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and Fact-Index

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"Let knowledge grow from more to more and thus be human life enriched"

EXPLORING COMPTON'S—VOLUME 21

Why do people living in the hot Sahara wear woolen robes? 16.

Why did the fruitgrowers of California import the Australian ladybug? 52e–f.

What great interpreter of Bach's organ music became a famous medical missionary? 56.

How is silver used in photography? 204.

Why do so many foods not "taste" right when you have a cold? 218.

What great English poet intended to reform the world but is remembered only for his poetry? 154.

How is "salt" related to "salary"? 30.

For what type of musical composition is Schubert especially noted? 54.

What is "relief" in sculpture? 80.

What fashion in literary composition did Sir Walter Scott set? 72.

What do "mermaids' purses" contain? 206.

What fish are hatched out in a pouch in the body of the male parent? 97.

What large body of water is called a "floating meadow of seaweed"? 104.

Why is a bubble round? 232.

How many species of rattlesnakes are found in the United States? 226b.

How may wandering sand dunes be fixed? 38.

Where do temperatures sometimes reach 170° F. or more? 15.

What river has "reversing falls" where the water may flow in either direction? 18.

Would a sea cucumber make a good vegetable salad? 96.

What is the speed record for a transatlantic ocean liner? 169 picture.

What were the seven wonders of the ancient world? 115, 116 pictures.

How is silk "weighted"? 201.

What makes the shrew the most bloodthirsty of all mammals? 185–6.

How do we know that saber-toothed tigers once lived in California? 2.

What is the physical difference between music and an unpleasant noise? 260.

What familiar tree bears leaves of three different patterns? 51.

Why were Austria, Russia, and France referred to in the Seven Years' War as the "League of Three Petticoats"? 117.

How do snakes "hear"? 223, 226a.

What vast region was used for centuries mainly as an enormous prison? 188.

Why are so many silos cylindrical? 202.

Why is it impossible for a snake to close its eyes? 223.

What influence did Savonarola have on life in Florence? 52d.

What is the earth's most important natural satellite? 52.

In what sport are the terms corn, flush, mambo, and sitzmark used? 210a.

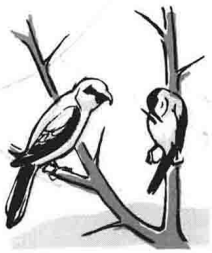
What city is called the "eye of Asia" by the Turks? 221.

How can people "talk" with flags and lights? 193.

Name some of the wonders of the modern world. 116.

In the semaphore system of signaling, how many flags are used? What are their colors? 194b.

Were any of the *Bounty* mutineers convicted of their crime? 177c.



What causes sound? 258.

Why is the shrike called the butcherbird? 186.

What great humanitarian so revered life that he regretted having to kill bacilli in his medical treatments? 56.

Who were the "dawn men"? 57c picture.

What information is given by the Plimsol mark on a ship's side? 176 drawing.

Do snakes swallow their young to protect them? 226b.

How did early man use fire to hunt and kill animals? 57c.

What does the word "Mayday" mean to an airplane pilot? 195a.

What is the largest organ of the human body? 210d.

Why did writing make possible the beginning of modern science? 57e.

The smallest Central American republic is also the most densely populated country on the mainland of the Americas. What is its name? 32.

What are some of the factors which determine whether a vessel should be called a ship or a boat? 167.

Why was the invention of movable type so important to the advance of science? 57f.

What are "hothouse" lambs? 148.

In what year did the St. Lawrence Seaway open? 21.

What is the oldest fort in the United States? 17 picture.

Where is the largest Chinese community outside the Orient? 42.

What is the difference between pure and applied science? 61.

What kind of vehicles are raced in a Soap Box Derby? 232.

How did the *Flying Dutchman* legend originate? 177b.

Do all poisonous snakes have triangular heads? 226c.

What is a "tramp ship"? 176a.

KEY TO PRONUNCIATION

Pronunciations have been indicated in the body of this work only for words which present special difficulties. Marked letters are sounded as in the following words:

cāpe, ăt, fär, fȧst, whạt, fạll; mē, yĕt, fẽrn, thêre;

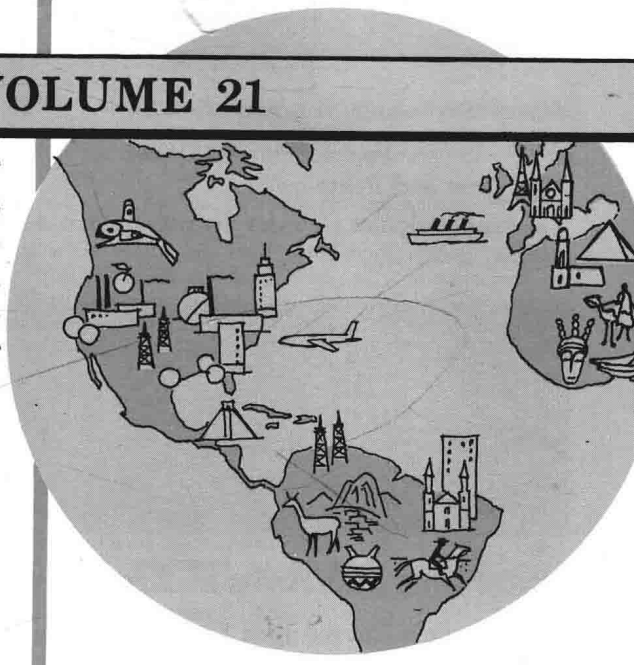
īce, bĭt; rōw, wȯn, fôr, nŏt, dọ; cūre, bŭt, rụde, fụll, bûrn; *out*;

ü = French *u*, German *ü*; *ġ*em, ḡo; *th*in, *th*en;

ṅ = French nasal (Jea*ṅ*); *zh* = French *j* (*z* in azure); ĸ = German guttural *ch*.

