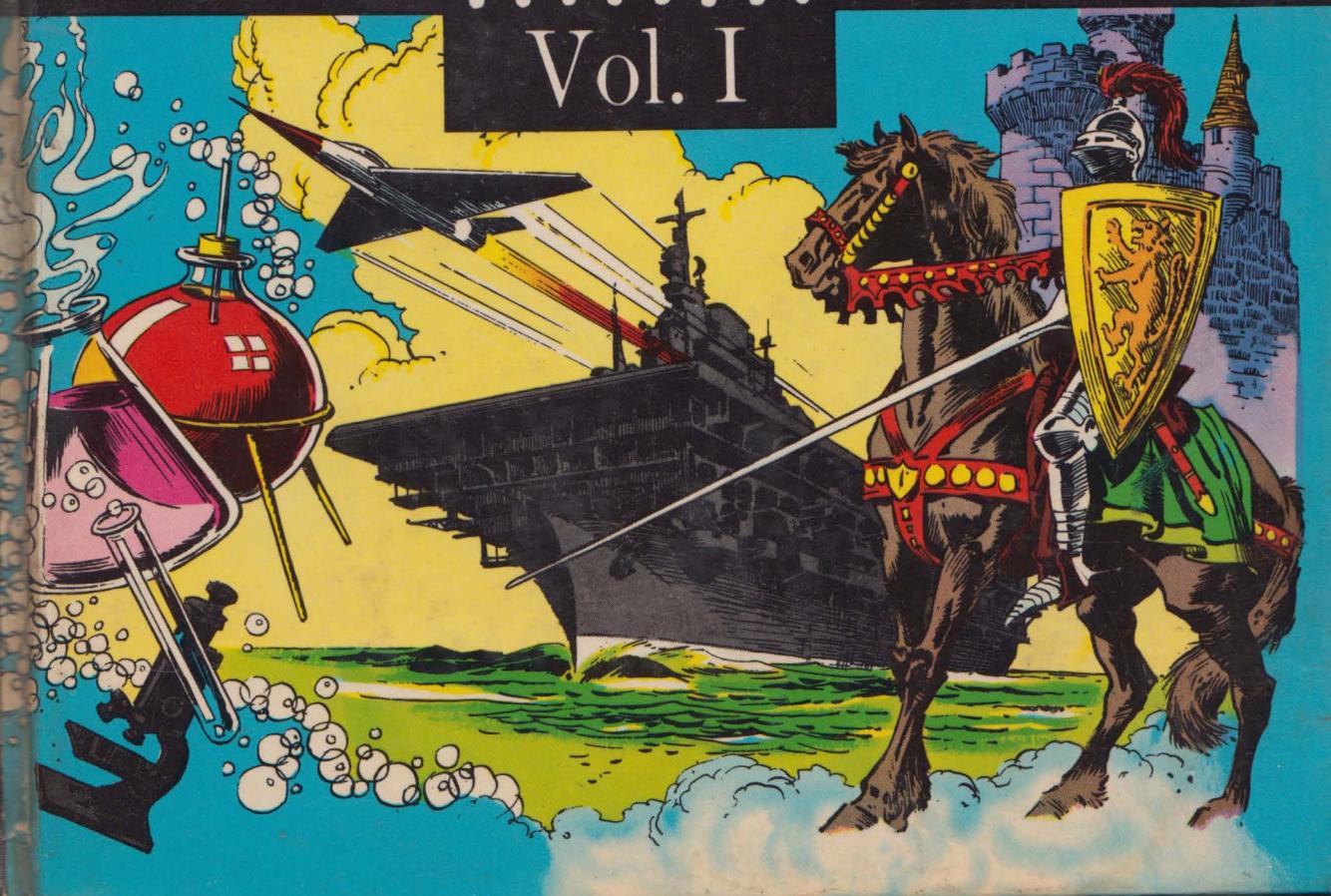


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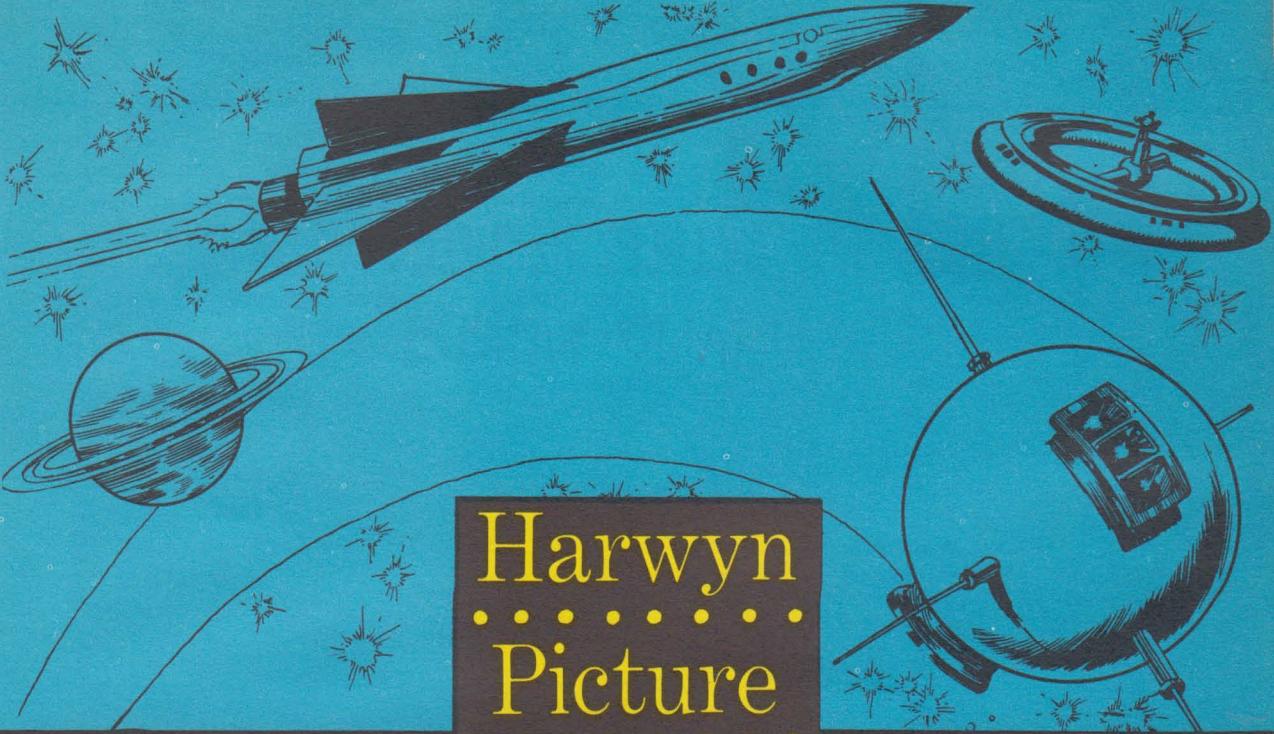
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"ONE PICTURE IS WORTH A THOUSAND WORDS"

(CONFUCIUS)

Here is a new adventure in learning for school children of every age. Each topic is clearly illustrated in a style that is familiar and accepted by students.

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A

The first letter of the alphabet once stood on its head like this - . The sign originally represented an ox's head, and the picture at the right will show you why. The ancient Phoenician traders used this sign for commercial purposes. Later, the Greeks adopted it and turned it upside down to look like the A we are familiar with today.

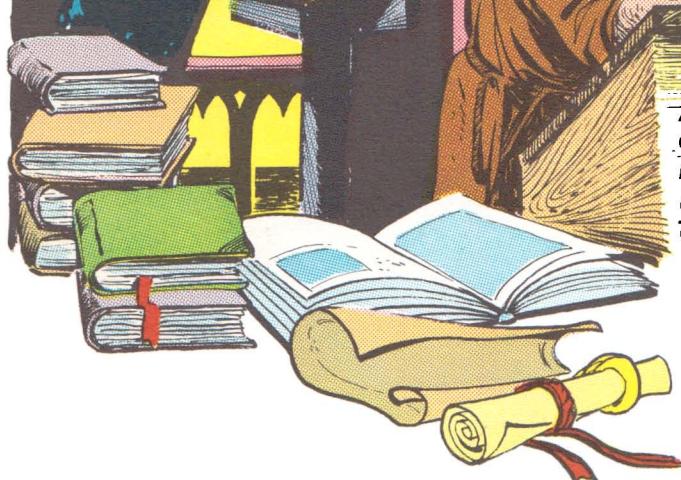
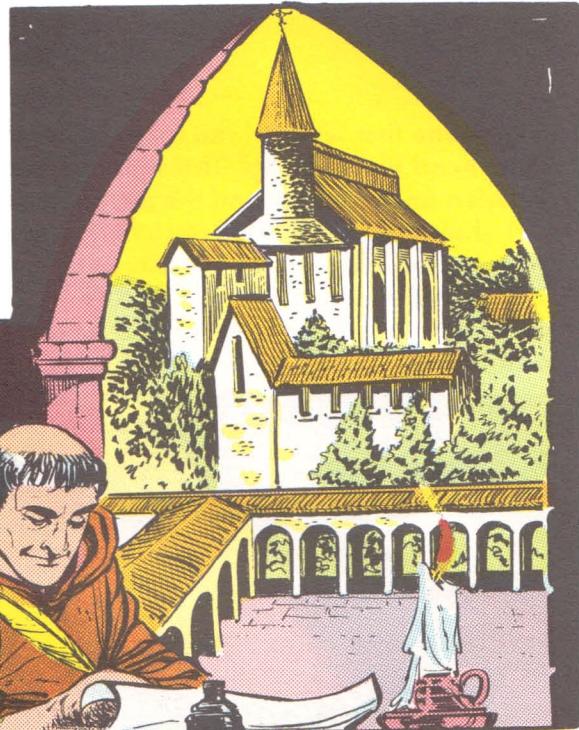


AARDVARK . . .

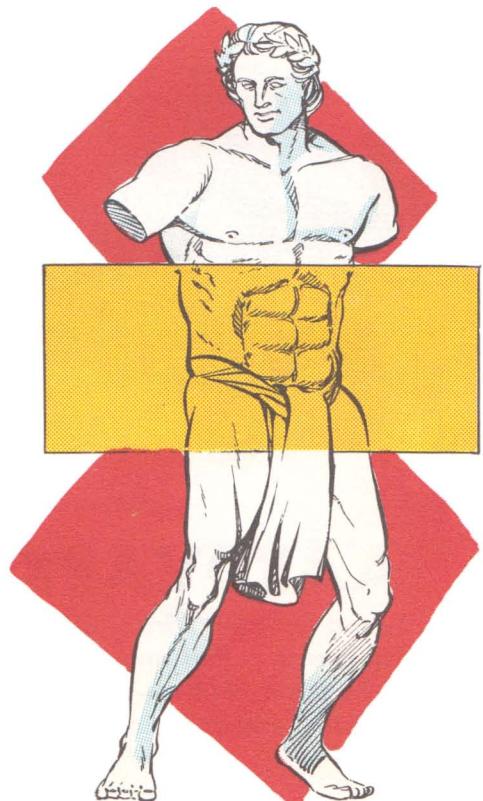
Found in South Africa, this pig-like animal feeds on ants and termites. He is also called an anteater. Despite his fierce appearance he is actually quite timid. He lives underground during the day and comes out to seek his food at night, when he will be safer from his enemies.

ABBEY . . .

In the early days of Christianity, groups of pious men established secluded religious communities where they could spend their time in devotion and prayer. The leader of each group was known as **Abba**, meaning father, and thus the communities became known as **ABBEYS**.



AS THE ABBEYS GREW, THEY BECAME THE CENTERS OF SMALL VILLAGES. TODAY, SOME FAMOUS ABBEYS IN EUROPE INCLUDE CLUNY IN FRANCE, ST. GALL IN SWITZERLAND AND TINTERN IN ENGLAND.



ABDOMEN . . .

The **ABDOMEN** is the front section of the body, between the chest and the pelvis. It is the part we usually call the stomach. The muscles of the **ABDOMEN** are thick and heavy, forming a sort of wall to protect the "abdominal cavity" within which lie the liver, kidneys, and gall bladder.

ABELARD, PIERRE . . .

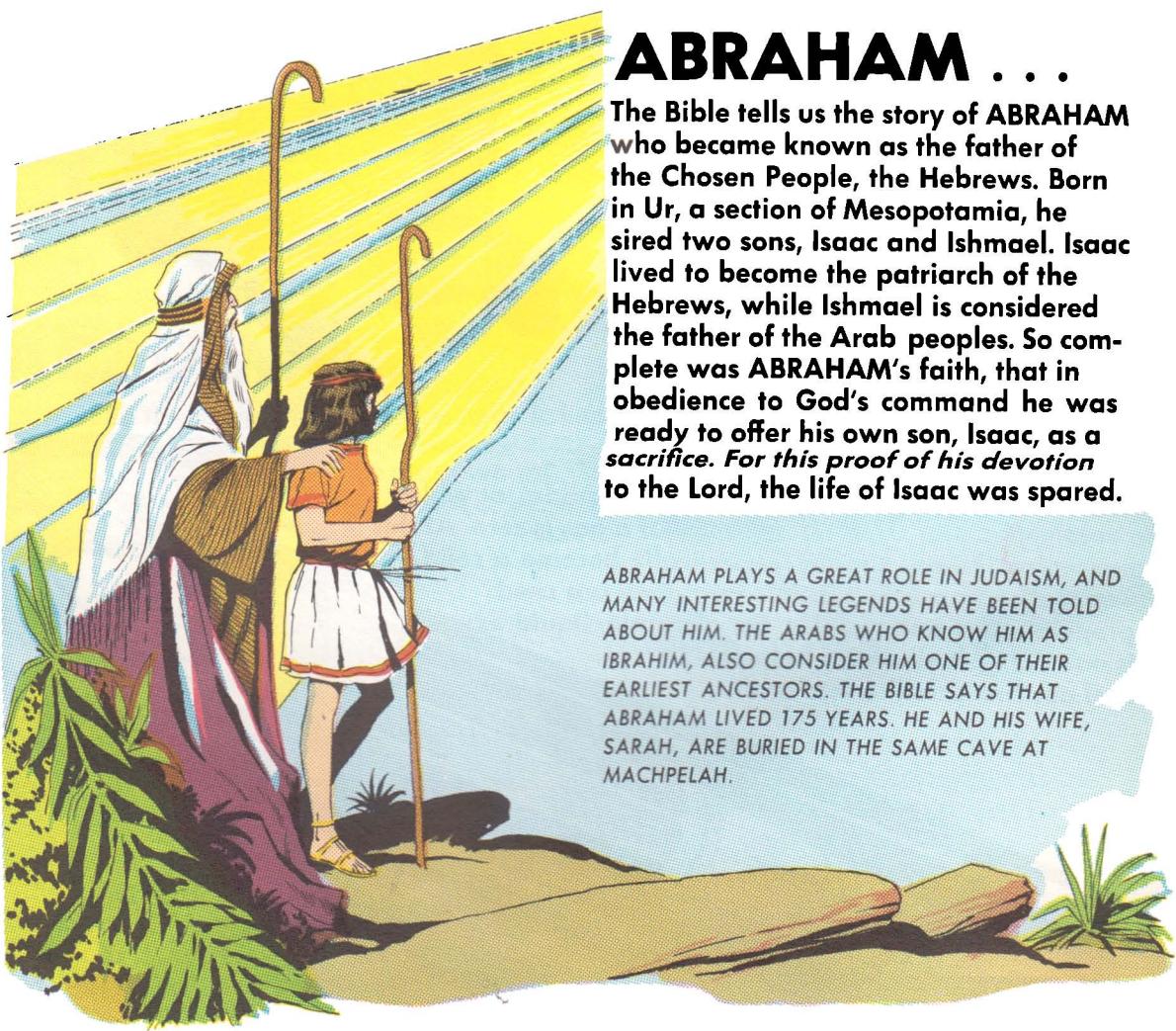
PIERRE ABELARD (Born 1079—Died 1142) was a brilliant religious scholar from Paris. He married Heloise despite the wishes of her uncle, Fulbert, who was then canon of Notre Dame. As a result the canon dissolved the marriage, and soon after ABELARD was declared a heretic by the Pope. A heretic is one whose doctrines are opposed to the teachings of the church, and the penance imposed upon ABELARD was eternal silence until his death in 1142.

THE LOVE STORY OF HELOISE AND ABELARD HAS INSPIRED POETS FOR MANY CENTURIES. WHEN HELOISE DIED, AFTER A LONG LIFE AS A NUN, SHE WAS BURIED IN THE SAME CEMETERY AS ABELARD. THIS CEMETERY, THE PERE-LACHAISE IN PARIS, IS VISITED BY MOST TOURISTS WHO KNOW THE STORY OF THE FAMOUS LOVERS.



ABRAHAM . . .

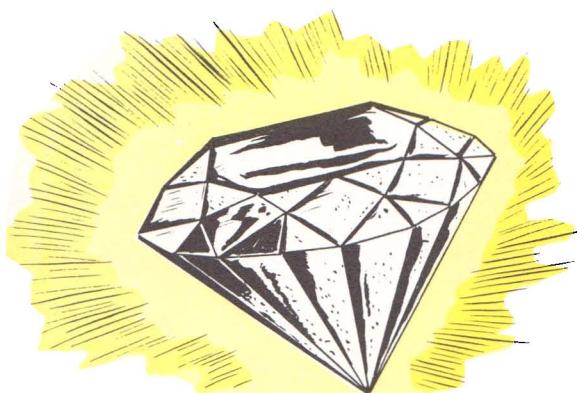
The Bible tells us the story of ABRAHAM who became known as the father of the Chosen People, the Hebrews. Born in Ur, a section of Mesopotamia, he sired two sons, Isaac and Ishmael. Isaac lived to become the patriarch of the Hebrews, while Ishmael is considered the father of the Arab peoples. So complete was ABRAHAM's faith, that in obedience to God's command he was ready to offer his own son, Isaac, as a sacrifice. *For this proof of his devotion to the Lord, the life of Isaac was spared.*



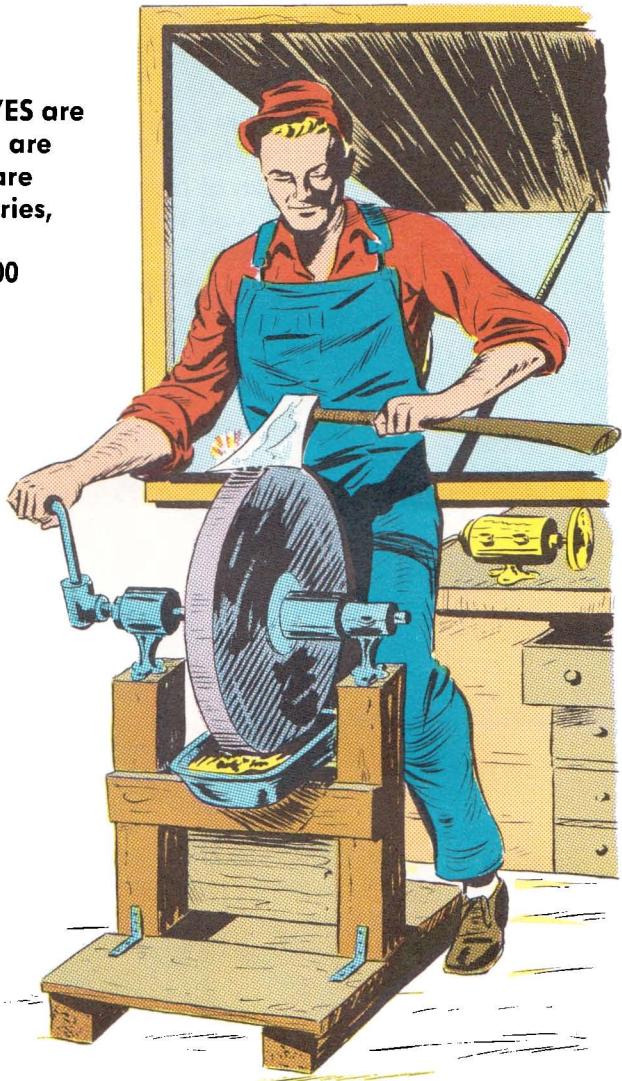
ABRAHAM PLAYS A GREAT ROLE IN JUDAISM, AND MANY INTERESTING LEGENDS HAVE BEEN TOLD ABOUT HIM. THE ARABS WHO KNOW HIM AS IBRAHIM, ALSO CONSIDER HIM ONE OF THEIR EARLIEST ANCESTORS. THE BIBLE SAYS THAT ABRAHAM LIVED 175 YEARS. HE AND HIS WIFE, SARAH, ARE BURIED IN THE SAME CAVE AT MACHPELAH.

ABRASIVES . . .

Materials used for grinding or polishing are known as ABRASIVES. The uses of ABRASIVES are many and varied. For example, whetstones are used to sharpen farming tools. Grindstones are used to sharpen knives and scissors. In factories, high-speed wheels are used most often. These grinding wheels sometimes turn 20,000 revolutions per minute to attain the degree of abrasion necessary.

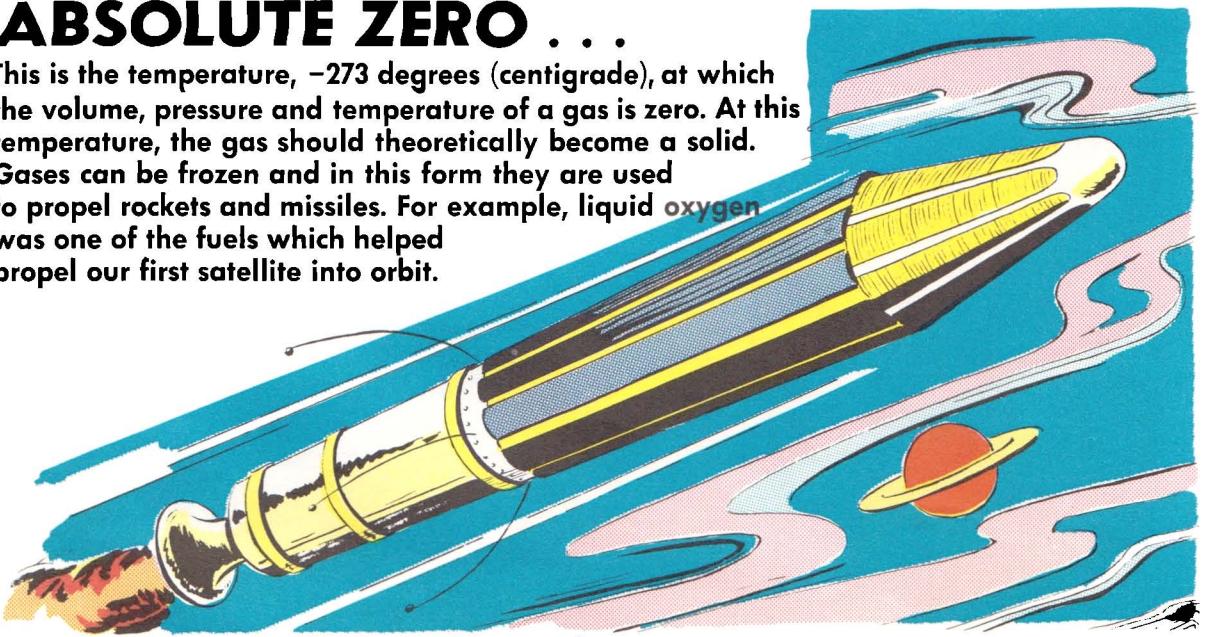


AN INTERESTING AND VALUABLE ABRASIVE IS THE DIAMOND, ONE OF THE HARDEST SUBSTANCES IN THE WORLD. THE DIAMOND IS SO HARD THAT ONLY ANOTHER DIAMOND CAN BE USED TO CUT ONE.



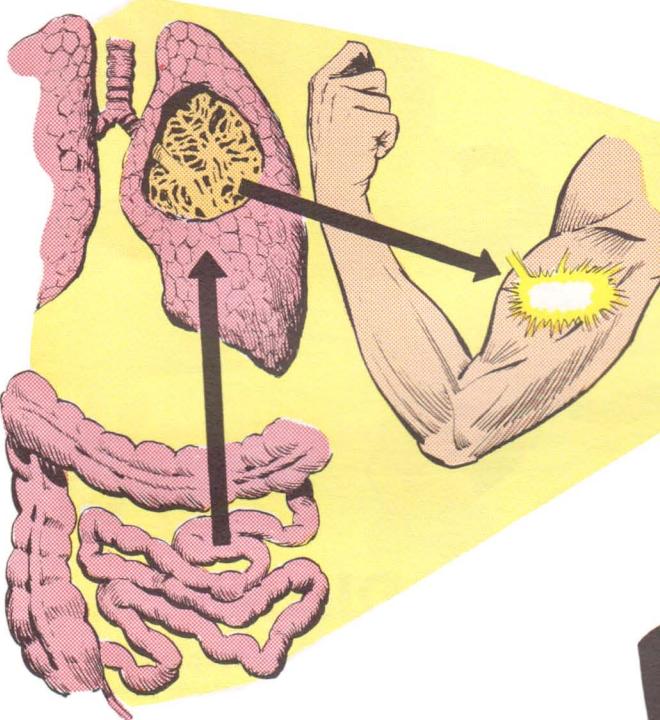
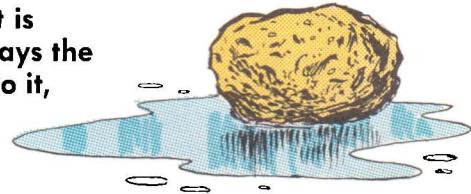
ABSOLUTE ZERO . . .

This is the temperature, -273 degrees (centigrade), at which the volume, pressure and temperature of a gas is zero. At this temperature, the gas should theoretically become a solid. Gases can be frozen and in this form they are used to propel rockets and missiles. For example, liquid oxygen was one of the fuels which helped propel our first satellite into orbit.



ABSORPTION . . .

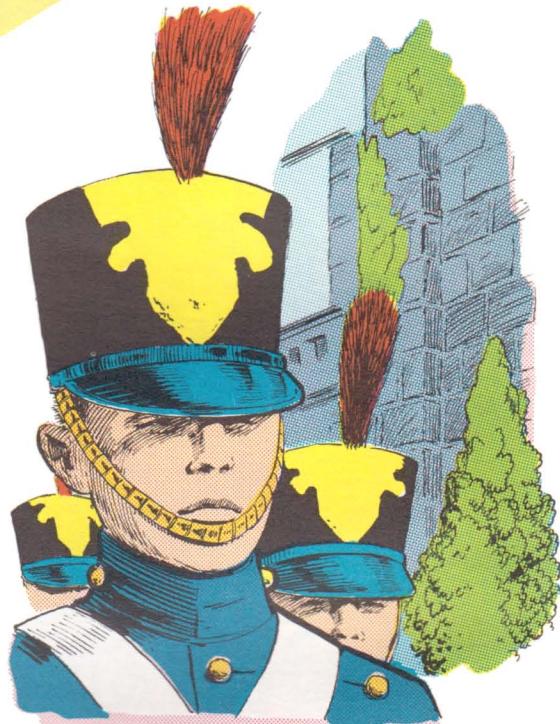
This word means the process of sucking in. Actually, it is the mixing of two substances where one substance stays the same in shape and form, and the other disappears into it, like a sponge soaking up water.



IN OUR BODIES, ABSORPTION TAKES PLACE WHEN THE LINING OF THE SMALL INTESTINE TAKES UP DIGESTED FOOD INTO THE BLOOD STREAM.

ACADEMY . . .

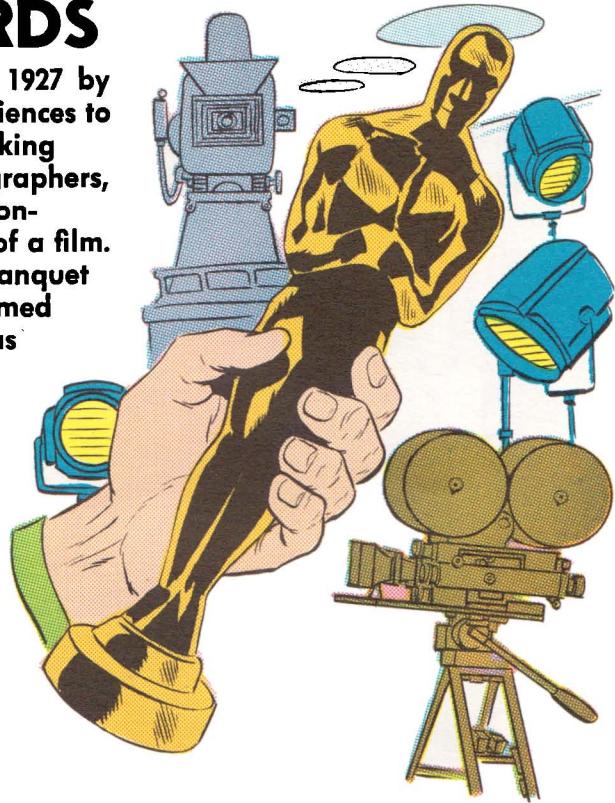
Originally the name of the garden near Athens, where Plato taught in the fourth century B.C., this word has come to mean a place where a body of men gather for the purpose of learning.



THE WORD "ACADEMY" NOW REFERS TO ANY SPECIALIZED SCHOOL, SUCH AS THE UNITED STATES MILITARY ACADEMY AT WEST POINT

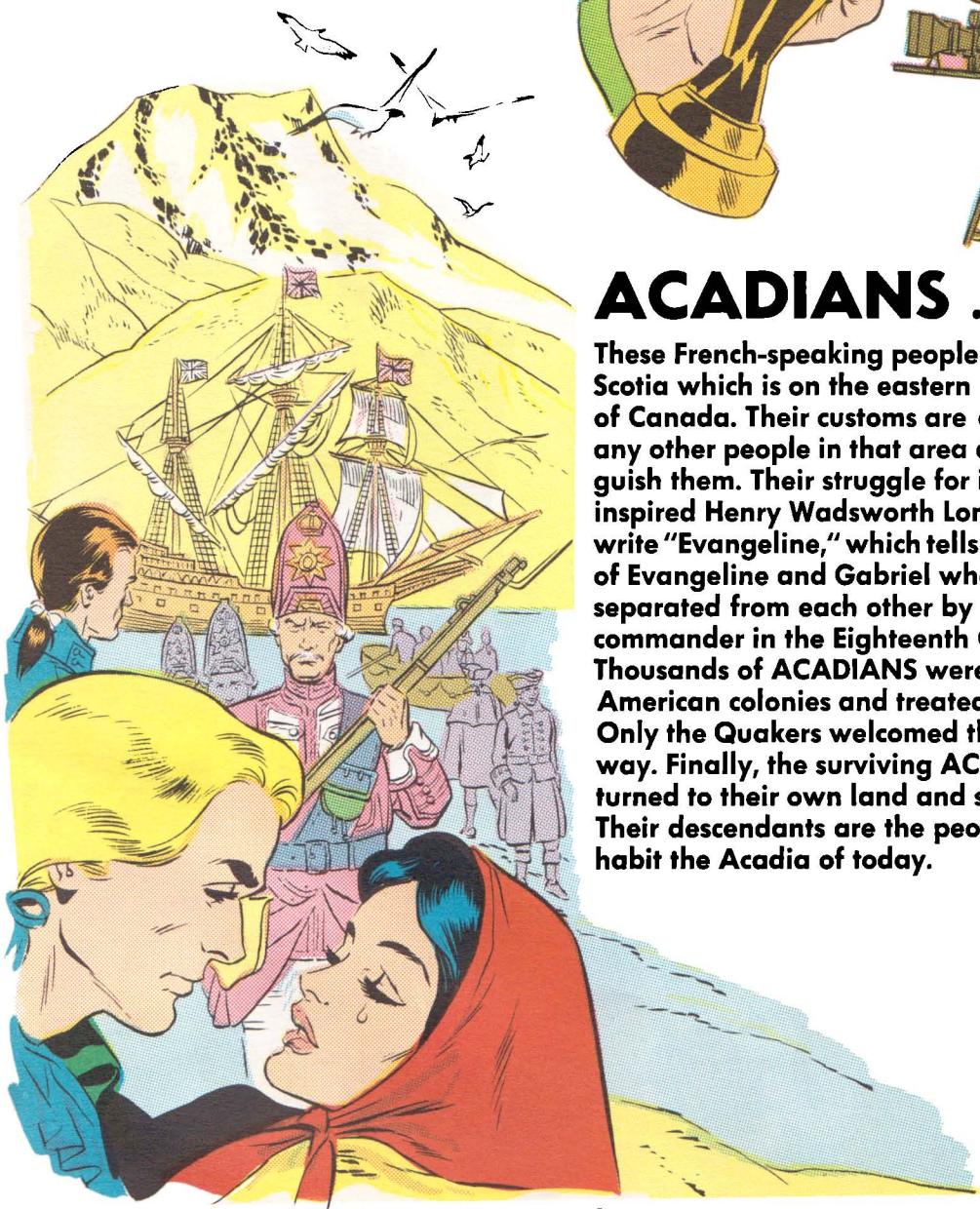
ACADEMY AWARDS

These are the awards given each year since 1927 by the Academy of Motion Picture Arts and Sciences to those who have done the best work in making pictures, including actors, actresses, photographers, producers, directors, and anyone else who contributed to the writing, playing, or making of a film. The awards are presented at a televised banquet and each winner receives a statue, nicknamed "Oscar." Winning an ACADEMY AWARD has thus been known as "winning an Oscar."



ACADIANS . . .

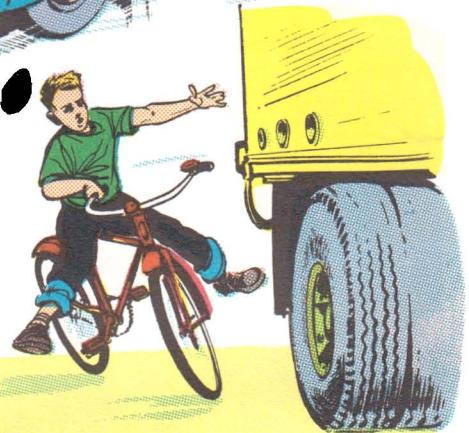
These French-speaking people live in Nova Scotia which is on the eastern peninsula of Canada. Their customs are different from any other people in that area and so distinguish them. Their struggle for independence inspired Henry Wadsworth Longfellow to write "Evangeline," which tells the love story of Evangeline and Gabriel who were cruelly separated from each other by an English commander in the Eighteenth Century. Thousands of ACADIANS were banished to American colonies and treated as outcasts. Only the Quakers welcomed them in any way. Finally, the surviving ACADIANS returned to their own land and settled there. Their descendants are the people who inhabit the Acadia of today.



