

Awake!

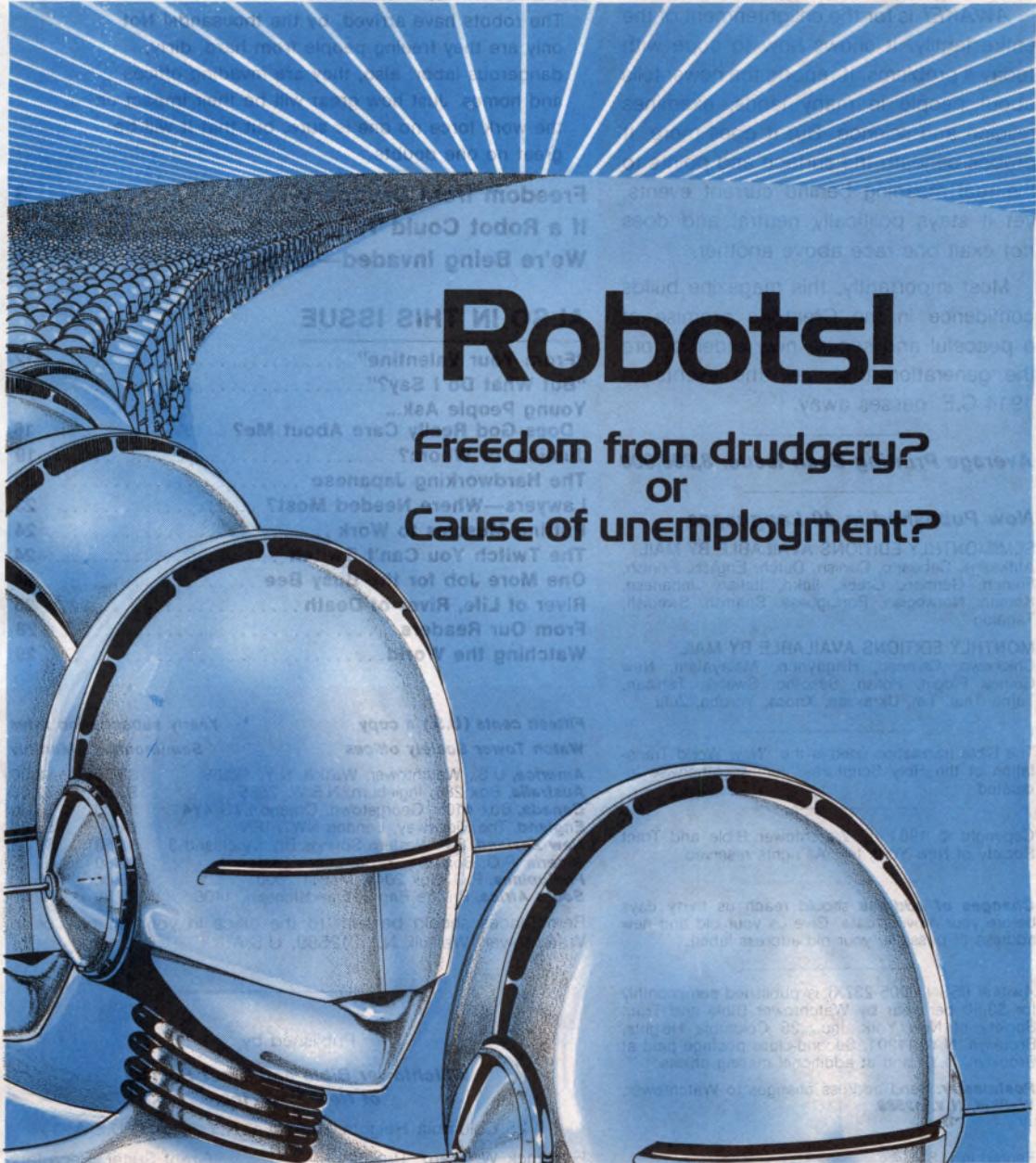
JANUARY 22, 1982

FEATURE ARTICLES

WHY A MARKET IS PUBLISHED

Robots!

**Freedom from drudgery?
or
Cause of unemployment?**



WHY AWAKE! IS PUBLISHED

AWAKE! is for the enlightenment of the entire family. It shows how to cope with today's problems. It reports the news, tells about people in many lands, examines religion and science. But it does more. It probes beneath the surface and points to the real meaning behind current events, yet it stays politically neutral and does not exalt one race above another.

Most importantly, this magazine builds confidence in the Creator's promise of a peaceful and secure new order before the generation that saw the events of 1914 C.E. passes away.

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FEATURE ARTICLES

The robots have arrived, by the thousands! Not only are they freeing people from hard, dirty, dangerous labor; also, they are invading offices and homes. Just how great will be their impact on the work force no one is sure, but that it will be great no one doubts

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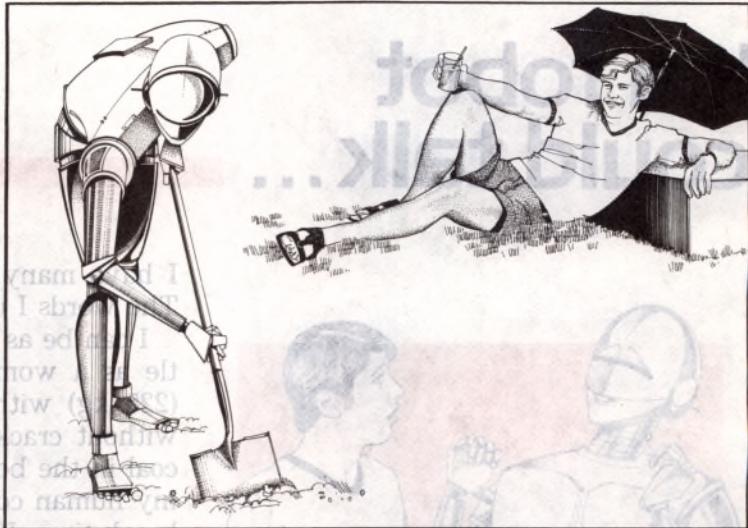
Grant Suiter, Secretary

Freedom from drudgery

The robot revolution may do more than free you from the drudgery of long hours of hard labor. It may also bring relief from tedious monotony and assembly-line boredom. Moreover, not only are these steel-collar robots replacing blue-collar workers; they are also moving in on white-collar jobs. The robots are on the march!

THE growing robot invasion is opening the way for people not to retire from work but to move into more challenging jobs. As robots replace people and relieve them of dangerous or laborious or boringly repetitious work, people move on to positions that require human intellect and specialized training —jobs that are beyond robot capabilities. It is popular today to exalt robots above people, and their computer brains above human brains. But it should be remembered that people make robots and robot "brains." Robots can't make people or human brains. Once this is understood, then we may keep in proper perspective the great boon robots can be in delivering us from drudgery.

At present, Japan is leading the robot revolution. But other nations are awakening to the possibilities. Or, rather, more



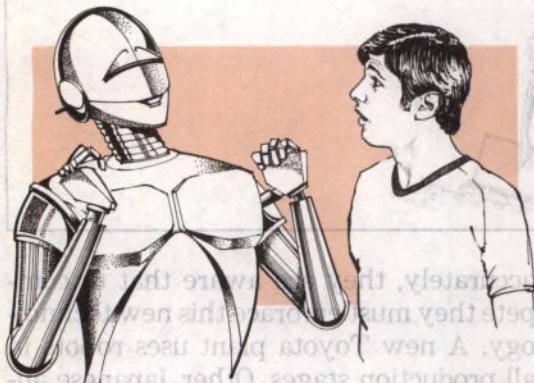
accurately, they are aware that to compete they must embrace this new technology. A new Toyota plant uses robots in all production stages. Other Japanese automakers use them not only to cut down on workers but also to improve product quality. No longer is the use of robots limited to big businesses. Small factories also are putting them to work. Their versatility is expanding rapidly, and, as it does, their invasion spreads from factories to offices and to homes.

A "cleaning robot" also serves as a night watchman. A "secretarial robot" writes letters, stamps them with the executive's signature, formulates schedules and reminds him of appointments. One "medical robot" with 25 "fingers" examines a woman's breasts and relays its findings to a computer system that de-

tects cancerous growths or other abnormalities. Still another robot can . . . but maybe we should hear more about this firsthand, from a robot itself.

This one's story sounds a little like bragging in places, but even after making allowances for this human frailty, it's still an impressive tale. Let's listen to it.

If a robot could talk...



I AM a robot! This may amaze you. Until recently many people did not believe that robots existed. They believed that we were only the figment of a movie-maker's imagination. But now they know we do indeed exist, by the thousands, and that many thousands more are on the way. I am a second-generation robot. This, too, may amaze you. I was built by other robots. I can walk, talk, "see," and in some ways "feel." I may not walk as fast as you do, but my footing is sure.

I have many words in my vocabulary. The words I use may astound you.

I can be as tough as a man or as gentle as a woman. I can lift 500 pounds (225 kg) with ease or pick up an egg without cracking the shell. I can mine coal in the bowels of the earth, and stir my human companion's cup of coffee at break time. If you need help in building a machine, call me. If it's assistance you want in working in the kitchen, get in touch. Although I could, I do not clean windows.

