traveling in train or automobile.

When the Moon Appears Upside-down

HAS the moon ever appeared inverted or upside-down to you? Likely you know the experience if you have ever traveled into the southern hemisphere from the northern, or vice versa. One doing so may surprisingly exclaim: "The moon is upside-down!" Actually crossing the equator from one hemisphere to another results merely in a different vantage point of observation. Even the sun, which continues to travel in the same direction that one is accustomed to, now seems to be closer to the opposite horizon. It is merely the observer's point of view that has changed.

WILL YOU VISIT GREECE THIS YEAR?

By "Awake!" correspondent
in Greece



THIS year the Mediterranean country of Greece, situated at the extremity of the Balkan Peninsula, is expecting to welcome more than 5,000,000 tourists. Among them will be hundreds of Jehovah's Witnesses who will be attending international conventions at Athens and Thessalonica during June 28 to July 2 and July 12 to 16.

This country, with an area of 53,000 square miles (137,269 square kilometers) and a population of about 10,000,000 people, is a focal point for world tourism. Vacationers flock to Greece for a look at historical sites and art treasures that reveal much about the development of ancient and modern civilization. Of special interest to Bible students are places such as Philippi, Thessalonica, Berea, Athens and Corinth.

A further attractive feature is the delightful climate here. At airports and harbors one sees the slogan, "Welcome to the Land of Sunshine." The sun adorns Greek skies about 290 days each year. Visitors find it difficult to resist swimming in crystal-clear azure-blue waters or frolicking on sun-bathed beaches. The beautiful

islands of the Aegean Sea are a treat in themselves. And you will not find life in Greece too expensive. Clean, comfortable hotel accommodations that include a simple breakfast are available at modest prices.

The "Agora" at Athens

A visit to Greece can be meaningful in many ways. Consider, for example, the city of Athens. Even Roman conquerors of Greece adopted Athenian culture. As an educational center for things such as sculpture, oratory and linguistic science, Athens was unrivaled in the ancient world.

Bible students will recall that the apostle Paul visited Athens during his second missionary tour in the year 50 C.E. The Scriptures state that Paul "began to reason . . . every day in the marketplace with those who happened to be on hand." (Acts 17: 17) The Greek word for "marketplace" in this verse is *agora*, the name still in use to designate this section of Athens.

One could reach the Agora by entering Athens from the northwest through the Dipylon gate. From there a wide road led

to the Agora, which was the local gathering place for Athenian social life. Here were found courts of law, civic offices, educational porches, parliamentary buildings, libraries and shops of every description. At the center of this marketplace were drama and music establishments and spaces for athletic contests. The entire area was filled with temples, large and small. There were also shrines, as well as hundreds of statues devoted to gods and heroes of all sorts. It was quite a record of the ancient history and achievements of Greece.

A first view of the Agora would indeed impress visitors. Ornate porches stood on both sides of the central Street of Panathenaia, which got its name from ancient processions. Each year, amid great ceremony, the veil of the goddess Athena was borne on this roadway from the Procession House, next to the city gate, up to the Parthenon, a temple to Athena located on the Acropolis, southeast of the Agora.

What the apostle Paul saw when he entered the Agora must have shocked his sensibilities. Phallic statues of the mythological god Hermes were so numerous that an entire portico, known as the Stoa of Hermes, was needed to house them. Garments on other painted images of Hermes display numerous examples of swastikas—symbols of fertility and life. There was also a statue of Venus Genetrix, the goddess of sexual love, and one of Dionysus, which bears a number of phallic crosses. Marking the “sacredness” of the Agora was a boundary stone accompanied by a bubbler containing “holy” water for cleansing all who entered.

Up to the Acropolis

By proceeding southwestward along the Street of Panathenaia, one eventually reaches the Acropolis. This term comes from Greek words meaning “upper city.” The Acropolis of Athens is located about

200 feet (61 meters) above the rest of the city. Here are found remains of religious structures from the fifth century B.C.E. For example, at the west side of the Acropolis is the temple of Athena Nike, meaning “Athena, Bringer of Victory.” This structure features a frieze or band at the top of its columns that depicts the battle of Plataea, where the Greeks were victorious over the Persians in 479 B.C.E. At the west edge of the Acropolis is a large gateway known as the Propylaea, a further impressive example of classic beauty.