ACCIDENTS . . .

In the United States alone, nearly 100,000 persons are killed in ACCIDENTS every year. For every one person who dies in an ACCIDENT, there are about 100 who are injured. Nearly 35,000 die in automobile ACCIDENTS of one kind or another, and the second biggest group, about 25,000, die as a result of ACCIDENTS at home.

NEARLY ALL ACCIDENTS COULD BE PREVENTED IF PEOPLE WERE MORE CAREFUL. YET, DURING WORLD WAR II, MORE PEOPLE WERE HURT BY ACCIDENTS THAN WERE INJURED IN BATTLE.



COMMON SENSE PREVENTS ACCIDENTS. NEVER HITCH TO THE BACK OF A CAR WHILE BIKE RIDING. YOUNG CHILDREN ARE NEVER SAFE IN THE KITCHEN ALONE. HOUSEHOLD CHEMICALS AND MEDICINES SHOULD BE PLACED OUT OF THE REACH OF YOUNGSTERS.

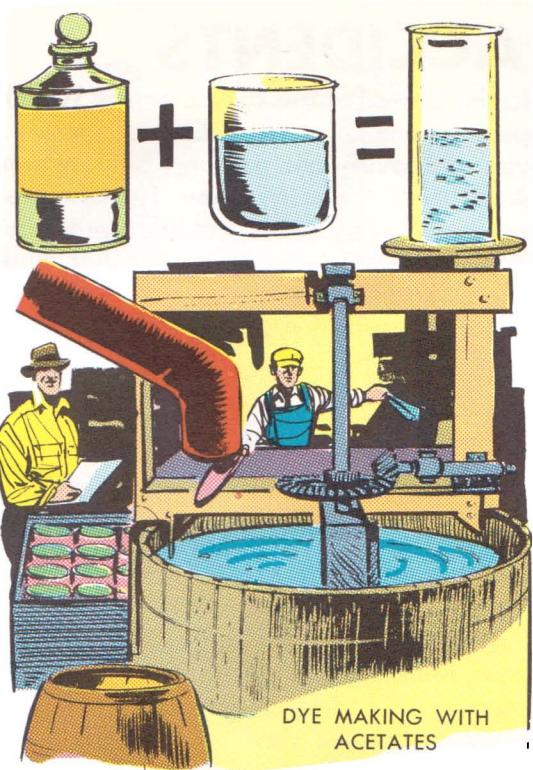
ACCORDION . . .

A wind instrument often used in school orchestras, the ACCORDION makes music lively and entertaining. The keys on the ACCORDION resemble those on the piano, but the similarity ends there. Bellows are pressed back and forth to produce the air which is pushed through valves to metallic reeds. The vibration thus becomes the musical tones we know. The different sizes of the reeds determine the pitch of each note.

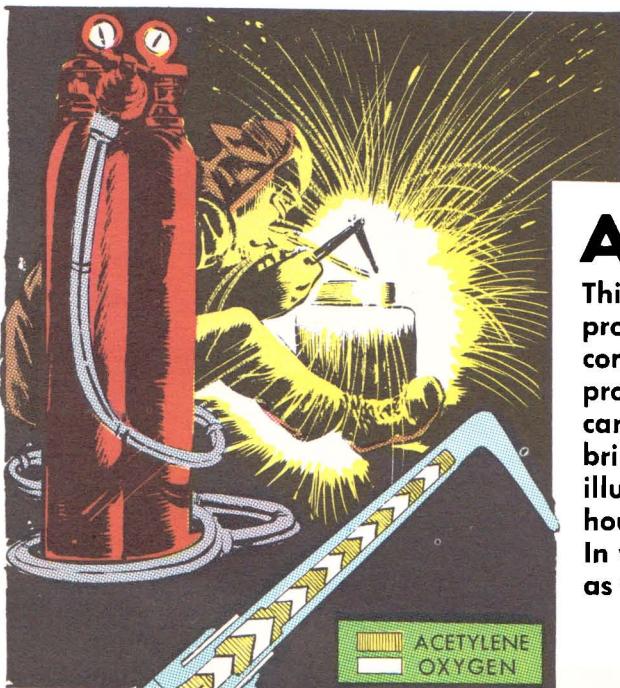


ACETATES . . .

These are salts formed by the union of acetic acid with any salifiable (the ability to make salt) base. For instance, they may be prepared by dissolving a metal, a metallic oxide, hydroxide, or carbonate in acetic acid, and evaporating to crystallization. Important metal ACETATES used in industry are aluminum ACETATE, lead ACETATE and copper ACETATE. Many organic ACETATES are found in nature. ACETATES are also manufactured as artificial fruit essences.

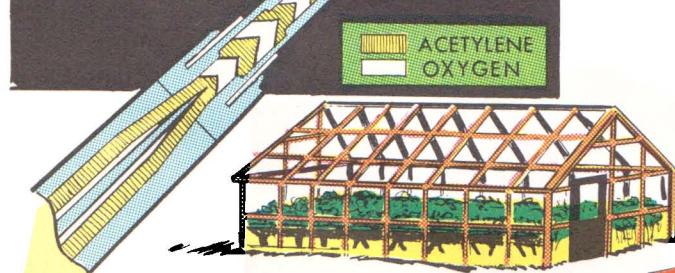


DYE MAKING WITH ACETATES

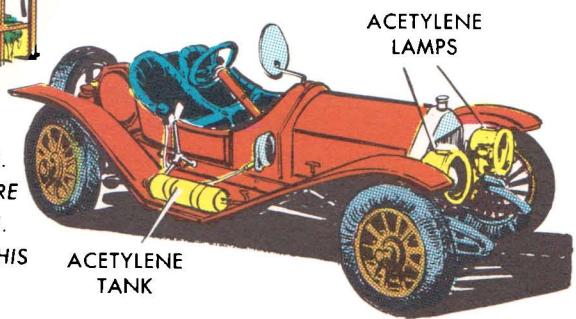


ACETYLENE . . .

This is a colorless gas that can be lighted to produce a very hot flame. It is made from the combination of carbon and hydrogen and is produced from the action of water on calcium carbide. Its uses are diverse: Because of its brilliant white light, it was often used for illumination. Very often it is employed in hot-houses to benefit fruits and vegetables. In very rural areas, ACETYLENE has been used as fuel for heat.



INDUSTRY, PERHAPS, HAS MADE THE MOST OF THIS GAS. THE WELDING TOGETHER OF METAL IN THE MANUFACTURE OF LARGE MACHINES IS DONE BY MEANS OF ACETYLENE. ODDLY ENOUGH, METAL CAN ALSO BE UNWELDED BY THIS SAME GAS, MERELY BY THE INTENSE HEAT IT EXERTS.



ACHILLES . . .

Of all the Greek mythical warriors, ACHILLES is considered one of the bravest and most famous. As the myth is told, his mother made him invulnerable to harm by holding him by his heel while dipping him into the River Styx. By thus doing, she protected him in all areas except his heel. During the Trojan War, Paris, one of the enemy's heroes, killed ACHILLES by shooting an arrow into his one vulnerable spot, his heel.



ACIDS . . .

ACIDS are compounds which, when combined with various elements, produce new substances. The most distinctive characteristic of ACIDS is a sour taste and smell. There are many different kinds of ACIDS used in different ways:

HYDROCHLORIC ACID IS USED FOR DIGESTION IN OUR OWN BODIES; LACTIC ACID, WHICH TURNS MILK SOUR, HELPS MAKE BUTTER; CARBOLIC ACID IS MOST EFFECTIVE AS A CLEANING AGENT; SULPHURIC ACID IS USED TO TAN LEATHER.

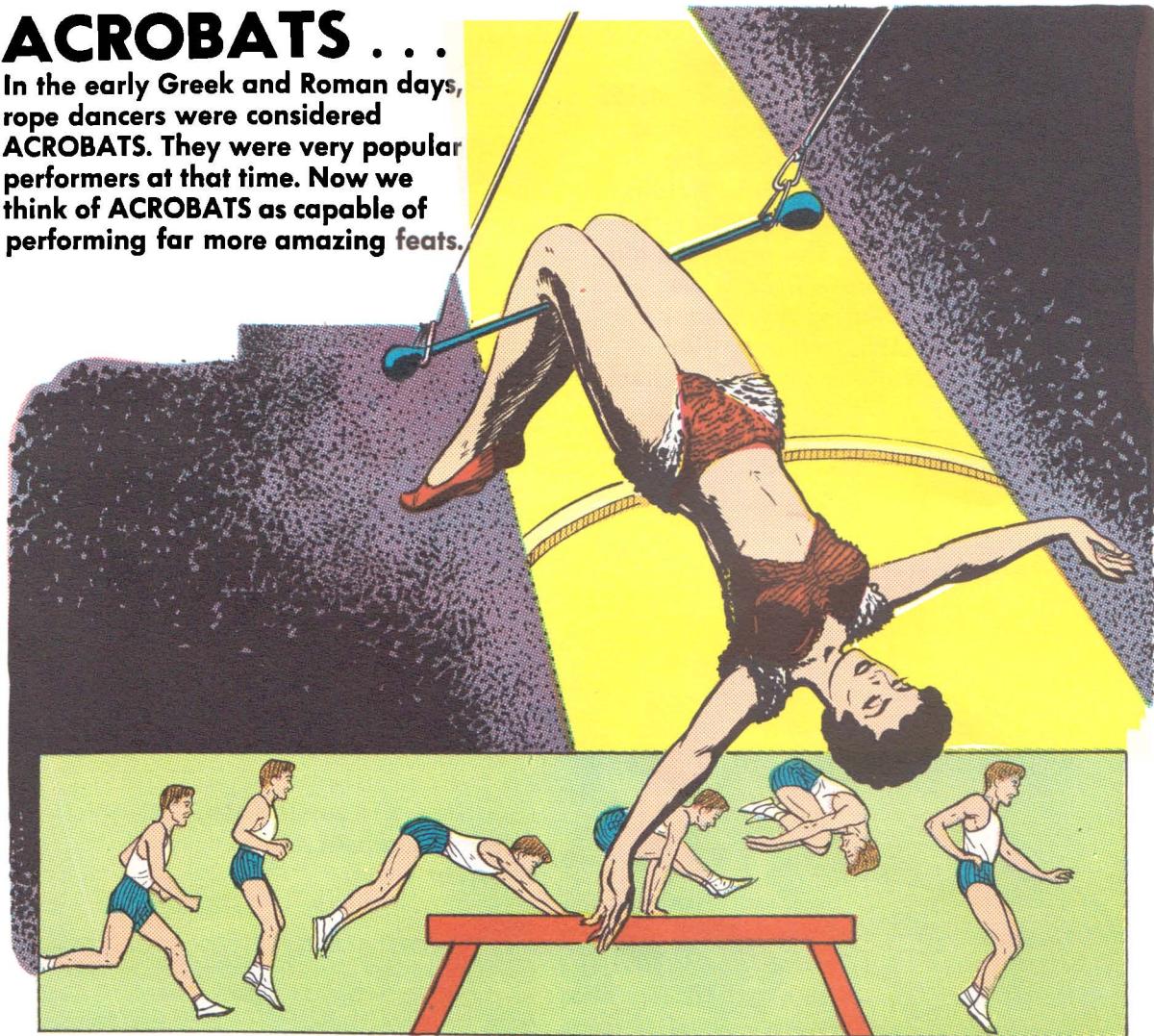
ACOUSTICS . . .

The word ACOUSTICS means the science of sound; what causes it, how it travels, and what its effects are. In general usage, however, the word has come to mean "listening qualities." In a room with good ACOUSTICS, a word spoken anywhere in the room can be heard easily in any other part of the room. In the building of theaters or auditoriums, ACOUSTICS experts are hired to determine the type of materials to be used as floor and wall covering to properly absorb and reflect sound in order to give the room good ACOUSTICS.



ACROBATS . . .

In the early Greek and Roman days, rope dancers were considered ACROBATS. They were very popular performers at that time. Now we think of ACROBATS as capable of performing far more amazing feats.



ACROPOLIS . . .

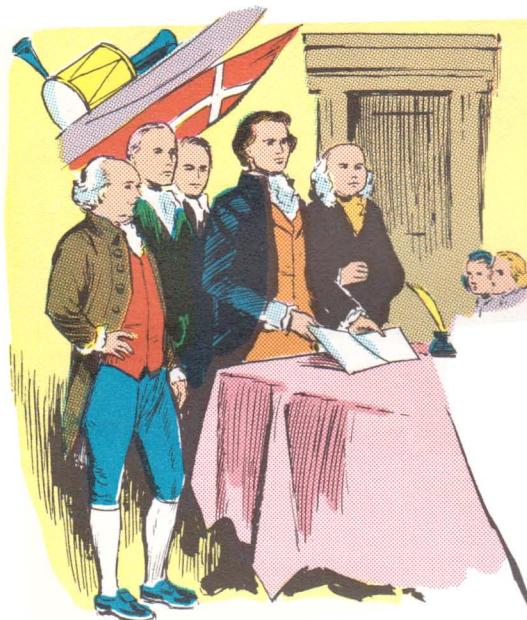
Originally this name stood for the high part of any ancient Greek city, usually overlooking the rest of the city. It was always well fortified for the people's protection. Most notable among citadels of this kind was the ACROPOLIS of Athens. As each city itself became fortified against attack, its ACROPOLIS was then used as a shrine to the Gods.





ADAMS, JOHN . . .

JOHN ADAMS (born 1735—died 1826), one of the forerunners of true American democracy, is known for his intense devotion to the cause of freedom. His first political appointment was that of delegate to the first Continental Congress in 1774. During the Revolutionary War, he served on many important committees and was instrumental in drafting the peace treaty with Great Britain. As a result he was our first envoy to Great Britain.

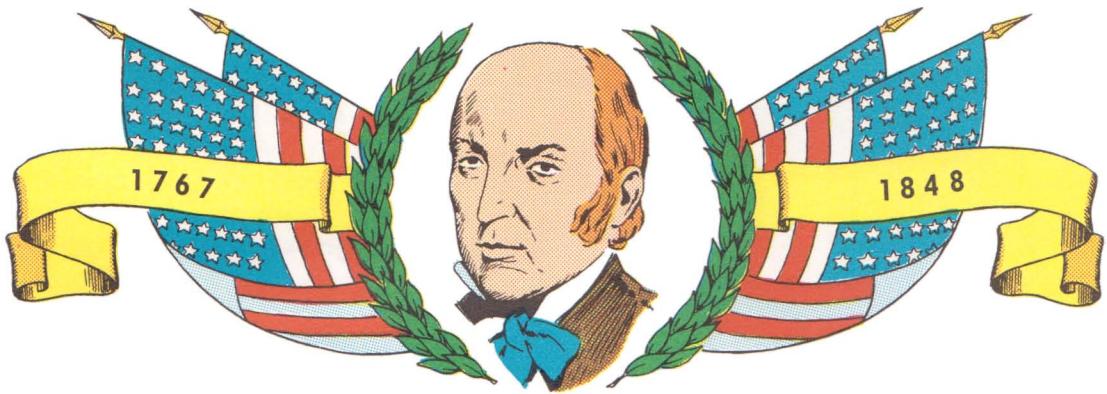


AN INTERESTING ITEM IN THE LIVES OF BOTH JOHN ADAMS AND THOMAS JEFFERSON IS THAT BOTH THESE FREEDOM-LOVING MEN DIED ON THE SAME DAY, JULY 4, 1826, EXACTLY FIFTY YEARS AFTER THE DATE THE DECLARATION OF INDEPENDENCE WAS SIGNED.

*Teny Braxton James
Lee the 4th Way
John Adams*

JOHN ADAMS BECAME ANOTHER FIRST WHEN ELECTED VICE PRESIDENT UNDER THE CONSTITUTION IN 1788. HIS GREATEST ACHIEVEMENT WAS ATTAINED WHEN HE SUCCEEDED GEORGE WASHINGTON AS PRESIDENT IN 1797. HE SERVED THE COUNTRY WELL, BUT ALTHOUGH HE RAN FOR RE-ELECTION, HE WAS DEFEATED BY THOMAS JEFFERSON.





ADAMS, JOHN QUINCY . . .

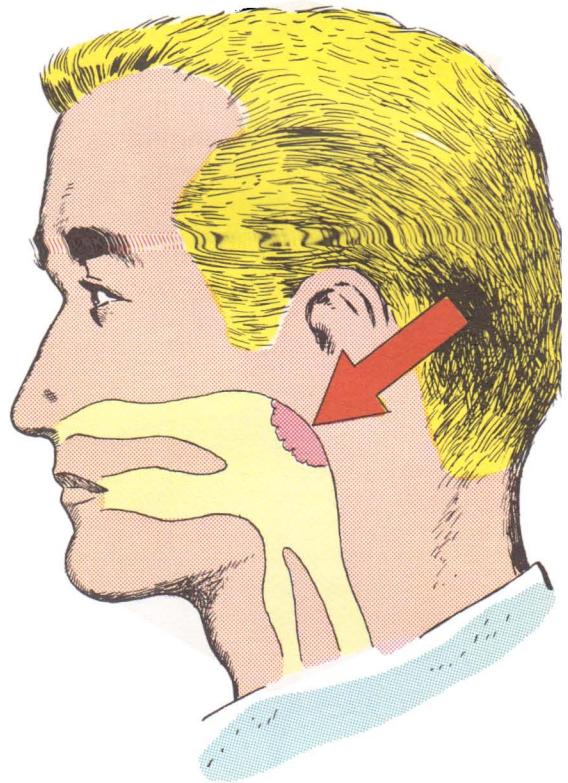
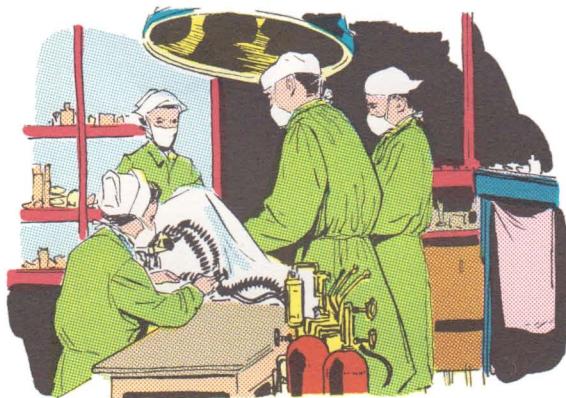
JOHN QUINCY ADAMS (born 1767—died 1848) was the sixth President of the United States. He was born in the town of Quincy, Massachusetts. JOHN QUINCY was the son of John Adams, the President following Washington. ADAMS proved to be capable, fearless, and honest in carrying out the duties of President. He had many good ideas about developing our country. He wanted Congress to establish a national university and also provide money to dig canals and build roads to unite our growing country. But Congress did not pass many of his laws as his opposition was too strong.



JOHN Q. ADAMS WAS THE ONLY PRESIDENT IN THE HISTORY OF OUR COUNTRY WHOSE FATHER HAD BEEN PRESIDENT BEFORE HIM. EVEN WITH HIS LONG RECORD OF GOVERNMENT SERVICE HE WAS WITHOUT FRIENDS. BECAUSE OF HIS COLD CHARACTER, HE WAS NOT POPULAR WITH THE MASS OF THE PEOPLE. CONGRESS OPPOSED HIM OFTEN, AND HIS YEARS AS PRESIDENT WERE FILLED WITH TROUBLE AND DISAPPOINTMENT. HE DIED IN 1848, A VERY BITTER MAN.

ADENOIDS . . .

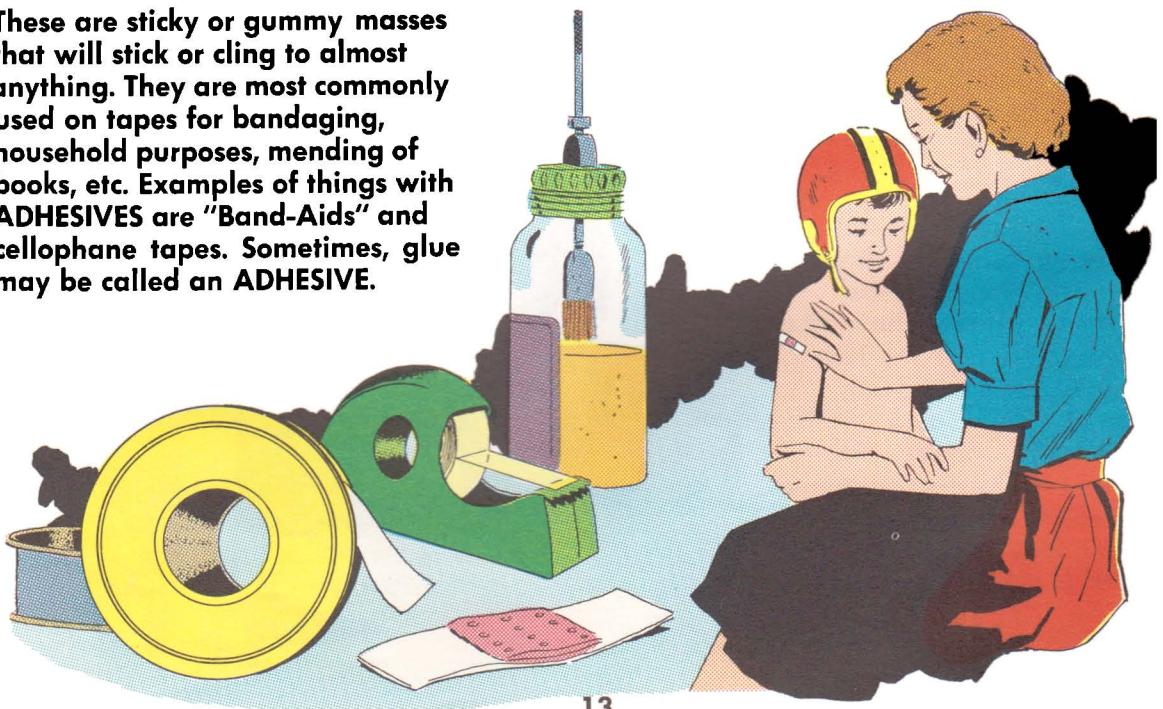
These are soft and spongy tissues found between the back of the nose and the throat. If the ADENOIDS become infected, they block the air passage to the lungs and causes the chest to develop improperly. This condition may also cause poor hearing or deafness. It may hinder physical and intellectual development as well.



THE REMOVAL OF THE ADENOIDS IS A SIMPLE OPERATION. AFTERWARDS THERE IS USUALLY A GREAT IMPROVEMENT IN HEARING AND BREATHING. THE OPERATION IS NOT A PAINFUL ONE BUT MUST BE DONE ONLY WHEN THE CHILD IS UNDER THE INFLUENCE OF A GENERAL ANAESTHETIC.

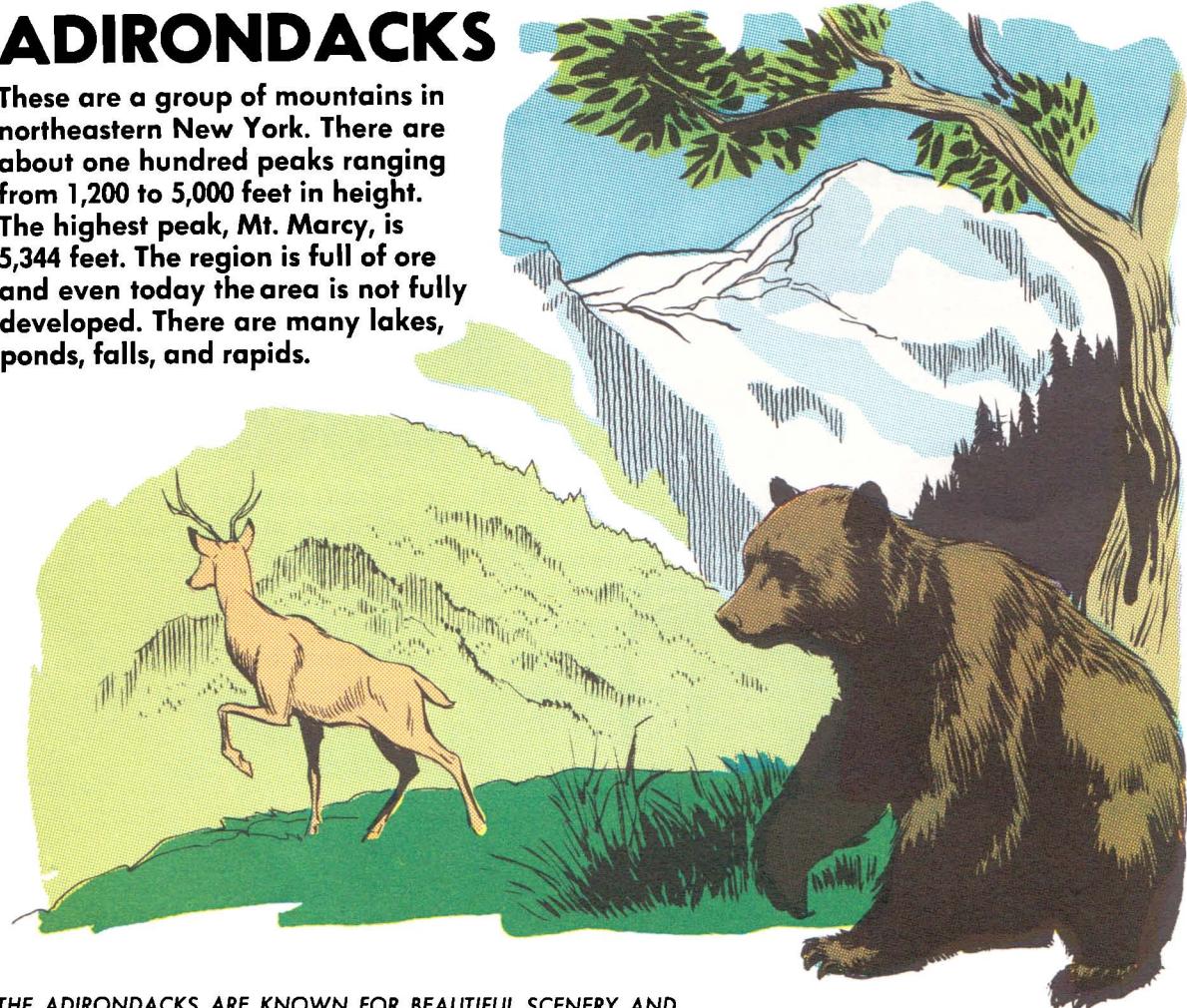
ADHESIVES . . .

These are sticky or gummy masses that will stick or cling to almost anything. They are most commonly used on tapes for bandaging, household purposes, mending of books, etc. Examples of things with ADHESIVES are "Band-Aids" and cellophane tapes. Sometimes, glue may be called an ADHESIVE.



ADIRONDACKS

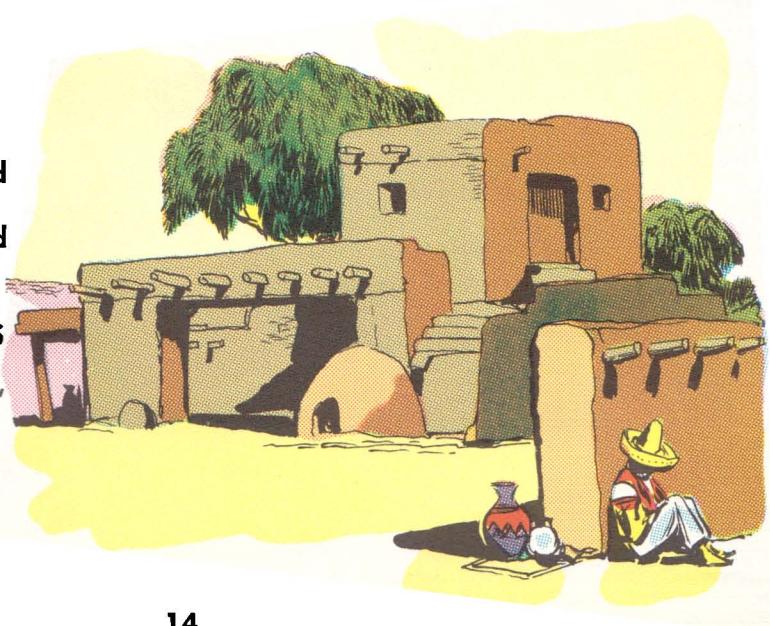
These are a group of mountains in northeastern New York. There are about one hundred peaks ranging from 1,200 to 5,000 feet in height. The highest peak, Mt. Marcy, is 5,344 feet. The region is full of ore and even today the area is not fully developed. There are many lakes, ponds, falls, and rapids.



THE ADIRONDACKS ARE KNOWN FOR BEAUTIFUL SCENERY AND MANY FAMOUS LAKES. ALL POINTS OF INTEREST CAN BE EASILY REACHED BY ROADS, AND THE AREA ATTRACTS MANY TOURISTS. BESIDES HUNTING AND FISHING, THE LUMBER INDUSTRY IS VERY IMPORTANT. THE WILD LIFE AND FORESTS ARE PRESERVED BY LAW.

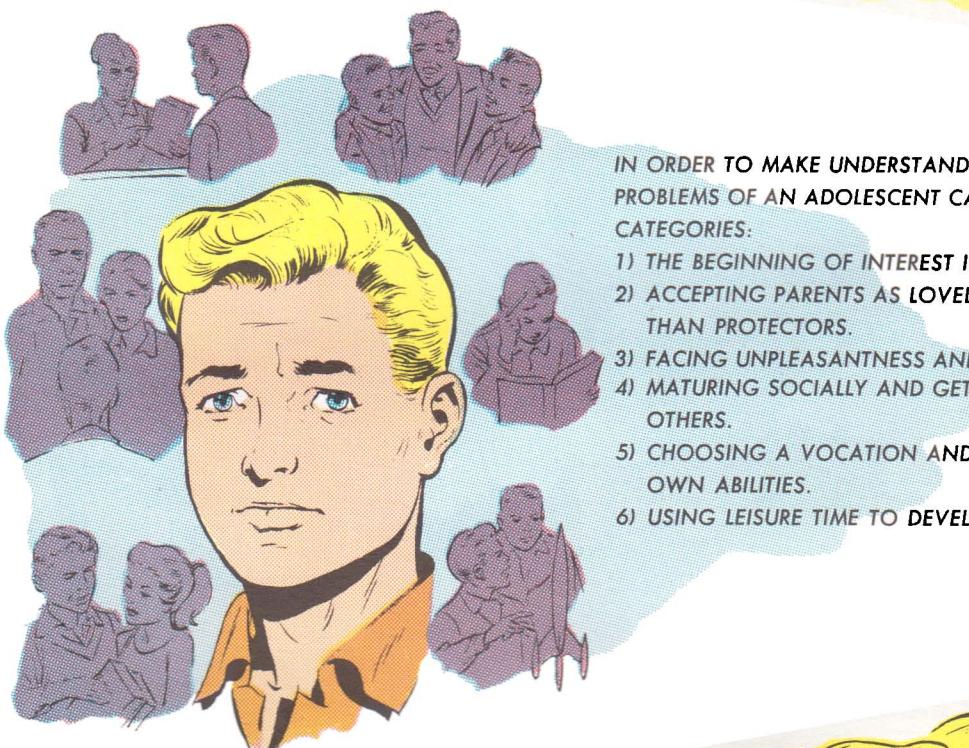
ADOBE . . .

This is a Spanish-American word for the sun-dried clay used for building in some of the Southwestern states. The method was brought here in the 16th century by Spaniards from Mexico and Peru. Some ADOBES are the size of ordinary baked bricks and the larger "adobines" are from one to two yards long. A house made of this material is called an ADOBE.



ADOLESCENCES . . .

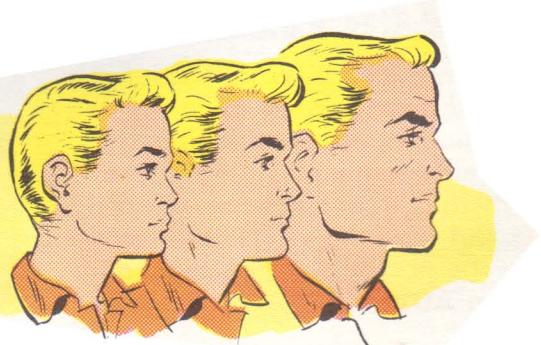
This is the period of human life ranging from 11 to 21 years of age with girls and 13 to 21 with boys. Of course, the age at which a person enters and leaves this period is not strictly fixed. Some people enter or leave the period of ADOLESCENCE earlier or later, as the case may be.



IN ORDER TO MAKE UNDERSTANDING EASIER, THE PROBLEMS OF AN ADOLESCENT CAN BE PLACED INTO CATEGORIES:

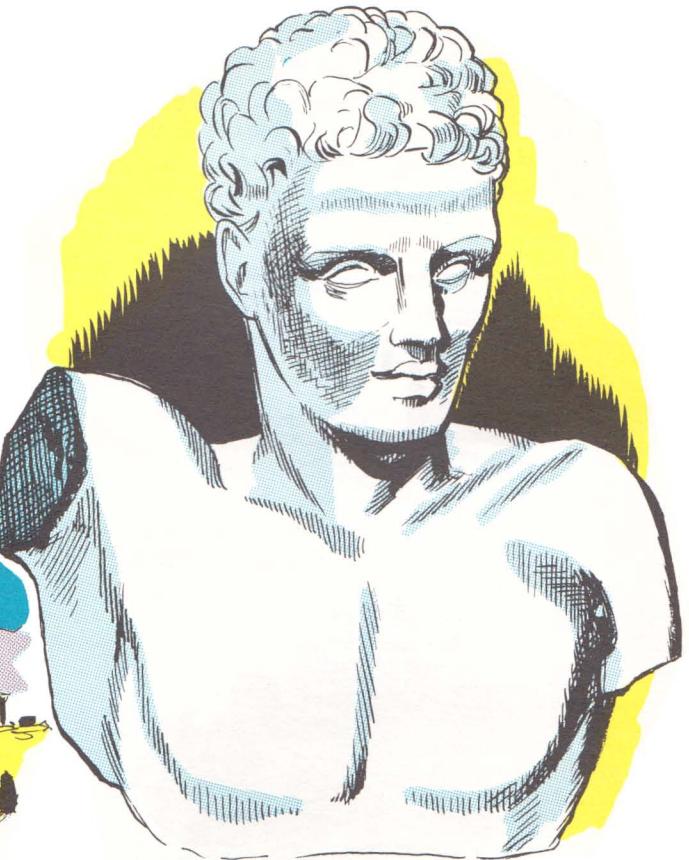
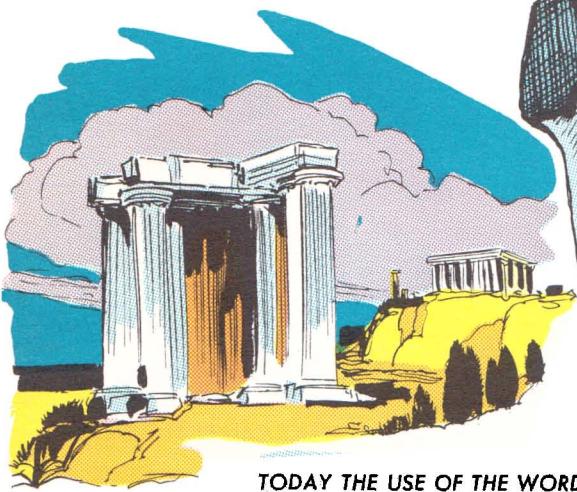
- 1) THE BEGINNING OF INTEREST IN THE OPPOSITE SEX.
- 2) ACCEPTING PARENTS AS LOVED ONES RATHER THAN PROTECTORS.
- 3) FACING UNPLEASANTNESS AND CRITICISM.
- 4) MATURING SOCIAILY AND GETTING ALONG WITH OTHERS.
- 5) CHOOSING A VOCATION AND ESTIMATING ONE'S OWN ABILITIES.
- 6) USING LEISURE TIME TO DEVELOP HOBBIES.