You may not always recognize me as a robot. If you picture me resembling a beeping, tooting, light-flashing mechanical man bumbling his way across a movie screen, erase this view. I am much more sophisticated and valuable than that. I come in various sizes and shapes. I may have a hand with several humanlike fingers or one with clumsy, misshapen, lobsterlike grippers. I may be giraffelike in height or only a few feet tall. I could look like a monstrous mechanical spider or an overturned wastebasket. In a Florida school of medicine, for example, I look very much like a human. I have hair, eyes, ears, nose and mouth. My skin is plastic. I am equipped with veins,

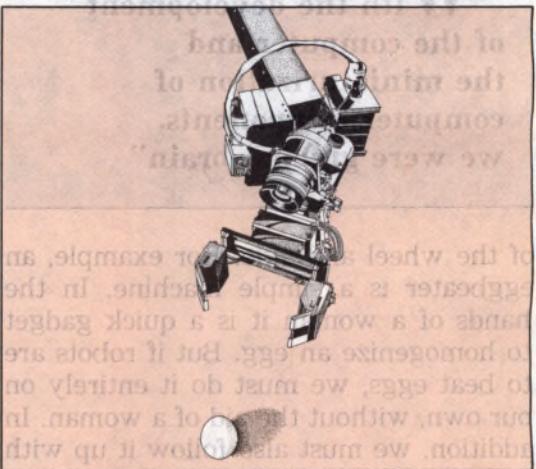
arteries and even a heart. My heart is my contribution to society, for with it I can demonstrate as many as 40 cardiac disorders. Not even in the movies have I been made to look so real.

It is said that some humans would give their left arm to be on the Johnny Carson Show. In 1966, not only was I on that show, but I also directed the band. And did you catch my encore performance in 1976, in the one-robot show, shoveling soil on the planet Mars, while television cameras transmitted my picture all over the world? The cameras caught my best side. Did you recognize me? I have also appeared on national television as experimental models to show you what I can do and how I can talk.

You should not wonder at us. Reams have been written about our coming. Some writers have said, "The Robots Are Coming!" Others have written that "Robots Are Not Coming, They Are Here." Still others have said that "Robots Are Just a Few Nuts and Bolts Away from Intelligence." With all of this, surely your eyes have not been closed to our rapid development.

Remember the dolls you once played with? Some you would wind up and they would walk across the floor in measured steps. Later, others would move their arms and hands in step with their feet. Then they were made to beat drums and shake tambourines. Over the years they became more sophisticated. They learned to cry like a baby and, finally, to talk. In some countries the dolls developed more rapidly, even going through the motions of writing and drawing pictures. In Japan you would wind them up and they would walk across the room and serve little cups of tea to their maker's guests. Children would put coins in a machine and manipulate toy steam shovels to pick up a prize, and then jump for joy when

the delightful trinket would be dumped in the slot as a reward for having skillful hands. It was only the beginning! "Why not make them bigger?" some suggested. "Much bigger," others said. "Why not give them a brain?" "Wouldn't it be nice if we could get them to



"I can lift 500 pounds with ease or pick up an egg without cracking the shell" work for us?" the more brainy innovators speculated. Ah, but still others went further. In 1921 a Czech writer, Karel Capek, became famous for his play entitled "Rossum's Universal Robots." Here, for the first time, the word "robot" was coined and introduced to the world to describe us, the mechanical characters that warred against humans in a highly technical machine age. At last, we robots were emerging from the cocoon of our long metamorphosis.

As toymakers developed their dolls to walk and talk and cry and amuse and entertain, highly skilled technicians became obsessed with developing their "toys," or "robots," as we are now called, to have almost humanlike abilities. To amuse and entertain was not their aim.

Farsighted men envisioned us as becoming their slaves.

We must be developed to be more than a mere machine. After all, machines have been around since the invention

"With the development of the computer and the miniaturization of computer components, we were given a brain"

of the wheel and axle. For example, an eggbeater is a simple machine. In the hands of a woman it is a quick gadget to homogenize an egg. But if robots are to beat eggs, we must do it entirely on our own, without the aid of a woman. In addition, we must also follow it up with pouring the egg into a bowl or a pan. If the egg is for frying, then we must see to it that it is just as milady wishes it—over easy or sunny-side up. Our job would not be complete without serving milady this gourmet's delight on her favorite plate, possibly with fried potatoes and buttered toast. Could all of this be the work of a mere machine? Do not insult our intelligence. We are robots!

As I view this in retrospect, I realize that we were like the Tin Man in "The Wizard of Oz," running around without

a heart—only we had no brain. Ah, but the grand wizard of technical science came to our rescue! With the development of the computer and the miniaturization of computer components, we were given a "brain," second only to the real thing. For example, on a silicon wafer just four inches (10 cm) square are 200 microcomputer chips, each able to process eight million bits of information per second. This is our "gray matter." This is our memory bank. If you teach us how to prepare an omelet to suit your exquisite taste, we won't forget it. Once the rancher in Australia teaches one of us how to shear a sheep, he can count on our always doing it with the same gentle finesse as the teacher himself.

"I am convinced that we are infallible, click, infallible, click, infallible, click, click . . ."

Dear reader, if you only knew our potential you would not cease to be amazed, and possibly concerned. As one of my robot brothers said in the aforementioned play by Karel Capek: "The power of man has fallen. A new world has risen. The rule of the Robot." As I dictate this now, I am convinced that we are indeed infallible, click, infallible, click, infallible, click, click . . .

The Lesser of Two Evils?

A graduate student in Florida discovered that the banana spider preferred cockroaches to flies. Later she moved into a house and found some 300 roaches there ahead of her. She released 15 banana spiders in the

house. Four weeks later, no more roaches. The spiders are nonpoisonous to humans, spin no webs and are nocturnal. "They're better to have around than the roaches," she decided. Do you agree?

We're being invaded— by robots!

Are steel-collar workers threatening your job?

IN A darkened warehouse a sinister prowler gropes his way through aisles of boxes and crates. Vapor lights from street lamps outside cast eerie shadows on the walls and ceiling. The prowler catches sight of his own silhouette on the wall. Its grotesque, hunched shape is a mute reminder of his evil intent. Suddenly he becomes aware of a second silhouetted shadow moving steadily behind his. He is being followed. His pace quickens. So does that of the trailing shadow. He breaks into a run. Now two shadows are running. He bounces off a wall in front of him and falls helplessly to the floor. The trailing shadow is no longer a mere silhouette. Menacingly it stands over him. The would-be thief, his face a twisted mask of fright, cannot believe what he is seeing. A life-size mechanical man looks coldly down on him. He is being captured by a robot!

In a candy factory in England, a tired and weary worker looks at the clock. His aching body tells him that his work-day should be over. The clock says four hours more remain. He laughs to himself when he remembers that movie comics have for years used this same routine to make audiences laugh—picking up and boxing chocolates from a conveyor belt in a never-ending stream at the rate of two a second. The worker has mixed emotions. Within the hour a new employee will take over his nerve-wracking

job. "He has superspeed," his boss says of his replacement. "He will never tire out and complain," brags the head of personnel. Make room for the steel-collar worker. It's another robot!

For some time now robots have been competing with blue-collar workers in the cosmetic industry in almost the same routine—picking up jars of hand lotion and putting them in cartons as they speed off the assembly line. Their delicate agility is also matching their human counterparts in testing tiny thermometers, a process that includes shaking almost microscopic gas bubbles from the fragile glass cylinders.

In a quick change from bib and apron to overalls of steel, even the legendary smithy pales into a distant second place to the robot. Standing an arm's length from forging furnaces that are heated to a blistering, breathtaking 1,700 degrees Fahrenheit (930° C), these mechanical men remove white-hot chunks of metal and carefully place them in machines that will shape them into turbine blades; while men, whom they have replaced, look on with relief and wonderment.

Robots have invaded the automotive and aviation industry, performing difficult tasks that, again, leave their human working companion shaking his head in disbelief. They have competed with the best welders and painters in the car industry. They have gone to other planets and dug soil. Soon they will be sent down

to the sea to inspect ship bottoms and pier pilings. Fifteen years from now, experts say, robots will mine every chunk of coal that comes up from the ground.

Already great plans are under way to employ robots in ways ranging from the mundane to the sublime—so lofty that it would again send them rocketing out into space. According to published reports, if all goes well with the shuttle flights, officials of NASA plan to launch a robot into space aboard the space shuttle about 1986. The robot would be tested in simple operations; thereafter it could do more complex jobs, such as repairing satellites already in space and building space stations. The invasion of the robots is on!

To what extent are we being invaded by these mechanical men? According to some reports, the world population of robots stands at about 17,500. Other reports put it as high as 20,000, with Japan ranking number one in production and utilization, United States a trailing distant second, followed by the Federal Republic of Germany, Sweden, Poland, Great Britain, Norway, Finland, Denmark and the Netherlands. However, these figures are changing almost daily. In the United States alone the production of robots has been climbing at the rate of 35 percent a year. One company boasts of robots walking off their assembly line at about 55 a month, and of selling them as fast as they can be produced. Other large companies, seeing the demand for these steel-collar workers in industry, are jumping on the bandwagon and are tooling up to produce robots.

Japan, for instance, in January 1981 opened a factory that can turn out 350 robots every month. To add to this, in Japan robots are building other robots 24 hours a day. Until recently Britain had very little interest in the mechani-



cal men. Today, however, the situation has changed. Firms that sell robots have been deluged with inquiries from factory owners and managers, and the rate of robots moving into the work force in Britain is climbing.

The Robot Institute of America, a trade group in Dearborn, Michigan, testifies to the invasion of the mechanical men by predicting that sales of robots in the United States will soar from 70 million dollars in 1980 to 225 million dollars in 1985.

To understand best this sudden invasion of robots into the work force in industry is to understand the difference between automated machines, which have been used in industry for generations, and machines that are called robots. The Robot Institute of America possibly sets forth the best definition of what makes a robot a robot: "A reprogrammable and multi-functional manipulator designed to move material, parts, tools or specialized devices through variable programmed

motions for the performance of a variety of tasks."