HERE AND THERE IN VOLUME 21

AT ODD TIMES when you are just looking for "something interesting to read," without any special plan in mind, this list will help you. With this as a guide, you may visit faraway countries, watch people at their work and play, meet famous persons of ancient and modern times, review history's most brilliant incidents, explore the marvels of nature and science, play games—in short, find whatever suits your fancy of the moment. This list is not intended to serve as a table of contents, an index, or a study guide. For these purposes consult the Fact-Index and the Reference-Outlines.



Picture Highlights

Reading for Pleasure

School and Home; Work and Play

Historical Highlights

Famous People

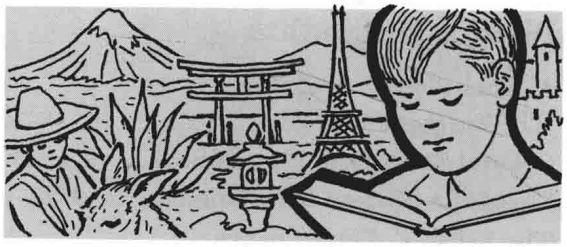
HERE AND THERE IN VOLUME 21

The Plant and Animal Kingdoms

The Wide World of Facts

Marvels of Science and Invention

The Arts



At Home and Abroad

S

SAADIA BEN JOSEPH (*sȧ′ dē-ȧ*) (882–942 A.D.). The first great exponent of the rationalistic movement in Jewish philosophy was the Rabbi Saadia ben Joseph. He was born at Dilaz in the El Faiyûm district of Upper Egypt. Little is known of Saadia's youth.

At the age of 21 Saadia completed his first great work, "Agron," the oldest methodical Hebrew dictionary. At 23 he wrote a work attacking the followers of the Karaite sect, who denied the religious authority of the Talmud. He also translated the Old Testament into Arabic. Most of Saadia's works were written in Arabic, in his time the common language of the eastern Jews. At about this time Saadia left Egypt, traveled widely, and finally settled in Babylonia. There he became involved in a controversy between the Jewish authorities of Babylonia and Palestine concerning the correct dating of religious festivals, a matter of great concern in Jewish life. Saadia's criticism, which decided this dispute in favor of the Babylonians, established him as a scholar of the first rank. Soon thereafter he was made *Gaon*, or chief rabbi and head of the rabbinical academy, of Sura.

Of Saadia ben Joseph's many works, the most influential for Judaism was "The Book of Beliefs and Opinions," completed in 933 A.D. As the first attempt to present the philosophic foundations of the dogmas of Judaism in a systematic manner, it affirms the capacity of reason to discover the nature of the universe and the meaning of God. Saadia is considered the founder of the Jewish philosophy of religion.

THESE ARTICLES ARE IN THE FACT-INDEX

Saarbrücken, West Germany
Saaremaa
Saarinen, Eero
Saarinen, Eliel
Saarland, West Germany
Saavedra Lamas, Carlos
Saba
Sabah
Sabatier, Paul
Sabatini, Rafael

SABBATH. A weekly day of rest has been found among almost all nations, including the ancient Egyptians, Babylonians, Hindus, Persians, Greeks, and Romans. It has been said that the Sabbath is "a festival not of one city or one country, but of all the earth."

It is thought that the Hebrews derived their Sabbath from the Babylonians, but as observed by the Hebrews it took on a new meaning. It was a day of rest (the Hebrew *shabath* means "to rest"), but it was also a holy day, a memorial of the completion of creation on the seventh day and of the deliverance of the Israelites from Egyptian bondage. The Hebrew Sabbath is the seventh day of the week (our Saturday). It lasts from sunset on Friday to sunset on Saturday. During this time all work must cease; according to the Fourth Commandment it was forbidden also to cause servants or animals to labor.

Among Christians, the *first* day of the week—as the Lord's Day, the day of Christ's resurrection—came to be thought of as holier than the Hebrew Sabbath, and Sunday took the place of Saturday as a day of both rest and worship. The Christian church kept many observances of the Jewish Sabbath on Sunday and named that day as the Sabbath. However, there are some Christian sects which today observe the seventh day as their Sabbath. In addition to forbidding work on Sunday, many denominations discourage the playing of games, attending theaters, and similar amusements. The Roman Catholic church requires its members to attend Mass each Sunday. Mohammedans keep Friday as the day for special religious services, but they are not required to rest from their labors except during the time of the midday prayer. (*See also* Day and Night; Week.)

THIS ARTICLE IS IN THE FACT-INDEX

Sabbatical year

SABER-TOOTHED TIGER. In the Old Stone Age lived a big cat, more ferocious in appearance than any known today. This was the saber-toothed tiger. Although no larger than a modern tiger, it had a deeper body, shorter and thicker legs, and almost no tail. The shoulders and loins bulged with muscles. The huge paws had retractile claws three or four inches long. But the weapons that made this animal a symbol

THE GIANT CAT THAT ROAMED AMERICA

Perhaps where you live today, the saber-toothed tiger stalked its prey thousands of years ago. This painting by Charles R. Knight, at the American Museum of Natural History, New York City, is based on fossil remains found in tar pits.

American Museum of Natural History, New York

of primitive ferocity were the two saberlike teeth curving down from the upper jaw. They were fully eight inches long, and the rear edge of each great fang was notched like a file for tearing flesh. This "stabbing cat" must have opened its mouth 16 inches or more.