THE TRIALS AND TRIBULATIONS OF AN ADOLESCENT ARE OFTEN VIOLENT AND DRAMATIC, BUT NORMAL GROWTH USUALLY OVERCOMES THEM AND THESE PERIODS SHOULD NOT BE STRESSED AS THEY ARE FORGOTTEN BY THE TIME ADULTHOOD IS REACHED.



ADONIS . . .

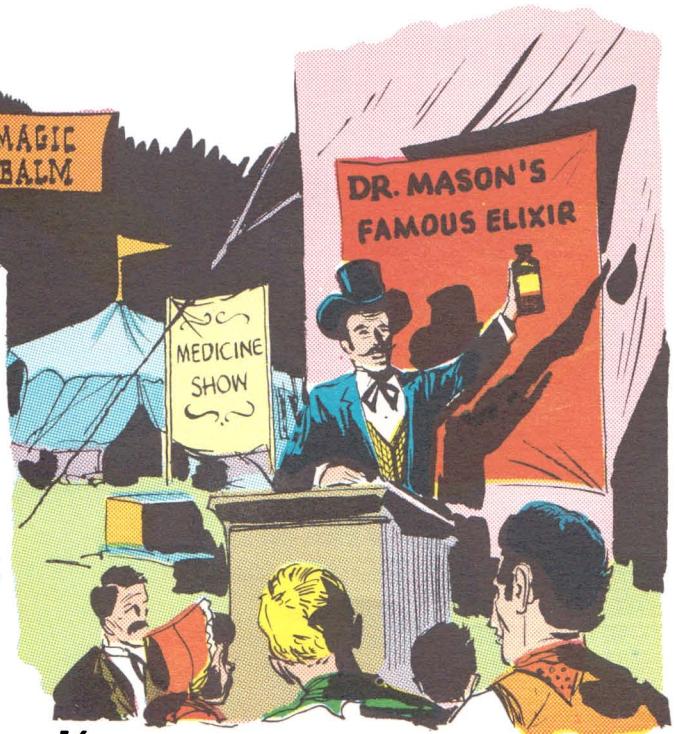
In ancient myths, ADONIS was a youth of much beauty who was loved by Aphrodite, the Goddess of Love. Annual festivals, called Adonia, were held in his honor in many countries. The ceremony was meant as a charm to help the growth of the food. ADONIS is also known as a vegetation or corn spirit and in many parts of Europe he appears as a pig or boar, since ADONIS was killed by a wild boar in his youth.



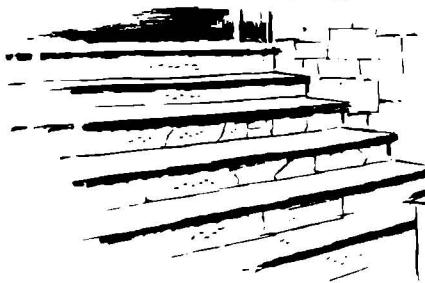
TODAY THE USE OF THE WORD ADONIS MEANS A VERY HANDSOME YOUNG MAN.

ADVERTISING . . .

The business of ADVERTISING is fairly new and it has become an important factor, both directly and indirectly, in selling a commodity. At first, the county fairs were a form of ADVERTISING. But with the advances in printing came the start and development of modern ADVERTISING.



A MANUFACTURER WHO WANTS TO SELL HIS PRODUCT MAY DO SO BY ADVERTISING IN A MAGAZINE OR NEWSPAPER; ON POSTERS OR SIGNBOARDS; OR BY THE USE OF CIRCULARS. ADVERTISEMENTS ARE PREPARED WITH GREAT SKILL AND CARE, FOR THE SUCCESS OR FAILURE OF THE PRODUCT IS OFTEN DECIDED BY IT. TO PROTECT THE BUYER, CERTAIN LAWS HAVE BEEN PASSED SO THAT AN ADVERTISER MAY NOT MISLEAD THE PUBLIC.



RADIO AND TELEVISION ADVERTISING PLAY A MAJOR ROLE IN EDUCATING THE PUBLIC IN THE USE AND BENEFITS OF PRODUCTS.

ILLUMINATED BLIMPS AND SKY-WRITING ARE ILLUSTRATIONS OF THE "SPECTACULAR" TYPE OF ADVERTISING.



AERONAUTICS . . .

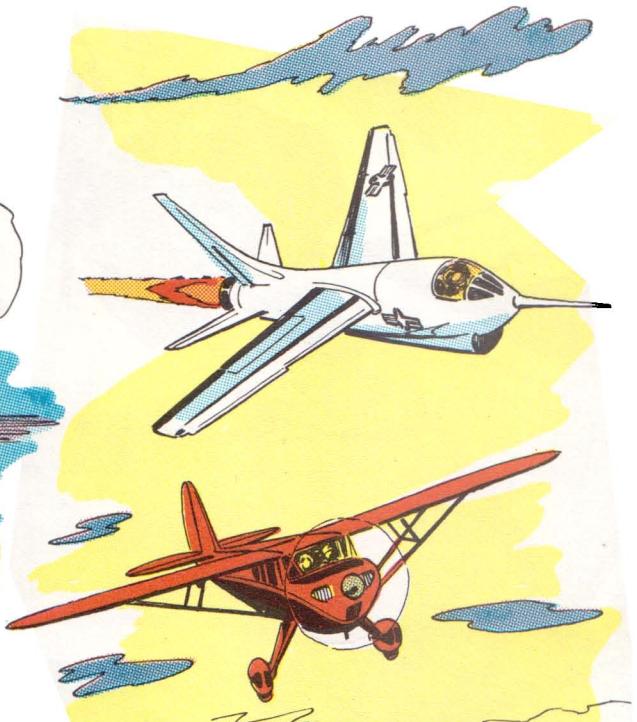
The art of navigating the air can be divided into two main parts, aerostation and aviation. Aerostation deals with flight in machines that are lighter than air, such as balloons. Aviation deals with flight in machines heavier than air. The study of aviation is the older of the two. It includes attempts to fly made by human beings using artificial wings fitted to their limbs.



ANCIENT MYTHS TELL OF MEN FLYING WITH WINGS. IN LATER TIMES MAN TRIED TO FLY BY USING WINGS MADE OF BIRD'S FEATHERS. HE DID NOT SUCCEED.

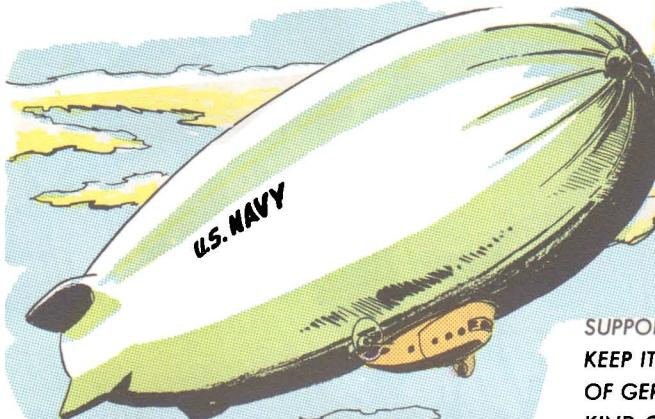


MAN'S FIRST SUCCESS CAME WHEN HE TOOK TO THE AIR IN BIG PAPER BALLOONS THAT WERE FILLED WITH HOT AIR FROM FIRES. THE BALLOONS OFTEN BURNED. TODAY THEY ARE USUALLY FILLED WITH HELIUM GAS AND RISE FROM THE GROUND BECAUSE THE HELIUM IS LIGHTER THAN AIR.



THE MODERN AIRPLANE RISES BECAUSE IT IS LIFTED BY AIR PRESSING UP ON ITS WINGS WHEN THE AIRPLANE IS MOVING. THE AIRPLANE IS EITHER PULLED THROUGH THE AIR BY A PROPELLER, OR PUSHED BY A JET ENGINE.

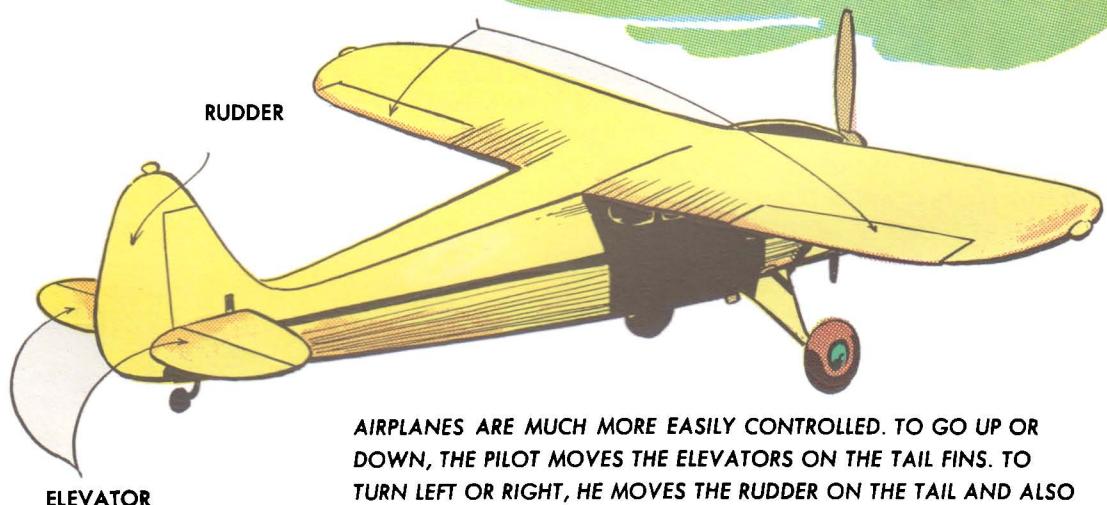
THE BIG ALL-METAL AIRPLANES ARE KNOWN AS HEAVIER-THAN-AIR CRAFT WHILE THE BALLOONS THAT FLOAT IN THE AIR ARE KNOWN AS LIGHTER-THAN-AIR CRAFT. THESE BALLOONS ARE USUALLY CIGAR SHAPED AND MAY BE EITHER NON-RIGID OR RIGID. A NON-RIGID AIR SHIP IS MADE OF A BIG SACK THAT TAKES ITS SHAPE WHEN IT IS FILLED WITH GAS.



THE RIGID SHIP HAS METAL SUPPORTS INSIDE THE SACK THAT HELP IT TO KEEP ITS SHAPE. COUNT VON ZEPPELIN OF GERMANY WAS THE FIRST MAN TO BUILD THIS KIND OF AIR SHIP. MANY PEOPLE CALL IT A ZEPPELIN, BUT ITS CORRECT NAME IS A DIRIGIBLE.



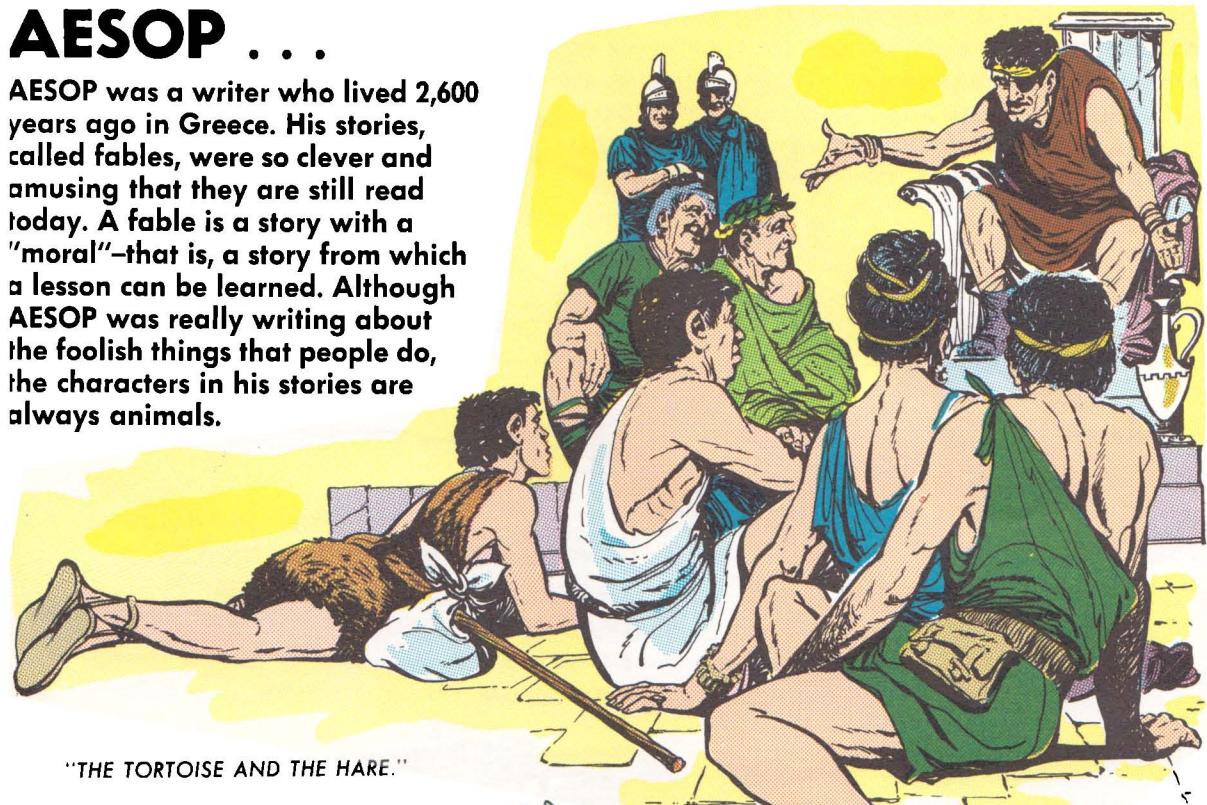
IN BOTH THE RIGID AND NON-RIGID AIR SHIPS, THE PASSENGERS AND CREW RIDE IN A COMPARTMENT UNDERNEATH THE GAS-FILLED SACK. THE COMPARTMENT IS CALLED A GONDOLA.



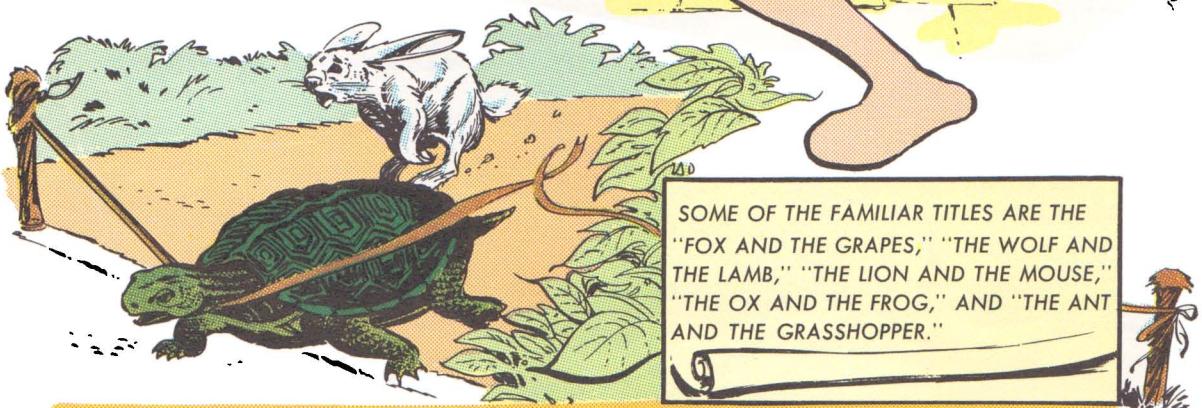
AIRPLANES ARE MUCH MORE EASILY CONTROLLED. TO GO UP OR DOWN, THE PILOT MOVES THE ELEVATORS ON THE TAIL FINS. TO TURN LEFT OR RIGHT, HE MOVES THE RUDDER ON THE TAIL AND ALSO THE AILERONS ON THE MAIN WINGS. THE AILERONS HELP TO BANK THE PLANE (TURN IT ON ITS SIDE).

AESOP . . .

AESOP was a writer who lived 2,600 years ago in Greece. His stories, called fables, were so clever and amusing that they are still read today. A fable is a story with a "moral"—that is, a story from which a lesson can be learned. Although AESOP was really writing about the foolish things that people do, the characters in his stories are always animals.

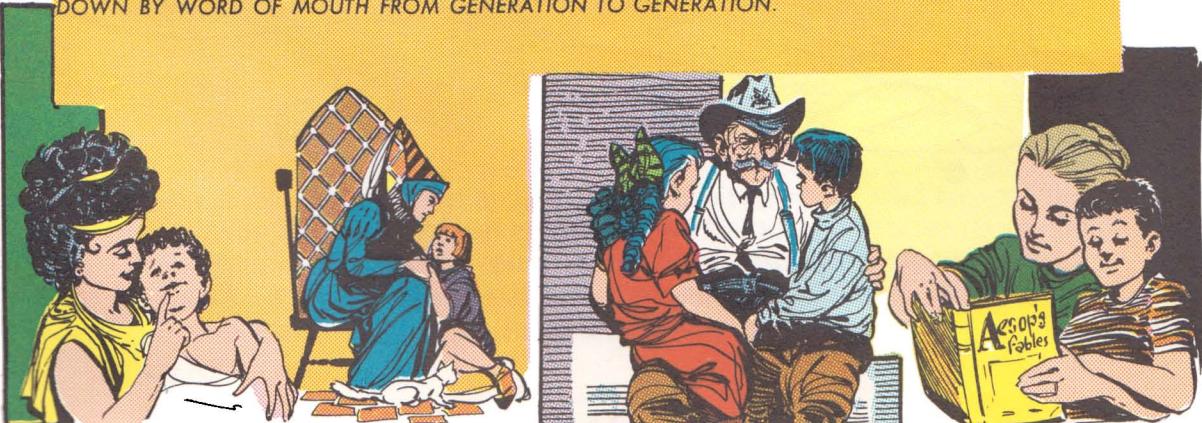


"THE TORToise AND THE HARE."



SOME OF THE FAMILIAR TITLES ARE THE "FOX AND THE GRAPES," "THE WOLF AND THE LAMB," "THE LION AND THE MOUSE," "THE OX AND THE FROG," AND "THE ANT AND THE GRASSHOPPER."

LITTLE IS KNOWN ABOUT THE LIFE OF AESOP. HE LIVED ON SAMOS, A GREEK ISLAND IN THE AEGEAN SEA. HE IS SAID TO HAVE BEEN A SLAVE WHO WAS FREED BY HIS MASTER. THE EXACT TIME OF HIS DEATH IS NOT KNOWN, BUT SOME WRITERS OF HISTORY SAY THAT HE ANGERED A MOB OF PEOPLE IN THE GREEK CITY OF DELPHI AND THEY THREW HIM OVER THE EDGE OF A CLIFF. IT IS LIKELY THAT AESOP DID NOT WRITE DOWN ALL OF HIS FABLES, BUT THAT THEY WERE HANDED DOWN BY WORD OF MOUTH FROM GENERATION TO GENERATION.

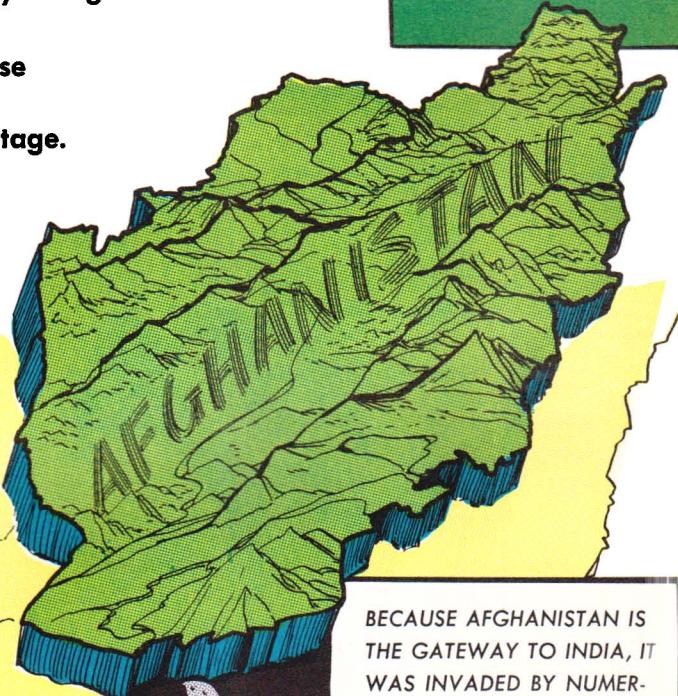
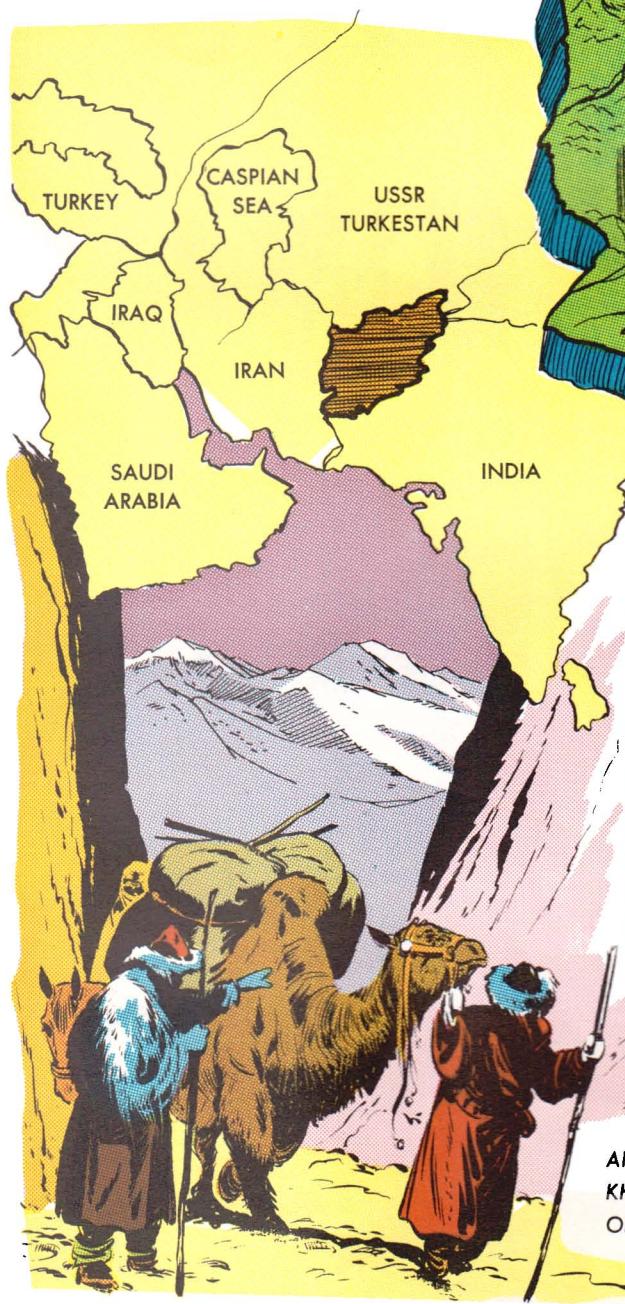


AFGHANISTAN . . .

A country of central Asia. The climate varies greatly. Winters have temperatures far below freezing while the summer brings terrible heat. The general climate is dry though some areas have rainy and dry seasons.



The people are good farmers and use every acre of soil possible. They use irrigation to its best advantage.

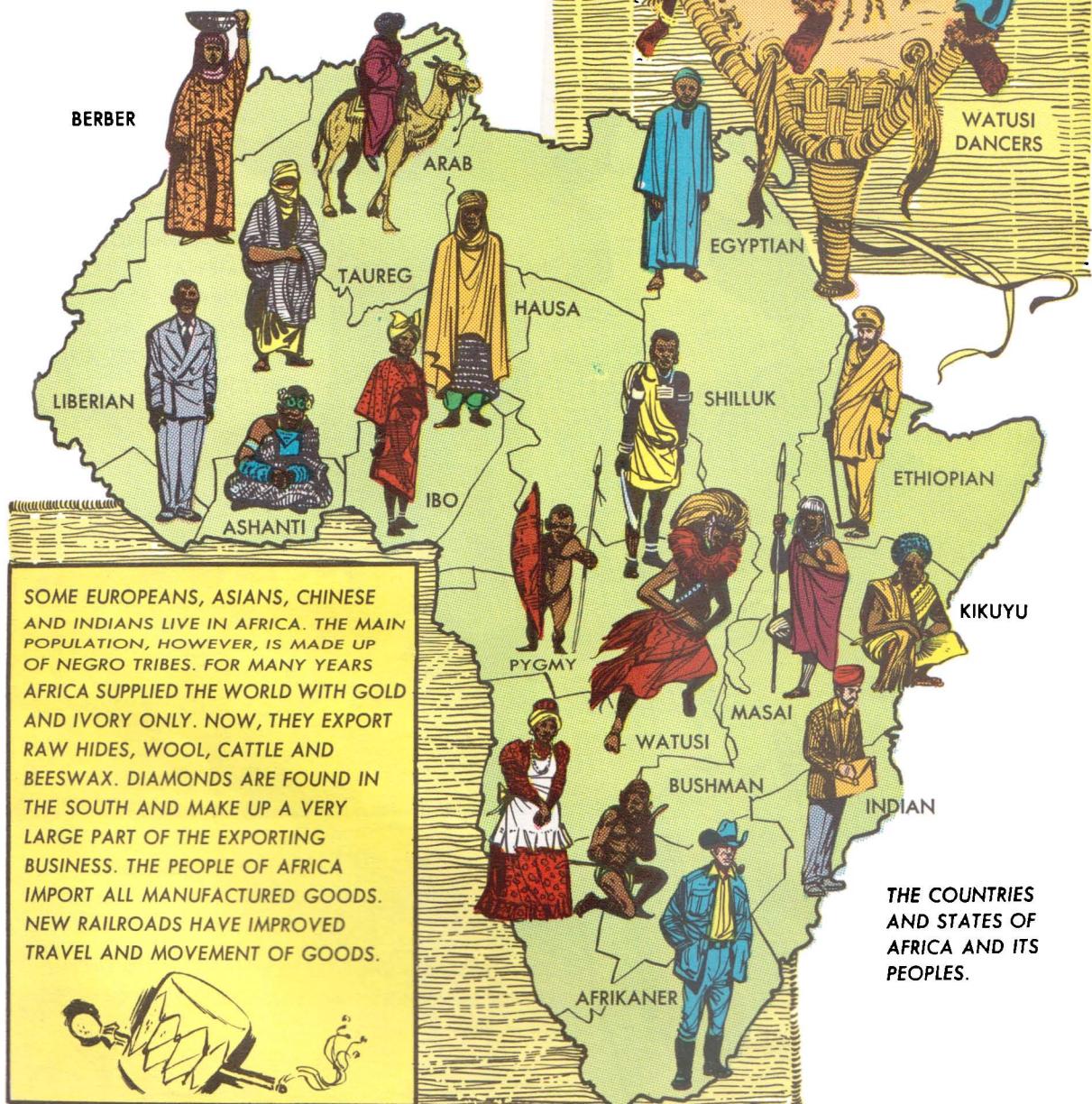


BECAUSE AFGHANISTAN IS THE GATEWAY TO INDIA, IT WAS INVADED BY NUMEROUS WARRIOR, INCLUDING ALEXANDER, DARIUS AND GHENGIS KHAN.

AFGHANISTAN'S CHIEF TRADE ROUTE IS THROUGH THE KHYBER PASS. MERCHANDISE IS CARRIED ON CAMELS OR PONIES.

AFRICA . . .

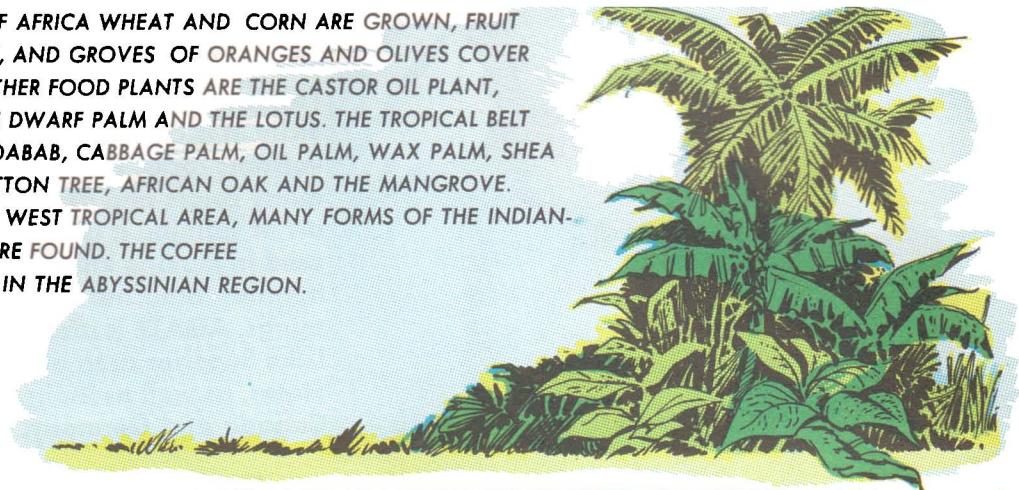
The continent of AFRICA is divided into many countries, several of which are colonies of European nations. The Nile and the Congo are two of its most famous rivers. Their many tributaries help to fertilize the lands. Most of AFRICA has a tropical climate. The great Sahara Desert is located in the northwestern part of the continent.



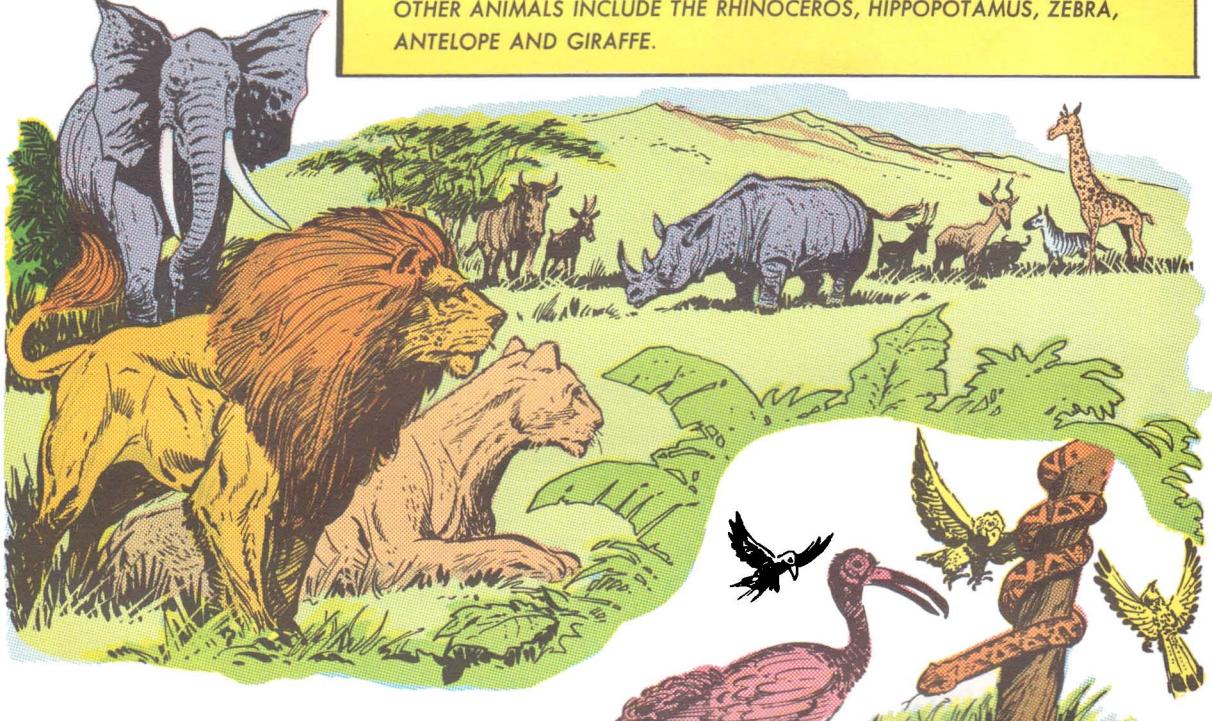
THE COUNTRIES
AND STATES OF
AFRICA AND ITS
PEOPLES.

IN THE NORTH OF AFRICA WHEAT AND CORN ARE GROWN, FRUIT TREES ARE MANY, AND GROVES OF ORANGES AND OLIVES COVER LARGE AREAS. OTHER FOOD PLANTS ARE THE CASTOR OIL PLANT, THE FIG TREE, THE DWARF PALM AND THE LOTUS. THE TROPICAL BELT PROVIDES THE BOABAB, CABBAGE PALM, OIL PALM, WAX PALM, SHEA BUTTER TREE, COTTON TREE, AFRICAN OAK AND THE MANGROVE.