After climbing another winding path, one can get a view of the Parthenon. Many consider this the finest structure built in ancient Greece. The Parthenon, made of white marble, was a temple that once sheltered a gold and ivory statue of Athena. Architects of the fifth century B.C.E. designed this building according to principles that even modern technicians cannot fully understand.

To the northwest of the Acropolis, separated from it by a shallow valley, is the Areopagus, or Mars Hill. This barren ridge of limestone was the site of the open-air supreme court before which the apostle Paul gave a brilliant presentation of Christian truth.—Acts 17:19-34.

Tourists admire many ancient Greek ruins because of their value as art objects. However, during the first century of the Common Era, these objects were a means by which inhabitants of Greece carried on their idolatrous worship. A visit to Athens will aid one to understand why the Scriptures state: “Now while Paul was waiting for them in Athens, his spirit within him came to be irritated at beholding that the city was full of idols.”—Acts 17:16.

These brief highlights touch upon only a few of the things you can see and enjoy in this country. Nevertheless, we hope that they have been sufficient to arouse your interest and curiosity in case you should visit Greece this year.

The Bible's View



How Can Law Be 'Handled Lawfully'?

LAW is always given for a purpose, and usually that purpose is to help and protect those under it. Lawmakers do not intend that men should abuse the legislation by breaking it, flouting it or teaching things about it that are untrue or misleading. These would be ways of handling the law lawlessly.

The apostle Paul wrote concerning certain men who claimed to be Christians and who thought that they were qualified to teach "law," but who did not do so in "love out of a clean heart and out of a good conscience and out of faith without hypocrisy." (1 Tim. 1:5-7) These tended to induce Christians to look to the Mosaic law for salvation. This certainly was a lawless handling of the Law. It did damage.

The apostle says that when the Law is 'handled lawfully' in its proper application it must be with the knowledge that "law is promulgated, not for a righteous man, but for persons lawless and unruly, ungodly and sinners, lacking loving-kindness, and profane, murderers . . . fornicators, . . . kidnappers, liars," and so forth. (1 Tim. 1:8-10) If men had no tendencies to do these bad things, there would be no necessity of law telling them not to do them.

Has there ever been anyone who

was righteous, so that he did not need such a law? Yes, Jesus Christ was righteous. Of him it is written that, from the beginning of his life on earth to the end, he was "loyal, guileless, undefiled, separated from the sinners." (Heb. 7:26) He did not have to be restricted by such a law for, being righteous and harmless, there was no inclination in him to do anything wrong, even though he had free will and *could* have chosen to do wrong, as did Adam. In fact, Jesus never entertained for an instant even a *thought* of doing wrong. This is evident in his immediate, unhesitating responses to Satan's efforts to get him to contemplate some form of disobedience, self-satisfaction or selfish display of power or position. (Matt. 4:1-11) Also, note Jesus' instant hatred and rejection of Peter's well-meaning statement: "Be kind to yourself, Lord; you will not have this [ordeal of suffering and death in Jerusalem] at all." Turning his back, Jesus said to Peter: "Get behind me, Satan! You are a stumbling block to me, because you think, not God's thoughts, but those of men."—Matt. 16:21-23.

So Jesus did not have to hold himself back or impose restrictions on himself to avoid violating some law. It was natural, inherent in his makeup, for him to do what was right. He said about his Father, Jehovah God: "I always do the things pleasing to him."—John 8:29.

Therefore, a righteous man is not hampered, trammled or restricted by righteous law. He lives according to the law of love, the "law that belongs to freedom" and "the law of a free people." There is no law of God against love, or the restricting of the full, free exercise of love. The apostle Paul speaks of the fruitage of the spirit, including love, and says: "Against such things there is no law."

(Jas. 1:25; 2:12; Gal. 5:22, 23) Jesus said to his followers: "This is my commandment, that you

love one another just as I have loved you.”
—John 15:12.