Saber-tooths prowled all the continents except Australia. They found plenty to kill and eat in North America, particularly in what is now California. Probably they fought the "biting cats" (*Felis atrox*), which were about the size of lions.

Many saber-toothed tigers and their neighbors blundered into tar pits, where their bones were preserved. From these bones, scientists have reconstructed the saber-toothed tiger in form, but the appearance of its hair is still a guess. Fossilized remains have also been found in bogs and caves in widely scattered areas of the world.

The last of the saber-toothed tigers died about 25,000 years ago, perhaps from starvation, disease, or the cold of glacial periods. The large saber-toothed tiger belongs to the genus *Smilodon* (Greek for "carving knife") of the cat family *Felidae*. The bones of a smaller and earlier saber-tooth (genus *Machaerodus*) have also been found in many parts of the world.

THESE ARTICLES ARE IN THE FACT-INDEX

Sabin, Albert B(ruce)
Sabin, Florence Rena
Sabine Cross-Roads
Sabine Lake
Sabines
Sable Island
Sabotage
Saburov, Maxim Zakharovich
Sacagawea
Saccharide
Sacco-Vanzetti case
Sachs, Hans
Sachs, Julius von
Sachs, Nelly
Sackets Harbor, N. Y.
Sackville, N. B.
Sackville-West, Victoria
Saco, Me.
Saco River

SACRAMENTO, Calif. The capital of California is Sacramento (Spanish for the "Sacrament"). It is the marketing and manufacturing center for the northern part of the great Central Valley. This rich agricultural valley is watered by the Sacramento, the state's largest river (*see* California). To the east rises the Sierra Nevada, snowcapped the year around. To the west is the Coast Range.

Sacramento's Romantic History

In 1839, while California was ruled by Mexico, Capt. John A. Sutter sailed up the Sacramento River from San Francisco Bay. He set up a colony on the present site of Sacramento. He called it New Helvetia for his homeland, Switzerland. Two years later he built a fort to protect his Mexican land grant of 11 square leagues. The fort has been restored as a museum. Its many relics bring to life the era of the gold rush and western migration.

On Jan. 24, 1848, James W. Marshall, Sutter's carpenter, discovered gold while building a mill near Coloma in the foothills east of Sacramento. Within a few months Sacramento was a thriving outfitting point for the gold seekers. Six years later it became the capital of California.

The miners used powerful streams of water to wash out the gold-bearing gravel. This process swept whole hillsides into the river, filled the channel to half its depth, and caused destructive floods.

The state's first railroad linked Sacramento to Folsom in 1856. The city became the western terminus of the Pony Express in 1860 and of the first transcontinental railroad, the Central Pacific, in 1869.

Agricultural and Industrial Development

A wheat boom followed the gold rush. The Great Valley became a granary. Then high freight rates, competition from Midwestern wheat fields, and population growth encouraged more intensive farming.

With the spread of irrigation, the valley became one of the most important truck-farm areas of the United States. The city is now a leader in fruit and vegetable canning, freezing, and shipping. Among the chief crops of the surrounding area are tomatoes, rice, hops, almonds and walnuts, peaches and prunes, sugar beets, and barley.

Manufacturing plants turn out cans and boxes for the fruits and vegetables, jet propellants, rocket engines and guided missiles, fabricated metal products, and brick and clay products. Power is available from the many dams in the valley's water-control program. Mining and lumbering are regional industries.

Thousands of people work in government offices, military installations, and the shops of the Southern Pacific and Western Pacific railroads.

A deepwater port was completed in 1963 in nearby Yolo County. Mather and McClellan Air Force bases and an Army Signal Corps depot are close at hand.

At the east end of Capitol Mall the State Capitol rises in a 40-acre park containing varieties of trees and shrubs from all parts of the world. Other points of interest in the city include the California State Library, Sacramento State College, Memorial Auditorium, the Indian museum at Sutter's Fort State Historical Monument, William Land Park, and the Crocker Art Gallery. The California State Fair and Exposition is held at the city's new fairgrounds, Cal Expo, which opened in 1968. A year-round state fair is planned. Sacramento is governed under the council-manager system. Population (1980 census), 275,741.

THESE ARTICLES ARE IN THE FACT-INDEX

Sacramento River
Sacramento State College
Sacred Heart, College of the
Sacred Heart College (N. C.)
Sacred Heart College (Kan.)
Sacred Heart of Jesus, Society of the
Sacred Wars
Sacred Way
Sacroiliac joint
Sacrum
Sadducees
Sadi
Safad, Israel
Safari

Rie Gaddis Wehrmann

Symbolic of the safety movement is the school safety-patrol boy in white belt and chest band. With arms outstretched, he holds back his schoolmates until the street is clear. Children have learned to accept his authority without question.

SAFETY—A Challenge to Common Sense and Skill

SAFETY. There is an old saying, "Accidents will happen," yet only a few accidents just "happen." Most of them are caused by ignorance, carelessness, or lack of skill.

Babies do not fall out of windows if the windows are closed or have strong guards. Skillful automobile drivers and expert swimmers rarely have accidents. People who know how to handle electrical appliances seldom suffer from electric shock. Very few factory workers get seriously hurt if the company has installed proper safety devices and maintains a program of safety education.

Beyond doubt a large proportion of accidents can be prevented. Industrial plants which have intensive safety programs have cut their accident rate in half in only a few years. Safety education in the schools began on a national scale in 1922. Since then accidental deaths among children of elementary-school age have been reduced by more than 50 per cent. This gain was made even though the number of automobiles in use greatly increased.