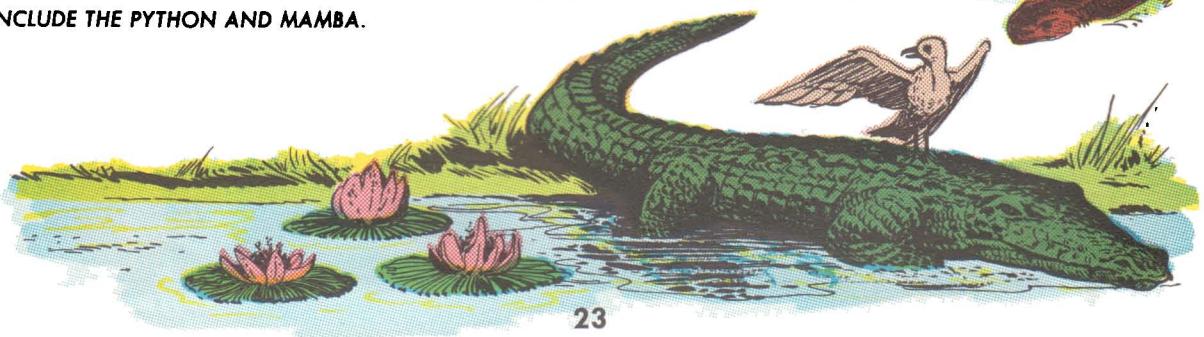
IN THE EAST AND WEST TROPICAL AREA, MANY FORMS OF THE INDIAN-RUBBER PLANTS ARE FOUND. THE COFFEE PLANT IS FOUND IN THE ABYSSINIAN REGION.



THERE ARE MANY ANIMALS ON THE CONTINENT. YOU CAN SEE APES, MONKEYS, LIONS, LEOPARDS AND PANTHERS ROAMING THE JUNGLE. LARGE HERDS OF ELEPHANTS ARE FOUND IN THE TROPICAL REGION. OTHER ANIMALS INCLUDE THE RHINOCEROS, HIPPOPOTAMUS, ZEBRA, ANTELOPE AND GIRAFFE.

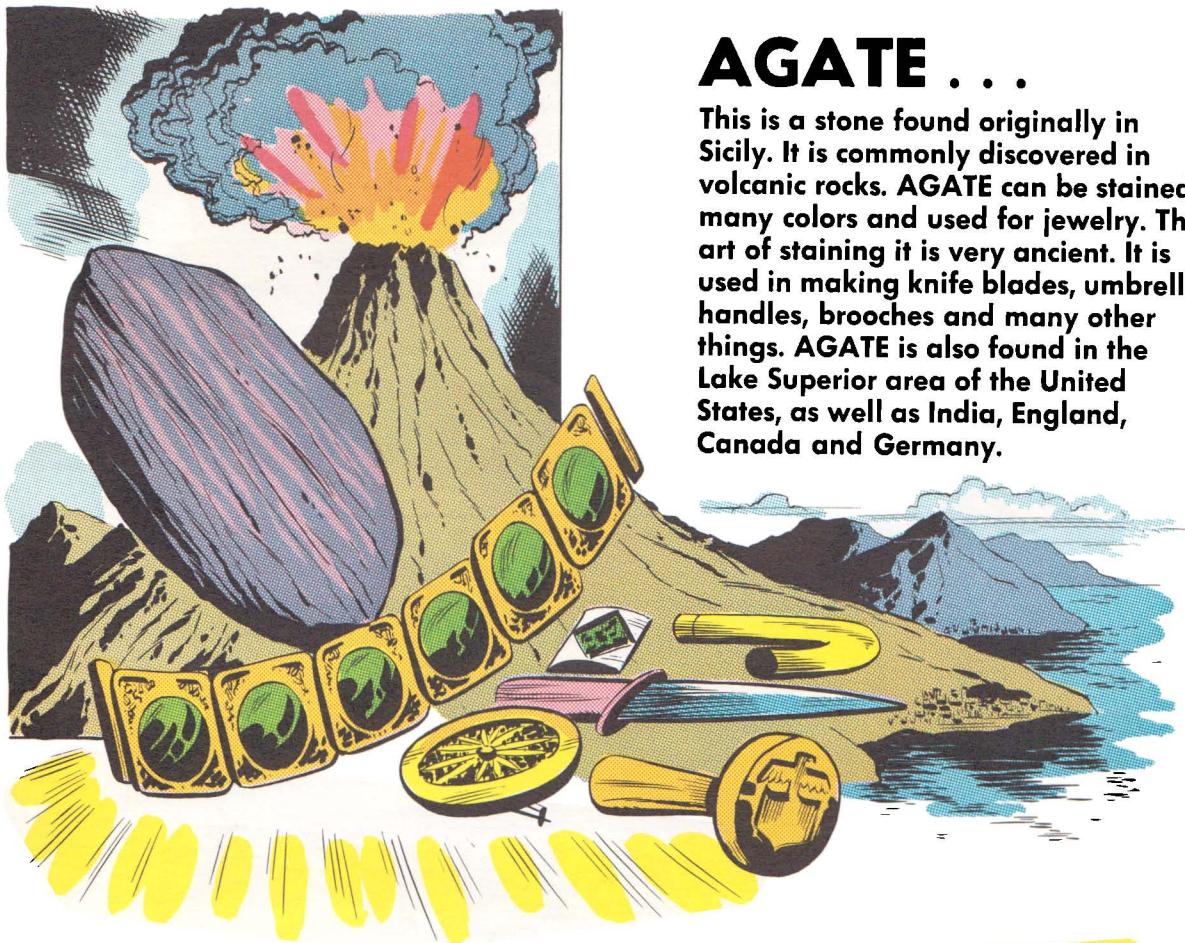


THE BIRDS ARE FAMOUS FOR THEIR BEAUTIFULLY COLORED FEATHERS. THE CROCODILE IS FOUND IN RIVERS AND TROPICAL LAKES. DANGEROUS SNAKES INCLUDE THE PYTHON AND MAMBA.



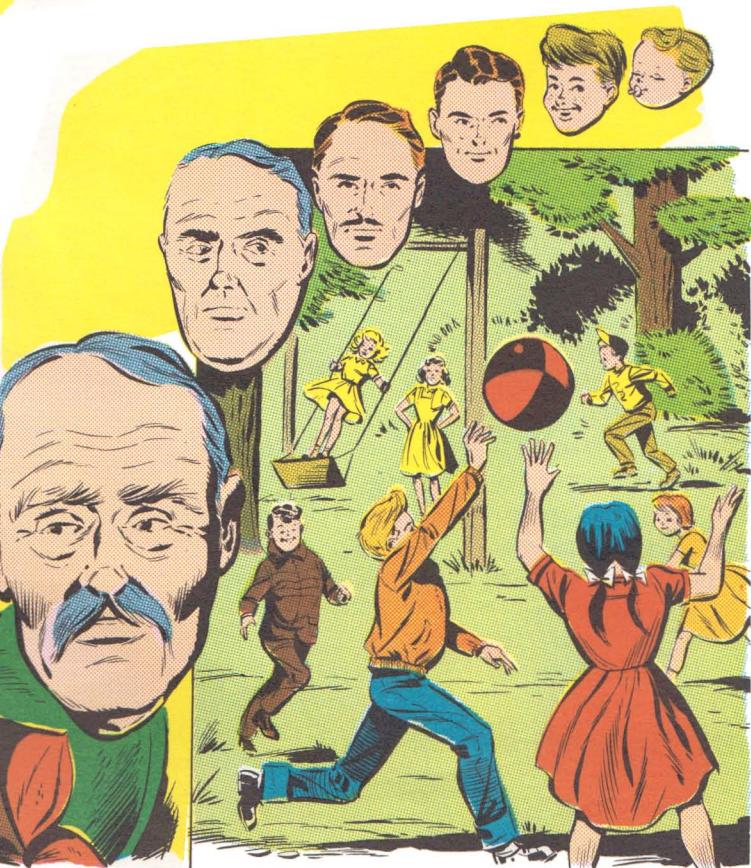
AGATE . . .

This is a stone found originally in Sicily. It is commonly discovered in volcanic rocks. AGATE can be stained many colors and used for jewelry. The art of staining it is very ancient. It is used in making knife blades, umbrella handles, brooches and many other things. AGATE is also found in the Lake Superior area of the United States, as well as India, England, Canada and Germany.



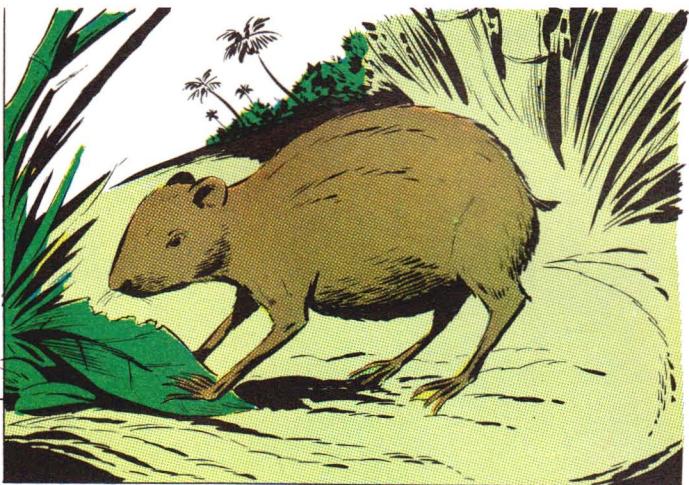
AGE . . .

AGE is used as a time reckoning to divide man's lifetime into different periods. By law, there are two periods into which life is divided; infancy which lasts till twenty-one years of AGE, and then manhood or womanhood. Infancy is again divided into late infancy and the teens. Many countries have different AGES at which a boy or girl legally becomes an adult.



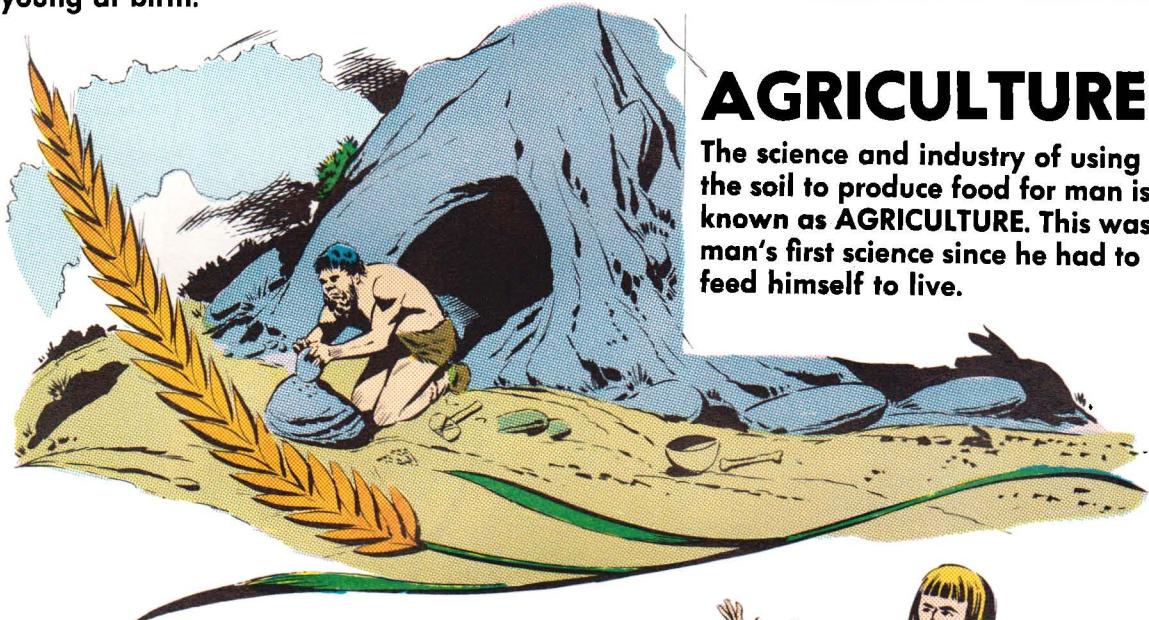
AGOUTI . . .

This is the West Indian name of a rodent the size of a rabbit. AGOUTIS have thin legs and five front and three hind toes. They have short tails, the hair is rough and the color is usually brown. The AGOUTIS live in forests. During the day they hide in hollow tree trunks and roam by night. They eat leaves, roots, nuts, fruits, and do much harm to sugar-cane and banana plantations. In captivity, the female will produce only one or two young at birth.



AGRICULTURE . . .

The science and industry of using the soil to produce food for man is known as AGRICULTURE. This was man's first science since he had to feed himself to live.



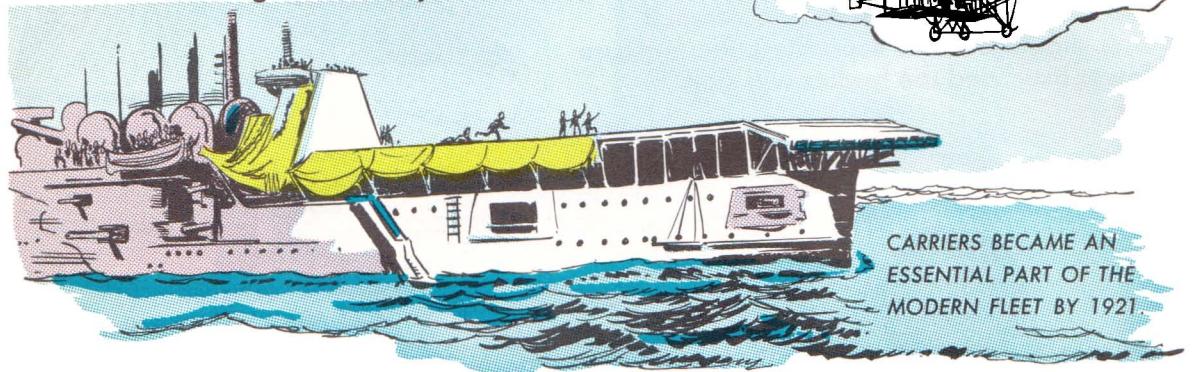
IN EARLY TIMES, CROPS WERE RAISED ON ONE PLOT OF GROUND UNTIL THE SOIL WAS EXHAUSTED AND WOULD YIELD NO MORE. WHOLE TRIBES OF PEOPLE WOULD THEN MOVE EVERYTHING THEY HAD TO NEW AREAS WITH FRESH SOIL.



(Continued)

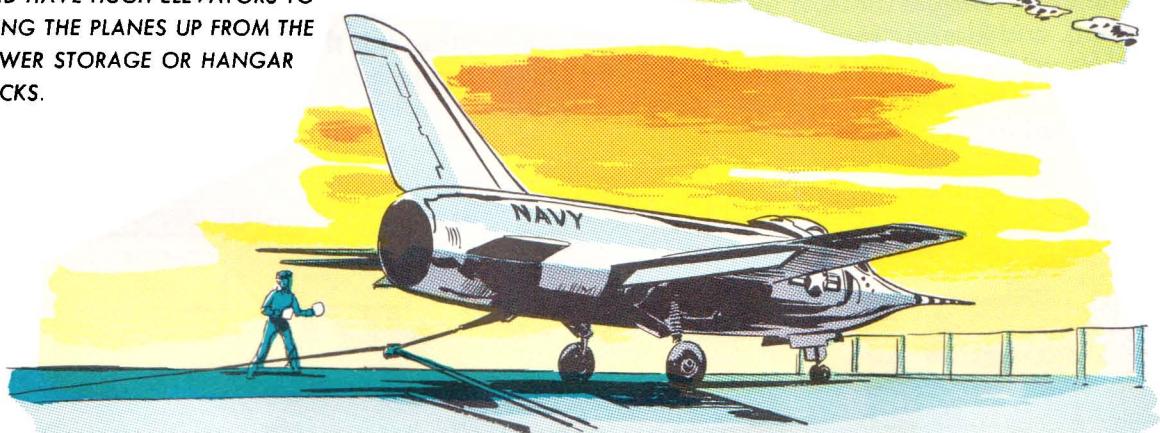
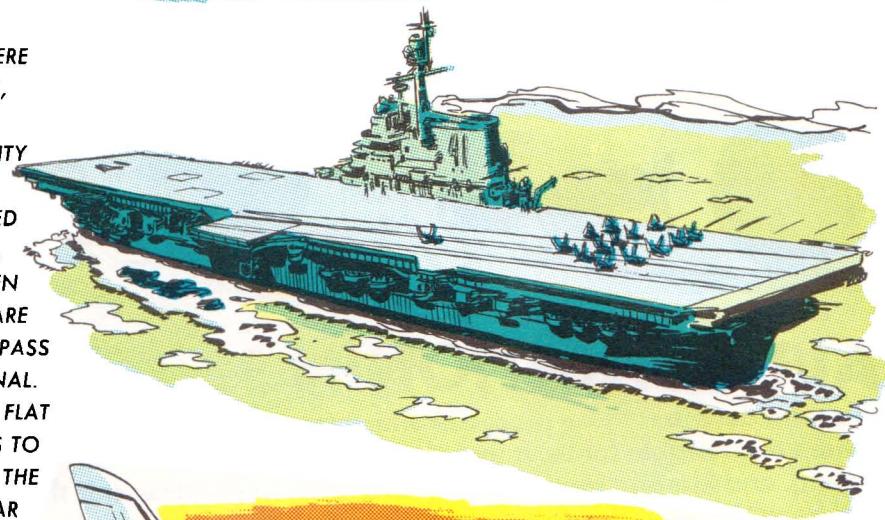
AIRCRAFT CARRIER . . .

Before World War I, trials had been made for flying planes off the decks of ships. Progress was slow. With the outbreak of the war in 1914, a vessel was converted into an **AIRCRAFT CARRIER** by the British. The ship proved to be useful. Since more carriers were needed, passenger ships were taken over and converted. The carriers proved to be so efficient that the demand grew steadily.



CARRIERS BECAME AN
ESSENTIAL PART OF THE
MODERN FLEET BY 1921.

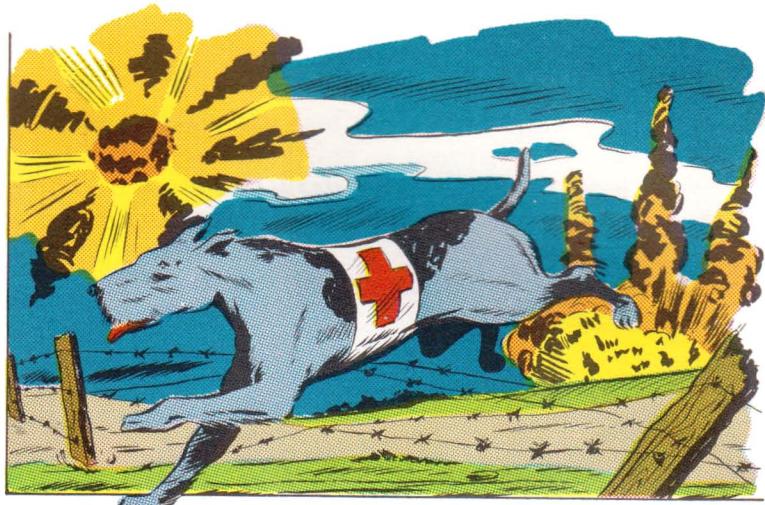
THE VESSELS BEFORE 1921 WERE
EXPERIMENTAL, AND AT BEST,
WERE ONLY FLOATING
AERODROMES WITH THE ABILITY
TO MAKE SOME REPAIRS ON
PLANES. WITH THE INCREASED
SPEED OF AIRPLANES TODAY,
MODERN CARRIERS HAVE BEEN
GREATLY ENLARGED. SOME ARE
SO BIG THAT THEY CANNOT PASS
THROUGH THE PANAMA CANAL.
THEIR DECKS ARE LONG AND FLAT
AND HAVE HIGH ELEVATORS TO
BRING THE PLANES UP FROM THE
LOWER STORAGE OR HANGAR
DECKS.



THE SHIP IS TURNED TO FACE THE WIND WHEN AN AIRPLANE IS TO
TAKE OFF. WHEN IT LANDS, A HOOK UNDERNEATH THE TAIL FIN OF
THE PLANE CATCHES A CABLE STRETCHED ACROSS THE DECK TO STOP IT.

AIREDALE . . .

AIREDALES are the largest of the terriers. They have been very popular as house pets since the early 1900's. Because they are a smart breed they were used for Red Cross service during the First World War.



IN THE SECOND WORLD WAR THEY WERE USED TO GUARD MILITARY TARGETS. AIREDALES ARE A MIXTURE OF THE ENGLISH TERRIER AND THE OTTER HOUND. AS A RESULT THEIR HAIR IS WIRY AND STIFF AND THEY ARE TAN OR GRAYISH-BLACK. THEY ARE GOOD RETRIEVERS AND THEY HAVE BEEN USED IN HUNTING WILD AFRICAN GAME.



AIRPLANE . . .

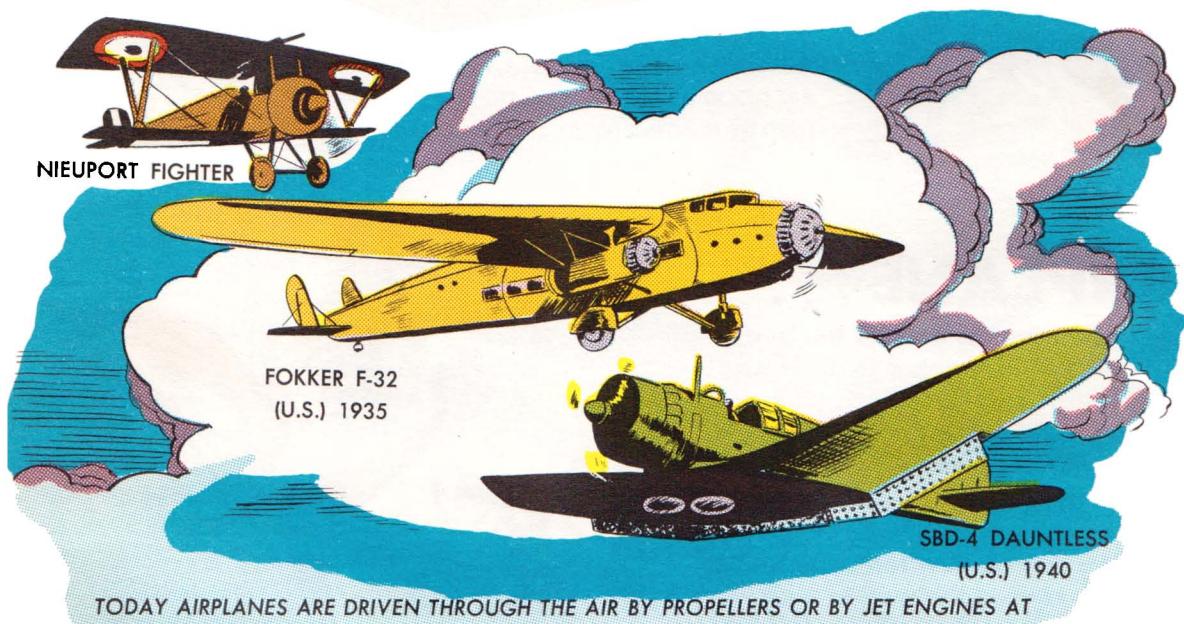
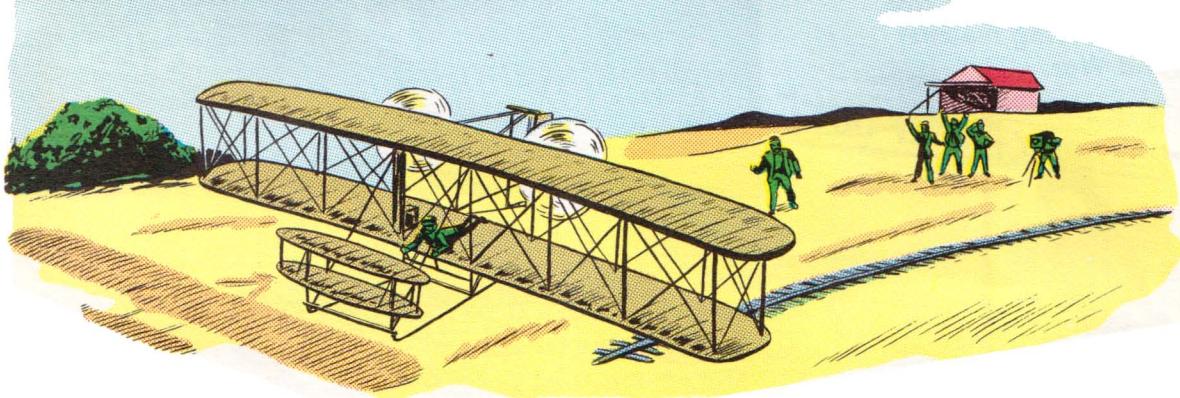
Ever since man has noticed the birds in the air he has wanted to fly. It was only natural that the first thing he tried was artificial wings made of bird feathers. An ancient Greek myth tells of a man who was able to fly by attaching wings to his body with wax. One day he flew too close to the sun which caused the wax to melt and his wings to drop off. He fell into the sea and drowned.



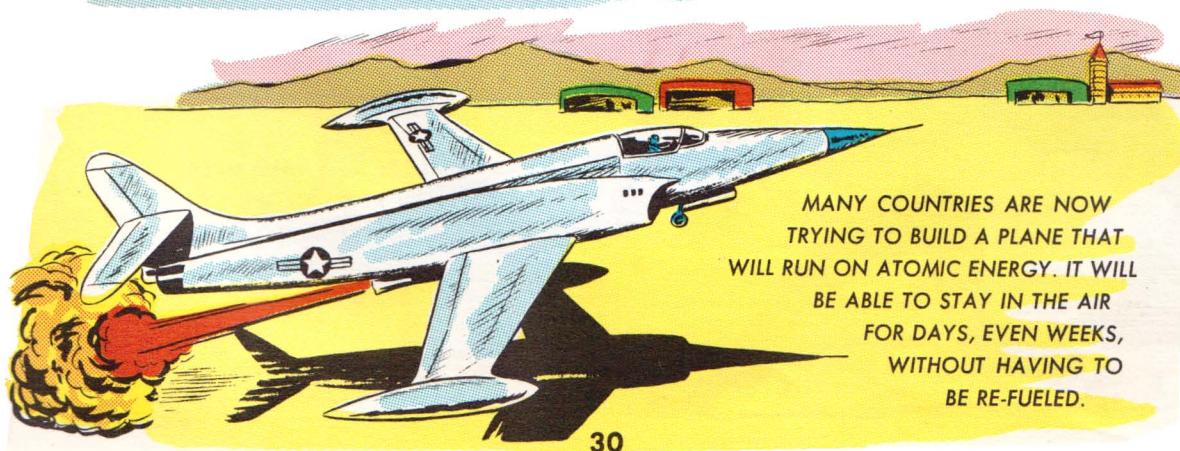
IN REAL LIFE MEN HAVE MADE MANY DIFFERENT KINDS OF WINGS IN THEIR ATTEMPTS TO FLY, BUT ALL FAILED.

AIRPLANE (Continued)

IT WAS NOT UNTIL THE MID 1800'S THAT MAN WAS ABLE TO GET INTO THE SKIES WITH A HEAVIER-THAN-AIR CRAFT. THESE FIRST SUCCESSES WERE IN A GLIDER AND THE PILOT HAD LITTLE CONTROL OVER WHERE HE WAS GOING. MEN LIKE MAXIM OF ENGLAND, LANGLEY OF THE U.S., AND LILIENTHAL OF GERMANY, CONDUCTED EXPERIMENTS THAT FINALLY LED THE WRIGHT BROTHERS TO DEVELOP THEIR AIRPLANE. IN DECEMBER OF 1903 AT KITTY HAWK, N.C. THEY MADE MAN'S FIRST SUCCESSFUL MACHINE-DRIVEN AIRPLANE FLIGHT.



TODAY AIRPLANES ARE DRIVEN THROUGH THE AIR BY PROPELLERS OR BY JET ENGINES AT SPEEDS THAT ARE FASTER THAN THE SPEED OF SOUND. THEY CAN STAY IN THE AIR FOR DAYS, RECEIVING THEIR FUEL FROM ANOTHER PLANE WHILE FLYING.



MANY COUNTRIES ARE NOW TRYING TO BUILD A PLANE THAT WILL RUN ON ATOMIC ENERGY. IT WILL BE ABLE TO STAY IN THE AIR FOR DAYS, EVEN WEEKS, WITHOUT HAVING TO BE RE-FUELED.

ALABAMA . . .

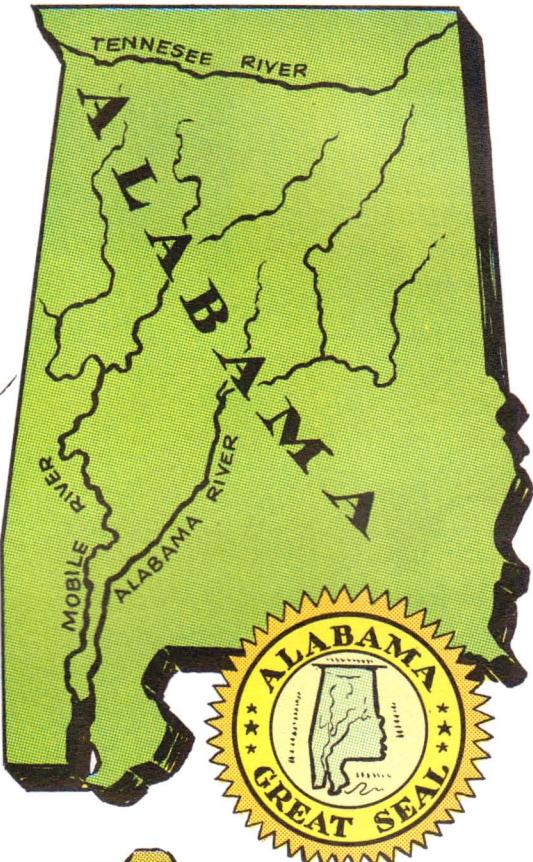
A state in the south central part of the United States, Alabama is bounded by Tennessee, Georgia, Florida, Mississippi and the Gulf of Mexico. It was admitted to the Union in 1819, seceded in 1861 and was readmitted in 1868. The capital is Montgomery. The state has mountainous and level areas. Cereal, cotton and timber are principal products. The main rivers are the Alabama, Tennessee and Mobile.



ALABAMA HAS LARGE MINERAL RESOURCES WHICH INCLUDE COAL, IRON, ASPHALT, CLAY, MARBLE, GRANITE, NATURAL GAS, GOLD, SILVER AND COPPER. COAL MINING BRINGS THE STATE MUCH WEALTH.



Alabama has its own state university and an engineering school, Alabama Polytechnic Institute at Auburn. The region of Alabama belonged to France at one time, was ceded to Britain in 1763, and in 1783 became a part of the U. S.



ALABAMA WAS A SLAVE-HOLDING STATE AND ONE OF THE FIRST TO FAVOR SECESSION. MONTGOMERY BECAME THE FIRST CAPITAL OF THE CONFEDERACY.

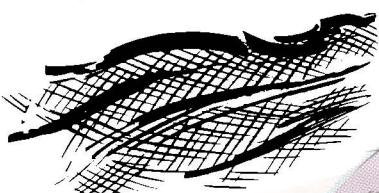
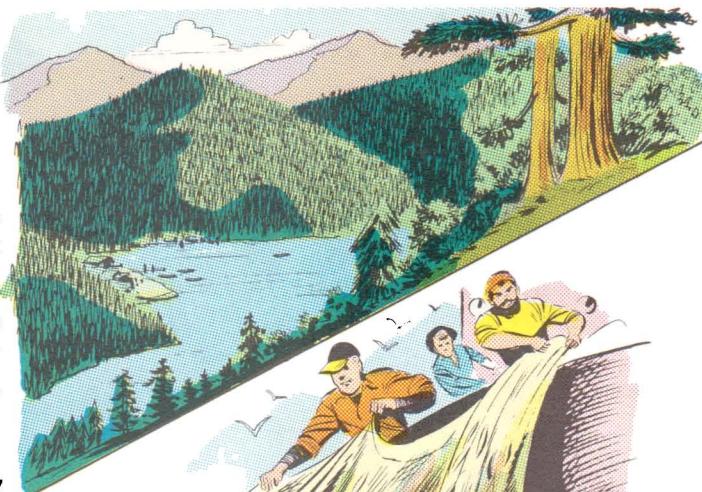


There are large areas of yellow pine in Alabama, and this has given rise to a substantial lumber industry.

ALASKA . . .

ALASKA has been approved as the 49th and newest state in the United States. The territory won statehood in 1958 after Congress passed the bill. ALASKA ranks as the largest state in the Union, with an area of more than 571,000 square miles. Its population is about 130,000. The capital of ALASKA is Juneau. Other large cities are Nome, Fairbanks, and Anchorage.

ALASKA was discovered in 1741 by Vitus Bering, a Dane employed by Russia. In 1867, William H. Seward, Secretary of State under President Andrew Johnson, bought ALASKA from Russia for \$7,200,000. Some people called the purchase "Seward's Folly." However, ALASKA proved to be a great source of mineral wealth and fish, and an important U.S. outpost.



A THRIVING AREA, ALASKA IS A BLEND OF RUGGED SCENERY AND MODERN CITIES. SCHOOLING IS PROVIDED FOR CHILDREN IN BOTH URBAN AND RURAL REGIONS. THE NEW ALCAN HIGHWAY HAS CREATED AN IMPORTANT LINK BETWEEN ALASKA AND THE REST OF THE UNITED STATES.



ALBANIA . . .

ALBANIA is a mountainous country in southeast Europe, bounded by Yugoslavia, Greece and the Adriatic Sea. Its capital is Tirana. ALBANIA'S chief products are timber, wool, furs, tobacco, fish, olive oil, corn and dairy products.

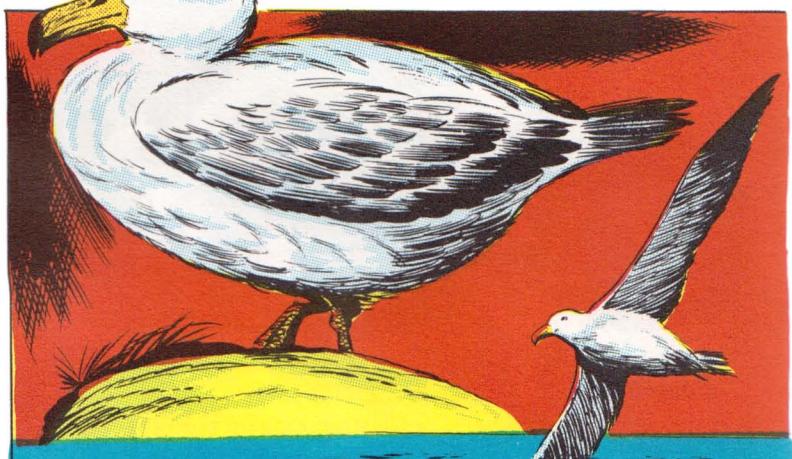


THE ALBANIANS ARE NOW HARD AT WORK DEVELOPING THEIR RICH FORESTS AND MINERAL RESOURCES.