Today Christians are living under the laws of various governments, and they must and do obey these laws when they **know** that they are right and for the common good. The only exception is where a man-made law is contrary to God’s commands to his people and where the Christian conscience would be violated. (Compare Acts 4:19, 20; 5:29.) Such a law would violate the law of love that the Christian must observe in his relations with God and all men. But, even though Christians are under righteous governmental laws, these laws do not restrict or hinder them from doing good and expressing love for others.

The reason is that those who exercise faith in Christ’s sacrifice for humankind are “declared righteous.” In God’s eyes their sins are covered by Christ’s atonement sacrifice. The apostle describes their situation in this way:

“Therefore those in union with Christ Jesus have no condemnation. For the law of that spirit which gives life in union with Christ Jesus has set you free from the law of sin and of death. For, there being an incapability on the part of the [Mosaic] Law, while it was weak through the flesh, God, by sending his own Son in the likeness of sinful flesh and concerning sin, condemned sin in the flesh, that the righteous requirement of the Law might be fulfilled in us who walk, not in accord with the flesh, but in accord with the spirit.”—Rom. 8:1-4.

The law that God gave to Israel through Moses is, therefore, not for perfectly righteous men. By reason of the fact that no imperfect man could keep that law, it demonstrated that all men, in themselves or in their own merit, have nothing good—they are all sinners. (Compare Romans 7:18.) It showed that all men need help—the help that God provides through the atonement sacrifice of Jesus Christ. One’s

acting according to this understanding of God’s law would be a lawful **handling** of that body of Law.

But to try to get people to conform to the Mosaic law and to use it as a standard and as a threat to Christians—this is wrong, for Christians are not under the Law, which was abolished by means of Christ’s sacrifice.

Of what use, then, is the Law? How is it ‘handled lawfully’? For one thing, a study of it helps because it “has a shadow of the good things to come.” (Heb. 10:1) Furthermore, by studying God’s laws and his dealings with Israel under the Law, we can get God’s viewpoint on matters—how he feels about certain things. We get guidelines. But we cannot, as Christians, go back to the Law except to apply its principles.

Moreover, Christians are not judges with authority to inflict corporal punishment on people for violating either the law of love or the Mosaic law. Christ is the Judge and the one who will carry out justice. But he is also merciful. So it is the duty of Christians to help an erring one, if possible. James says: “Know that he who turns a sinner back from the error of his way will save his [the sinner’s] soul from death and will cover a multitude of [the erring one’s] sins.”—Jas. 5:20.

If the erring one seriously violates the righteous principles of God and is persistent and unrepentant, the congregation expels him, not to do him personal harm, but because such action is necessary and commanded for the cleanness of the congregation before God and is in harmony with love for God’s name and for the congregation. (1 Cor. 5:5, 13) Thus, God, through Christ, is the One who punishes the sinner according to what is deserved.

Hence, law is ‘handled lawfully’ when its true purpose and function are understood, acknowledged and adhered to in the light of God’s purposes through Christ.



Watching the World

Reading Machine for Blind

◆ A machine first developed at the Massachusetts Institute of Technology is being regarded as the most important reading aid for blind people since Braille was developed. At present, 14 of the 80-pound (36-kilogram) machines have been installed in hospitals and rehabilitation centers, and one in the New York Public Library. The machine has an optical scanner that projects a beam of light across the printed page, converting this into data that is analyzed by a computer, which then transforms it into speech. With this method any printed page can be read, whereas only a small fraction of printed material is ever issued in Braille. However, at present the machines are very costly.

Economic Warning

◆ Saudi Arabia's ambassador to the United Nations, Jamil Baroody, believes that the world's growing economic problems will probably lead to an economic depression similar in scope to the one that began in 1929. The 72-year-old diplomat and economist observes that in the past, governments tried to create jobs and prosperity by means of deficit spending only in times of crisis. However, he states: "You can do that at a time of crisis. But now we are doing it

all the time and the result will be bankruptcy. . . . The Korean and Vietnam wars brought some added employment, but the overspending never stopped. Governments issued more and more bonds and printed more and more money." This has resulted in constantly rising prices and debts, and less and less ability to pay back, the standard formula for bankruptcy and depression.

A Crumbling Illusion?