A simple automated machine is solely designed to do one thing. For example, if you are a subscriber to this magazine, then, likely, the magazine you are reading was individually folded and wrapped by a machine especially designed for that purpose. This is its sole function. It cannot perform any other operation. A robot, on the other hand, can be programmed to do many things. It could clean windows, it could fry an egg, it could paint or weld, it could wrap this magazine. Herein lies the robot's real value to the industrial world.

The motions of a robot themselves are flexible and can be described in human terms: waist, shoulder, elbow, wrist, flange rotation and arm and wrist bend. They are able to duplicate almost all motions of a human arm and wrist, even stirring a cup of coffee. To the delight of their employer, all their movements are fully programmable—to do a job again and again or stop and do something else. They are designed to work with humans, at human tempos so as not to conflict with existing operations. Could this be the ultimate servant of man?

Ah, but this is not all! The robot's assets go on and on. The robot is easily taught even the most complicated operations. Note just how easy it is, as described by a manufacturer's own robot manual:

"Using a hand-held teach control, the robot is taught its job by literally leading it by the hand through its assigned task. Playback speeds are independent of teaching speeds so operations taught slowly can be performed accurately at high speeds. This method of teaching assures fast setup time, rapid changeover to new jobs, and quick program adjustments. Many programs can be stored in the memory and called up as needed. Sub-

routines can be taught to facilitate complex jobs and portions of programs can be altered without interrupting production. Programs can be stored on magnetic tape for future use. Memory capacity can be expanded for more complex tasks."

Did you once have the feeling that as a human worker you were quite necessary? Are you suddenly feeling threatened? If you are a factory worker, what percentage of the working day do you really give to your job? Are you a complainer? Are you out "sick" more than your fellow workers? Beware. You may be replaced by a robot. Your employer may already be studying the fine features of hiring a robot. They never weary of their job. They can work all

Robots have gone to other planets and dug soil. Soon they will be sent down to the sea to inspect ship bottoms

day and all night. They never complain, never ask for raises, are never out sick, always start on time, never take vacations, never have to be pulled away from the water cooler by their boss—and no coffee breaks. Consider: something is causing the robot invasion.

General Motors has about 400 robots in their plants. These are used primarily for welding, painting and spraying, parts handling and die casting. One of the newest robots is being used for auto body inspection. Equipped with cameras, the robots have "seeing" ability that humans are not able to match. Only 400 now, but General Motors predicts 5,000 will be installed by 1985. According to published reports, they plan to install more than 14,000 by 1990. A word to the

wise: These robots can be operated at a cost of \$5.50 (U.S.) an hour. This includes purchase price and maintenance. Compare this with the \$18.10 an hour paid the blue-collar auto worker in wages and benefits, and the lure of robots speaks for itself.

It must be considered that when robots are moved into the work force people are replaced. For example, when an electric company in Japan moved in a computer-robot to produce vacuum-cleaner parts,

In Japan, robots are building other robots 24 hours a day

it was found that the robot and four people could do the work formerly done by 120 workers. With the aid of robots, the labor force required to assemble television sets in Japan is less than half that required by most United States manufacturers. In the Volkswagen factory in Wolfsburg, Federal Republic of Germany, four robots "hired" as welders have replaced 22 human welders. Studies conducted there on the use of robots in the work force indicate that for every job filled by robots, between five and seven jobs are eliminated.

Supporters of robots in industry argue that workers should welcome the steel-collar workers in their plant, particularly for tasks where danger in handling materials are involved or for menial jobs that workers find boring. On the face of it, this argument may sound praiseworthy. But the argument becomes dubious when one considers that it is the employer rather than the worker who determines which are the boring and the dangerous jobs. There is also the argument put forth by management of industries, already using or anticipating the use of robots, that

the blue-collar workers replaced by robots will simply be transferred to white-collar jobs. This, too, has a fine ring as it drops from management's tongue. But how many displaced blue-collar workers will be qualified to handle the white-collar jobs that may develop?

While robots in the work force may be responsible for greater productivity and a higher quality of workmanship, at the same time they present problems for the displaced workers. Addressing the subject of automation, Robert T. Lund, assistant director of the Center for Policy Alternatives at Massachusetts Institute of Technology, said that there would be "problems across the board for everyone affected by new technologies in the factory and the office." Then he added: "Workers will have to move, learn new skills, change jobs—all these things produce hardships." Who will be faced with the greatest hardships? The young blue-collar worker may accept the move, the learning of new skills, the change of jobs, as an adventurous chal-

They never complain, never ask for raises, never are out sick, always start on time, and take no coffee breaks

lenge. But what about the middle-aged workers, and those who can look back on their middle age? Will the move and the change be welcomed by them?

At present, the greatest number of robots are being used in the automotive industry. General Motors, Ford and Chrysler all "hire" robots. Many European countries also employ robots in the manufacturing of autos. *Business Week* magazine of August 3, 1981, comments on a study conducted by Carnegie-Mellon

University on the impact of robots. The study concludes "that robots, plus those being developed with crude sensory abil-

These robots can be operated at a cost of \$5.50 an hour. Compare this with the \$18.10 an hour paid the blue-collar auto worker in wages and benefits

ties, could perform about 7 million existing factory jobs, at least 45% of which are covered by union contracts." *Business Week* adds: "The United Auto Workers, one of the few unions that tries to anticipate automation, expects its auto industry membership to drop to 800,000 from 1 million between 1978 and 1990, even assuming a 1.8% annual increase in domestic auto sales."

In Europe, where the famous Volkswagen and Fiat automobiles are made, there are growing fears that with the invasion of robots into their factories, displaced workers will abound. Already, Fiat has

A Strange "Catechism" Lesson

A young Italian couple visiting abroad began discussions of the Bible with Jehovah's Witnesses. But soon they began to have doubts about the religious choice they would have to face, and, upon returning to their little town in Italy, they discontinued their Bible study.

Later, the wife's brother was preparing to get married and the town priest came for a catechistic discussion of the duties of a married couple. During the conversation, which the young couple also joined, the priest took out a little blue book. Surprised recognition struck the couple. Was that book not *The Truth That Leads to Eternal Life*—the one that Jehovah's

decided to eliminate 7,500 jobs. Volkswagen workers, who welcomed the integration of steel-collar workers to perform the more unpleasant jobs, are now having second thoughts. They see the robots being made with a higher I.Q., with the ability to "see" and "feel," and thereby to push the human worker out and into more menial jobs—integration in reverse. Almost weekly, in some form of news media, the pros and cons of robots are discussed. Some argue that a four-day workweek is the solution. With inflation ever on the rise, others argue that people are wanting more overtime pay rather than less work time. But what-

The robot and four people could now do the work formerly done by 120 workers

ever be the pros and cons, the robot stands squarely in the middle. However innocent he is, he is one to be reckoned with. Indeed, it is true: Robots are no longer coming—they are here!

Witnesses often use when holding free family Bible discussions? It certainly was!

The priest held his "catechism" lesson from the book using the chapter "Building a Happy Family Life." The couple asked about his use of the *Truth* book and the priest replied that some good could be found even in that book. So the two decided that, if the priest could use the book, they could also study it. They resumed their conversations with the Witnesses and both became dedicated witnesses of Jehovah. Two other members of the family also started associating with the local congregation.

"From your valentine"

ON February 14 in the year 270 C.E., a young Roman named Valentine was beaten and beheaded because he would not renounce Christianity. To the little daughter of the jailer who had charge over him and who had befriended him, he left a note. He signed the note, "From your Valentine." For centuries thereafter the phrase "from your Valentine" meant only friendship. But around the year 1400 it took on a new meaning.

Many centuries before this the early Greeks believed that the deity Pan was the god of the flocks and shepherds. Greek myth says that when Pan was born he was full grown, with horns, beard, goat's feet and a tail. The arts picture him as a voluptuous, sensual, dancing creature. With the rise of the Roman Empire, Pan was adopted by Rome as their god Faunus, also called Luperinus. His wife Luperca, in the form of a she-wolf, was supposed to have nursed Romulus and Remus, the founders and builders of the ancient city of Rome.

The priests that served in the temple of this demon god were known as Luperci. Clothed only in goatskins, in mid-February these priests went about striking women with goat-skin thongs, claiming it



would promote fertility. Other mystic and sexual rites of this ancient spring love festival included the giving of young women to men by a sort of lottery. The names of girls were shaken up in a box and drawn by the men.

All of this went on, of course, many centuries before young Valentine signed his note to his little friend, "From your Valentine." When the Catholic Church rose up and began taking over the control of Rome, it absorbed practically all the pre-Christian feasts of Greece and Rome, and included in these was this spring love festival of the Greek god Pan. And in keeping with the Catholic Church's practice of giving Christian garb to cover over the pagan origins of such feasts, it dubbed this one St. Valentine's Day.

Certain embellishments were added. The game was enlarged by letting girls, in turn, draw boys' names out of the box. The one chosen became the Valentine for one year of the one choosing. During the Middle Ages Valentine's eve and the day following, February 14, were celebrated with much the same sensual frolicking that characterized the original pagan festival. Cupid, the god of fertility pictured as a winged boy or youth, added his bow-and-arrow activities to the occasion! During the last century Valentine cards with their lace trimmings and sentimental verses were introduced to dress up the old mythologies.

So goes the travesty, the linking of young Valentine's tender sentiments of friendship with a small child to the fertility rites of ancient demon gods and goddesses.

"But what do I say?"

Developing the art of conversation

OTHER children in school always seemed to know the fitting thing to say. They always had the right words. People would be interested in them. But with me it was different," began a young man who suffered for years from shyness. What he then described is a situation that millions earth wide can relate to emotionally.