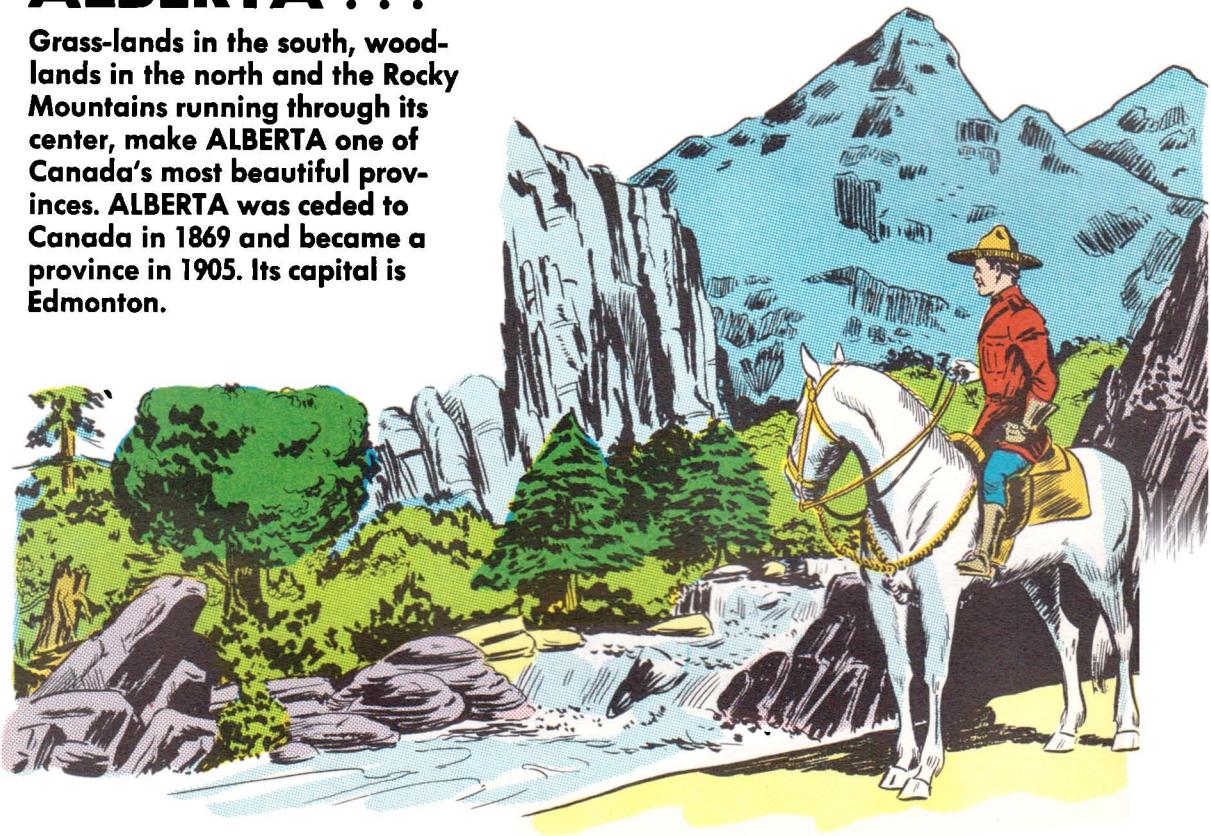
ALBATROSS

The ALBATROSS is a huge sea bird. It has a long, thick beak and its wing spread measures from 10 to 12 feet. This bird played a major role in Samuel Taylor Coleridge's immortal poem "Rime of the Ancient Mariner." According to the legend of the sea, bad luck is sure to follow any one who kills an ALBATROSS.

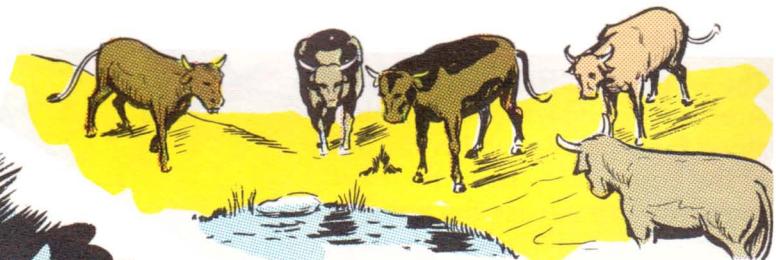
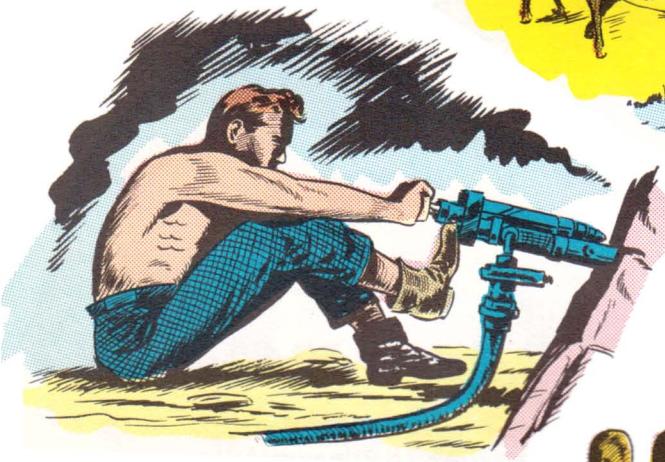


ALBERTA . . .

Grass-lands in the south, wood-lands in the north and the Rocky Mountains running through its center, make ALBERTA one of Canada's most beautiful provinces. ALBERTA was ceded to Canada in 1869 and became a province in 1905. Its capital is Edmonton.

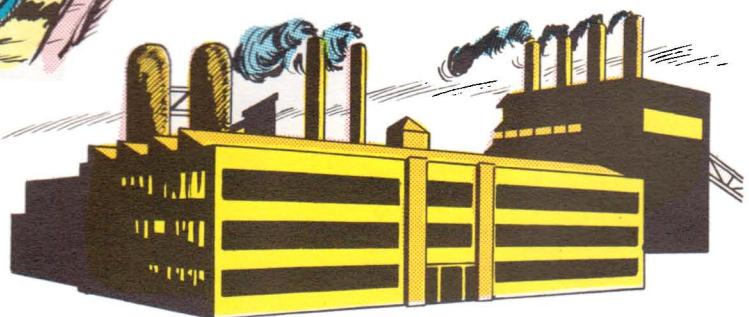


ALBERTA'S PRODUCTION OF
CRUDE OIL AND NATURAL
GAS FILLS A GREAT PART
OF CANADA'S DOMES-
TIC NEEDS.



THERE ARE MANY NATURAL RE-
SOURCES, OF WHICH COAL IS THE
MOST IMPORTANT. ALBERTA'S FOR-
ESTS PROVIDE MANY KINDS OF
WOOD.

ALONG WITH DAIRYING AND MIXED
FARMING, MANUFACTURING IS A
FAST-GROWING INDUSTRY IN AL-
BERTA.



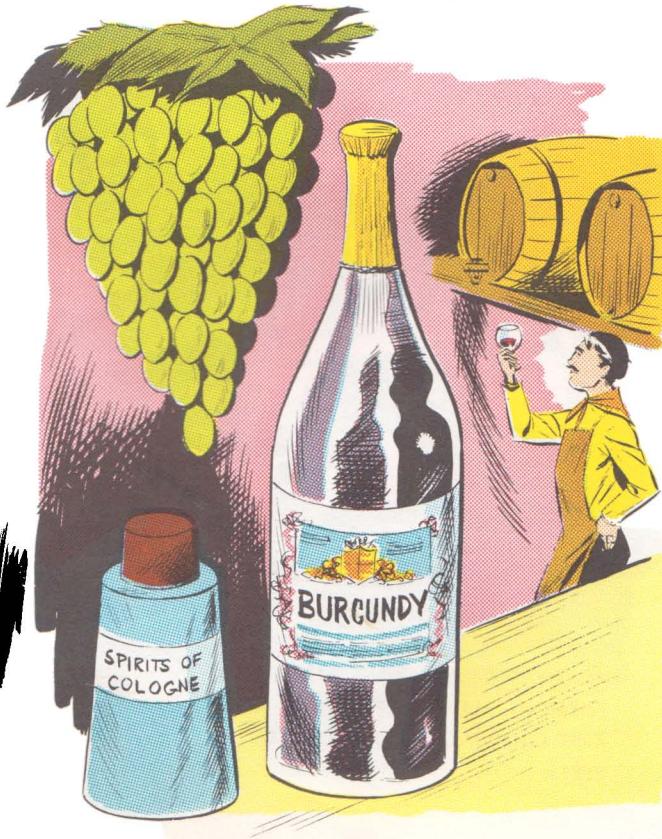
ALCHEMY . . .

Ancient ALCHEMY, in a sense, stands for the chemistry of the Middle Ages, and was devoted to the search for a cure of all disease. ALCHEMY is better known as the process by which the ancients attempted to turn base metals into gold. The investigation of the effects of chemicals in the human body, and in the preparation of medicines gave rise gradually to modern chemistry.



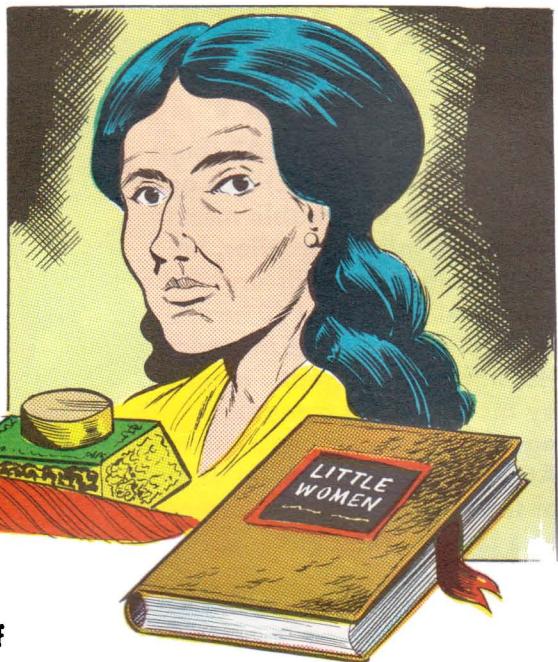
ALCOHOL . . .

The word ALCOHOL comes from the Arabic language, and at one time stood for a powder which the people of the East used to paint their eyebrows. Today we use the word to refer to spirits, beers, ales, wines, liquors and compounds for medical purposes. ALCOHOL is a result of the fermentation of the juices of vegetables. It is colorless and used as an antiseptic when applied externally. ALCOHOL is a good preservative.



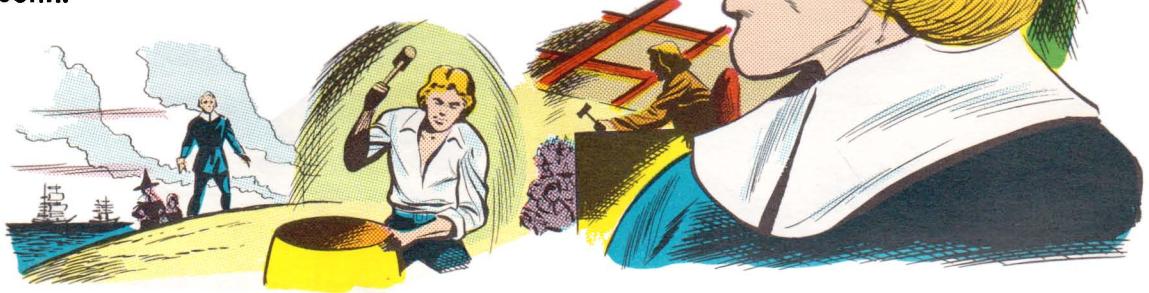
ALCOTT, LOUISA MAY . . .

LOUISA ALCOTT (Born 1832—died 1888) was an American writer of juvenile stories. She was born in Germantown, Pennsylvania. Her most famous book, "Little Women," was based on her own family life. Other novels include "Little Men," "Rose in Bloom," "Eight Cousins" and "Jo's Boys." She died in Boston, Mass.



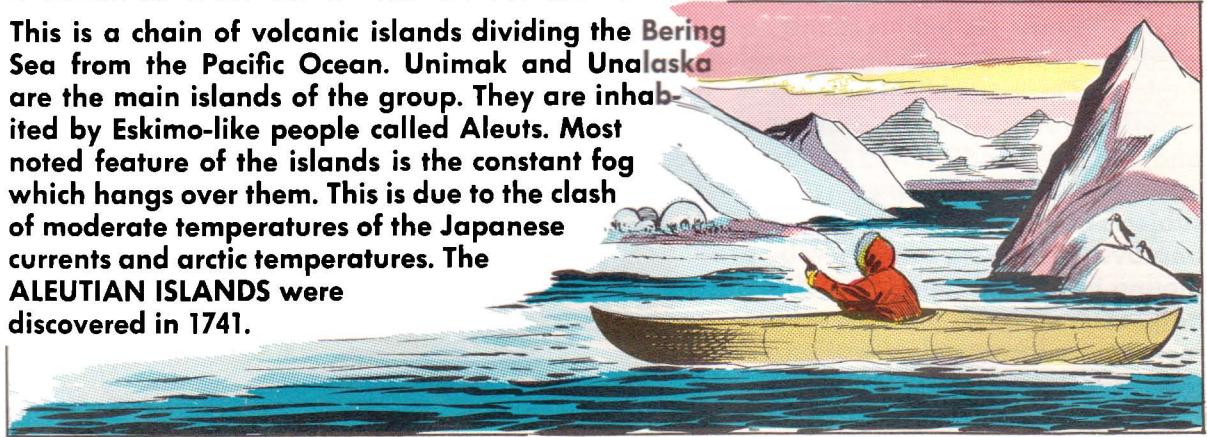
ALDEN, JOHN . . .

Born in about 1599, he was one of the leaders of the Pilgrim group which settled in the New World at Plymouth. He was a cooper in Southampton, England, and was employed to make repairs on the Mayflower. He crossed the vast Atlantic Ocean with the Pilgrim fathers. ALDEN was immortalized in Longfellow's poem, "The Courtship of Miles Standish." In it, ALDEN woos Priscilla Mullens for Captain Miles Standish. After a lengthy courtship, true love conquers all when Priscilla asks ALDEN, "Speak for yourself, John."



ALEUTIAN ISLANDS . . .

This is a chain of volcanic islands dividing the Bering Sea from the Pacific Ocean. Unimak and Unalaska are the main islands of the group. They are inhabited by Eskimo-like people called Aleuts. Most noted feature of the islands is the constant fog which hangs over them. This is due to the clash of moderate temperatures of the Japanese currents and arctic temperatures. The ALEUTIAN ISLANDS were discovered in 1741.



ALEXANDER THE GREAT . . .

ALEXANDER THE GREAT (born 356 B.C.—died 323 B.C.) was one of the most remarkable men in history. A mighty warrior, his genius altered the history of the world. At the age of 20 he ascended the throne of Macedon. He amassed a gigantic empire by his successful campaigns against other empires of his day. At his peak, he was ruler of most of the civilized world. He died of a fever at the age of 33.



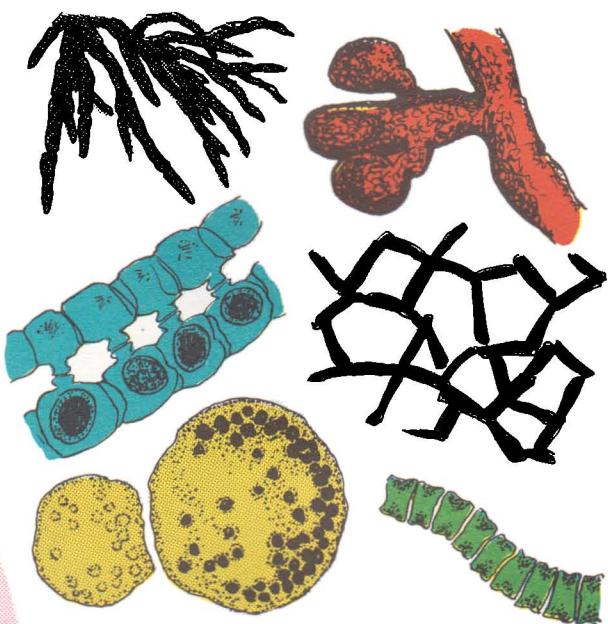
ALFRED THE GREAT . . .

ALFRED THE GREAT (Born 849—died 901) was one of the best-loved figures of English history. He led his country to victory over the Danes, who had ruled England. Once established as the victorious ruler, ALFRED rebuilt cities and fortresses and created the British navy. ALFRED'S greatest concern was the subjects he ruled. He endeavored to improve their living conditions by promoting trade and commerce with other nations. Among his greatest achievements were increased education and his own translations of Latin works.



ALGAE . . .

This is the lowest form of plant life. Though it is simple in form it is the basis for all highly developed plants. There are five main groups of ALGAE and they are divided by color. Green ALGAE live in fresh water and are supposed to have been the beginning of land plants. Blue-green ALGAE are found in lakes and the brown and red are found in salt water.



THE BROWN ALGAE CAN HAVE STEMS OVER 100 FEET LONG AND MAY BE USED FOR FERTILIZER.

ALGEBRA . . .

This branch of mathematics had its beginnings in the remote past and then for centuries it was neglected. It was during the Middle Ages that it again received attention. The study of ALGEBRA is as interesting as other sciences but it can be mastered only with attention to detail, accuracy and concentration.

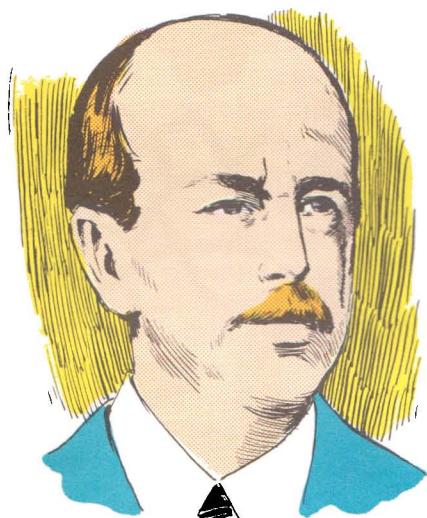
$$\begin{array}{r} x+3 \\ x-2 \\ \hline x^2+3x \\ -2x-6 \\ \hline x^2+x-6 \end{array}$$

$$(2x-5)(3x+7)$$



ALGEBRA IS REALLY A CONTINUATION OF ARITHMETIC, BUT IT USES LETTERS AND SYMBOLS INSTEAD OF NUMBERS.

ALGER, HORATIO . . .



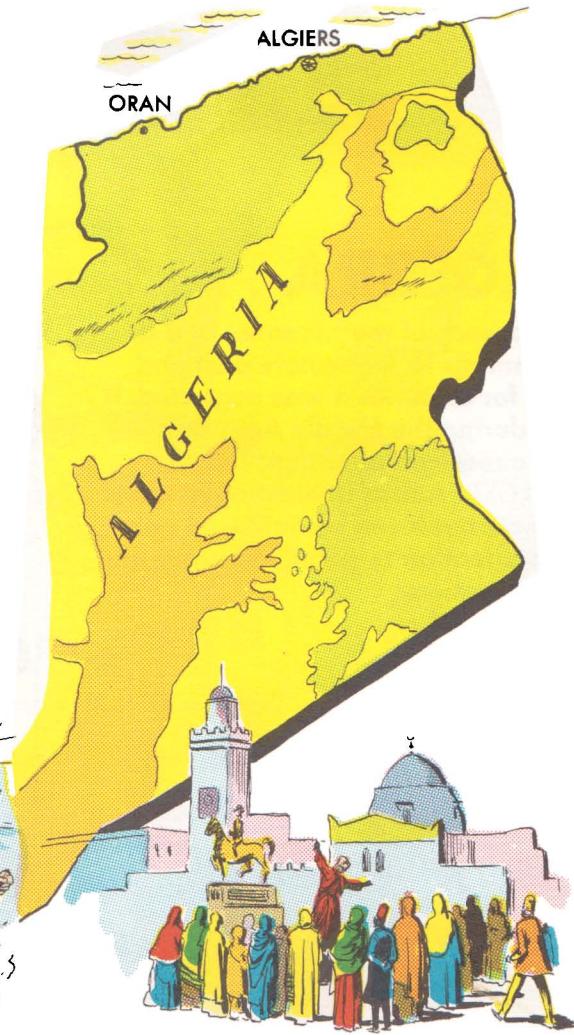
HORATIO ALGER (born 1834-died 1899) was born at Revere, Mass. About 100 volumes were written by the author, which show the triumphs of moral courage over poverty. His humanitarian interest in newsboys and street urchins lent strength and veracity to his stories, among which were, "From Canal Boy to President," and "From Canal Boy to Senator."



ALGERIA . . .

Located in northwest Africa, **ALGERIA** developed to a high state of civilization only to be forgotten for centuries. In the 18th century **ALGERIA** came alive again as Arabs began to migrate to the country. **ALGERIA** is today interested in all plans for the development of Africa.

AT ONE TIME **ALGERIA** WAS THE HOME OF PIRATES. THE U.S., ALONG WITH OTHER NATIONS, PAID THE PIRATES OF **ALGERIA**'S BARBARY COAST TO INSURE SAFE SHIPPING. HOWEVER, THE PIRATES WERE UNTRUSTWORTHY AND FRANCE MOVED IN AND TOOK CONTROL.



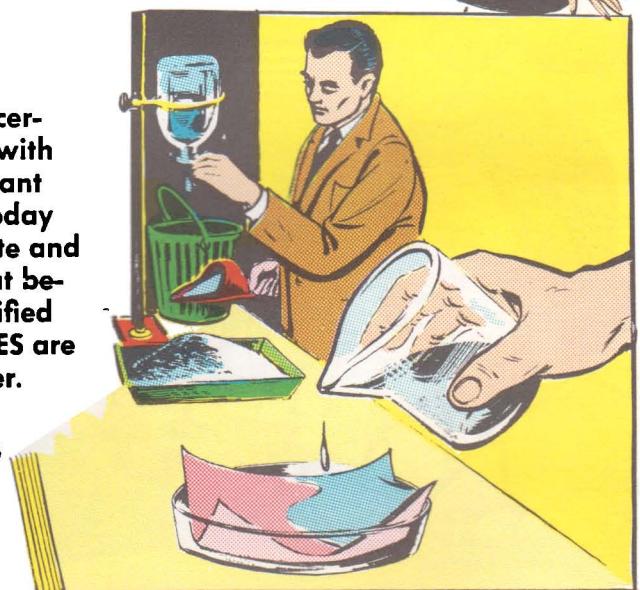
ALICE IN WONDERLAND . . .

Lewis Carroll's delightful story about Alice's adventures in Wonderland will long be remembered and enjoyed by both children and adults. Alice's adventures begin when she follows a most unusual rabbit down into a hole and into a new and different world. She meets queer animal friends, a crusty Duchess, a Mad Hatter, a March Hare and others. Alice even has a narrow escape from drowning in her own tears. But the story ends happily, since it is all a dream.



ALKALIES . . .

This Arabic word once meant the ashes of certain plants. When these ashes are treated with water they make lye, and the most important parts of the lye are known as ALKALIES. Today the word also refers to potassium carbonate and sodium carbonate and other chemicals that behave as these two. ALKALIES can be identified if they turn red litmus paper blue. ALKALIES are used to make soap, cotton goods and paper.



ALGONQUIN INDIANS

The ALGONQUIN Indians were a family of Indians which were spread over much of North America and still remain a large portion of the Canadian Indians.

THEY CONSISTED OF FOUR GROUPS: THE EASTERN GROUP INCLUDING THE MOHICANS AND DELAWARES, THE NORTHEASTERN GROUP INCLUDING THE ABENAKIS, THE WESTERN GROUP INCLUDING THE SHAWNEES AND ILLINOIS, AND THE NORTHWESTERN GROUP INCLUDING THE CHIPPEWAS OR OJIBBEWAS, THE LARGEST OF ALL TRIBES.



ALLEN, ETHAN . . .



ETHAN ALLEN (Born 1737—died 1789) was an American soldier of Revolutionary fame. He was the hero behind the capture of Fort Ticonderoga. His army career began when he became the leader of the "Green Mountain Boys." Soon after the battle of Lexington, he and his group started for the fort. They besieged it quickly and demanded surrender. Then, on a secret mission to Canada, he was captured and was confined. After he received his freedom he was appointed lieutenant colonel of the Vermont militia. He represented this state in Congress to secure admission to the Confederation.

ALLERGY . . .

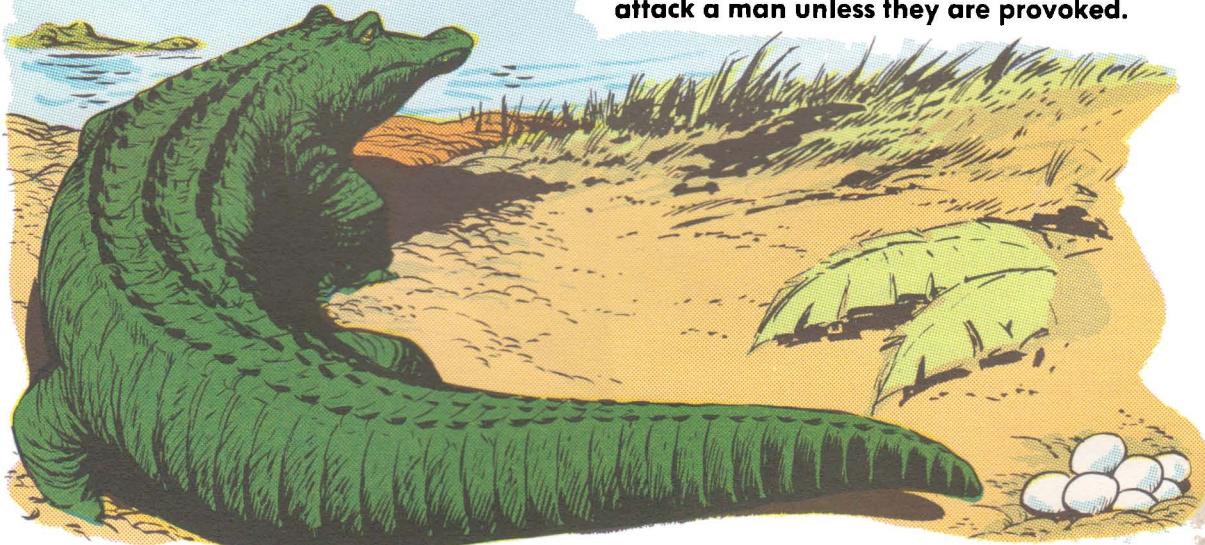
An ALLERGY is a reaction or sensitivity to some substance. The most common type of ALLERGY is hayfever. When a person with this ALLERGY breathes the pollen of certain grasses or flowers, he will develop symptoms of a cold. These symptoms will disappear as soon as the irritating factor is removed.

Some people are allergic to foods, some to flowers, some to dust. When an allergic person comes in contact with these things he may be forced to sneeze, or cough, or break out in a rash.



ALLIGATOR . . .

The ALLIGATOR is a large reptile that looks like the crocodile. Most ALLIGATORS are found in tropical America. They love to bask in the sun and float on the surface of fresh water streams. ALLIGATORS are reproduced by eggs, and the young are cared for until they can manage by themselves. ALLIGATORS usually will not attack a man unless they are provoked.

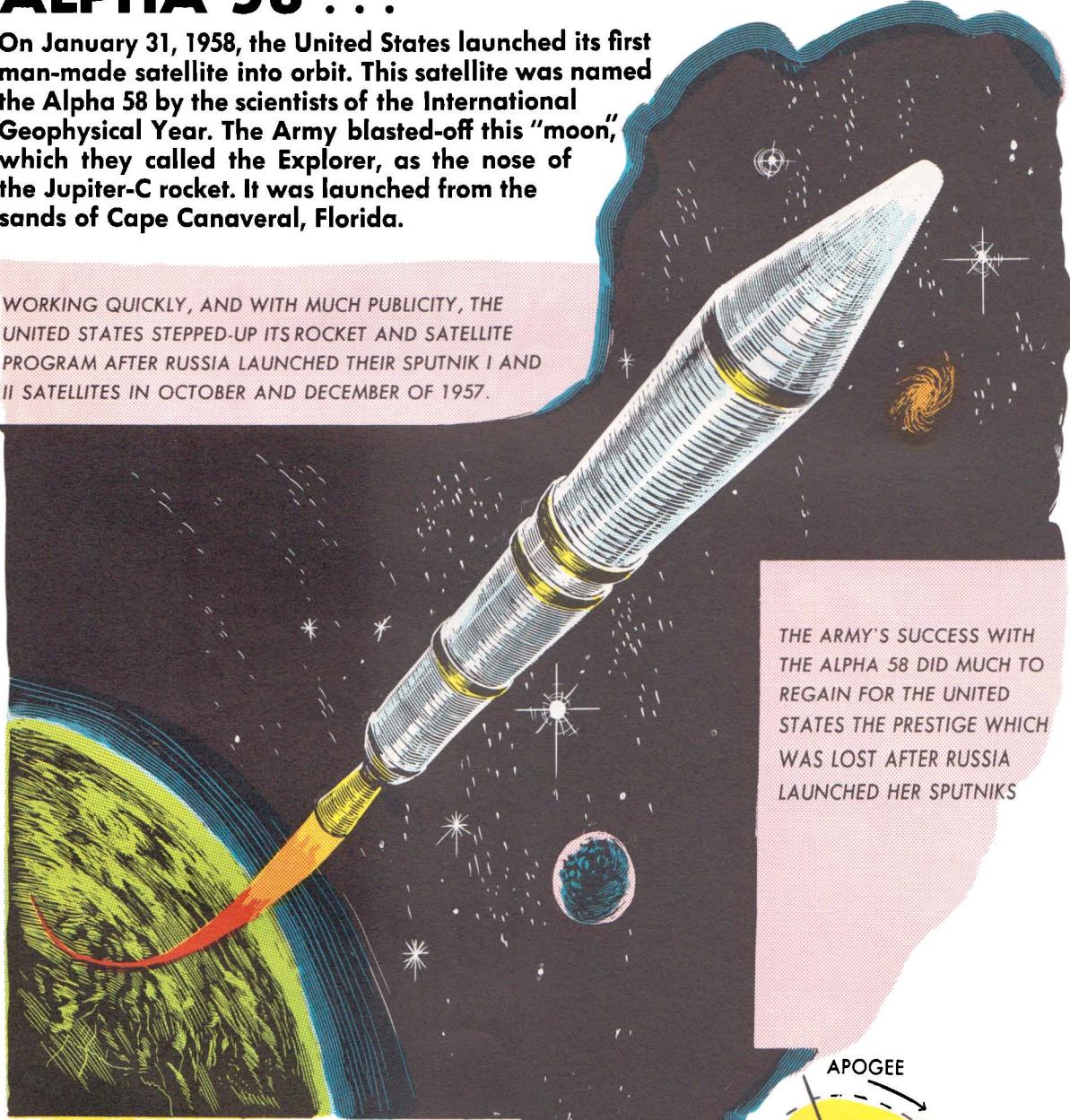


ALPHA 58 . . .

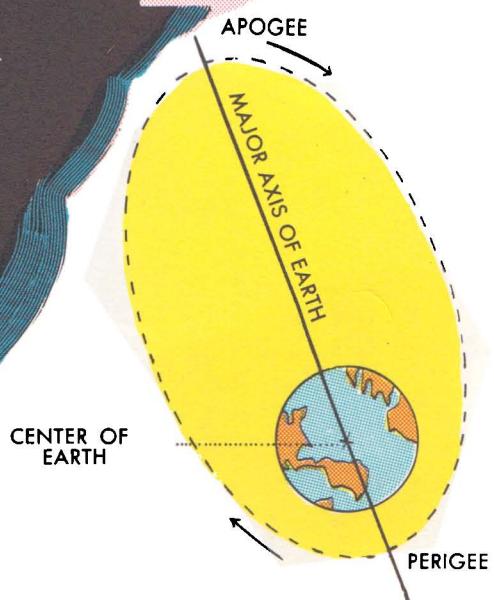
On January 31, 1958, the United States launched its first man-made satellite into orbit. This satellite was named the Alpha 58 by the scientists of the International Geophysical Year. The Army blasted-off this "moon", which they called the Explorer, as the nose of the Jupiter-C rocket. It was launched from the sands of Cape Canaveral, Florida.

WORKING QUICKLY, AND WITH MUCH PUBLICITY, THE UNITED STATES STEPPED-UP ITS ROCKET AND SATELLITE PROGRAM AFTER RUSSIA LAUNCHED THEIR SPUTNIK I AND II SATELLITES IN OCTOBER AND DECEMBER OF 1957.

THE ARMY'S SUCCESS WITH THE ALPHA 58 DID MUCH TO REGAIN FOR THE UNITED STATES THE PRESTIGE WHICH WAS LOST AFTER RUSSIA LAUNCHED HER SPUTNIKS



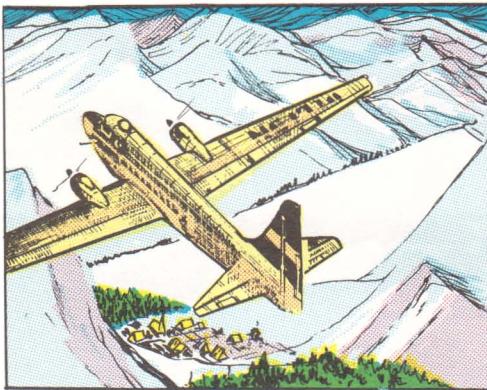
THE ALPHA 58 WEIGHS 30.8 LBS., IS TUBULAR IN SHAPE, 80 INCHES LONG. IT CIRCLES THE EARTH EVERY 113 MINUTES AT A SPEED OF 19,000 MILES PER HOUR. THE 10 LBS. OF SCIENTIFIC INSTRUMENTS HAVE SENT BACK MUCH INFORMATION ABOUT SPACE. THIS DATA ABOUT COSMIC RAYS, METEORS, TEMPERATURES IN SPACE, AIR DENSITY, THE SHAPE OF THE EARTH, AND THE IONOSPHERE WILL HELP SPEED THE DAY OF SAFE SPACE TRAVEL.



CENTER OF EARTH

ALPHABET . . .

As man's life grew more complex, the need arose for a more lasting means of communication than by word of mouth. Messages had to be sent from town to town, and events had to be put on record. As a result, the picture ALPHABET came into use. This early ALPHABET represented ideas and whole words rather than sounds, as today's ALPHABET does. The perfect ALPHABET has not been invented and probably never will, since sounds in some ALPHABETS are changing continually. The Chinese have a syllable ALPHABET instead of a letter one.



HIERO-GLYPHIC	SINAI	MOA-BITE	GREEK	LATIN
		Α (A)	Α A A	
		Β (B)	Β B B	
		Γ (Γ)	Γ C C	
		Δ (Δ)	Δ D D	
		Ε (E)	E E	
		Ϝ (Ϝ)	Ϝ F F	
		Ϛ (Ϛ)	Ϛ I I	

ALPS . . .