The Tremendous Cost of Accidents

Despite all that has been done, accidents cause more than 110,000 deaths every year in the United States. During World War II about 294,000 American military personnel were killed in action. In the same period some 364,000 Americans died in accidents. About 9 or 10 million persons are seriously injured every year. This is about equal to the combined population of New York City and Philadelphia.

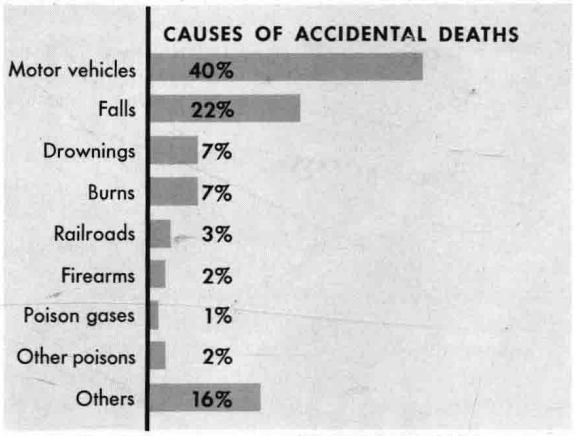
No one can estimate the loss that these deaths and injuries cause in broken homes and in suffering. In terms of money the cost each year is staggering. The income lost by disabled or deceased persons is nearly 4 billion dollars. Medical care amounts to nearly another billion dollars. Added to this are administrative expenses of insurance of almost 2 billion. Property damage in motor-vehicle accidents and by fire totals more than $2\frac{1}{2}$ billion. Property destroyed and production lost due to occupational accidents account for almost another 2 billion dollars. The total accident bill is nearly 12 billion dollars. This is $260 for each family.

The High American Accident Rate

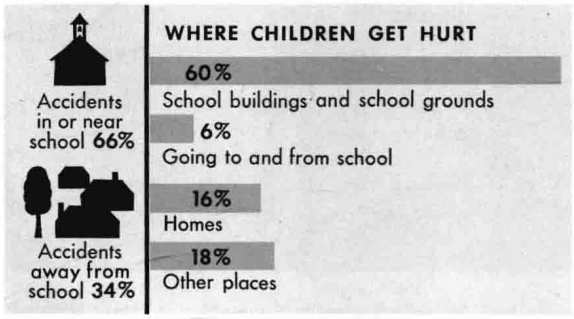
The United States has a higher accidental death rate per 100,000 population than all but a very few countries. This is due largely to the fact that the nation has more automobiles, railroads, electrical appliances, and machines than any other country.

How can we prevent accidents? First, we can make our surroundings safer. We can reduce hazards in our homes, where nearly half the accidents happen. We

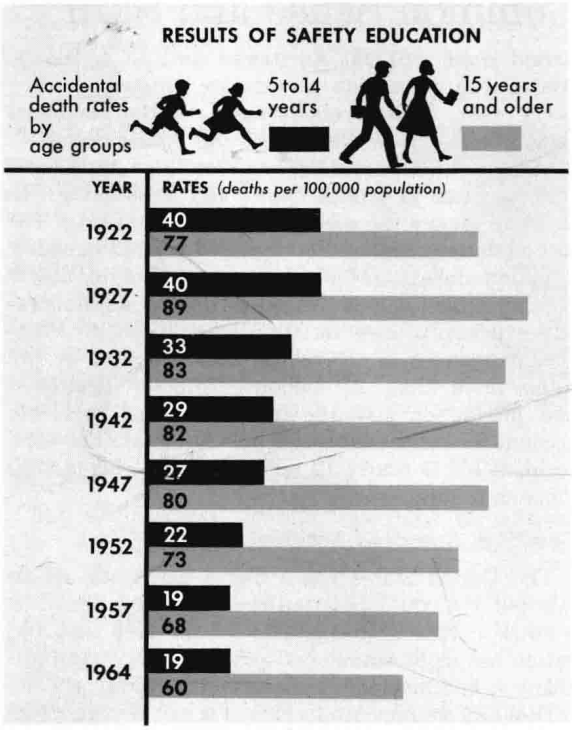
WHERE SAFETY EDUCATION IS NEEDED MOST



The bars which represent motor vehicles and railroads both include accidental deaths at rail crossings.



During the school year children get hurt in or near school more than in any other place. Most accidents are on school grounds.



School safety education began in 1922. Since then the accident rate for younger children has gone down steadily.

can reduce hazards in public buildings, streets, transportation agencies, factories, and mines. Second, we can all develop "safety alertness" by following the rules laid down later in this article.

Growth of the Safety Movement

The first work in accident prevention was undertaken by industry. This grew out of the horrifying number of accidents that followed the introduction of machinery in the 18th and 19th centuries (*see* Industrial Revolution). Beginning about 1867, many employers in Europe formed accident prevention associations and installed devices to make machinery safer. Soon afterward, beginning in England in 1880 with the Employers' Liability Act, laws were passed permitting disabled workers to sue for damages. These were followed by workmen's compensation acts, which forced employers to carry insurance for injuries. Similar compensation laws were passed in the United States, beginning with Maryland's law in 1902. (*See* Employers' Liability.)

In the United States the next great forward steps were taken in 1907, when the Association of Iron and Steel Electrical Engineers began to promote safety work, and in 1913, when the National Safety Council was organized. The Council is a co-operative association which analyzes accident causes and promotes safety education. Among the organizations that belong to the Council are local safety councils, automobile clubs, schools, industrial associations, chambers of commerce; departments of federal, state, and city governments; and manufacturing, public utility, insurance, and transportation companies.

The Schools and Safety Education

Safety education on a national scale started in 1922. In that year one out of every eight persons killed by accident in the United States was a child between 5 and 14 years old. Now children of this age group contribute on the average only about one sixteenth of the total. Their accidental death rate is lower than that of any other age group. Some cities have a program of stressing safety education and safety measures. This program has reduced child motor-vehicle fatalities by 75 per cent.