◆ Social scientist G. Cavanaugh of the University of California says that it is an illusion to believe that a large, prosperous 'middle class' exists in the United States. He states that about 70 percent of all families were once thought to be middle class, the top 10 percent rich, and the bottom 20 percent poor. According to one definition, the middle class could afford to own a home, travel widely, send their children to college, eat at good restaurants, enjoy the arts, and have adequate insurance coverage for cases of sickness, disability and death. However, Cavanaugh declares: "All of these together are and have always been beyond the reach of most American families in the 20th century." He observes that such a "life style in America has never been attained by

more than the top 25 percent of American families." He adds: "Rather suddenly, the middle-income families now discover that they can no longer afford to obtain a mortgage on a house, to send their children away to a state college or to underwrite any major medical expenses."

Challenge to Biorhythm Theory

◆ Those who believe in the biorhythm theory claim that the physical, emotional and intellectual capabilities of people fluctuate in set patterns. They say that they can assess someone's potential on any given day by knowing the person's birth date. Some who challenge the theory feel that it conflicts with the free will that people have. Evidence in this regard comes from Arthur M. Louis, an associate editor of *Fortune* magazine. Writing in *Psychology Today*, he says that his analysis of biorhythm charts of athletes shows no significant relationship between their performance and their charts. In one case, a biorhythm supporter claimed that a baseball player, Reggie Jackson, would have a bad world series, since the games were to be held at the time when all three of his critical cycles were to be at their low points. Yet, the ballplayer had one of the most spectacular performances in the history of baseball, his three home runs the last day winning the world series.

"Most Powerful Motor"

◆ "The bird's heart is the most powerful motor in the world," says biologist Yuri Keiskiaik of the Soviet Union. In the magazine *Soviet Life*, this scientist comments: "In terms of weight, the speed it can build up and the length of flight it can sustain, a bird can out-perform a modern plane. This tiny heart contains mysteries that scientists in many fields would pay dearly to understand."

Superstition Bans Women

◆ Many tunnel workers in Japan still hold to an ancient superstition that forbids women to enter a tunnel while work is in progress in it. This is the case with construction of the world's longest railway tunnel linking the main island of Honshu with the northernmost island of Hokkaido. A foreman said that if a woman entered the tunnel, it might anger the temperamental and jealous "goddess" who protects the workers from disasters. Tokyo's *Daily Yomiuri* reported that in 1971 about 50 female employees of the railroad and family members of the miners persuaded officials to let them look at the work. However, after a visit a minor leak was noticed in the tunnel wall. Workers blamed the women's visit, calling this leak "a curse of the goddess." Since then, no woman has been allowed in the tunnel. On the first day of each month, the workers gather at the mouth of the tunnel for a ceremony in which they pray at a small shrine of the "goddess."

Seat Belts Saving Lives

◆ An Ontario, Canada, law makes automobile seat belts mandatory. The result? A study by the Public Safety Information Service shows that in the first year under the seat-belt law, of 61,271 persons who were involved in automobile accidents and not using their seat belts, 355 were killed. However, only 155 died among 269,772 others who were "buckled in" during accidents. Thus, those not wearing seat belts were about 11 times as likely to die in an automobile accident.

Blood Transfusion Deaths

in Abortions

◆ In "Handbook on Abortion" by Dr. & Mrs. J. C. Willke, the question is asked: "Are blood transfusions a cause of death in abortions?" The pub-

lication answers: "Yes, very much so." It observes: "For every 1,000 units (pints) of blood transfused, one pint will carry a virus that is serious enough to ultimately cause a fatal hepatitis in the person who receives it. . . . If we would take four pints as the average number needed for the woman who hemorrhages, then it is evident that of every 250 women transfused, one will die within the next several months of infectious hepatitis."

Hepatitis in Blood

◆ The transmitting of hepatitis through blood transfusions is now a well-known cause of disease and even death. After much research, scientists identified the virus known as hepatitis B as a cause of transfusion hepatitis. (Hepatitis A virus is not ordinarily transmitted by blood transfusions.) However, in the past few years it has been observed that thousands of cases of posttransfusion hepatitis are still occurring in patients known to have been free of both hepatitis A and B. It has now been indicated by circumstantial evidence that these new hepatitis cases are probably caused by one or more still undiscovered viruses in the donor's blood.