The ALPS are Europe's most magnificent feature, and the continent's greatest mountain system. They cover most of Switzerland and Austria, and separate Italy, France and Germany. Common in the high ALPS are dairying and cattle-raising. Orchards and vineyards are found in the valleys.

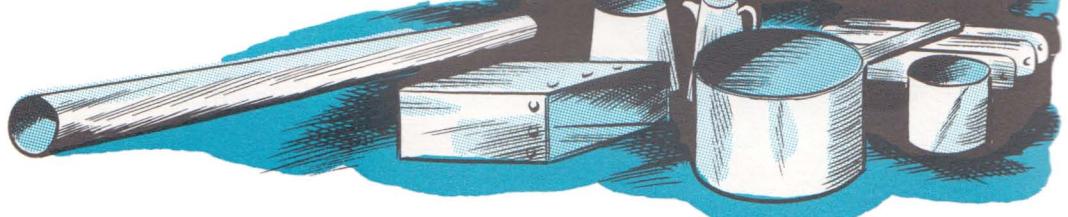


MONT BLANC, AT 15,771 FEET, IS THE ALPS' HIGHEST MOUNTAIN. SOME OTHER WELL-KNOWN PEAKS ARE MONTE ROSA (15,216 FEET), MATTERHORN (14,692 FEET) AND JUNGfrau (13,645 FEET). SOME OF EUROPE'S GREAT RIVERS HAVE THEIR SOURCE IN THE ALPINE WATERSHED.

THE ALPS PROVIDE AN ALL-YEAR PLAYGROUND FOR WINTER SPORTS ENTHUSIASTS.

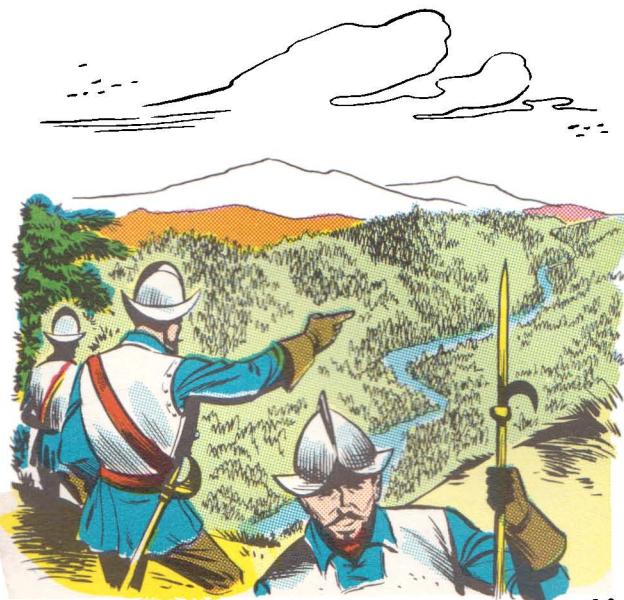
ALUMINUM . . .

ALUMINUM is the most abundant and lightest metal in common use. It is taken from bauxite, a clay-like mineral. ALUMINUM is a silver-white element, very flexible, rust-proof and an excellent conductor of heat and electricity. Because of its lightness and strength, ALUMINUM has become the chief metal used in the aircraft industry. It is also used for autos, cooking utensils, high-tension wire, wrapping foil, paints and building accessories. ALUMINUM is commonly alloyed with other metals to further its uses..



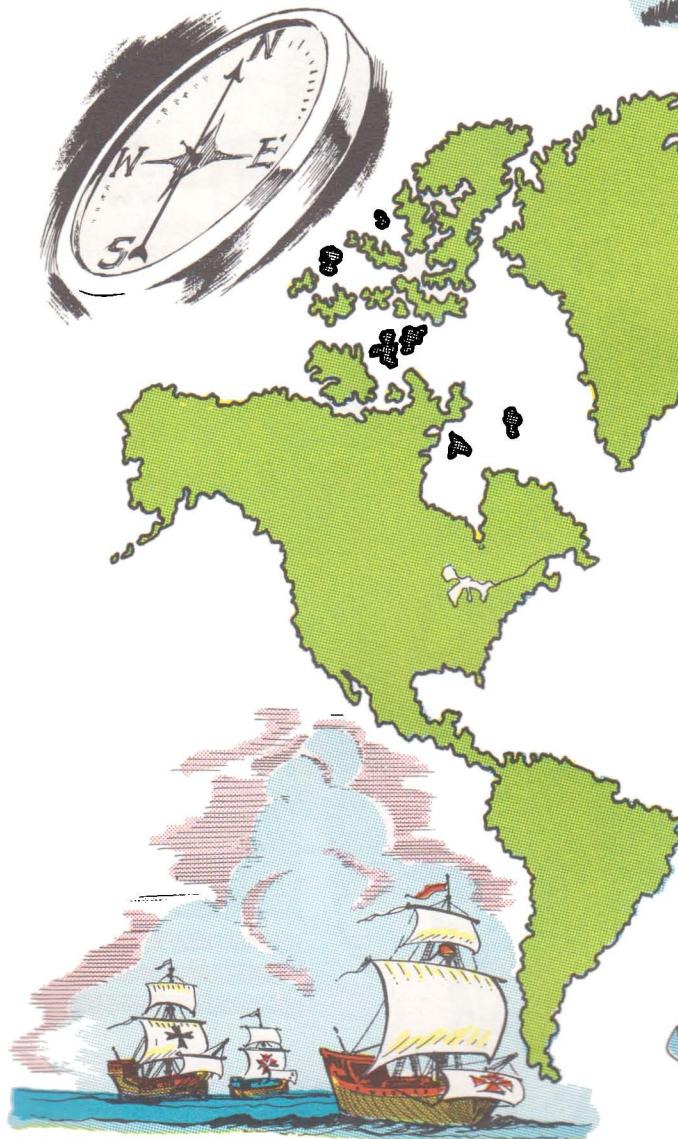
AMAZON RIVER . . .

This is the greatest river of South America and, with its many branches, the largest river system in the world. The AMAZON flows from the Peruvian Andes across Brazil to the Atlantic Ocean, a distance of 3,900 miles. The river was said to be named by the Spanish explorer Orellana. The name AMAZON, in Greek legend, was a member of a tribe of women who spent time hunting and fighting. The AMAZON basin is sparsely populated, mostly by Indians. The chief resources of the basin are rubber, jute and cacao.



AMERICA . . .

From north to south, America is the greatest land mass on the globe. From the Arctic Ocean in the north to the Antarctic Ocean in the south, there is a span of 9,500 miles. Throughout its entire length, the area known as AMERICA separates the Atlantic and Pacific Oceans. AMERICA'S two great continents are North and South AMERICA.



It is generally known that Columbus was the first European to bring back definite knowledge of the new world. But because Amerigo Vespucci explored and described the coast of Brazil, a mapmaker suggested that some part of the newly discovered hemisphere be given his name.



COLUMBUS

AMERIGO
VESPUCCI



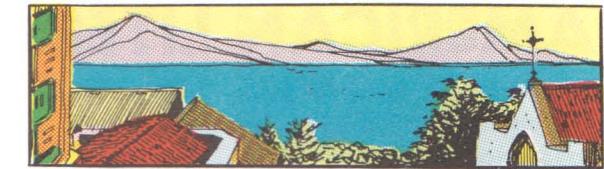
(Continued)

Originally, the name AMERICA was used to describe only South AMERICA. But when it was discovered that there was some connection between the two continents, the name was used for both. The AMERICAN continents are rich in natural resources. Their two great mountain ranges, the Rockies and the Andes, abound in rich ore and minerals.

AMERICA (Continued)



As a result of Columbus' great discovery, European nations sent men to explore all parts of the continents. Spain, The Netherlands, England, France and Portugal followed their explorers with settlers and established colonies in the New World. This is the reason we have such a variety of languages spoken on our two AMERICAN continents.



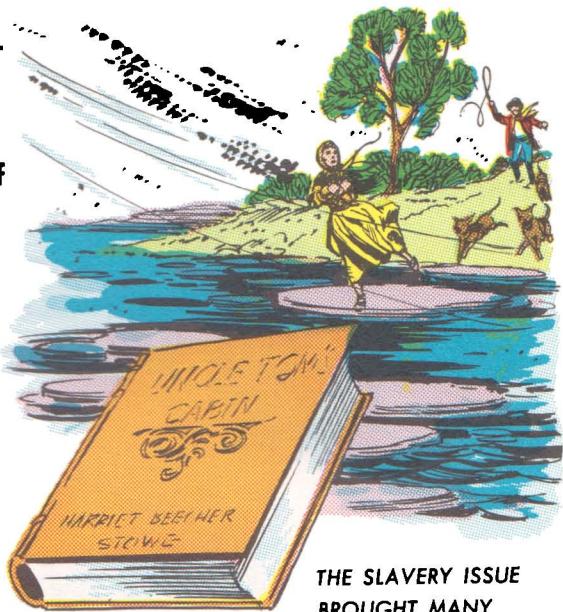
The small colonies developed rapidly. After many years, they succeeded in driving out the foreign powers, and they set up their own republics.



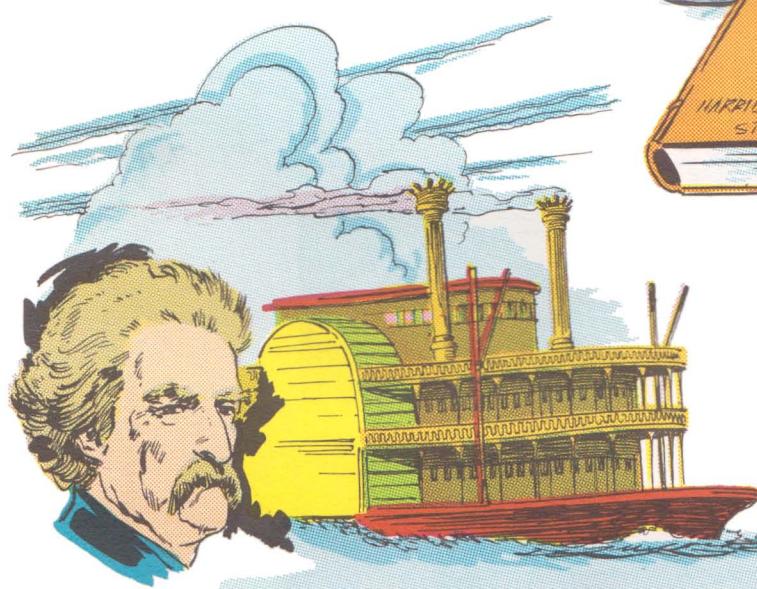
IN 1823, PRESIDENT JAMES MONROE ISSUED HIS FAMOUS "MONROE DOCTRINE." IT STATED THAT THE AMERICAN CONTINENTS WERE NOT TO BE CONSIDERED AS SUBJECTS FOR FUTURE COLONIZATION BY ANY EUROPEAN POWERS. THIS POWERFUL EDICT PUT AN END TO ANY FURTHER ATTEMPT TO COLONIZE THE NEW WORLD.

AMERICAN LITERATURE . . .

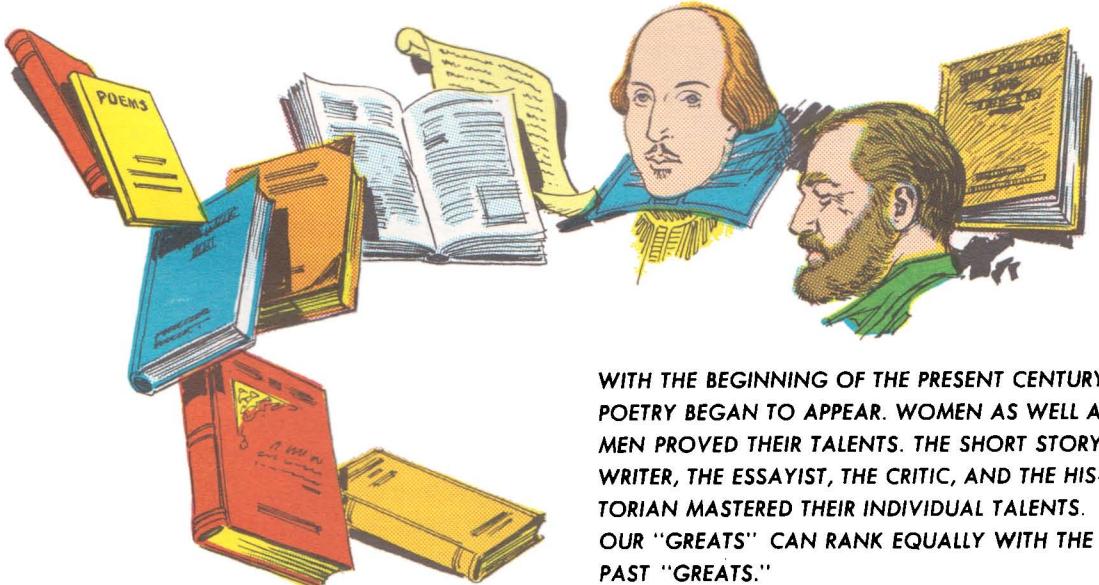
The early efforts of American writers were largely influenced by the works of their English-speaking brothers across the ocean. England's literary heritage is a great one and goes back thousands of years. Men of letters in the small American republic drew upon the vast output of England's masters of the pen for their inspiration. But as the small nation grew, the works of American authors began to take on a purely New World character. The true American writer was born.



THE SLAVERY ISSUE BROUGHT MANY MORE WRITERS INTO THE OPEN. AS OUR COUNTRY GREW TO THE SOUTH AND WEST MANY WRITERS . . .



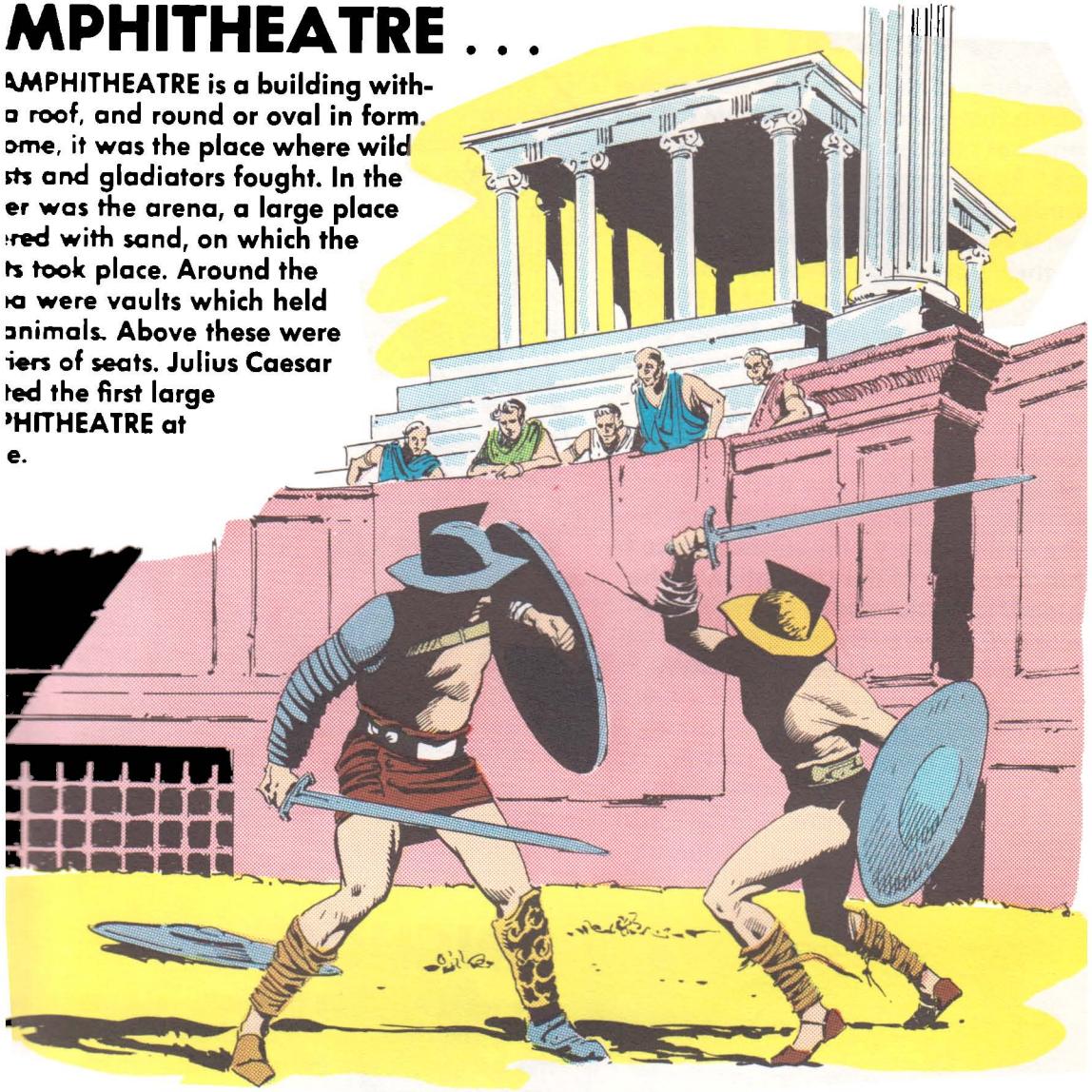
... USED THEIR HOME AREAS FOR STORY SETTINGS. EACH ONE TOUCHED UPON LIFE FOR HIS THEME, ONLY THE SURROUNDINGS VARIED.



WITH THE BEGINNING OF THE PRESENT CENTURY, POETRY BEGAN TO APPEAR. WOMEN AS WELL AS MEN PROVED THEIR TALENTS. THE SHORT STORY WRITER, THE ESSAYIST, THE CRITIC, AND THE HISTORIAN MASTERED THEIR INDIVIDUAL TALENTS. OUR "GREATS" CAN RANK EQUALLY WITH THE PAST "GREATS."

AMPHITHEATRE . . .

AMPHITHEATRE is a building with- a roof, and round or oval in form. Some, it was the place where wild beasts and gladiators fought. In the center was the arena, a large place covered with sand, on which the contests took place. Around the arena were vaults which held animals. Above these were tiers of seats. Julius Caesar founded the first large AMPHITHEATRE at Pompeii.

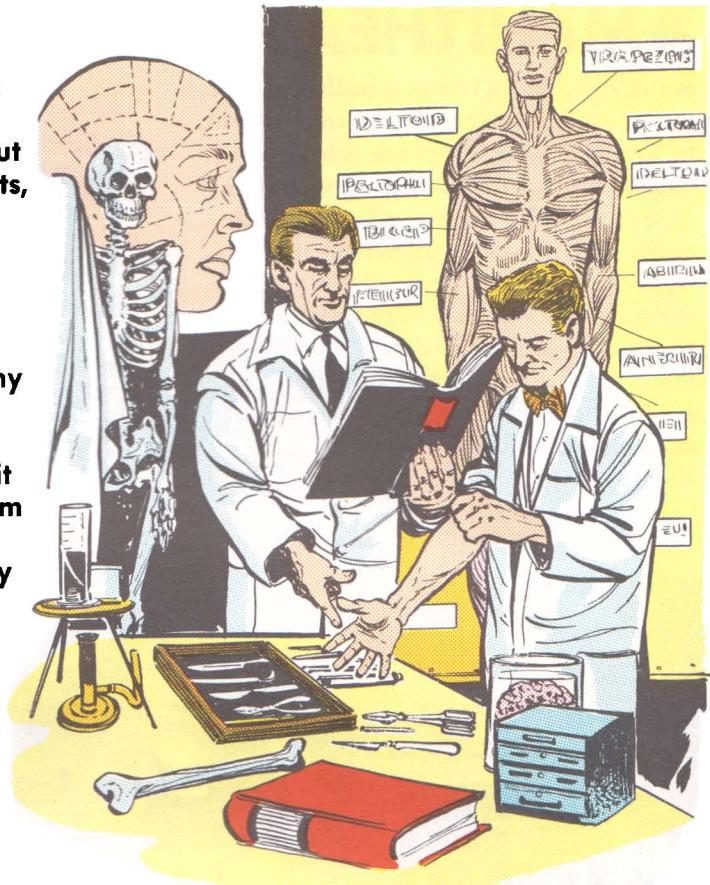


AMSTERDAM . . .

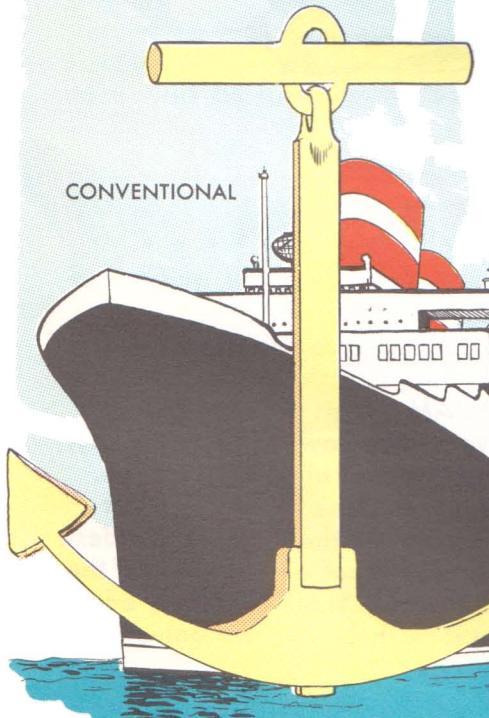
AMSTERDAM is Holland's capital, and one of the chief commercial cities of Europe. It is famous for its art treasures and as the center of the diamond-cutting industry of the world. The name AMSTERDAM means the dam of the Amstel, the river which flows through the city. It has one of the greatest airports in Europe. It relies on many industries for support, but diamond-cutting is by far the largest and oldest. AMSTERDAM is also famous as the home of the great artist Rembrandt. There are many educational institutions, including two universities.

ANATOMY . . .

The study of the parts that make up a living thing is called ANATOMY. The original meaning of the word is "to cut up." By separating a thing into its parts, students can understand what these parts are, and how they are put together. Very often when we use the word, we refer to human ANATOMY, but, it can also deal with plants and animals. Down through the ages many men have made important contributions to the study of ANATOMY. A Greek named Galen wrote books on it which are still read by doctors. William Harvey, an English doctor, changed the entire history of medical science by his discovery of the circulation of the blood. Inventions such as the microscope and the x-ray have greatly helped in the study of ANATOMY.

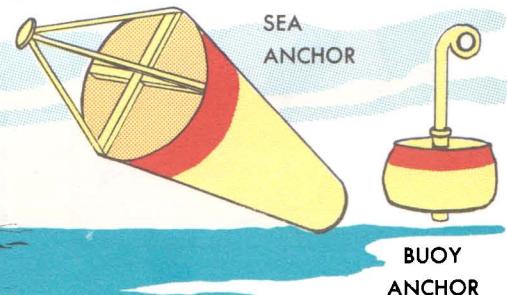


TYPES OF SEA ANCHORS



ANCHOR . . .

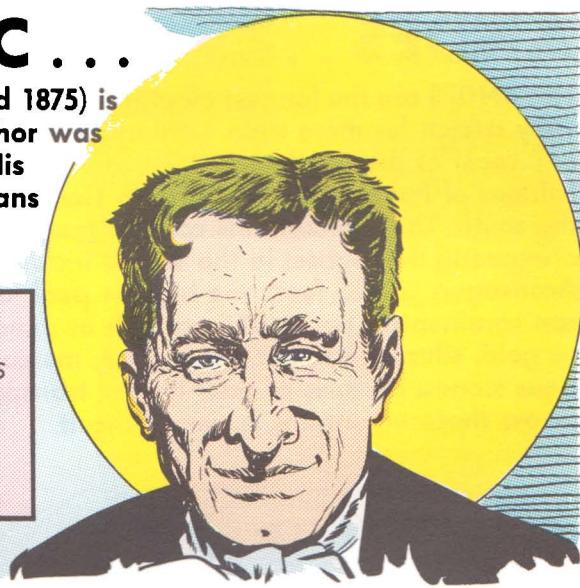
The word **ANCHOR** generally refers to something which is used to hold a ship or boat to the bottom. It can mean a thing which is used to make something stay in place. An example of this would be the use of a paper weight to **ANCHOR** a pile of papers in one place. A ship's **ANCHOR** is usually made up of three parts: a vertical piece called the shank; a horizontal piece at the top of the shank called the stock and a curved piece at the bottom of the shank which digs into the sea bottom.



ANDERSEN, HANS C . . .

HANS CHRISTIAN ANDERSEN (Born 1805—Died 1875) is famous for his "Fairy Tales." This famous author was born in the little town of Odense, Denmark. His father was a shoemaker and he died when Hans was only 11 years old.

HANS LEFT SCHOOL AND SPENT MOST OF HIS TIME FOR THE NEXT THREE YEARS SITTING IN HIS FATHER'S OLD SHOP MAKING MARIONETTES AND TOY THEATERS FOR THEM. HE WANTED TO BE AN OPERA SINGER SO HE TRAVELED TO COPENHAGEN.



THERE HE TRIED ACTING, SINGING, AND DANCING, BUT HE WAS SO THIN AND AWKWARD THAT HE WAS ONLY LAUGHED AT BY THOSE WHO SAW HIM. HE DECIDED THEN TO BECOME A WRITER. IN 1828 HE BEGAN TO WRITE HUMOROUS STORIES. HIS BOOK, "A JOURNEY ON FOOT," WAS SO AMUSING THAT IT BROUGHT IMMEDIATE SUCCESS. FROM THEN ON ANDERSEN'S WORK, ESPECIALLY HIS FANCIFUL TALES, WON THE HEARTS OF YOUNG AND OLD ALIKE.

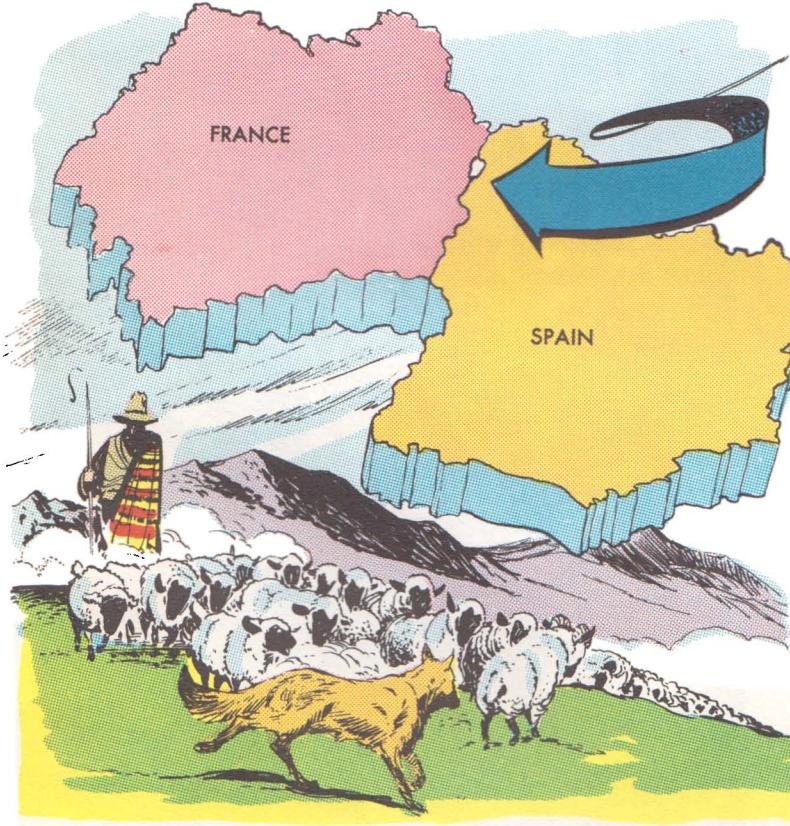
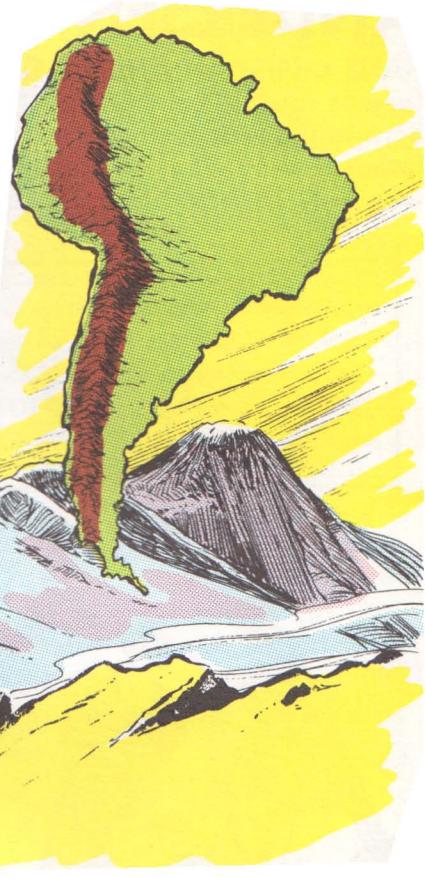


SOME OF ANDERSEN'S BEST KNOWN STORIES ARE "THE UGLY DUCKLING," "THE EMPEROR'S NEW CLOTHES," "THE RED SHOES," "THE BRAVE TIN SOLDIER," "THE LITTLE MATCH GIRL" AND "THE LITTLE MERMAID." HIS BOOKS HAVE BEEN TRANSLATED INTO MANY LANGUAGES. IN 1875, AT THE AGE OF 70, HANS CHRISTIAN ANDERSEN DIED.



ANDES . . .

The ANDES are the longest mountain chain in the world. They stretch for more than 4,000 miles along the western coast of the South American continent, from the Isthmus of Panama on the north to Tierra del Fuego on the south. These mountains contain many peaks which are among the highest in the world, including Mt. Aconcagua (23,035 feet), the highest peak on the American continents. The ANDES are rich in minerals, such as gold, silver, platinum, copper, tin, mercury and precious stones. Because of their height, transportation across these mountains is very difficult.

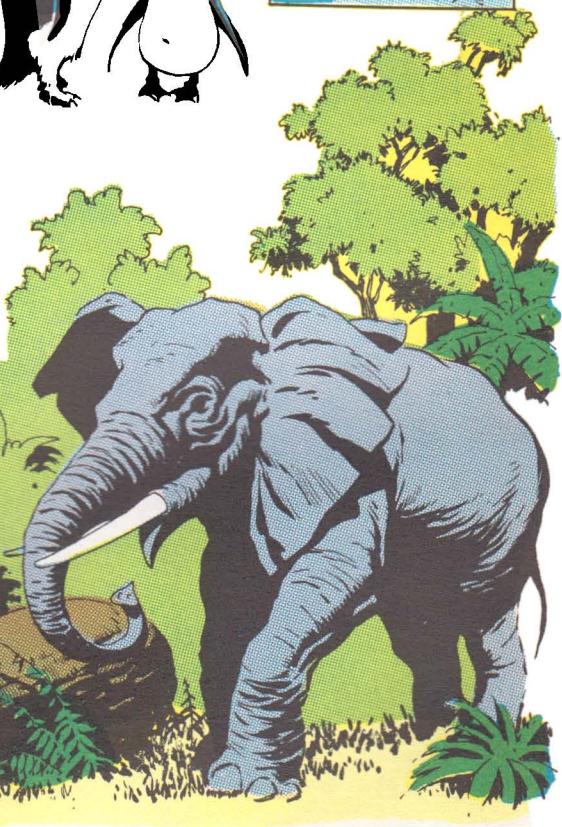
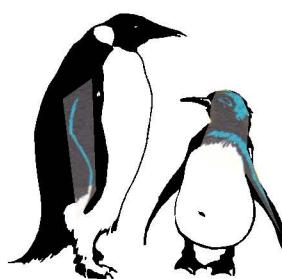
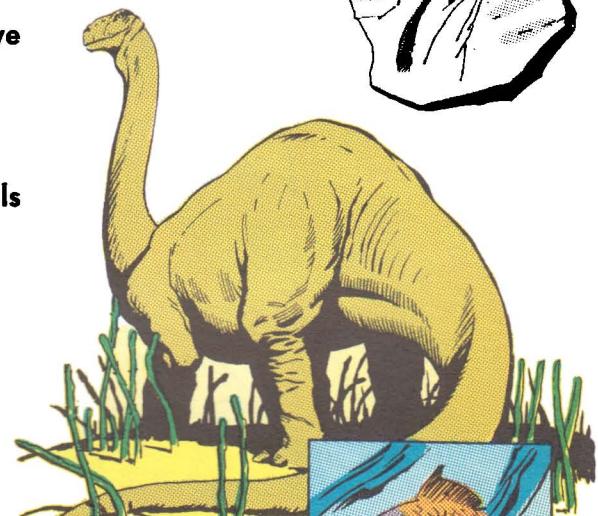
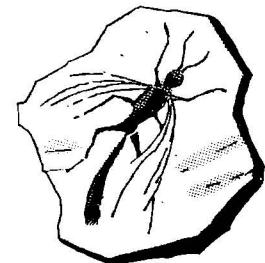
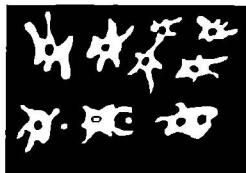


ANDORRA

One of the tiniest countries in the world is ANDORRA. It is located high in the Pyrenees Mountains between the countries of France and Spain. ANDORRA is one-fifth the size of the state of Rhode Island and has less than 6,000 inhabitants. Although it pays an annual tribute to Spain and France, ANDORRA is an independent republic. Most of the people earn their living by herding sheep and growing tobacco, as they did in ancient times.