In alarming contrast to this record for the younger children is the large increase in the traffic accident death rate for youths of senior high-school and college age. In the hope of reducing the accident rate in this group, safety education is being extended into high schools and some colleges and universities. Many high schools are now giving courses in driver education and driver training. These have been helpful.

Public Measures to Make Driving Safer

Nationwide improvement of highways and of traffic regulation has helped make driving safer. In 1924 Herbert Hoover, then secretary of commerce, called the first National Conference on Street and Highway Safety. Since that time the national motor-vehicle death rate (based on mileage) has dropped

about two thirds. Some states and cities have reduced their motor-vehicle death rate even more. In 1971 the nation recorded a mileage death rate (number of deaths per hundred million vehicle-miles) of 4.7 —the lowest rate up to that time.

Engineers make traffic surveys, widen highways, straighten curves, put up warning signs at danger spots, and build divided highways with controlled entrances and exits. They also construct separate grades at highway intersections and at rail-highway crossings. Other safety measures include stop-and-go lights, one-way streets, stop streets, safety islands, low speed limits in business and school areas, and special rules for trucks (*see* Automobile Driving).

City and state police departments have devised new prevention measures by scientific study of accident causes. Some cities compel traffic violators to attend "safety schools" directed by the police. To reduce danger from cars in poor mechanical condition, many states and cities require tests for brakes, lights, and other equipment. Cars and tires now are built so soundly that mechanical failure is rare except through misuse or neglect on the part of the driver.

Educating and Testing Drivers

Thousands of organizations are helping educate the public. Newspapers call attention to traffic hazards and print driving lessons. Television and radio programs warn drivers and pedestrians of carelessness. Insurance companies, gasoline distributors, and automobile clubs promote safe driving by booklets, advertisements, posters, and emblems mounted on cars. Through the Highway Users Federation for Safety and Mobility, the automobile industry contributes hundreds of thousands of dollars a year to schools and organizations for safety training. Parent-teacher associations are especially active in promoting safety education in the schools. The Red Cross, 4-H Clubs, Boy Scouts, Girl Scouts, and Camp Fire Girls also do a great amount of educational work.

Despite these efforts, traffic accidents cause about 40 per cent of all fatalities annually. Many of these accidents can be prevented by safety education. This is shown by the records of trained commercial drivers, whose accident death rate has dropped during periods when the death rate for drivers of private vehicles increased. States require drivers to pass examinations in driving skills and physical fitness in order to obtain a license.

In 1971 more than 54,000 deaths were attributed to automobile accidents. The death rate was 26.5 per 100,000 persons. Partly because of lower speed limits, introduced in 1974 to conserve gasoline, the death rate has since been reduced.

How the Federal Government Promotes Safety

The federal government does much safety work. In 1950 it created the Federal Safety Council to safeguard government employees from accident and health risks. The Federal Aviation Administration protects travelers by examining pilots, inspecting planes, and conducting accident-prevention studies. The National Traffic Safety Agency and the National Highway Safety Agency were established in 1966. The National Traffic Safety Agency set federal safety standards for cars, buses, motorcycles, and trucks sold in the United States. The National Highway Safety Agency established federal standards for state highway safety programs. States without such programs face the loss of some federal highway funds. In 1967 the two agencies were merged into the National Highway Traffic Safety Bureau. In 1970 the bureau was renamed the National Highway Traffic Safety Administration.

Ships must be approved and their officers and other personnel licensed by the Coast Guard. Seamen have to meet the requirements authorized by Con-

Behind the wheel in special driver-training units, high school students learn safe driving techniques. A film reproduces various motoring situations. For backing up, mirrors behind each driver reflect the images on the screen.

Allstate Insurance Co.

Underwriters' Laboratories, Inc.

Fire doors are being tested in front of a furnace to see how well they will retard the spread of heat and flame. This test is being made by the Underwriters' Laboratories.

gress. The Coast Guard also supervises waterways and maintains lighthouses and other aids to navigation. It also patrols the North Atlantic to reduce hazards from icebergs. The National Ocean Survey charts navigable waters and provides other information for the safety of mariners. This was formerly the responsibility of the Coast and Geodetic Survey.

Weather information for ships, railroads, airlines, and other transportation agencies is supplied by the National Weather Service. Safe highway engineering is promoted by the Federal Highway Administration, a branch of the Department of Transportation.

The Forest Service works to prevent and to check forest fires. A vast flood-prevention program conducted by the Army engineers protects life and property from damage by rivers. From the Office of Education, safety literature and radio programs are sent to the schools. Statistics on the causes of accidental deaths are compiled by the National Center for Health Statistics.

Industrial safety is promoted by the Bureau of Labor Statistics. This bureau studies causes of accidents and recommends preventive measures, such as rest periods for workers, better lighting conditions, and protection devices on dangerous machines. Accidents in mining, one of the most hazardous industries, have been considerably reduced by the Bureau of Mines. The responsibility for mine safety now lies with the Mining Enforcement and Safety Administration, established in 1973. This agency inspects domestic mines and enforces health and safety standards. Danger from dust explosions in grain elevators and other places has been reduced through research by such agencies as the Agricultural Research Service. Safety of materials and design is advanced by the National Bureau of Standards. It does a vast amount of research, such as testing materials for strength and for fire resistance, setting specifications for electrical equipment, and developing higher standards for building construction. This branch of the Department of Commerce is managed by distinguished scientists.