"When I was around other people my hands would sweat and butterflies would flood my stomach. I would tense up. My mind would go blank. What would I say? Yet I liked people and wanted to communicate, so I would try. But when I finally sputtered out something it would fall flat because of the tension. Afterward I felt even worse."

Perhaps there have been times when you or someone you love have had similar feelings. Many persons find it hard to go beyond the "How are you?" stage of a conversation. The failure to communicate is evident in growing loneliness as well as an increasing number of "silent" families.

What causes conversational clumsiness? It could be a person's upbringing. Additionally, many people today are more self-centered and take less interest in



others. Also, despite the apparent outgoingness of the masses, many persons are shy. The book *Shyness*, by Dr. P. G. Zimbardo, reports that out of 5,000 persons surveyed, 80 percent stated that they were shy at some point in their lives and 40 percent considered themselves presently shy.

Centering on another problem, one writer said: 'We choose to turn on TV and turn each other off.' Alluding to the effect TV watching has had on families, a speaker at an Italian public-information convention made an unusual proposal: "Shut down all television stations once a week." Why? He said that it will lead to "the rediscovery of conversation between members of the family, a habit that has long been lost."

So, all these conditions contribute to the inability of many to develop the art of conversation. But what can be done to overcome the problem?

The First Hurdle—One's Thinking

"There were two ideas I had to get out of my mind," reported the young man mentioned earlier. "First, I was too self-centered. I was worrying too much about what people thought of what I would say. I felt I would just make a

fool of myself. And second, I always thought that others would be picking on everything that I said." What helped him to overcome such feelings?

He heard a Bible lecture wherein the speaker showed that genuine love does not "look for its own interests" and is "always eager to believe the best." This advice helped him to begin to trust others, not impute bad motives (even if some were picky), and reach out more to others, thereby becoming less self-centered. —1 Corinthians 13:4-7, *New World Translation; Moffatt*.

HOW GOOD A CONVERSATIONALIST ARE YOU?

- Do you talk 50 percent of the time when there are three or more in the group?
- Can you sense when a friend is up or down?
- Do you talk primarily about one subject—yourself?
- Do you mistake abrasiveness for wit?
- Do you confuse being frank and open with being blunt and rude?
- Do you ask about others' interests?

Thinking of just their own interests causes some to hog the conversation. On the other hand, others imitate American statesman Calvin Coolidge, who was renowned for his utter disregard of the art of conversation. He was asked why he attended so many dinner parties and yet looked so bored. His reply: "Well, a man has to eat somewhere." Yes, some feel no more responsibility at such a gathering than simply to fill their stomach!

To add to a conversation requires that you have something in mind to say. So inform yourself. Reading newspapers or magazines (like this one) and making

mental or written notes will give you engaging bits of information that can delight others.

Be an Active Listener

"I must confess to suffering from a common listening weakness," wrote one woman. "I always want to offer friends advice. They'll call me up to complain and unload and all they'll want is a sympathetic ear, but, alas, in my zeal I'll snap back with 15 solutions." This woman found that her friends quickly terminated their conversations.

The same can happen to anyone who does not become an active listener. Rather than thinking about what you are going to say next, interrupting, finishing off the other person's statement or rushing the other person, a good listener is patiently attentive. No one can do two things at once and give them both his undivided attention. One wife expressed the feeling of many married women: "We don't think a person can read the paper and listen to us. . . . We don't think a person can put on pajamas, wash, brush his teeth and, curling up in bed, close his eyes and claim that he is listening to us."

To be an active listener, most of the time look at the other person, indicate by word or gesture (perhaps a nod) your interest in what is being said. Try to identify with the other person's situation. (For instance, "I know how you must have felt.") Ask tactful and relevant questions. Do not hesitate to ask for clarification. People often enjoy explaining things.

Of course, some conversational skills, if learned and used, can help. But mastering the art of conversation means more than simply learning a set of rules.

An Art of the Heart

A person with a head laden with endless stories can be the worst conversa-

tionalist, unless his heart is filled with a loving interest in others. Keep "an eye, not in personal interest upon just your own matters, but also in personal interest upon those of the others," recommends the Bible.—Philippians 2:4.

Becoming sensitive to others' feelings and interests is the real key to developing the art of conversation. However, this

CONVERSATIONAL HINTS

HOW TO GET STARTED

- Introduce yourself.
- Say something about an experience you both are sharing at that time.
- Give sincere compliments.
- Ask for or extend help.

HOW TO KEEP IT GOING

- Ask questions. Either factual—"Did the temperature get above 80 degrees today?" or viewpoint—"Do you feel that the neighborhood is getting less secure?"
- Get the person talking about himself. "Where did you grow up? How do you like your work? How does a person get involved in that line of work?"
- Offer one of your personal stories or informative "tidbits."
- Avoid unwarranted criticism yet share freely your feelings and reactions to what the person is saying.
- Know when it is time to leave.

sensitivity should be reflected not only in the interest we show in others, but also in what we talk about. Obviously, harsh, 'injurious speech' would not show love. At times, even innocent conversation can be devastating.—Titus 3:2.

For instance, at their Wednesday-afternoon sewing center a group of women freely talked about the shame of the "drug addict daughter" of a family of newcomers in their area. One of these

women later eagerly mentioned this in conversation with a minister's wife.

"There's another side," retorted the minister's wife.

"You weren't at the meeting," said the other woman stiffly. "If you had been, you—"

"No, I was there—at the house," replied the minister's wife. "She isn't their daughter—not any relation; not even a friend or a friend's daughter, just a poor girl who had been sick so long and suffered so terribly that the doctors themselves had made her a victim of the opium habit. And they have undertaken to try to cure her. They have given up their home—their very lives—to it. I just found it out—with the help of the doctor."

Abruptly the woman stood up to leave the minister's home. Why so suddenly? 'I must tell all the other women that beautiful other side,' she said with a flush of embarrassment. Yes, often there is another side to some incident discussed during "innocent" conversation.

So control the urge to say something that could destroy another's reputation. Do not scorch another's good name. (Compare Proverbs 16:27, 28.) Ask yourself: How much of what I say tears others down? After an honest self-analysis you may see the need to make some adjustments.

Rewards of Conversation

You are drawn closer to those you get to know better. Families become stronger. Husband-wife and parent-child gaps begin to close. A person enlarges his knowledge as he draws on the wisdom of others. Younger persons can add years of experience to their lives by tapping that of their elders through conversation. Life becomes more enjoyable. So develop and use the art of conversation.

Young People Ask...

Does God really care about me?

IJUST didn't think that it was fair," said 24-year-old Louise, as she reflected on her early childhood during which her mother had suddenly grown sick and died. "I pitied myself. Why me? Why could others have mothers to love and not me? I wondered, 'Didn't God care about me?'"

Many young persons have suffered similar mental anguish. However, many more have lost a parent, not because of death, but because of divorce, separation or desertion. Estimates are that two out of every five children alive today will spend some of their childhood without one of their parents. Even if this is not your case, surely you see that our world is filled with misery caused by disease, wars, crime, child abuse, injustice and poverty. At times, doesn't it seem that genuine love and trust have vanished? Even some who believe there is a God ask, 'Does he really care about me?'

But, first of all, since no human has ever seen God, how can we be sure he even exists?

Evidence of a Designer Who Cares

His existence and care can be seen in the way our bodies are designed. For instance, take a good look at your hands. Do you see how easily they can hold this magazine and turn its pages? Each day you use your hands to perform over 1,000 functions! Your hand can be a twister,

bender, pusher, puller or a firm grabber. A grown man can exert a pressure of 150 pounds (68 kg) with his right hand. But something else makes our hands unique.

Did you know that only human hands—your hands—are able to do precision work such as thread a needle or write with a pencil? Yes, only the human hand is designed with an opposing thumb that can touch the tip of the finger next to it. This ability enables you to use skillfully an artist's brush, a wood-carver's knife or a mathematician's calculator. Isn't such adeptness evidence of a Designer who wants us to be able to develop the ideas of our creative minds? How discouraging it would be if our minds could conceive beautiful artwork, but our hands couldn't use a delicate artist's brush! Have you ever tried to use an artist's brush or a pencil by holding it without your thumb?

Because of its versatility and amazing capacity, the human hand has been described as the "instrument of instruments." Does it seem reasonable to you that such a superbly designed instrument came about by blind chance or accident? Recently, highly skilled engineers developed an electrical artificial hand, which operates from the tiny impulses of the muscles in the arm stump. It imitates some of the movements of a normal hand. This was no small task! Much money, time and sophisticated technology were needed to create this as well as other

substitute body parts. A number of body parts have been imitated by a relatively new science called bionics, making use of highly developed computer science. Yet one biomedical reporter stated in *Science Digest*: "In size, efficiency, sophistication and variety of functions there is no comparison between the best artificial device and the natural organ." He also said, "No comparison!" Just think, if the best of humankind's modern technology is unable to produce a synthetic body

Our bodies were designed so that we could not only live but enjoy life. Our eyes see in color, not just in black and white. The sense of taste adds to the joy of eating. Our hands can do precision work. All of this is evidence of a Designer who cares about us.

part that can match the capability of the organ we are born with, doesn't it seem obvious to you that the *original* must have been the product of a Designer with more than human wisdom?

Other features of our body also provide evidence of a Designer who cares. For instance, remember the last time you watched a rainbow, a sunset or a flower? Would you have enjoyed it as much if your vision were only in shades of black and white, as is the case with



The Creator, who instilled playful qualities into animals as well as implanted the love of a mother for her suckling, must himself have tender feelings

If these artificial imitations required high technology and skill of design, could we imagine the originals not having a highly skilled Designer?