Success in Breast-feeding

◆ England's *Guardian* reports that a study on infant feeding published by the Office of Population Censuses and Survey shows that mothers who breast-feed their babies within four hours of birth are more likely to continue breast-feeding successfully. Those who waited longer, especially more than 24 hours, were more likely to give up breast-feeding within the first week or two. Said the *Guardian*: "The report implies that the practice of whisking babies away from mothers immediately [after] they are born should be discontinued. And it stresses the importance of

making the first breastfeeding experience a good one. Women are easily discouraged if the babies do not respond well, if they themselves do not lactate properly, and if the baby appears happier with a bottle."

Determination

◆ A young Swiss man who liked to ski was blinded in an automobile accident. Yet, he was determined not to give up skiing. He resumed skiing on a beginners' slope with his father shouting instructions. Within a year, he was on steeper slopes, his only aid being a helmet fitted with a radio receiver. Instructions were relayed to him by a guide who watched his descent.

"Progress"?

◆ A Washington, D.C., environmental group, Worldwatch Institute, reports that cigarette smoking is increasing, especially in the world's poor nations, although it is well known that smoking causes death-dealing diseases. Why the increase in poorer countries? The institute says that this is because tobacco producers present smoking as a symbol of "progress." Many among the "upper classes" in these nations view smoking as a symbol of modernity, as well as a symbol of class distinction. Says the institute: "The educational and economic elites of the world's poorer countries are leading their countrymen in taking up the practice."

Skateboard Dangers

◆ Skateboards have developed from a simple plank of wood with two small wheels on each end to more sophisticated ones, including some powered by small motors. But their increased usage has also resulted in an increased number of accidents. In a recent 12-month period in the United States, 24 deaths and 106,000 injuries were attributed to skateboard accidents.

Huge Liabilities

◆ The United States national debt is well over 700 billion dollars. However, the government also has promised to pay over 10 times that amount (7.4 trillion dollars) under certain circumstances. That is more than three times the value of all the goods and services the nation produces in one year. These liabilities include such things as government-insured savings accounts in banks, social-security payments not yet covered by income taxes, pensions, private-loan guarantees and many others. These government obligations now average over \$70,000 for each taxpayer, compared to less than \$14,000 in 1972, according to *U.S. News & World Report*.

Brief Encounters

◆ How long does the average doctor spend with a visiting patient? The National Center

for Health Statistics in America says that face-to-face encounters between doctors and patients last only 15 minutes, on the average. Internists averaged about 18 minutes, general practitioners 13 minutes, and dermatologists less than 12 minutes.

"Not Much Left to Burn"

◆ Some parts of large cities have been abandoned, looted, and burned down to the extent that they resemble cities heavily bombed in World War II. In New York city, two fire-department companies had shared a firehouse located in a deteriorated section of the Bronx. However, one of the companies then moved to another location. Why? The *New York News* said: "Because its [previous] neighborhood has virtually burned down." It was noted that there was "not much left to burn," so that

two fire companies were not needed there anymore.

Making Wills

◆ Seven out of every 10 Americans die without leaving a will. But this creates many difficulties in today's complex society. Except for insurance or property that is jointly owned, where there is no will, other assets, no matter how small, are dealt with by state law. Such assets often are then distributed with no regard to the preference of the deceased. And rules vary from state to state. Also, considerable administrative expense is involved. To avoid such complications, a will should be drawn up, especially by parents, making provisions for surviving mates as well as for appointing a guardian or trustee to care for underage children should both parents die.

Huge Inflation

◆ The United States national debt is well over 700 billion dollars. However, the government has promised to pay over 10 times that amount (14 trillion dollars) under certain circumstances. That is more than three times the value of all the goods and services the nation produces in one year. These liabilities include such things as government-insured savings accounts in banks, social security payments not yet covered by income taxes, pensions, private loan guarantees and many others. These government obligations now average over \$70,000 for each taxpayer, compared to less than \$14,000 in 1972, according to U.S. News & World Report.

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