The Consumer Product Safety Commission, an independent federal agency established in 1972, has taken over the responsibilities of the former Bureau of Product Safety. The commission establishes safety standards for manufactured products and helps buyers evaluate their safety.

State and Municipal Safety Measures

Each state has its own laws on safety. They are administered by such state agencies as the department of labor, fire department, police department, industrial commission, division of factory inspection, bureau of mines, highway commission, and commerce commission. Some laws require fireproof material in certain types of building. Others govern installation and operation of machinery, requiring, for example, automatic machinery stops and shields or guards for all moving parts that might maim workers.

Many states enforce national *safety codes*. These are rules drawn for various industries by the American National Standards Institute, in cooperation with the National Safety Council and similar agencies. Under them, employers must provide proper lighting and ventilation, safety education for workers, and special equipment for dangerous work. Such equipment includes safety helmets for miners, tunnel drillers, and steelworkers and shatterproof goggles for metalworkers and woodworkers.

Cities protect the safety of their residents in nearly every activity of daily life. Fire departments by their prompt work save many lives, and they prevent fires by inspecting buildings and neighborhoods for fire hazards. When a crime or disaster occurs, policemen in patrol cars and on motorcycles are notified by radio so that they can speed to the scene to protect the lives of citizens. Police also prevent many accidents and deaths by enforcing the traffic laws. Building departments inspect elevators, stairways, boilers, and other structural hazards. Water mains, sewer pipes, sidewalks, and streets are kept in repair by other municipal agencies. Cities have increased their lighting facilities, since good street lighting aids traffic safety and discourages crime. To centralize all these activities, many cities have established safety commissions directed by experts known as safety engineers.

Growth and Value of Safety Engineering

Safety engineering is a relatively new profession. It is taught at several universities, however, and foundations have been established to extend it. Originally it was concerned chiefly with industrial safety—training engineers to develop safety devices for machines and safe methods of operation. The profession has now grown to include traffic and community safety. Such training is given to the police departments of many cities.

Safety engineers are also employed by industrial companies, for industry has learned that safety means profit. Accident prevention in factories saves the time of both workers and machines. Thus it increases

production. It also brings lower insurance rates. Mechanical hazards have been so reduced that today machinery is involved in only some 12 per cent of industrial accidents. The development of automatic safety devices is an important factor. Some devices stop machinery the instant it reaches a dangerous speed. Others halt falling elevators, blow away poisonous fumes, or quench fires. Railroad accidents are prevented by automatic signal blocks and by air brakes. Transport planes glide to safe landings through use of the radio beam and other aids (*see* Air Traffic Control).

All industrial accidents are traceable in some measure to the "human element." Hence increasing stress is being put on safety education of workers. About 55 per cent of industrial accidents result from falls and from slipshod ways of handling boxes, tools, and other objects. Employers use posters, movies, courses for training in the correct use of machines, tools, and other elements of the work, and safety contests to teach carefulness. Applicants are tested for physical fitness for specific jobs. In transport, for example, engineers, drivers, and pilots are tested not only for general physical fitness but for color blindness as well. Applicants also are tested to find whether they belong to the accident-prone group of people who are likely to have more accidents than others in the same work.

Common Accidents—How to Prevent Them

SAFETY engineers and public agencies can do only a part of the work of cutting down the accident toll. Most of the responsibility must fall on the individual —on *you* and your fellow citizens. At home and at school, and in all out-of-door activities, safety is chiefly a personal problem.

"Safety through skill"—that excellent slogan of the Boy Scouts—should be the motto of everyone. For skill usually means safety. Accidents rarely happen to experts. They know the right way to do things and the way to avoid unnecessary dangers.

HOME SAFETY

Home should be the safest place of all, but carelessness makes it one of the most dangerous. Because we keep on using tables and chairs as ladders, misusing kitchen appliances, and leaving things on the stairs for someone to trip over, more persons are killed in home accidents than in all the factory, mine, railroad, and farm accidents put together.

How to Guard Against Falls, Burns, and Fires

Falls are the largest single cause of home accidents. Stout window screens and gates at the top of stairs will protect small children against falls from windows and down stairs. Every staircase should have a strong handrail and should be well lighted. Loose treads and bulging pieces of stair carpet should be fastened down. Mops and brooms should be put in closets, not left to clutter cellar stairs. A night light or an extension cord reaching to the bed will save many a bump and fall in the bedroom. Small rugs on polished floors should be kept from sliding by a rubber backing or by fastening them down, especially when they are at the top or the bottom of stairs. A rubber mat and a hand grip will prevent slipping in the bathtub. Many kitchen falls can be prevented by smoothing warped linoleum and by wiping up spilled water and grease. Avoid using a table or a chair as a makeshift ladder. A stepladder must be true to the floor and folding legs should be fully extended.

About five sixths of all fatal burns occur in the home. A large number result from careless use of kitchen equipment. Handles of pans should be turned inward from the edge of the stove, particularly if small children are present. Burns and scalds are among the commonest injuries to children. When cooking with deep fat, stand back from the utensil to avoid grease spurts. To avoid steam scalds, lift the cover of the utensil so that the steam escapes from the *far* side of the pan. (For other safeguards against burns and fires, *see* Fire Prevention.)

Guarding Against Electrical Accidents

Nearly every electrical accident can be prevented when you know and remember two things: (1) the human body can conduct electric current; (2) any object becomes a conductor when it is wet. Severe electric shock paralyzes the muscles. If the heart muscles are paralyzed, death results immediately. If the lung muscles are affected, artificial respiration should be applied at once.