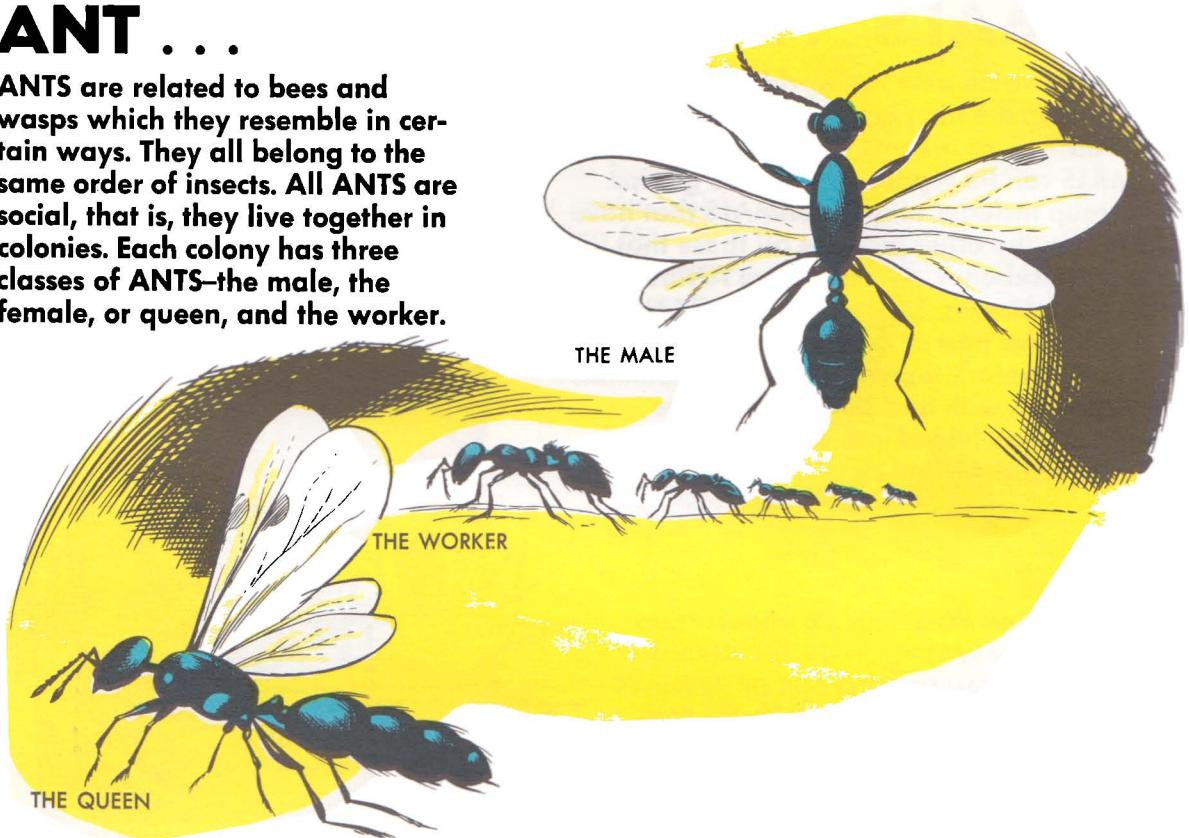
ANIMALS . . .

ANIMALS live all over the world: on land, in water and in the air. Fish, birds, and insects are ANIMALS, as are cats, cows and elephants. ANIMALS can be separated into two groups. One group includes all the ANIMALS that have backbones; the other includes all those that have no backbones. All insects are ANIMALS without backbones. Fish, amphibians (ANIMALS that live part of their lives on land and part in the water), reptiles, birds and mammals are ANIMALS with backbones. These five groups can be divided into cold-blooded and warm-blooded ANIMALS.



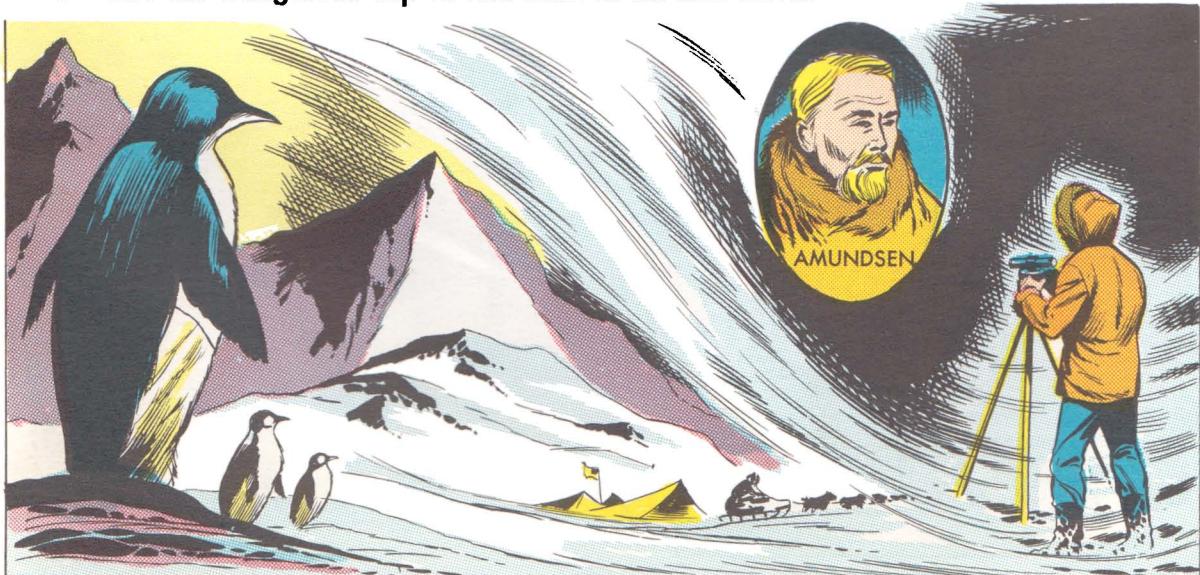
ANT . . .

ANTS are related to bees and wasps which they resemble in certain ways. They all belong to the same order of insects. All ANTS are social, that is, they live together in colonies. Each colony has three classes of ANTS—the male, the female, or queen, and the worker.



ANTARCTICA . . .

The continent of ANTARCTICA is an ice and snow covered land mass which encircles the South Pole. It is nearly twice as large as the United States and is surrounded by a cold and stormy ocean. ANTARCTICA is separated by hundreds of miles from all continents but South America and has no land animals and no human population. Plant life is mostly mosses, grasses and a few flowering plants. The penguin exists in large colonies on the continental margins and islands. Most of ANTARCTICA is a high plateau which contains many high mountain peaks. Many explorers, including Captain James Cook, Admiral Richard Byrd and Roald Amundsen, have made the dangerous trip to this land of ice and snow.



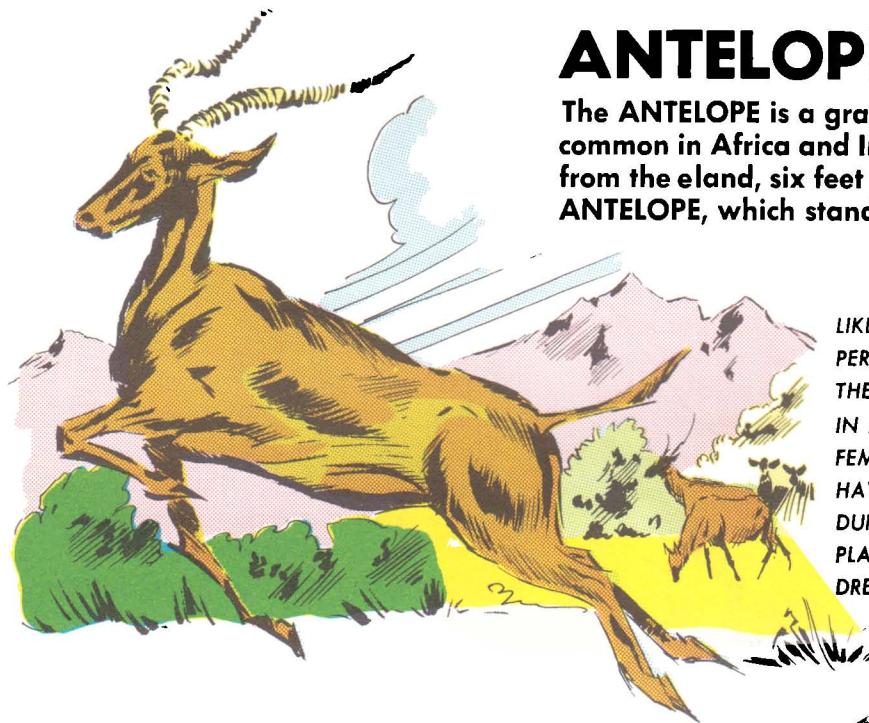
ANTEATER . . .

ANTEATERS are so named because they eat white ants, better known as termites. The true ANTEATERS live between southern Mexico and Paraguay. These animals have very long jaw bones with no teeth and a small mouth. Their tongues are long, can be extended a long way beyond the mouth, and are covered with a sticky substance which holds the termites when it touches them.



ANTELOPE . . .

The ANTELOPE is a graceful, shy animal, most common in Africa and India. It varies in size from the eland, six feet high, to the tiny, royal ANTELOPE, which stands ten inches tall.



LIKE CATTLE, ANTELOPES HAVE PERMANENT HORMS AND CHEW THEIR CUD. HORMS ARE FOUND IN ALL MALES AND IN SOME FEMALE TYPES. ANTELOPES HAVE GREAT SPEED AND ENDURANCE AND LIVE ON OPEN PLAINS IN HERDS OF HUNDREDS.

ANTHONY, SUSAN B . . .

This champion of women's rights (Born 1820-Died 1906) was born of Quaker parents in Adams, Mass. While teaching school she awoke to the fact that women had very few legal rights in the United States. She spent the rest of her life fighting for the rights of women. She led many a stormy bonfire rally of women demanding equal rights. She died in 1906, 14 years before the 19th Amendment, which gave women the right to vote, was added to the Constitution.

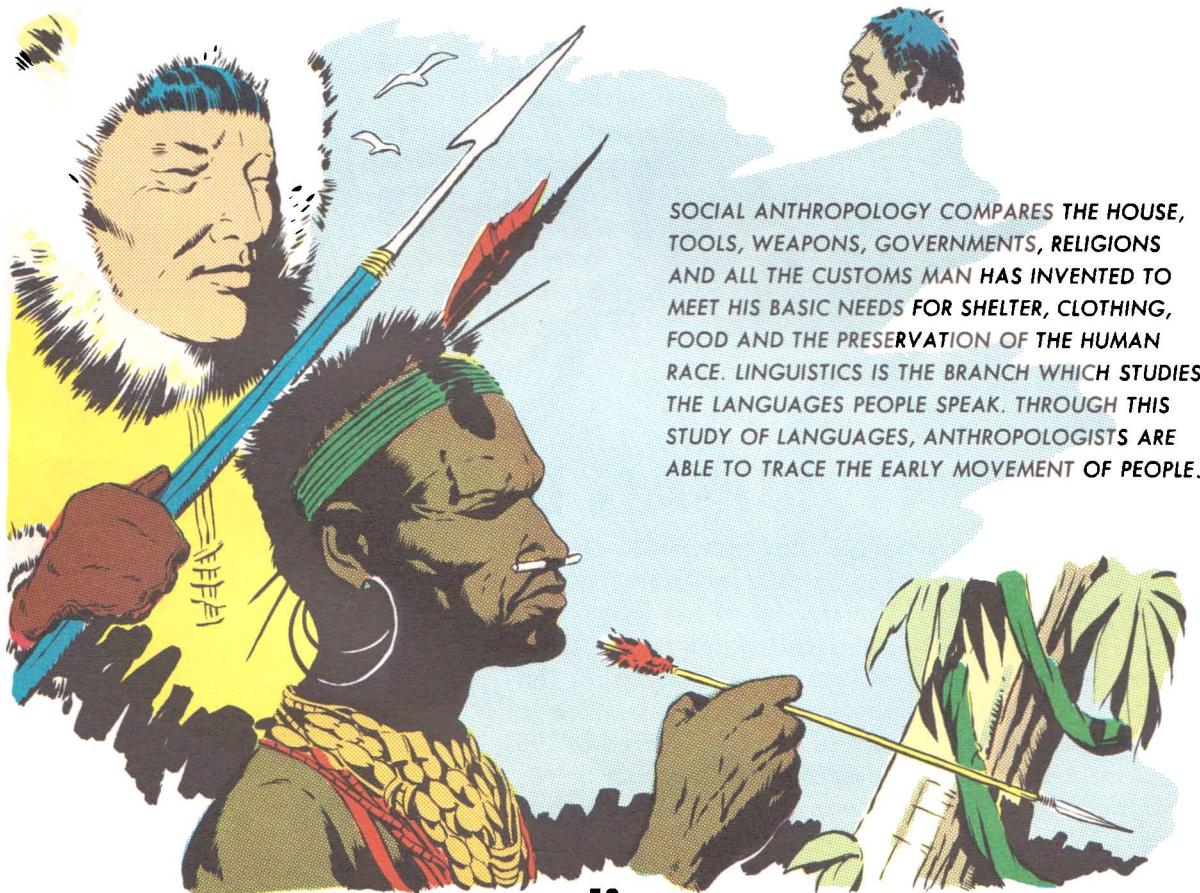


ANTHROPOLOGY . . .

One of the newer sciences, ANTHROPOLOGY is the study of man and all he has done. Because the world is so large and because the problems of men are so many, ANTHROPOLOGY has been divided into several special branches. Archaeology is the branch which studies what has been made by ancient or prehistoric people. You can see archaeologists digging in old river beds and in ancient ruins.



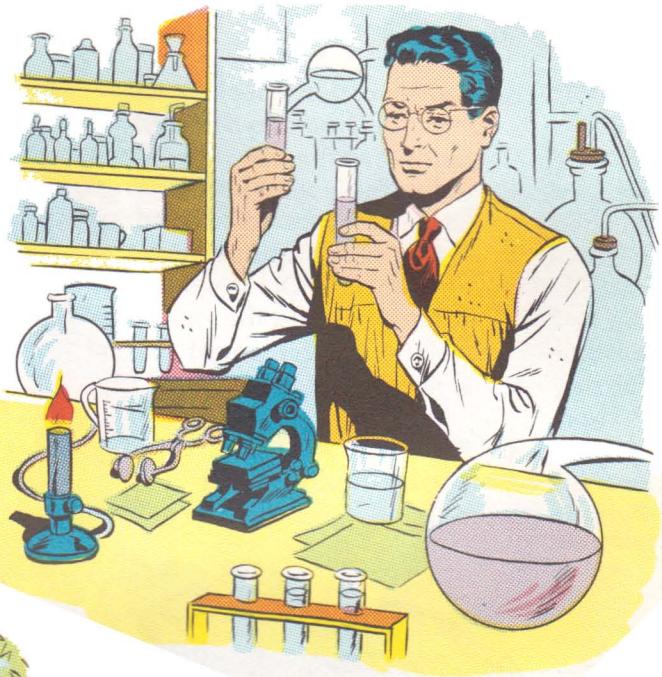
PHYSICAL ANTHROPOLOGY IS THE BRANCH WHICH STUDIES THE CHANGES IN MAN'S BODY. IT TRIES TO FIND OUT HOW MAN IS DIFFERENT IN BODY FROM ALL OTHER LIVING THINGS. SOCIAL ANTHROPOLOGY IS THE STUDY OF THE DAILY WAY OF LIFE IN OTHER SOCIETIES.



SOCIAL ANTHROPOLOGY COMPARES THE HOUSE, TOOLS, WEAPONS, GOVERNMENTS, RELIGIONS AND ALL THE CUSTOMS MAN HAS INVENTED TO MEET HIS BASIC NEEDS FOR SHELTER, CLOTHING, FOOD AND THE PRESERVATION OF THE HUMAN RACE. LINGUISTICS IS THE BRANCH WHICH STUDIES THE LANGUAGES PEOPLE SPEAK. THROUGH THIS STUDY OF LANGUAGES, ANTHROPOLOGISTS ARE ABLE TO TRACE THE EARLY MOVEMENT OF PEOPLE.

ANTIBIOTICS . . .

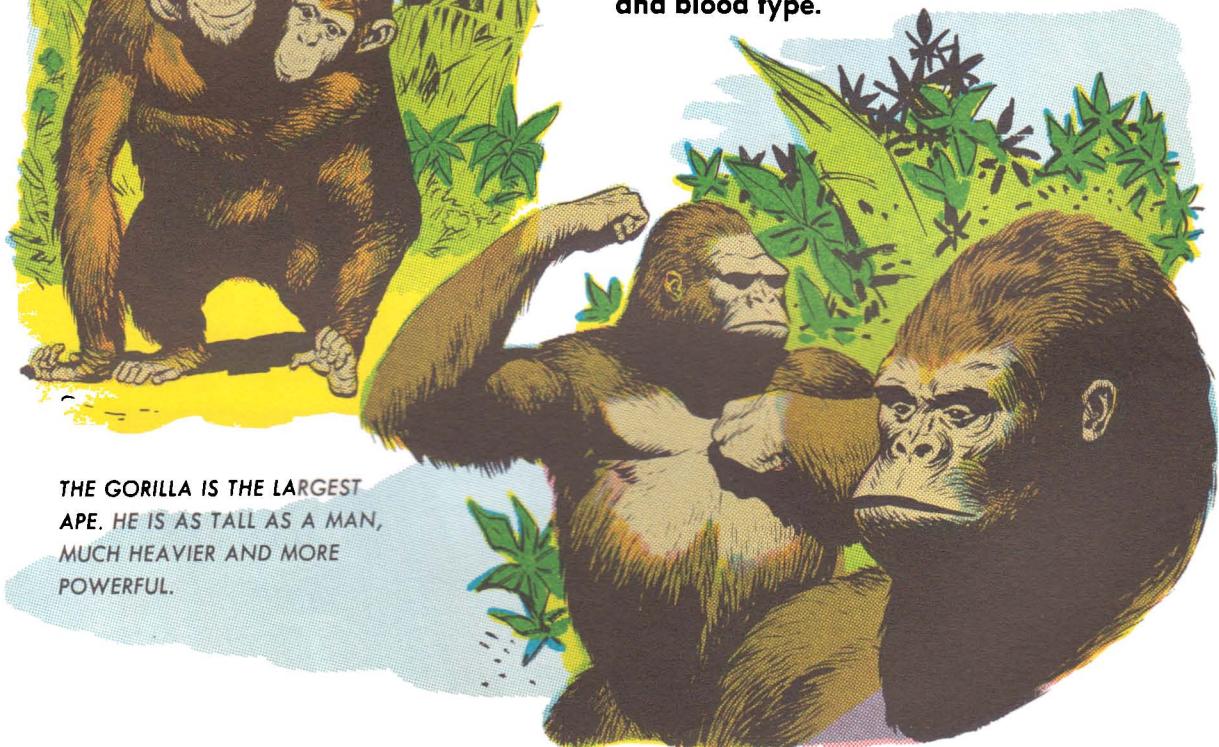
ANTIBIOTICS are substances found in molds, yeasts and bacteria which stop the growth of bacteria. Penicillin, the first-known ANTIBIOTIC, was discovered in 1929, but work on it was not actively pursued until 1938. It is currently being used with marked success in the treatment of many types of infections. Many other ANTIBIOTIC substances have since been developed for clinical use in infections where penicillin has little effect.



APES . . .

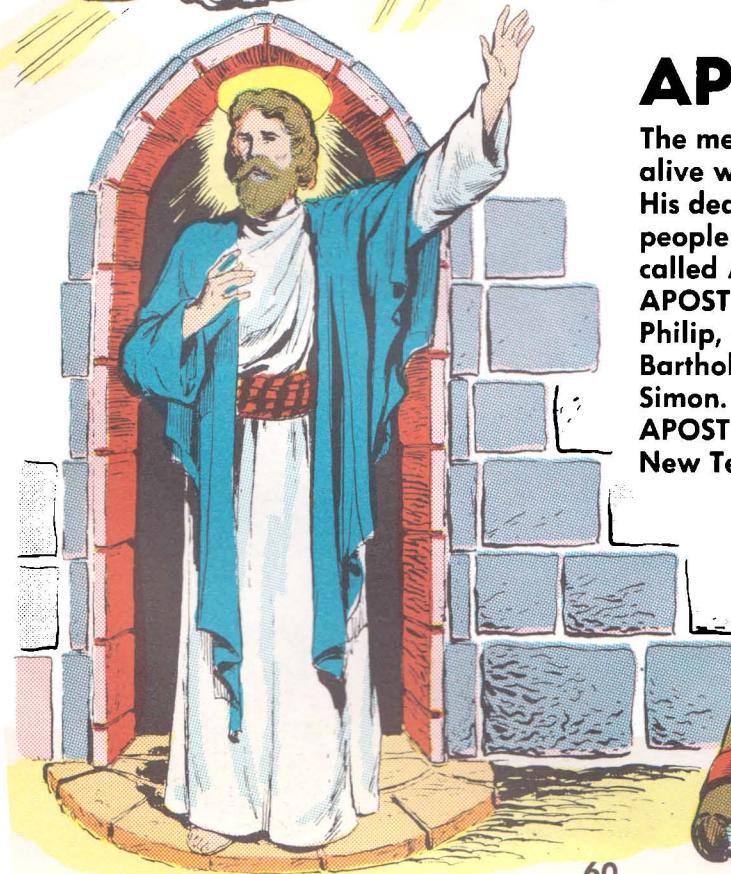
The name APE is applied to the tailless, manlike mammals found only in the tropical forests of Africa and Asia. These include gorillas, chimpanzees, orangutans, and gibbons. These animals are called anthropoids because they are similar to man in skeleton, brain shape and arrangement, and blood type.

THE GORILLA IS THE LARGEST APE. HE IS AS TALL AS A MAN, MUCH HEAVIER AND MORE POWERFUL.



APOLLO . . .

APOLLO, sometimes called Phoebus, is the best loved god in Greek mythology. He drove the chariot of the sun and was worshipped as the god of light. His body was strong and beautiful and he stood for all that was precious and sacred in Greek ideals. APOLLO was the son of Zeus and Leto and the twin brother of Diana. He is given credit for slaying the enormous serpent, Python, with the first shot from his bow. In memory of this struggle and his victory, he established the Pythian games.



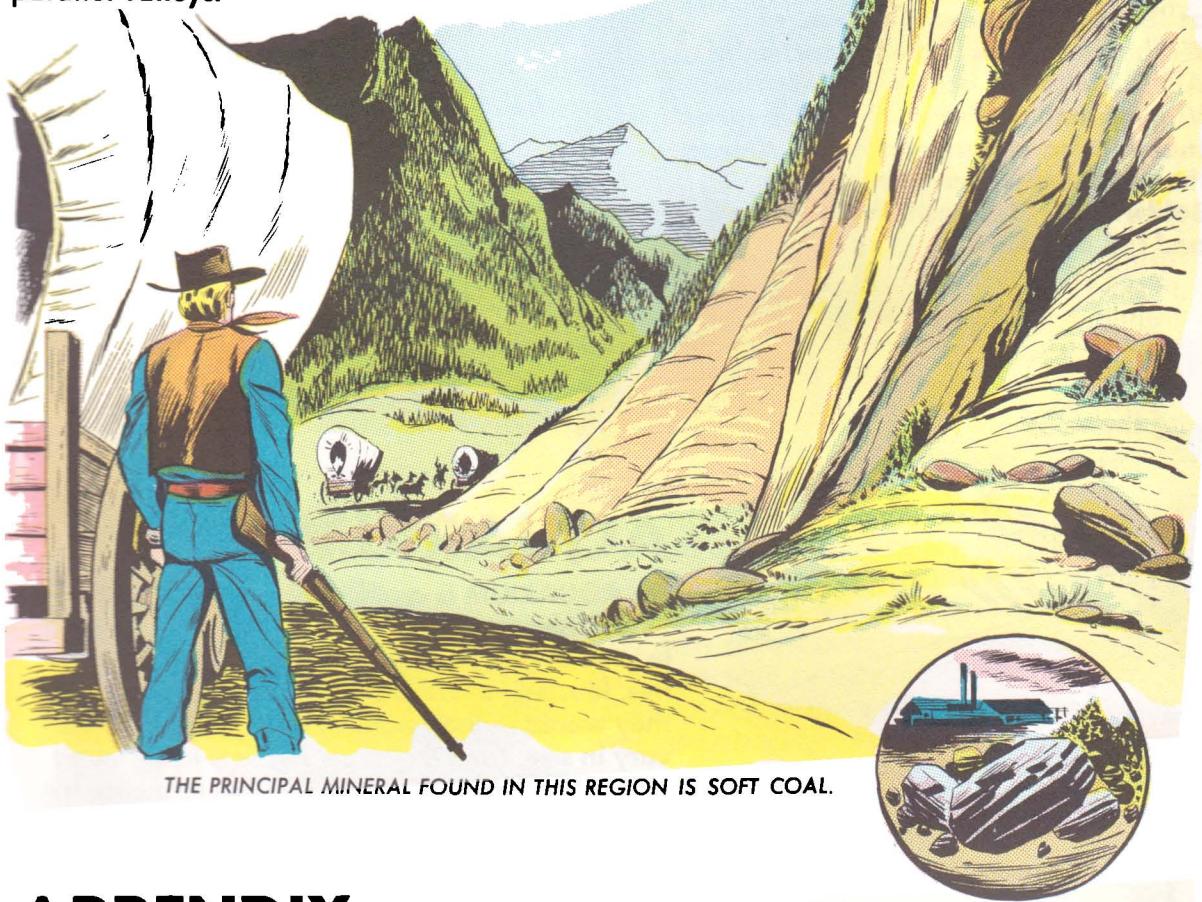
APOSTLE . . .

The men closest to Jesus while He was alive were called disciples (pupils). After His death they spread His teachings to people in other lands. They were then called APOSTLES (messengers). Original APOSTLES were Peter, Andrew, John, Philip, the two named James, Matthew, Bartholomew, Thomas, Thaddeus and Simon. You can read about these APOSTLES in the Book of Acts, in the New Testament.



APPALACHIANS . . .

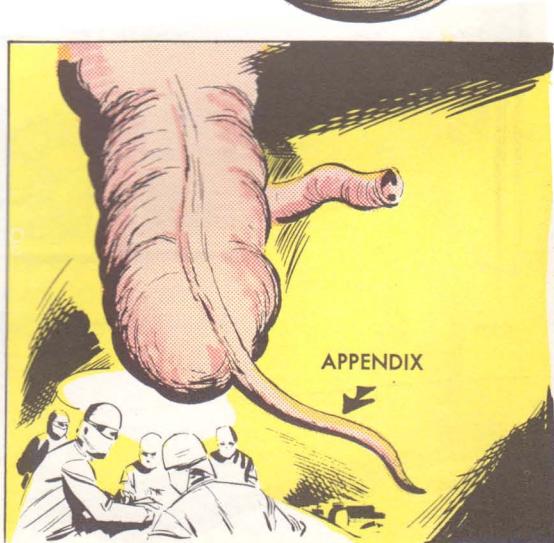
The broad belt of mountains and highlands that separates the Atlantic plains of the United States from the central lowlands is called the APPALACHIANS. This highland belt extends from Alabama to the Gulf of St. Lawrence in eastern Canada. In the early days of our country, these highlands presented quite an obstacle to pioneers moving westward. The APPALACHIANS are made up of several belts of mountain ridges separated by long parallel valleys.



THE PRINCIPAL MINERAL FOUND IN THIS REGION IS SOFT COAL.

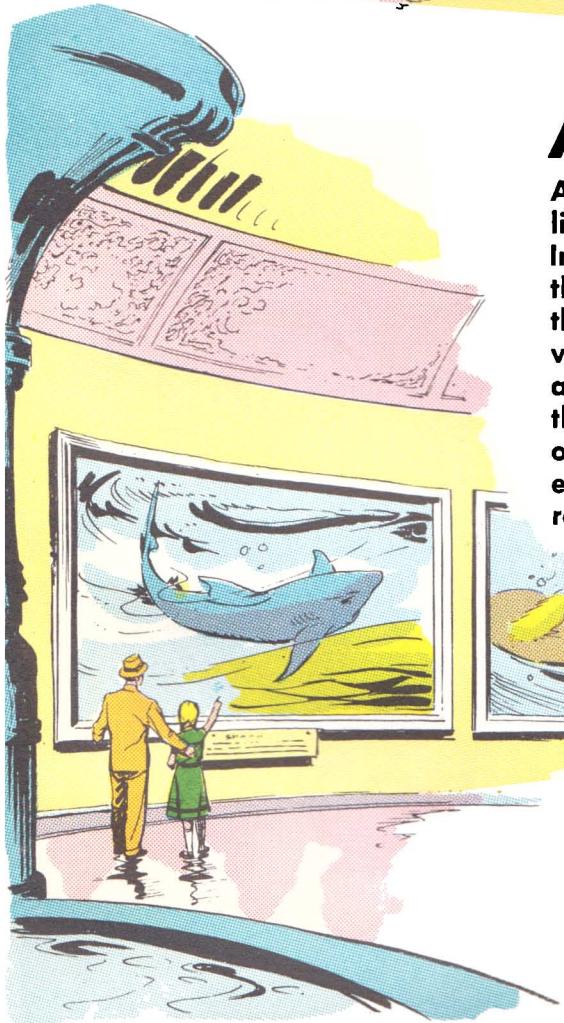
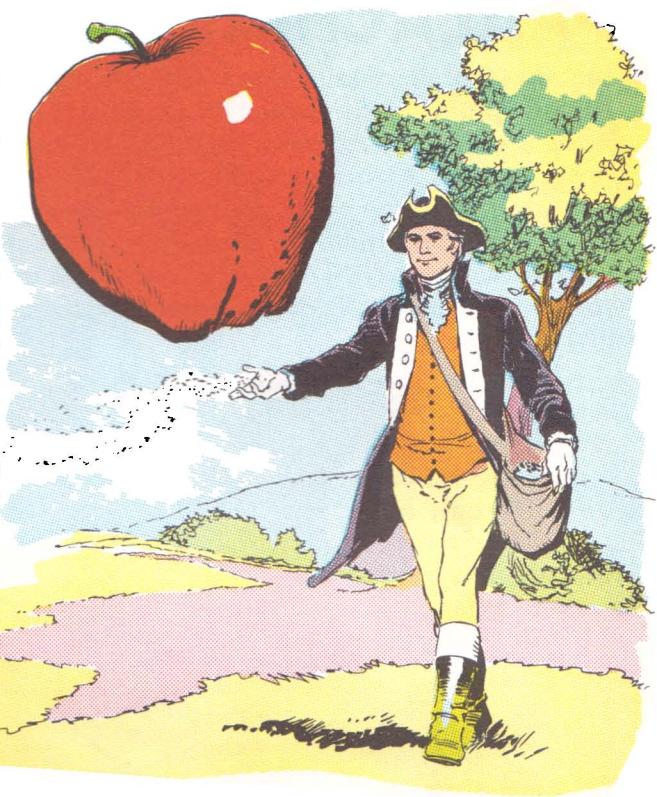
APPENDIX . . .

The APPENDIX is a small wormlike sac about as big around as a pencil and from three to six inches long. The APPENDIX is an offshoot of the large intestine, and lies in the lower righthand part of the abdomen. Thousands of years ago man doubtlessly needed his APPENDIX, but now it seems to be quite useless and often causes trouble. The APPENDIX is subject to infection which is called appendicitis. In modern medicine, the removal of a troublesome APPENDIX is usually a minor operation.



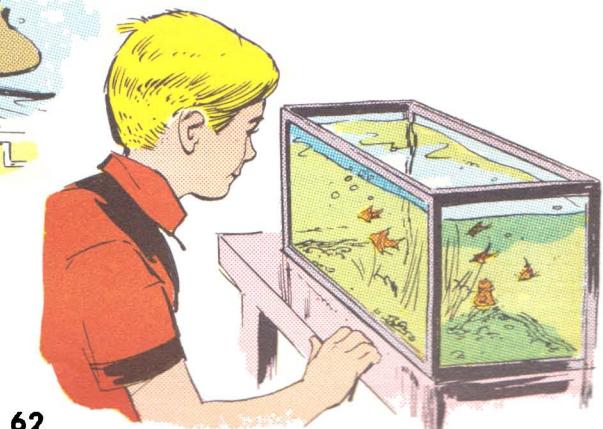
APPLE . . .

Although one of the most common fruits grown, the **APPLE** is still among the most valuable and prized fruits of many countries. Credit for starting many of the early orchards of the United States is given to John Chapman, who wandered through the states of Indiana and Ohio in pioneering days planting apple seeds. He is now gratefully remembered as **Johnny Appleseed**. The state of Washington leads in the production of **APPLES** followed closely by New York, Virginia and California. The fruit varies in size, color, texture and flavor. Among the better known varieties are the Baldwin, the Mc Intosh, the Winesap and the Delicious.



AQUARIUM . . .

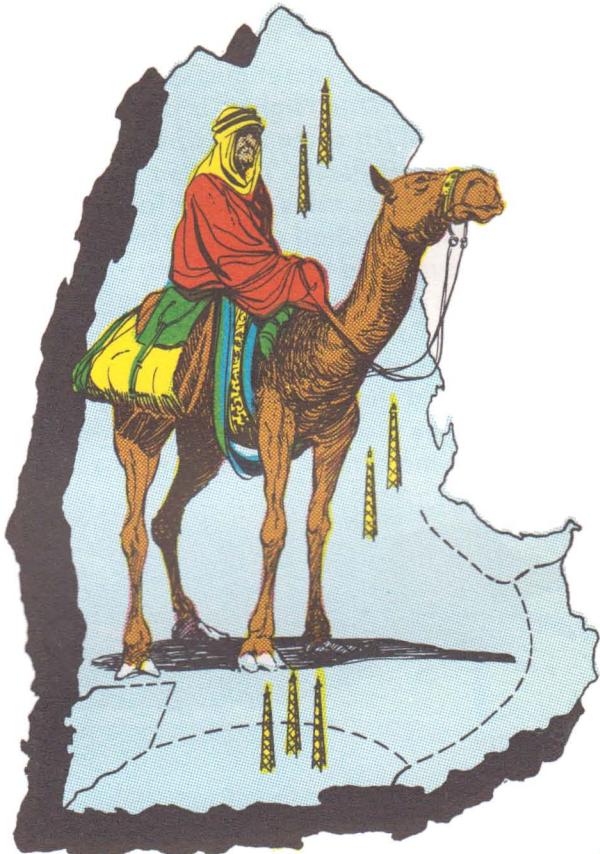
An **AQUARIUM** is a place for the display of living fishes and other water-loving creatures. In rows of glass tanks along the walls, fishes, turtles, lobsters and aquatic animals live just as they would in their natural state. **AQUARIUMS** vary in size, from the huge displays to be found at the Steinhart **AQUARIUM** in San Francisco or the Shedd **AQUARIUM** in Chicago to the small one-tank varieties in the homes of countless fish enthusiasts. The lowly snail plays an important role in keeping a fish tank clean.