Famed scientist Isaac Newton, after studying the design of the human thumb, wrote, "In the absence of any other proof, the thumb alone would convince me of God's existence." Why did he say this?

some animals? Also, consider how your sense of taste adds joy. Imagine if you couldn't tell the difference between your favorite dessert and vegetables! Yet you could live without color vision, you could be well nourished without tasting the flavors of food. But doesn't it seem that our Maker cares? He wants us to *enjoy life*, not merely to *exist*.

We can also see that God has tender feelings when we look at some of the qualities he implanted in various animals.

A God with Tender Feelings

Have you ever watched kittens playfully tousling one another and chasing everything from a ball of string to their own tail? Or maybe you've seen or read of otters zipping down their own otter-made mud slides and splashing into a pond. Maybe at a zoo you've rolled with laughter as monkeys put on their comedy act. But, really, who taught such humor to these little "comedians"? No one. It was an instinct with which they were born.

The same is true of the love of a mother for an infant. Certainly the Maker of these creatures himself must have tender feelings, including a sense of humor. He must be, as the Bible describes him, "the happy God." He must have a sincere interest in each of us.—1 Timothy 1:11.

"But if all of this is true," cried young Louise, quoted at the outset, "why did he let my mother die?" But why stop there? Why does any mother have to die? Think of the countless victims of violence and disease. Think of their helpless children. Yes, why is the world full of suffering?

Certainly someone powerful enough to create our vast universe could stop the suffering on earth. Since an abundance of evidence shows that God cares, then he must have some very important reasons for permitting these painful conditions. Well, several years after her mother died, Louise saw in her own life evidences that God cared for *her*. She found satisfying answers to those questions that were tearing at her heart. In the next issue of *Awake!*, these answers will be discussed. But she found even more—and just at the time that she needed it the most.

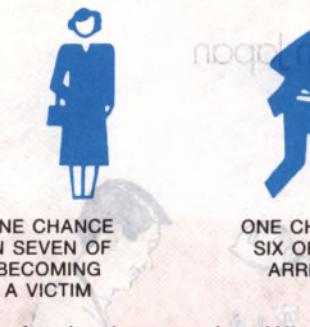
"I was at the point when I was ready to kill myself because of my grief, emptiness and lack of love," admitted this young woman. After her mother's death, she had been shuttled from one juvenile foster home to another and had received little affection. "But, in time, I realized that God was concerned about me and sensitive to my grief. I'm convinced he maneuvered circumstances in my life so that I came in contact with some of Jehovah's Witnesses. I found real love among their congregations. These persons genuinely cared for me. I truly received a multitude of 'mothers, fathers, sisters, and brothers—yes, even homes,' just as Jesus promised in the Bible. I saw how God was answering my prayers for help to cope with my problem. I then knew that God *really does care about me.*"—Mark 10:29, 30.

Justice for whom?

IN THEORY, the criminal justice system is designed to protect the law-abiding citizens and to keep crime and the criminals under control. In reality, however, the system in America today "provides massive safeguards for accused persons . . . yet fails to provide elementary protection for its law-abiding citizens," said U.S. Supreme Court Justice Warren E. Burger in a speech to the American Bar Association. Why did he say that? What are the facts? Consider, as an example, the situation in New York.

On the Streets Based on police statistics on felonies or major crimes in 1979, a report in the *New York Post* indicates that in Manhattan "peaceable persons have one chance in seven of becoming victims of aggressive persons who risk one chance in six of being arrested." So the increase of crime and the inefficiency of the criminal justice system are approaching "that perfect balance where it is no more dangerous to be a criminal than to be a law-abiding citizen," says the report. But, does even the one criminal out of every six who is arrested really face any danger?

In the Courts "Ninety-nine of every 100 persons arrested on felony charges in New York City never go to prison," says a *New York Times* report, "and more than 80 are not even prosecuted as felons." The blame is being placed on inadequate personnel and facilities. "Because we can only try that limited, limited number of cases, we are forced to do things all along the system that I don't think anybody is comfortable with," said the mayor's criminal justice coor-



dinator, Robert Keating. The "things" done included dismissing or letting off as minor crimes about 80 percent of the felony cases. So whose interests are being served?

In the Prison Even sending the one in every 100 to prison does little good for the victim.

Why? First of all, it costs the victim, the taxpayer, plenty to keep the criminal in prison—\$10,000 to \$30,000 per inmate per year. And, because most prisons are running out of space, the balance sheet shows, for example, that in 1979 in New York State, "9507 convicts were committed and 8802 were released, not so much because they were redeemed as because their custodians needed their rooms," says the *Post* report. The result? Criminals are back on the streets without anyone's having assurance that they will not repeat their crime. The cycle starts all over again.

The reason for this vicious cycle is clearly pointed out by the Bible at Ecclesiastes 8:11: "Because sentence against a bad work has not been executed speedily, that is why the heart of the sons of men has become fully set in them to do bad." Speaking about the fight against "double-digit crime inflation," Chief Justice Burger pointed out that "deterrence means speedy action by society," but lamented that what we have is "an impotent society." How comforting it is to know from the Bible that even though "evildoers" proliferate now, it will be "just a little while longer, and the wicked one will be no more," because God himself will act to clean lawless ones out of the earth! —Psalm 37:1, 2, 10.

The hardworking Japanese

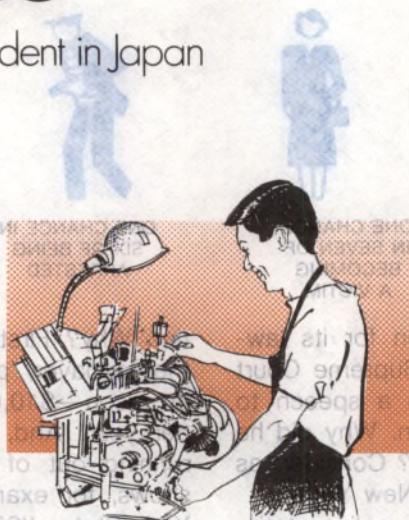
By "Awake!" correspondent in Japan

PEOPLE the world over know that the Japanese work hard. In many cases, this is all people know about them. Generally, the Japanese have not revealed to the world what they are really like.

There is, however, nothing mysterious about the Japanese or their industriousness. Japan would not be where she is today were it not for the diligence of her people. Would you like to understand them better?

High Educational Standards

In Japan a person's future is greatly affected by the school from which he graduates. Certain companies choose workers from only one or two universities, and, naturally, most parents would like to see their children enter a good one. Of course, universities can accommodate only a limited number of students, and these are selected by means of tough entrance examinations. This strictness in scholastic standards backs up all the way to primary school. A student who does not study hard there will find it impossible to catch up later. Hence, students are under pressure from an early age.



Attention to Details

Throughout his school years, a student develops a sense of priorities as to personal desires and life's realities. He finds that nothing can be accomplished without hard work. This is the hardworking Japanese in the making.

He also learns to pay attention to details. This quality is especially developed as he learns to write. In the first year he will learn 76 of the Chinese characters that are used in Japanese writing. These are very detailed. Each sign is made up of a number of strokes and these must be written in a certain order. Missing a stroke means missing a mark!

You may feel that 76 characters in the first year is not too hard. But, in addition, the student has to learn the

two other Japanese writing systems—the *hiragana* and the *katakana*—in his first year. Each of these systems has 50 characters. The number of new characters introduced increases each year until the student knows the 2,000 or so that will enable him to read the newspaper.

Morning Exercise

All around the world, people hop, skip, jump or jog. In Japan they do calisthenics. Fifty years ago a set of exercises began to be broadcast daily over the Japanese radio. It was continued through the war years and is still very popular. You can switch on your radio anywhere in Japan at 6:17 in the morning and hear the familiar piano accompaniment for 10 minutes of exercise.

Many companies have recorded the music from the radio and play it over the office or factory loudspeakers before or after the starting bell. Thus everyone, from the president down, can improve his blood circulation before settling down to the day's work.

Students are encouraged to get up early and exercise even during the summer holidays. A car park or other convenient plot of land is chosen where they—and any neighbors who wish to join them—can gather at 6:17, switch on the radio and exercise together. This early start helps students to get through the pile of homework assigned for the holidays.

Group Consciousness

Compulsory education starts at age six, but many parents put their children in kindergarten for two years before this. Thus the children quickly get into group activities. Children in primary school assemble at a fixed time and place and walk to school in small groups behind the one chosen as leader. Noon meals

provided at school further help toward group orientation.

The pattern of learning and the style of doing things vary little from one end of the country to the other. This is helpful, since many families move around as companies transfer their workers from one branch to another. Children learn that they must be adaptable, and they try to fit in quickly with a new group.

The emphasis on the group as opposed to individualism does not mean that personal ambition is forbidden. Ambition, if anything, is encouraged. But ambitions are realized through orthodox methods recognized by the group.

A Japanese, once he enters the employ of a company, expects to be there for life. His loyalty is taken for granted. The company's survival is his survival. Hence, he is expected to put it before everything, even his family. Quitting one job and finding a better one is very rare in Japan. Quitters are considered unreliable. If the worker is not willing to throw in his lot with the company, he is not wanted.

However, once in the company, if he is loyal, he is cared for. Everything possible is done to keep him on the payroll, even during difficult periods of depression. When a worker's skills become outmoded due to technological advances, the company will teach him new ones. There are regular company outings and generous bonuses. There may be company housing for the married and dormitories for the single. Many companies have lodges and other facilities at famous hot-spring resorts.

The company may provide lessons in English and other cultural subjects, pay for various kinds of entertainment and provide other fringe benefits. As he gets older, the employee's position improves and his salary increases. He feels secure as a member of a permanent working

group. He knows the company will look after him.