Before repairing any electrical appliance, disconnect it by pulling the plug from the socket. Merely turning off the switch is not enough, for the switch or the wiring may be faulty, permitting the current in the house circuit to give you a shock. Before repairing wall sockets, lighting fixtures, or other equipment that cannot be detached from the home circuit, shut off the current at the fuse box by removing the appropriate fuse operating the circuit breaker or by opening the main line switch. For all electrical work, use tools with insulated handles and avoid touching two wires or appliances at the same instant. Do not touch any plumbing fixture at the same time that you are touching a wire or appliance. Do not use both hands to connect or disconnect an appliance. Modern home wiring has become so complicated that repair work and permanent installations should be entrusted only to a qualified electrician.

When hands or feet are damp, even with perspiration, avoid touching any appliance. Do not switch an appliance on or off or touch a wire when you stand on a damp floor. It is best to have wall switches for all bathroom fixtures. If a chain-pull is used, it should be fitted with a porcelain or fiber safety link. Do not touch a switch and any metal, such as a faucet, at the same instant.

Every fixture in the basement should be controlled by a push-button switch. When you are using electric laundry appliances in the basement, always wear rubbers, stand on a piece of dry wood, or ground the appliances.

"Live" Wires and Short Circuits

Never touch a dangling or broken outside wire. Any wire, even a radio antenna or telephone line, may be "live," for it may have sagged or fallen against a high voltage line. If an outside power line breaks, keep people away and notify the electric company or the police station. If a person or animal has been shocked, do not touch him, but push the wire away with a dry piece of wood or a heavy cloth. If possible, stand on wood while doing this. Then apply artificial respiration (*see* First Aid).

All wires in the home should be insulated with stout covering, since cheap insulation wears rapidly. Defective insulation may start a fire by permitting exposed wires to touch each other and thus short the circuit. Avoid laying wires beneath carpets or over nails where rubbing will wear them. All appliances should show the seal of approval of the Underwriters' Laboratories. Moreover, an appliance should not be cleaned with a damp cloth while attached, since it may have an unnoticed short.

What to Do When a Fuse Blows

When a fuse blows, remove the cause before inserting a new fuse. Never use a piece of metal in place of a fuse. The substitute will allow the short to continue, thus building up a dangerously heavy load of current. The same danger arises from installing a larger fuse. Most household branch circuits should use fuses of not more than 15 amperes. Before replacing a fuse, switch off the current. Use only one hand to screw the fuse, and keep the other off the fuse box or any metal part.

Protection Against Gases and Poisons

Gases from oil, coal, and gas stoves and from automobile exhausts are dangerous hazards. Some of these gases can be detected by their odor, but one of the deadliest, carbon monoxide, is odorless (*see* Carbon). Hence even the smallest leaks are dangerous. See that gas valves are completely turned off. If you smell escaping gas, extinguish all flames, including the pilot light on the gas range, and open the windows before looking for the leak. Of course, if you are hunting for a gas leak in the dark, use a flashlight—not a match. Gas stoves should have vent pipes leading to a chimney or to the outdoors. Furnace fires should be carefully banked at night. Hot-air furnaces should be inspected frequently for leaks which may admit gas to the heat ducts. Garage doors should be open when an automobile engine is running.

The best safeguard against poisons is to "watch what you are doing." Before using medicine, read the label. All poisonous materials—such as certain medicines, ammonia, caustic soda, and lye—should be locked in a box and put out of reach of young children. (For antidotes, *see* First Aid; Poisons.)

Importance of Clean Yard and Walks

In icy weather spread walks with ashes, sand, dirt, or salt. Put rakes and other tools where they will not trip people. Remove "collision" hazards, nails, and broken glass. Take down the clothesline before dark. Prune bushes back from walks and doors.

SCHOOL SAFETY

Many schools have Junior Safety Councils or other student organizations which act as steering committees for safety work through the school. Safety patrols from the upper grades prevent traffic accidents by directing pupils to cross the streets near the schools at the right times and places. (A flier on how to organize patrols may be obtained from the National Safety Council, 444 N. Michigan Ave., Chicago, Ill. 60611.)

Every child must co-operate by forming the right habits, learning the proper skills, and thinking of the other fellow. Pencils, pens, scissors, and other sharp articles should be kept with ends pointing into the desk. Falls can be reduced by keeping schoolroom furniture in orderly arrangement, desk drawers shut, and feet beneath the desks. About 10 per cent of accidents in the school occur in halls and on stairs. Reduce the hazards of falls by walking, not running.

Gymnasium, Vocational Shops, and Playground

Obeying orders is one of the chief ways to prevent accidents in the gymnasium, where more than one-third of accidents in the school building occur. Avoid trouble by remembering it is childish to "show off." Do not try new "stunts" till the instructor trains you. Wear well-tied shoes with ridged-rubber soles to prevent slipping. Keys, penknives, pencils, and other hard objects should not be carried in gymnasium clothes. Do not leave soap on the shower-room floor. In the swimming pool, be alert. Before diving, see that you will not hit a swimmer. Walk on the rubber mat instead of the wet tiles and do not run.

Swings and other playground equipment should be tested each time before being used and defects reported. Students should ask the instructor for a demonstration before trying new kinds of equipment. When using rings and swings, look to see that no one will be struck when the equipment is released. Baseball, "catch," tag, and other running games should not be played near young children.