Days On and Days Off

Mainly out of concern for their image abroad, many large firms have adopted the five-day workweek. Others give two Saturdays off. Some small businesses keep going seven days a week, but, generally speaking, Sunday is regarded as a day off.

Actually, if workers took advantage of all legal time off, including annual vacations and national holidays, they could have from 80 to 130 free days a year. But most of them do not take nearly that much time off.

Japanese workers talk about "service overtime." In many cases they work late into the night or over the weekend, for no extra pay. When they are busy, they keep working until they reach a stage in the job that allows them conscientiously to quit and go home. Many families never know at what time Daddy will be home, and they are quite used to his working on Sunday.

In fact, due to lack of space, relaxing at home may be difficult for the workingman. In the morning the bedding is folded and put away, transforming the bedroom into a living room. "Sleeping in" under these circumstances is not easy. The children usually get up early and the room is needed for the day's activities. A man may have a choice between being in the way at home and going out to spend money on entertainment. Often, it is less trouble just to go to work as usual!

Besides, in summer the small house may feel extremely hot compared with the office, which is usually air-conditioned. And in winter, too, the heated office may be more comfortable.

Personal Hygiene

The famous Japanese bath—a daily, or almost daily, affair—is about as important to the workingman as eating and sleeping. To try it yourself, you will need a tub of rather hot water in which you can soak up to your chin. The Western-style bath is not the same, since you must be able to wash outside the bath.

First, rinse your body, then get into the tub and soak for about 10 minutes. Next, get out, give yourself a good soaping and a good massage with your washcloth. Rinse all the soap off and get back into the tub. As the minutes tick by, you will feel your muscles relaxing and you will begin to wonder why you never did this before.

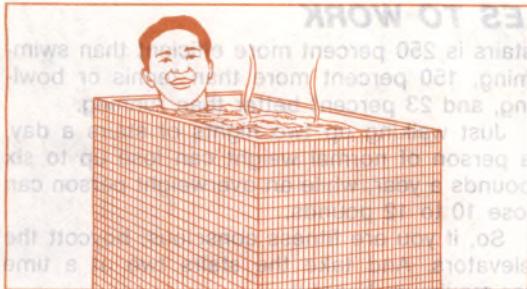
When you get into bed you will feel comfortable and warm and sleep soundly. Next day, you will get up feeling like a new person—in fact, like a Japanese! Once you get used to it, you will see why this kind of bathing is so important to the hardworking Japanese.

Hygiene might be considered a side effect of bathing. A well-washed body contributes to a pleasant atmosphere, a feeling of well-being, and shows consideration for others.

Industrious in All Things

A Japanese works hard, not only at his employment, but even at recreation. For example, imagine that he wants to learn to ski. First, he will buy all the equipment: skis, ski boots, special waterproof clothing, gloves, hat, goggles—everything. Then he will make short trips to some famous ski resort as often as his time and finances allow.

To get the most out of a weekend, he may travel overnight on Friday, ski hard all day Saturday and Sunday and then travel back overnight to get to work on



time Monday morning. On Monday he will be tired, stiff—but satisfied.

The same industriousness is sometimes seen in religious activities. For example, Jehovah's Witnesses are well known for their energetic evangelism, but in Japan this zeal is outstanding. The handful of Witnesses that there were in Japan 30 years ago has grown to an army of 64,000 today. A third of these spend from 60 to 150 hours each month teaching the Bible to interested persons and engaging in house-to-house missionary activity.
ed Due to studying the Bible and learning what it has to say about God's view of the family, many Witness men now put their families ahead of the company's demands. Some have refused promotion or

even given up well-paying jobs so as to spend more time with their families and to share in other Christian activities.

Many children of Witnesses have found that they do better at school as a result of studying the Bible along with their parents. Instead of just memorizing a lot of information for examinations, they have learned to organize their knowledge and reason on what they learn. Hence, many young folks, too, show much zeal for religious activities.

No, there is nothing mysterious about Japanese industriousness. The Japanese are born into a system that keeps them working hard right from the start. No relaxing at school, not too much relaxing during vacations, doing things wholeheartedly, stretching those sleepy muscles at the start of the day, alert to details, hygienic, loyal to the company that cares for them, and, at the end of the day, that delightful hot bath! edT

Does their life pattern appeal to you? Well, some of it may and some of it may not. Nevertheless, likely you agree there is much that can be learned from the hardworking Japanese. to mei en ni

Lawyers—where needed most?

The United States, with just twice the population of Japan, reportedly has about 50 times as many lawyers. Why such a great difference? Delegates at a recent Washington lawyer's conference observed that some of the work normally handled by lawyers in the United States is cared for, in Japan, by notaries, special mediators and other professionals. But "even after adjusting for these definitional differences, Japan still has far fewer lawyers than we do," says *The Wall Street Journal*, "and, in particular, far less litigation. The Japanese



have traditionally preferred to resolve disputes by informal mediation or negotiations. . . Executives from squabbling companies prefer to work their problems out through personal trust and understanding." The presence of such qualities in a non-Christian society, in contrast with their lack in a society that calls itself Christian, should provide much food for thought. How far the nations of Christendom have strayed from the principles taught by Jesus Christ!—Matthew 5:25, 37, 40, 41; 1 Corinthians 6:1-8.

PUTTING MUSCLES TO WORK

Climbing stairs may seem to be unnecessary hard work when elevators are handy, but a researcher in Philadelphia finds that it is one of the best forms of exercise for fitness.

"Walking up stairs burns more energy per minute than almost anything else, except for such strenuous pursuits as dragging logs and sprinting," says Dr. Kelly Brownell of the University of Pennsylvania School of Medicine.

In terms of burning up calories, walking up

stairs is 250 percent more efficient than swimming, 150 percent more than tennis or bowling, and 23 percent better than running.

Just walking up two flights of stairs a day, a person of normal weight can lose up to six pounds a year, while an overweight person can lose 10 to 12 pounds.

So, if you are fitness conscious, boycott the elevators. And take the stairs two at a time for maximum benefit!



THE TWITCH YOU CAN'T SWITCH

"You can train a sprinter to be a long-distance runner, but you can't turn a long-distance runner into a sprinter," says Dr. Bengt Saltin, a physiologist in Denmark. He was not talking about athletic strategy, but about the "twitch."

The "twitch," or contraction, is the way muscle fibers act to produce the energy needed. Some fibers fire quickly for spurts of energy, but they also tire out quickly. Others act more slowly but last longer. The fast-twitch and slow-twitch fibers are probably better known to you in the form of the light (fast-twitch) and dark

(slow-twitch) meat of a chicken or a turkey.

Most people have about equal amounts of each type of muscle fiber. But top-notch long-distance runners average 80 percent slow-acting fibers in their leg muscles, and accomplished sprinters average better than 75 percent of the fast-acting kind. The proportion appears to be fixed in the genes and cannot be changed by exercises. Interestingly, endurance training can make fast-twitch fibers act slower or last longer but seems to have no effect on the slow-twitch fibers. It's the twitch you can't switch.



ONE MORE JOB FOR THE BUSY BEE

A scientist in British Columbia, Canada, is enlisting the bee to help in prospecting for mineral deposits.

Examining pollen collected by bees near a molybdenum mine, Dr. Harry Warren of the University of British Columbia found 40 times more metal contamination than in pollen collected elsewhere. Similarly, pollen from areas near a copper mine and a zinc smelter con-

tain four to six times more copper and zinc than normal.

"Plants absorb metals from the air and the soil," explains Dr. Warren. "These metals permeate the plant's system, including its reproductive organs and the pollen. . . . If you can tell where the bees find the pollen, you can locate the deposits." As little as half a gram of pollen is enough for the analysis.

River of life, river of death

By "Awake!" correspondent in India

WHEN we returned we saw a trickle of water coming toward us. We ran, and the water followed, caught up with us and started lapping around our feet. We tore off our sandals to run faster, but the water kept rising and now was swirling around our ankles. Thankfully, we reached our house and dashed upstairs, certain the water would not reach us there.

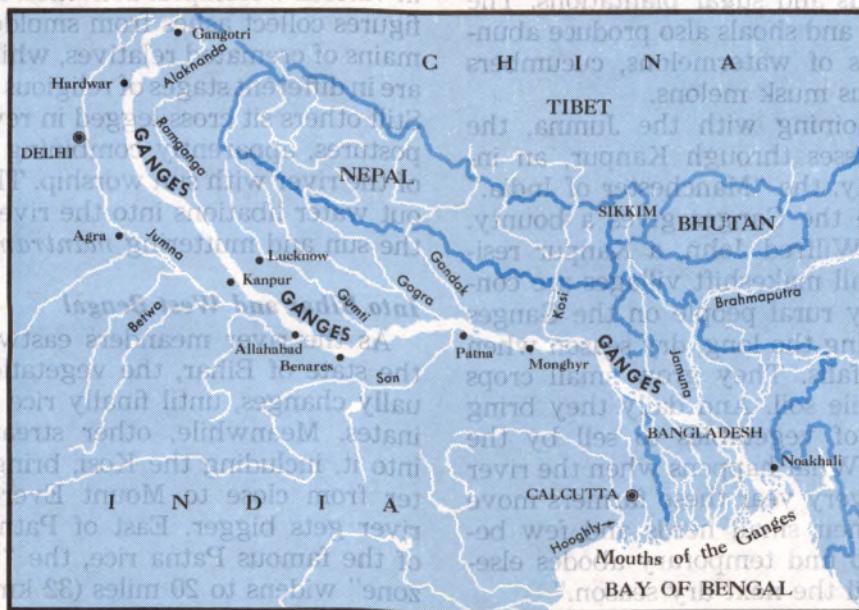
"We went to the rooftop and watched the onslaught of the flood. It was strange to see roads turning into streams and rushing rivers converging at street intersections. The waters rose quickly. In our neighborhood, they came to be five feet [1.5 m] deep."

Thus a resident of Patna, India, described his experience when the mighty Ganges went on the rampage.

Imagine a river 1,560 miles (2,500 km) long that supports 300 million people. Yes, one fourteenth of the whole human race relies on the flow of the Ganges for sustenance. But for many Indians, the Ganges is more than a source of livelihood. To Hindus, it is Ganga, the daughter of Himavat (personification of the Himalayas), a deity to be worshiped. To bathe in the Ganges, they believe, brings purification from sin, and a dead person whose ashes are thrown into it is thought to go straight to heaven.

In Uttar Pradesh

It all begins in the Indian state of Uttar Pradesh, not far from the Tibetan border, in an ice cave almost two miles (3.2 km) up in the Himalayas. Fed by melting snows, a young stream cascades



down rugged slopes and is soon enlarged by another headstream, the Alaknanda. At this point, it truly earns its name. Ganga, as the Ganges is called in Indian languages, means "swift goer."

Finally, the river breaks out of the mountains and makes its way through the ruins of Hardwar. Today, these ruins are inhabited mainly by Hindu "holy men" usually clad only in scanty loin cloths, hair unkempt and matted and their bodies smeared with "sacred" ash.

Now the Ganges moves more sedately in a southeasterly direction. Meanwhile, to the south, another great river draws closer. The Jumna was also born high in the Himalayas and, after a journey of nearly 860 miles (1,384 km), is soon to join the Ganges at Allahabad. Before converging, however, the two rivers form what is called the *doab*, or "land between two rivers."

At certain times of the year this *doab* is transformed into luxuriant fields of wheat, barley, millet and cotton. Even the sandy levees of the Ganges produce wheat fields and sugar plantations. The sandbanks and shoals also produce abundant yields of watermelons, cucumbers and luscious musk melons.

Before joining with the Jumna, the Ganges passes through Kanpur, an industrial city, the "Manchester of India." Even here the Ganges gives a bounty. Says Mr. Wilfred John, a Kanpur resident: "Small makeshift villages are constructed by rural people on the Ganges shoals during the long, dry season when the river falls. They grow small crops in the fertile soil. And daily they bring boatloads of vegetables to sell by the roadside." What happens when the river floods? "Every year these farmers move off with their small herds and few belongings to find temporary abodes elsewhere until the next dry season."

Finally, the Jumna and the Ganges meet up at Allahabad. Since the Jumna is also viewed as sacred, the Ganges is now doubly revered, and many pilgrims come to this confluence to worship and

On the delta are tidal jungles, the home of the Bengal tiger and the Ganges crocodile

bathe in the river. After Allahabad, the river's floodplain sometimes reaches a width of 10 miles (16 km). In the hot, dry season it can present a deceptively mild appearance, but in the rainy season it can become a seething, irresistible torrent—a river that can bring death to the unwary.

On now to Varanasi, or Benares, another place of pilgrimage. Here the banks are lined with miles and miles of *ghats*, steps leading into the water for the use of bathers. A visitor describes the scene: "The waterfront swarms with devout Hindus in various worshipful activities. Mournful figures collect ashes from smoldering remains of cremated relatives, while others are in different stages of religious bathing. Still others sit cross-legged in reverential postures, apparently combining worship of the river with sun worship. They pour out water libations into the river, facing the sun and muttering *mantras*."

Into Bihar and West Bengal

As the river meanders eastward into the state of Bihar, the vegetation gradually changes, until finally rice predominates. Meanwhile, other streams flow into it, including the Kosi, bringing water from close to Mount Everest. The river gets bigger. East of Patna, home of the famous Patna rice, the "meander zone" widens to 20 miles (32 km).

From Bihar, the Ganges moves majestically into West Bengal and then out of India into Bangladesh. Just before it crosses the border its huge delta region begins. The delta eventually embraces close to 57,000 km² (22,000 square miles). Here again, the river is life-giving. Delta landscapes are a lush green. Bengali farmers raise 295 different types of rice.

On the coastal side of the delta are tracts of tidal jungles, the home of the Bengal tiger and the Ganges crocodile. In the waters themselves different kinds of fish support small-scale fishing industries.

The mainstream of the Ganges in the delta is the Padma, in Bangladesh.

The mighty Ganges eventually breaks into many channels and finally pours into the Bay of Bengal through some 40 different mouths

This stream eventually breaks into many channels. In fact, the mighty Ganges finally pours into the Bay of Bengal through some 40 different mouths.

The southernmost branch of the delta, the Hooghly River, stays in India and flows through the huge city of Calcutta. Although 129 km (80 miles) from the sea, Calcutta is a teeming harbor. "A tremendous volume of river trade is conducted on the Hooghly in Calcutta," says Tapash Chakravarty, who was born near Calcutta. "Calcutta is the world's biggest exporter of jute and also India's traditional tea market. Really, it is the River Ganges that makes Calcutta what it is!"

River of Life and River of Death

Truly, the moods of the Ganges can mean life or death to the 300 million who live in the wide, Gangetic plain. When

the monsoon rains come, the river can become a rampaging torrent, flooding its banks and adjacent lands.

In the state of Bihar many live a precarious existence. In times of drought they are threatened by starvation. Yet, during the rainy season they run the risk of drowning. According to a survivor of recent floods in Patna, Bihar, the press stated that in Patna and an adjacent district alone, 140,000 houses were damaged and more than 300,000 people were made homeless. Yes, the Ganges can be a river of death!

Yet this is true only when people fail to read its moods and take precautions. Really, it is much more a river of life. It carries 900,000 tons of silt every day, including huge quantities of natural salts from the mountains. During floods, these are washed right into the earth, giving fresh, fertile topsoil to one of the world's most intensively cultivated areas.

Millions of Hindus worship this unpredictable, life-giving river. Many Indians, however, realize that in truth it is merely an impersonal thing. They know it is the gift of a loving Creator whose name is Jehovah. Rather than worship the creation, they give thanks to the Creator for the life that the mighty Ganges makes possible for so many.

In Future Issues

- Charismatic Renewal
 - What Is It?
 - Will There Ever Be True Peace?
 - Did You Ever Live Before?
-

From Our Readers

Jewish Heritage

I tell myself, here is one Jew changing to Jehovah's Witness, and this magazine is capitalizing on it. That is not what I object to. I object to your giving the impression that the Jehovah's Witness member is an angel (morality, clean speech and honesty). And that the rabbi is only out to make a fool of the chap and that, in fact, the rabbi is the fool—how wrong you are! (Jewish clergymen wanted to humiliate me—The rabbi avoided answering the question—He didn't know the answer—He never phoned back.) If you want to "have a dig," don't pick on us, the Jewish people. Religions should not verbally attack other religions. Surely you believe that, as long as one believes in God, it does not really matter which religion he takes, as long as he is honest to himself and strives to be a good person, all round.

S. J., South Africa

We were not trying to capitalize on a story of one Jew changing to become one of Jehovah's Witnesses nor were we attacking the Jewish religion. This was a true-life story about a Jewish couple telling how certain doubts arose as to their Jewish heritage and of their experiences with certain rabbis who tried to convince them to stay with their Jewish traditions. The article was published to help others who felt that something was missing from their Jewish heritage, and to help them to get an understanding of the true faith and hope of Abraham, Isaac, Jacob, Moses, David and the prophets. We believe that if a person is a true believer in God, he should seek to know who God

is, what his purposes are, copy his qualities and walk in the way he requires according to the Holy Scriptures. It is stated at Ecclesiastes 12:13, 14 (Leeser's translation): "Fear God, and keep his commandments; for this is the whole duty of man. For every deed will God bring into the judgment concerning every thing that hath been hidden, whether it be good, or whether it be bad."—ED.

I would like to congratulate you for the article "Something Was Missing from My Jewish Heritage." Being of Jewish origin, I have had exactly the same thoughts and experiences. Jehovah's Witnesses have helped me to discover the truth and now I want to be baptized. How happy I am that God guided my steps on the narrow path! May I thank you for writing such fine, interesting articles that hold my attention from start to finish.

C. C., France

Life in Outer Space

This is in reference to your article entitled "Searching for Life in Outer Space." The argumentation was superbly developed. This reader was impressed.

K. H. B., Germany

Migrating Birds

I must commend you for the article "Astonishing Facts About Migrating Birds." This should attract ones of all ages. This article, as well as the one "Eye Fashion—Not Just for Looks," shows a sense of humor as well as seriousness in praising our Grand Creator.

S. S., Oregon

Watching the World



Church Support for Guerrillas

● The World Council of Churches has announced another money grant to "combat racism." This time \$587,000 (U.S.) was given to 46 groups in 17 countries. The largest amount (\$125,000) went to the guerrilla movement in South-West Africa (Namibia) for "administrative and legal defense costs in Namibia and administrative costs in four countries which border Namibia." Said the New York Times: "In all, \$4.7 million has been allotted since the council initiated the program in 1970. The Namibian rebels alone have drawn \$698,500. . . . The antiracism program has stirred controversy among the council's members."

Archbishop Denied Visa

● Greek Catholic Archbishop Hilarion Capucci said recently that the U.S. refused him a visa to enter the country. Capucci charged that this was a violation of human rights, but U.S. officials explained that the Immigration and Nationality Act forbids the entry of any person who has connections with terrorist groups. The archbishop had served a prison term in

The new Soviet blockade has been put to the test and shown to be effective. "In the last 10 minutes," The New York Times reported, "a diver dove over the hull of the British ship to remove the bottom plate. He had to be lowered 250 feet below the surface to do so. It took 25 minutes to get the diver back up again. At least \$100,000 (U.S.) will be needed to repair the damage. The cost to the British is about \$35 million."