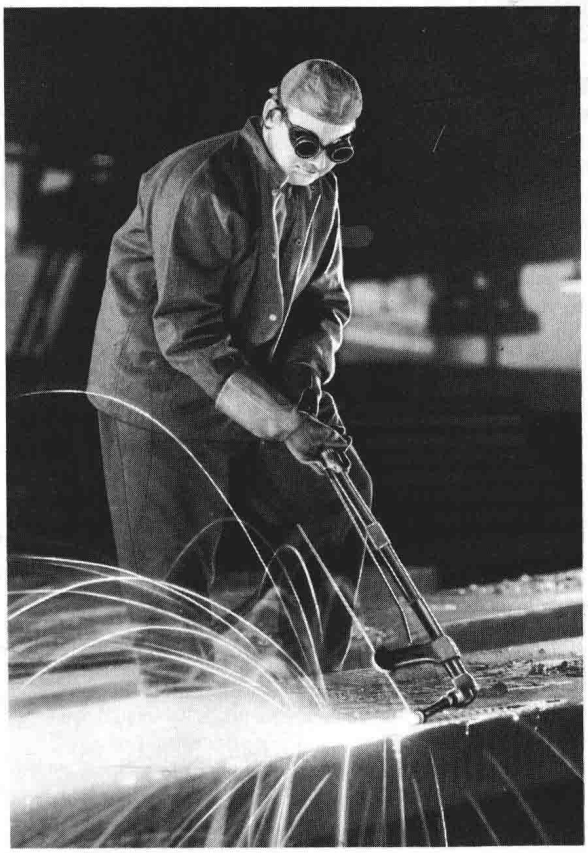
Kitefliers must be aware of the danger of getting a bad electrical shock if a damp kite string comes in contact with a live wire. For the same reason, wire should never be used in place of a cord or in connection with it. If a kite gets tangled around a wire, leave it alone. Many fatal accidents are caused by trying to get kites down from wires.

In school laboratories and shops, as in industry, most accidents can be prevented by handling equipment and machinery correctly. That is why instructors

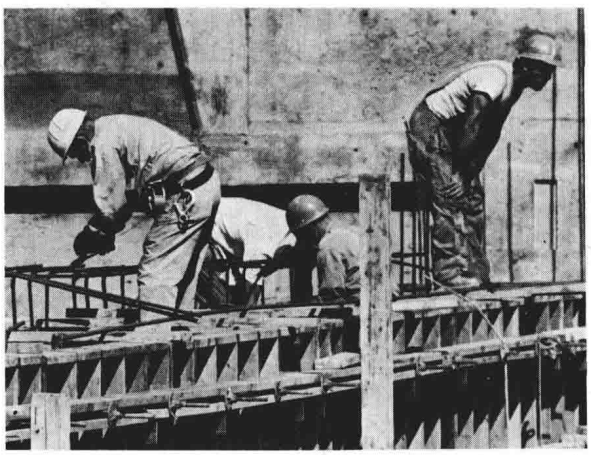
Matches, gas jets, and hot burners are hazards to children who are allowed to play without supervision in the kitchen.

This girl is in double jeopardy—from medicines that should have been kept out of reach and from slipping on the sink.

Working with toxic materials in a small, enclosed area, this man wears protective clothes and breathes through a respirator.



Using an oxyacetylene torch, this steelworker is protected from flying sparks by goggles and fire-resistant clothing.



Falling debris and windblown objects are a danger to construction workers, who wear hard hats to protect their heads.

A TRAFFIC SAFETY LESSON

Traffic lights, crosswalks, and stop signs are part of this area set aside as a "Safety Town" for teaching traffic rules to young children. It is important for both the pedestrians and the cyclists to obey the traffic signals.

teach certain ways to perform laboratory experiments, to use tools, and to operate machines. Short-cut methods are not "just as good." In chemical laboratories the chief hazards to guard against are poisonous fumes, explosions, and burns caused by carelessly getting too near the almost invisible flame of the Bunsen burner. To avoid entangling clothes in shop machinery, sleeves should be rolled above the elbows, tie removed, and work apron fastened securely. Machines should be stopped before stock is removed. Goggles should be worn for grinding, chipping, welding, and lighting a furnace. A solder furnace should be opened before lighting to avoid possible explosion from gas leakage. When working with a plane or other sharp-edged tool, *push* the tool so that the sharp edge moves from you—do not pull it toward you. Hold a chisel well up on the handle. When using a screw driver, place it true in the screw head and turn it slowly; with jerky turns, it may slip and cut your fingers. Before sawing, fasten the stock in a vise. Hammer heads and handles should be tight. Tools should not project over the work bench or lie on the floor, and spilled oil should be immediately wiped up.

STREET SAFETY

It takes two to prevent motor-vehicle accidents to pedestrians—the driver and the person on foot. Even the best driver cannot avoid an accident when a pedestrian acts foolishly. Of every four pedestrians killed three were violating traffic laws or acting in an obviously unsafe manner. In this motor age, pedestrians must form safe walking habits, and they must exercise good judgment. Above all they must have a cooperative attitude toward drivers.

Among the commonest causes of street accidents are walking against traffic signals, crossing streets without looking to see if a car is coming, and darting out from behind parked cars.

Correct Way to Cross a Street

Cross busy streets only at intersections. Observe traffic lights. Before crossing at unprotected corners, look in all four directions, not just two, and wait if an automobile is coming. Even if the driver sees a pedestrian at once, it may take him as much as three quarters of a second to apply his brakes. Tests show that a driver going 20 miles an hour travels about 47 feet before he stops his car; 30 miles an hour, 88 feet; 40 miles an hour, 149 feet; 50 miles an hour, 243 feet. When streets are wet or icy, the driver may not be able to stop in less than half a block. Darkness more than doubles the risk. It is harder for the driver to see at night and harder for the pedestrian to judge the speed of an approaching car. It is best to wear or carry something white that will show up in the beam of the headlight.

Bicyclists, Motorcyclists, and Roller Skaters

Good bicycle riders must be able to ride without wobbling and to make quick stops and turns. A bi-