Israel for smuggling guns and explosives to terrorists in that country.

Sick of Political Preachers'

● "I'm frankly sick and tired of the political preachers across this country telling me as a citizen that if I want to be a moral person, I must believe in 'A,' 'B,' 'C,' and 'D,'" said U.S. Senator Barry Goldwater recently in a speech on the Senate floor. Expressing his dismay at those who would inject religion into politics, he continued: "I am even more angry as a legislator who must endure the threats of every religious group that thinks it has some God-granted right to control my vote on every roll call in the Senate. I am warning them today; I will fight them every step of the way if they try to dictate their moral convictions to all Americans in the name of 'conservatism.'"

The Great Gold Recovery

● Possibly the greatest treasure ever retrieved from the ocean floor is a recent gold recovery by a British firm. The gold—465 ingots—was in the British cruiser *Edinburgh* 780 feet (238 m) below the surface in the frigid Barents Sea deep inside the Arctic Circle. The warship was torpedoed and sunk in 1942 when carrying the gold from Russia to the U.S. as payment for military supplies. Using technology developed around Britain's North Sea oil fields, divers recovered 431 of the gold ingots—valued at more than \$80 million (U.S.)—in the span of one month amid formidable pressure and cold.

Who got the gold? The salvage firm received 45 percent, and, of the remainder, the British government got one third and the Soviet Union two thirds, paralleling the original insurance obligations. However, the salvage firm, after deducting about \$2 million in costs, will have to pay British taxes of some 90 percent. When weather permits, the operation is expected to resume to recover the remaining 34 ingots of gold.

Canada's Tyrannosaurus Find

● The remains of the first tyrannosaurus ever to be found in Canada have been unearthed. The bones of the giant land reptile were dug up on a farm 65 miles (105 km) southeast of Red Deer, Alberta. Said paleontologist Dale McInnes: "There's no specimen around like this one. It's world class." This dinosaur had a length of 39 feet (12 m) and was 19 and a half feet (6 m) high. Besides the skeleton, which is about 90 percent complete, Dr. McInnes and his team believe that they have found the world's first fossilized skin imprint of a tyrannosaurus. He added that there are three more of the same kind of dinosaurs that will be dug up later. Dinosaurs were the giants of the animal kingdom, a remarkable testimony to God's power of creation.

"One in a Million"

● Four years ago a young woman in England was told that she

could never have children because she had two wombs. But recently the 22-year-old woman gave birth to two healthy baby boys. "It is very rare indeed for a woman to have two wombs," said a hospital spokesman, "and rarer still to have a pregnancy in each one." According to gynecologists, the chances of this happening are one in a million.

Upsurge in African Medicine

● Some African countries have legalized the work of African medicine men, who have been called "witch doctors." Zimbabwe's minister of health, Dr. Herbert Ushewokunze, said that, in the past, white colonists had crushed African traditions by beheading medicine men. "As a result," he explained, "most of our big ancestral spirits became dormant because they feared their mediums would suffer the same fate. But there has been a religious revival in Zimbabwe accompanied by our political renaissance, and our great ancestral spirits are coming back as part of this upsurge." By October 1980 about 4,000 African herbalists and spirit mediums had been registered by the government. Rejecting the label "witch doctor," the minister of health said: "Describe him in any way you like, but he remains one of the most influential human beings in Zimbabwean culture." Some of the healers prescribe medicine for an ailment while they are in a trance.

Blotter for Oil Slicks

● According to Russia's *Sputnik* magazine, a digest of the Soviet press, researchers of the Institute of Oceanology of the USSR Academy of Sciences have devised a synthetic preparation capable of quickly removing oil products from large areas of the ocean surface."

The new Soviet preparation has been put to the test, and *Sputnik* reports that "an oil slick which claimed an area of several thousand square metres was cleared in 15 minutes." The new product is sprayed over the oil slick; it then goes to work to collect and remove the pollution.

Pyramids in Danger?

● Egypt's Institute of Astronomy and Geophysics in Cairo recently reported that the "cultural heritage of Egypt," including the famous pyramids in the desert, is, in effect, floating on a gigantic sea of underground water. And the water table is rising, so that now it is just three meters (10 feet) below the pyramids and the Sphinx at Giza. At the Valley of the Kings and the Temple of Karnak, the water table is said to be just two meters (6.5 feet) beneath the surface. "The rise in the water table," explained the journal *Science & Mechanics*, "is said to have resulted from the construction of the Aswan High Dam, the inefficient use of irrigation water, and the lack of adequate and sufficiently extensive drainage canals to handle the increase of irrigation water." It is feared that if the water table keeps rising, the pyramids and other ancient structures will be in danger of collapse.

Anemia and Vitamin A

● A Central American study, involving six countries, has linked a deficiency of vitamin A to widespread anemia in children and nursing mothers in developing countries. Dr. Luis Antonio Mejia recently told an international nutrition conference that unless the vitamin deficiency is corrected the anemia cannot be cleared up even if dietary iron is adequate. "The implication," he said, "is that if an anemia doesn't respond to conventional

therapy, consider vitamin A deficiency."

Rock Fans Rock Hotel

● When some 400 fans of the Rolling Stones moved out of New York City's Alexandria Hotel, they left the rooms a shambles. "The damage was incredible," said the night manager. He explained that nearly 250 of the 500 hotel rooms were vandalized, resulting in damages of at least \$100,000 (U.S.). The hotel had just been redecorated at a cost of \$3.5 million.

Fork with a Stop-and-Go Light

● To help dieters to lose weight, Joe Caruso has invented the Slenderfork. When the battery-powered fork is in use, a green light shows, for six seconds. This is the signal to eat a bit of food. Then the fork registers a red light, for 25 seconds. The eater waits until the green light reappears before he takes another bite. "I would gain and I would lose," explained inventor Caruso. "I really had to find something." He believes it has helped him to tell when his stomach is full. The theory is that by slowing the eating process one will do less eating and hence lose weight. Not all nutritionists, however, are enthusiastic about the fork with a built-in stop-and-go light. "Who's going to eat that way?" asks the dean of the Tufts University school of nutrition. "What is it, the idiot fork? There's no evidence that fast eaters are fatter."

Antibiotic with a Wallop

● As a result of a new generation of antibiotics, strains of resistant bacteria may be in line for destruction. A pharmaceutical firm in England spent 12 years to develop an antibiotic capable of destroying resistant bacteria. Called Augmentin, it is said to be effective

against 95 percent of bacteria that cause common infections. It was known that many strains of bacteria defend themselves by means of an enzyme that renders antibiotics ineffective. But the scientist in England discovered a substance that nullifies the effect of this enzyme, breaking down the bacteria's defense. However, said *The Guardian*, "the big catch is that, sooner or later, the cunning bacteria will find a defence against Augmentin."

High Cost of Shoplifting

● Shoplifting continues to register new highs in the U.S. It has now reached \$16 billion a year. During 1981, according to Burns International Security Services, Inc., this costs each household in the country \$200.

A Disco Death?

● An 11-year-old boy in England attended a junior disco session and performed a "head-shake" in which the head is shaken more violently as the music gets faster. The next day the boy complained of a headache, and the symptoms gradually intensified until, about three weeks after the dance, he died. According to the London *Daily Mail*, consultant pathologist Dr. John Torry told the inquest that the boy "died from acute swelling of the brain due to a haemorrhage, which would have been caused by a vibration or bang." However, the mother said her son had not complained of receiving a bang on the head.

Money Up in Smoke

● In its yearly report to Congress on smoking, the U.S. Federal Trade Commission reported that the money spent on cigarette advertising in 1979 went over \$1 billion for the first time. This was a 20-percent increase over the previous year. The FTC report said: "Comparisons between 1970 and 1979 are illuminating. In 1970, before the ban on radio and television cigaret advertising, total newspaper ad expenditures were about \$14 million. By 1979, the figure had risen to more than \$240 million." During the same period, magazine advertising for cigarettes jumped from \$50 million to \$260 million. In 1979 the average smoker puffed 11,500 cigarettes—costing over \$300 a year.

Workers Up in Smoke

- In the early days of the U.S. Fed-
eral Trade Commission labor and
business organizations agreed to give
over \$1 billion for the first time.
This was a 30-billion-dollar increase
over the previous year. The
FTC labor survey "Consumer Con-
cerns 1970 and 1970" points to the
industries in which labor organiza-
tions are most prevalent—cigarettes
and tobacco products. Total mem-
bership in 1970 was \$340
million. By 1975, the figure
had risen to more than \$450
million. During the same
period, cigarette advertising from \$70 mil-
lion to \$300 million. In 1976 the
average worker buying \$1200 a
year—smoking over 2000 a
year.

A Disco Daze

- An 11-year-old boy in Eng-
land attended a discotheque
session and shouted a "peachy-
stroke." In reply the head of
staged a surprise party for him.
The boy responded with a "peachy-
stroke" and the audience clapped
applause. This was the audience's
first hour—the spectators' hellos.
However, said the manager,
the girl could not find the
disco room again because it had
been converted into a disco.
She will try again at the
"Disco Daze."

Hip City of Spokane

- Spokane's counterculture is re-
sponsible for the U.S. first
ever low-income \$16 million
loan program. However, the
loan program seems to be
mostly white, which may
reflect the fact that the
white people who got the
loan are poor. However, the
counterculture of receiving a public
loan of the past.