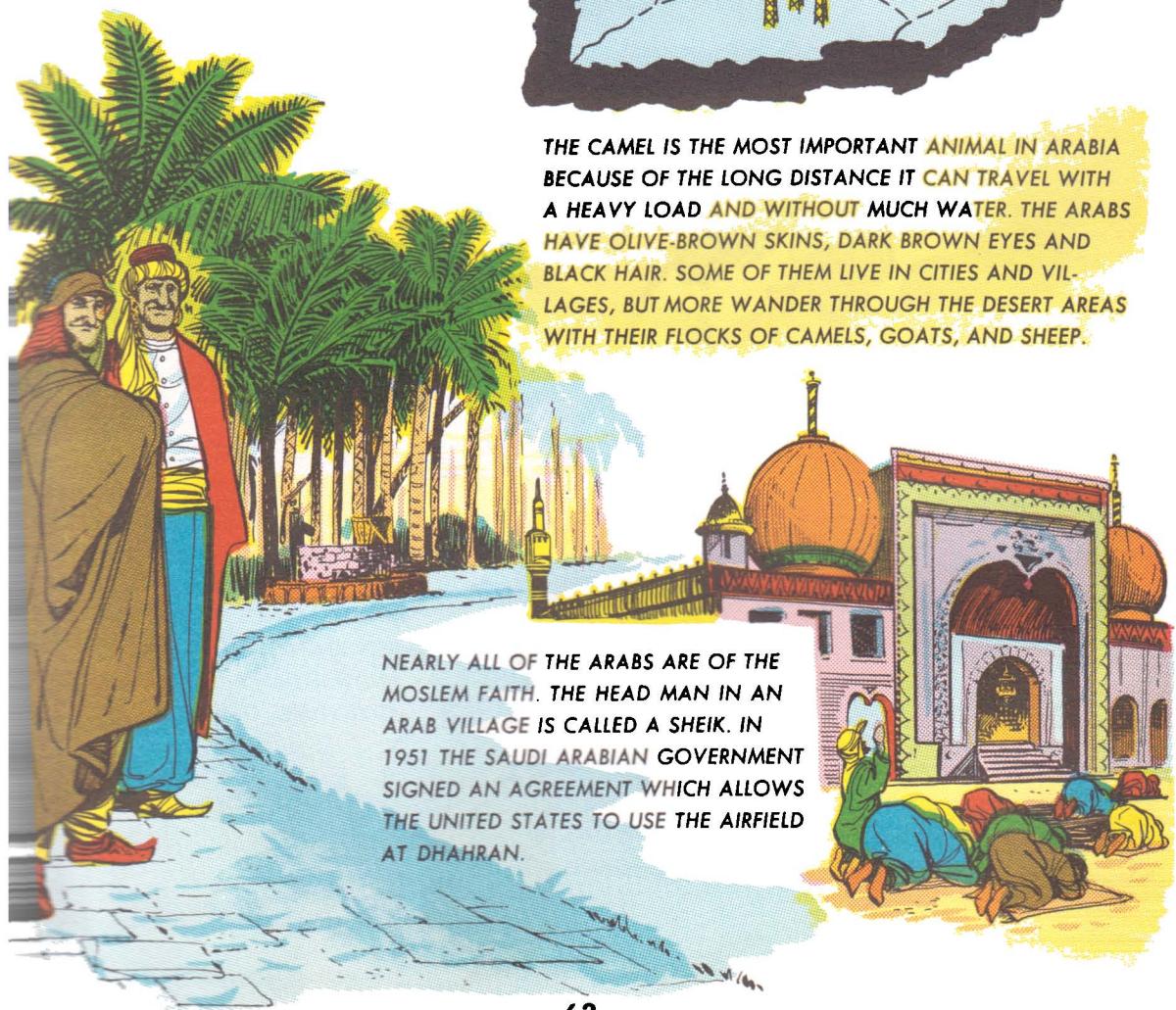
ARABIA . . .

Much of the oil which is used in our country comes from ARABIA which is a huge peninsula lying between Asia and Africa.

ARABIA is just about one-third the size of the United States. This plateau country is divided into kingdoms, the best known of which are Saudi ARABIA and Yemen. Aden on the southwest coast is ruled by the British. Very little rain falls in ARABIA and there are several large, dry, sandy deserts. The only important plant life consists of the date palm tree which supplies fruit for food and has many other uses.



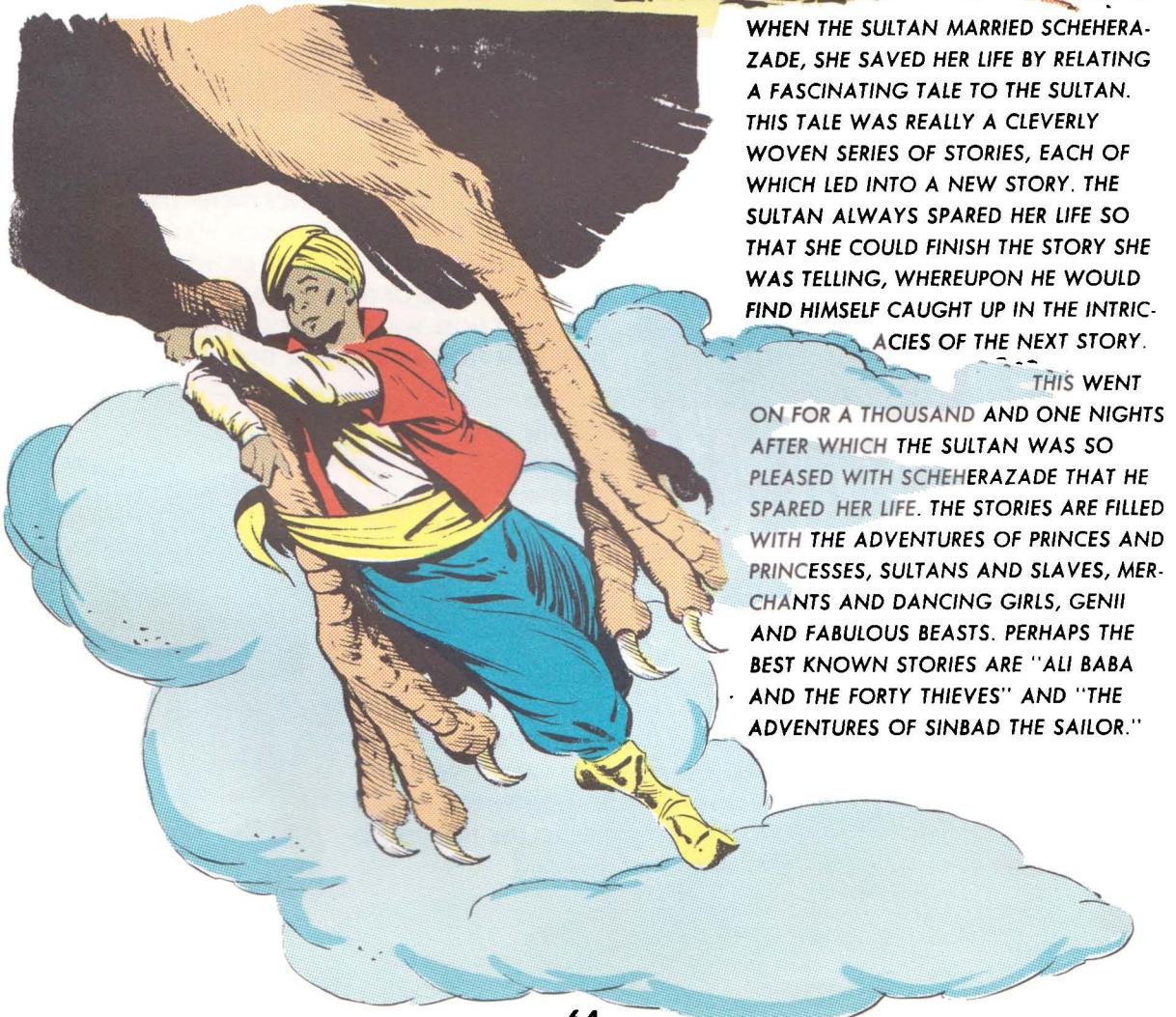
THE CAMEL IS THE MOST IMPORTANT ANIMAL IN ARABIA BECAUSE OF THE LONG DISTANCE IT CAN TRAVEL WITH A HEAVY LOAD AND WITHOUT MUCH WATER. THE ARABS HAVE OLIVE-BROWN SKINS, DARK BROWN EYES AND BLACK HAIR. SOME OF THEM LIVE IN CITIES AND VILLAGES, BUT MORE WANDER THROUGH THE DESERT AREAS WITH THEIR FLOCKS OF CAMELS, GOATS, AND SHEEP.



NEARLY ALL OF THE ARABS ARE OF THE MOSLEM FAITH. THE HEAD MAN IN AN ARAB VILLAGE IS CALLED A SHEIK. IN 1951 THE SAUDI ARABIAN GOVERNMENT SIGNED AN AGREEMENT WHICH ALLOWS THE UNITED STATES TO USE THE AIRFIELD AT DHAHREN.

ARABIAN NIGHTS

THE ARABIAN NIGHTS, sometimes called "The Thousand And One Nights" is a collection of stories which came to Arabia from India by way of Persia. There are many versions of these tales and the largest collection has two hundred and sixty four stories. They have been translated into more languages than any other book except the Bible. All the tales are built around the same plot, the story of the beautiful Scheherazade and the Sultan. The Sultan had sworn that he would put to death each new wife on the morning after his marriage.



WHEN THE SULTAN MARRIED SCHEHERAZADE, SHE SAVED HER LIFE BY RELATING A FASCINATING TALE TO THE SULTAN. THIS TALE WAS REALLY A CLEVERLY WOVEN SERIES OF STORIES, EACH OF WHICH LED INTO A NEW STORY. THE SULTAN ALWAYS SPARED HER LIFE SO THAT SHE COULD FINISH THE STORY SHE WAS TELLING, WHEREUPON HE WOULD FIND HIMSELF CAUGHT UP IN THE INTRICACIES OF THE NEXT STORY.

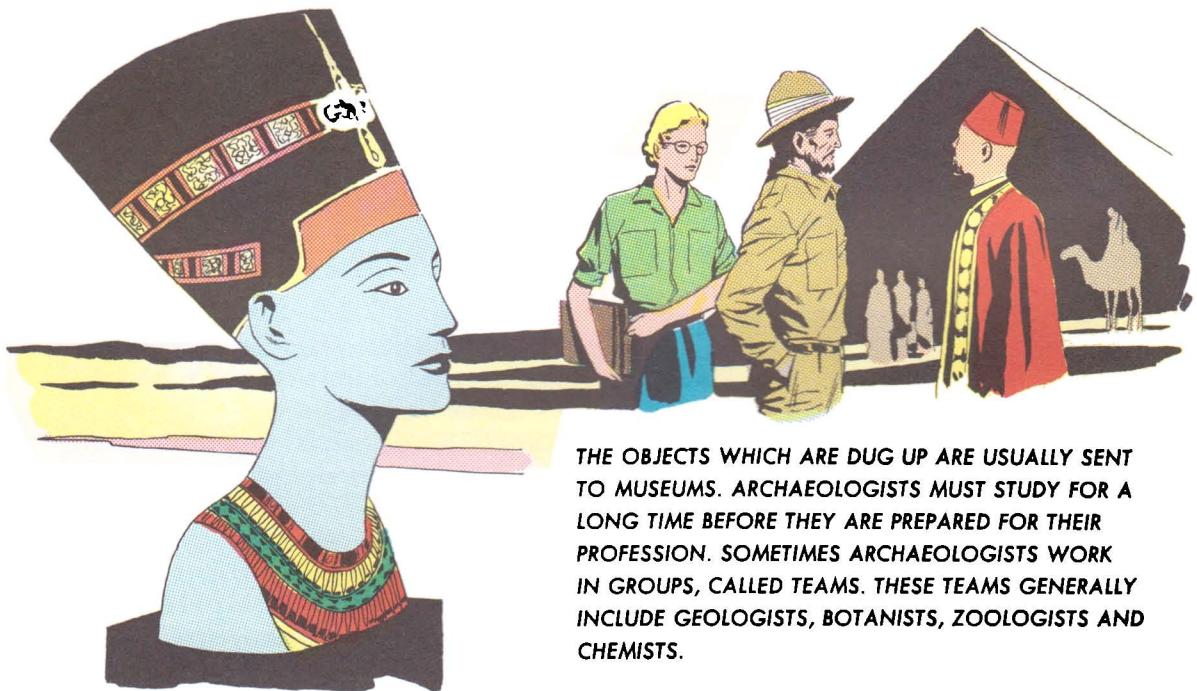
THIS WENT ON FOR A THOUSAND AND ONE NIGHTS AFTER WHICH THE SULTAN WAS SO PLEASED WITH SCHEHERAZADE THAT HE SPARED HER LIFE. THE STORIES ARE FILLED WITH THE ADVENTURES OF PRINCES AND PRINCESSES, SULTANS AND SLAVES, MERCHANTS AND DANCING GIRLS, GENII AND FABULOUS BEASTS. PERHAPS THE BEST KNOWN STORIES ARE "ALI BABA AND THE FORTY THIEVES" AND "THE ADVENTURES OF SINBAD THE SAILOR."

ARCHAEOLOGY . . .

ARCHAEOLOGY is the study of the objects which early peoples left behind them. There are two steps in ARCHAEOLOGICAL work. The first step consists of excavating or digging up the sites where early peoples lived. The second step consists of the study of all the ancient objects that were dug up.



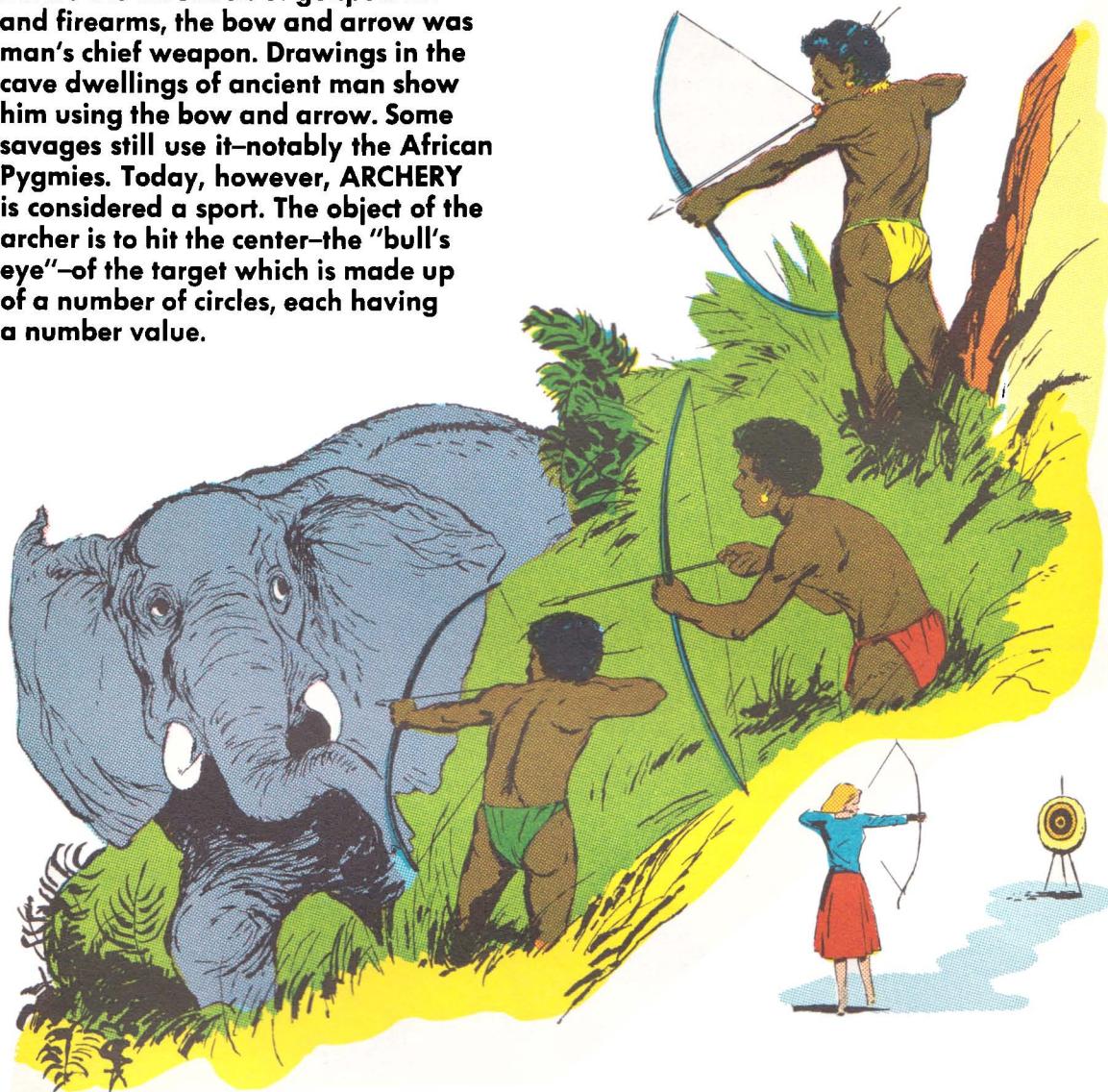
WHEN BOTH JOBS ARE FINISHED, THE ARCHAEOLOGIST CAN WRITE THE STORY OF THE PEOPLE. MOST OFTEN THE OBJECTS WHICH ARE DUG UP ARE THE THINGS WHICH THESE EARLY PEOPLE USED EACH DAY. THE REMAINS OF HOUSES, TOOLS, JEWELRY, DISHES AND TOYS ARE USUALLY FOUND, IN ADDITION TO THE BONES OF ANIMALS USED FOR FOOD.



THE OBJECTS WHICH ARE DUG UP ARE USUALLY SENT TO MUSEUMS. ARCHAEOLOGISTS MUST STUDY FOR A LONG TIME BEFORE THEY ARE PREPARED FOR THEIR PROFESSION. SOMETIMES ARCHAEOLOGISTS WORK IN GROUPS, CALLED TEAMS. THESE TEAMS GENERALLY INCLUDE GEOLOGISTS, BOTANISTS, ZOOLOGISTS AND CHEMISTS.

ARCHERY . . .

Before the invention of gunpowder and firearms, the bow and arrow was man's chief weapon. Drawings in the cave dwellings of ancient man show him using the bow and arrow. Some savages still use it—notably the African Pygmies. Today, however, ARCHERY is considered a sport. The object of the archer is to hit the center—the "bull's eye"—of the target which is made up of a number of circles, each having a number value.

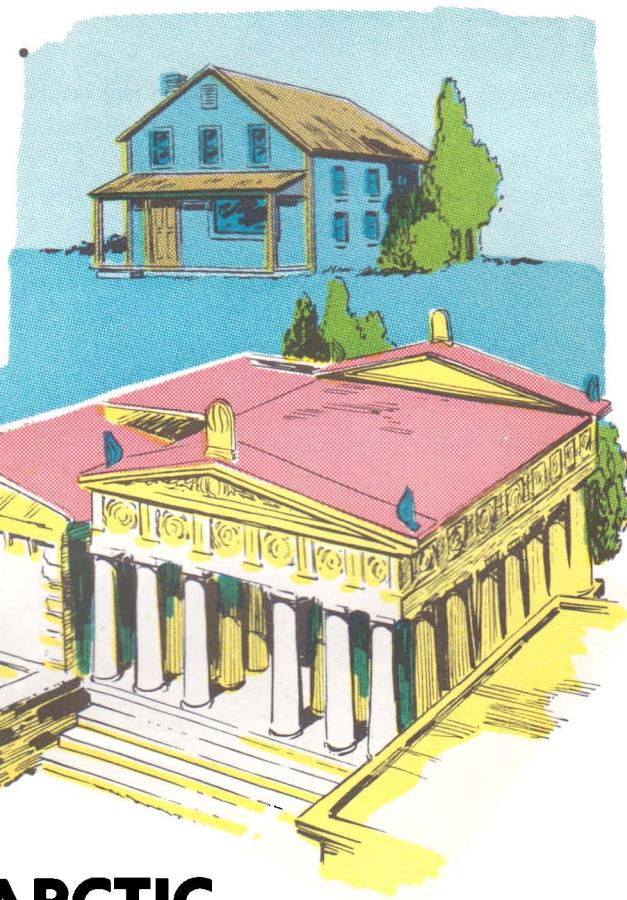


ARCHIMEDES . . .

ARCHIMEDES (Born 287 B.C.—Died 212 B.C.) was a Greek mathematician, physicist and inventor. His work is famous but little is known about his life. He discovered the principle (known as the ARCHIMEDEAN principle) that a body immersed in fluid loses in weight by an amount equal to the weight of fluid displaced. Legend has it that ARCHIMEDES was seeking a method for determining the purity of gold in King Hiero's crown, and shouted "Eureka! I have found it," on discovering the above principle.

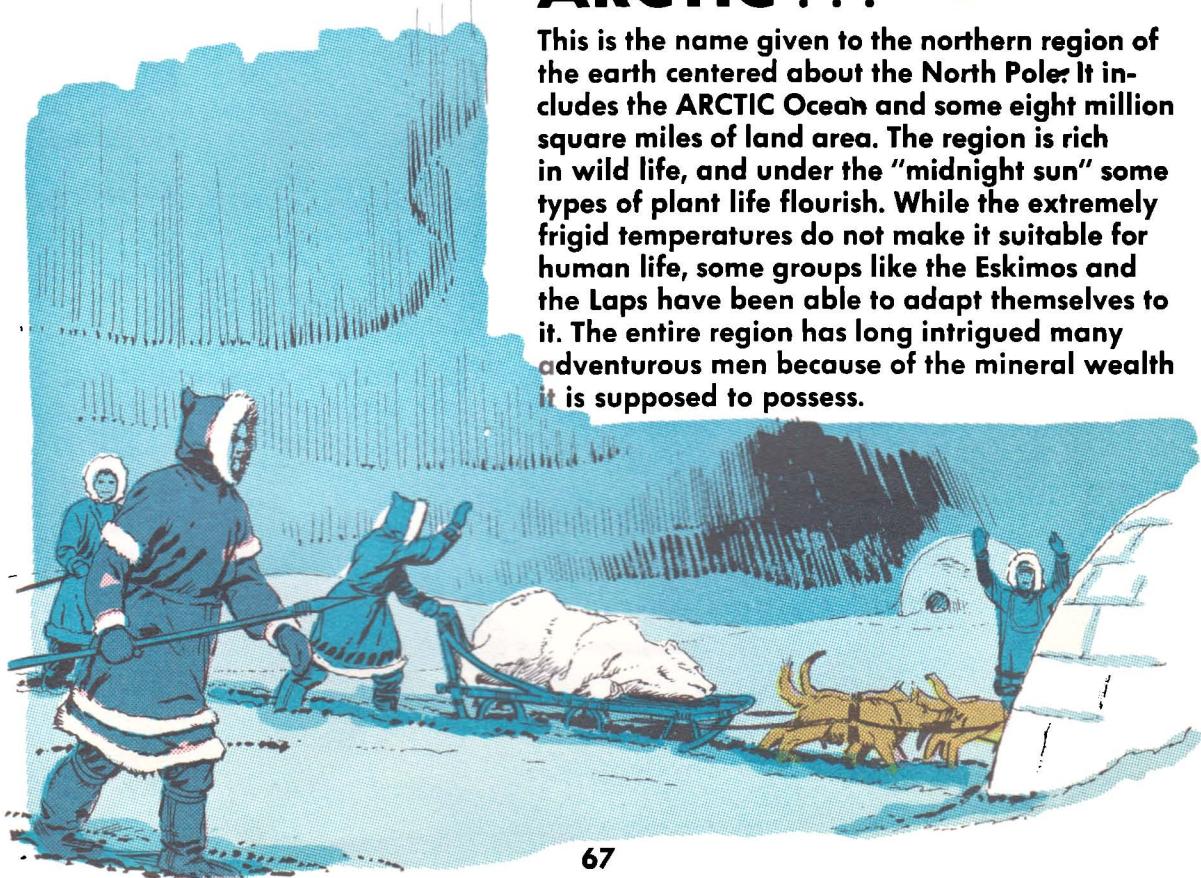
ARCHITECTURE . . .

Unlike ordinary construction, ARCHITECTURE is concerned not only with the erection of buildings, but also with the arrangement of the materials used. When man first put materials together to form a crude shelter—a hut, a tent, or a cabin—he was a builder. When he decorated his shelter and made it more attractive to look at and to live in, he became an architect.



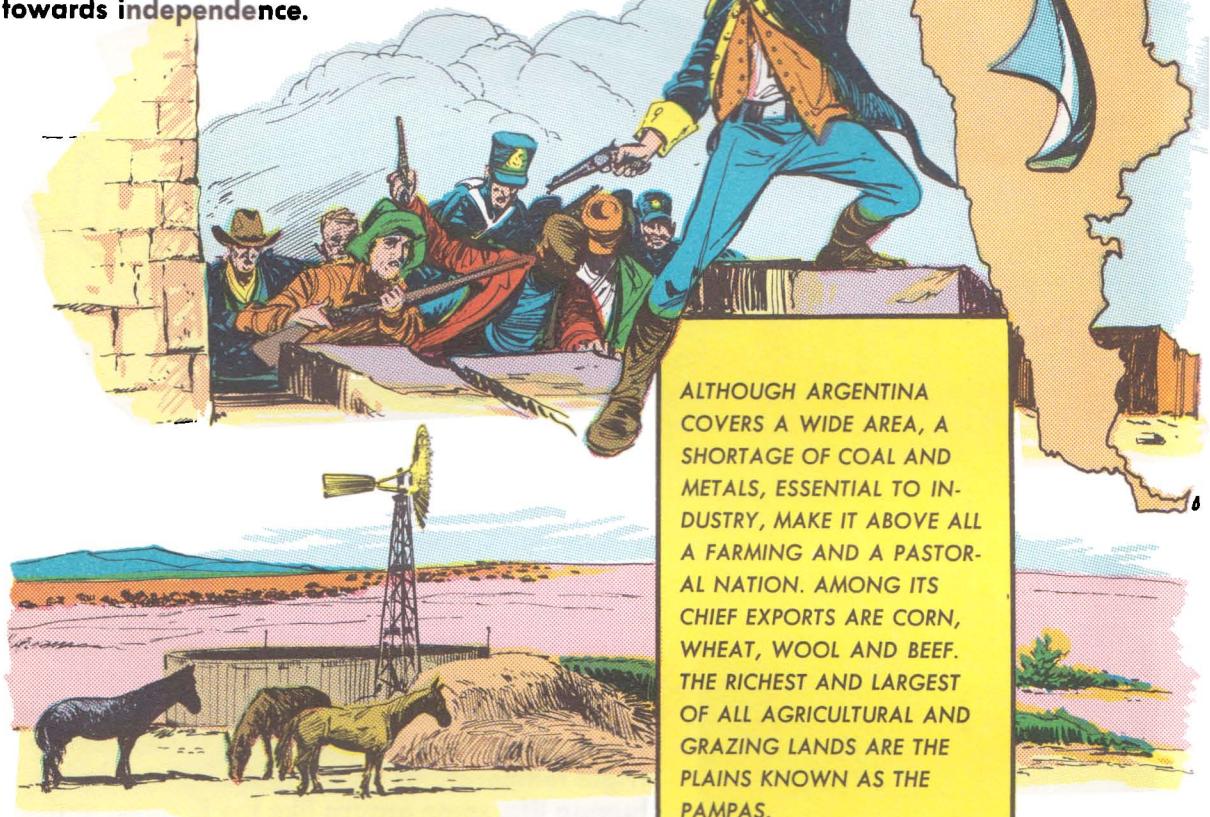
ARCTIC . . .

This is the name given to the northern region of the earth centered about the North Pole. It includes the ARCTIC Ocean and some eight million square miles of land area. The region is rich in wild life, and under the "midnight sun" some types of plant life flourish. While the extremely frigid temperatures do not make it suitable for human life, some groups like the Eskimos and the Laps have been able to adapt themselves to it. The entire region has long intrigued many adventurous men because of the mineral wealth it is supposed to possess.



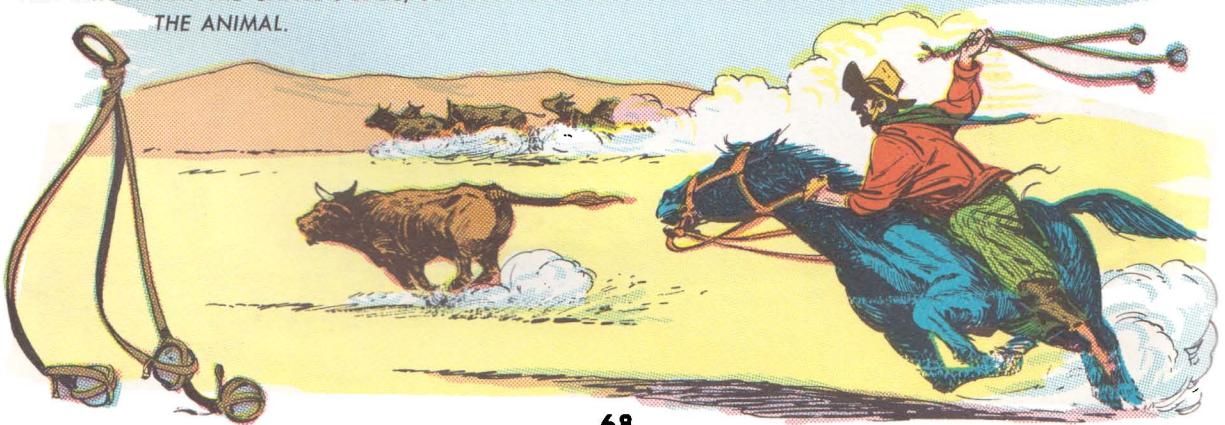
ARGENTINA . . .

ARGENTINA is a country located in the southern part of South America. It has a population of about 19 million and covers an area of 1,078,769 square miles. Its capital, Buenos Aires, is the largest city in South America. Like the American people, the ARGENTINES had to fight to win and to keep their independence. The 25th of May is celebrated much like the 4th of July in memory of the day in 1810 when the ARGENTINES took their first step towards independence.



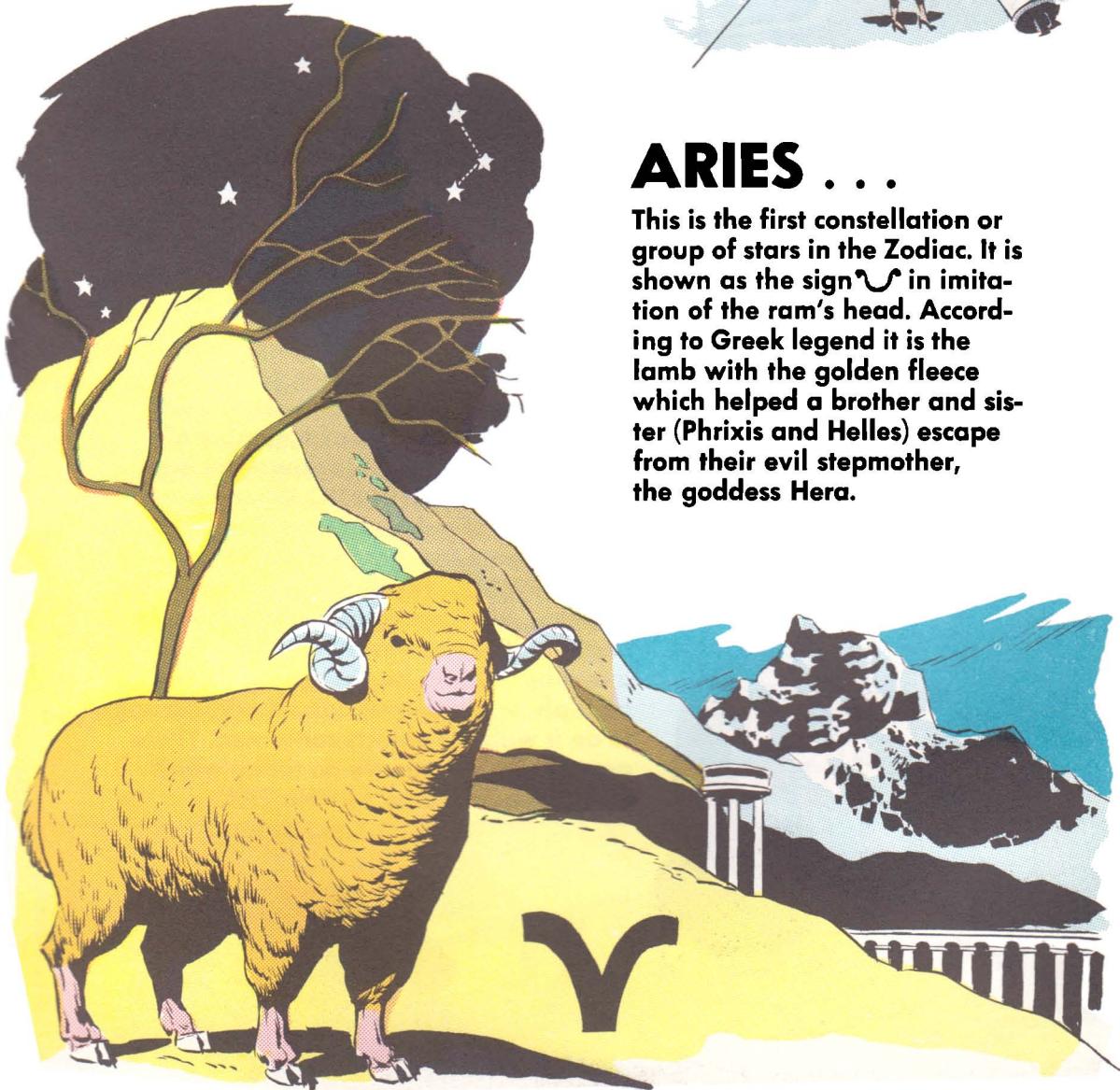
ALTHOUGH ARGENTINA COVERS A WIDE AREA, A SHORTAGE OF COAL AND METALS, ESSENTIAL TO INDUSTRY, MAKE IT ABOVE ALL A FARMING AND A PASTORAL NATION. AMONG ITS CHIEF EXPORTS ARE CORN, WHEAT, WOOL AND BEEF. THE RICHEST AND LARGEST OF ALL AGRICULTURAL AND GRAZING LANDS ARE THE PLAINS KNOWN AS THE PAMPAS.

HERE, SKILLED HORSEMEN, CALLED GAUCHOS, HAVE ROAMED THE PLAINS, HERDED CATTLE, AND LIVED A LIFE MUCH LIKE THAT OF THE AMERICAN COWBOYS. THE GAUCHOS 'ROPE' CATTLE WITH AN INSTRUMENT CALLED THE BOLA. THIS CONSISTS OF LENGTHS OF CORD WITH STONE OR METAL BALLS TIED TO THE ENDS. THE BOLAS ARE THROWN AT THE CATTLE'S LEGS, SO THAT THE CORDS WIND THEMSELVES AROUND THE LEGS AND STOP THE ANIMAL.



ARGON . . .

This is a colorless, inert gas. It was discovered and isolated as a new chemical element in 1894 by Lord Rayleigh and Sir William Ramsay. It is used in electric light bulbs in place of nitrogen to keep the filament from burning away. It is frequently used in electric signs because of the reddish glow it gives when electricity is passed through it.

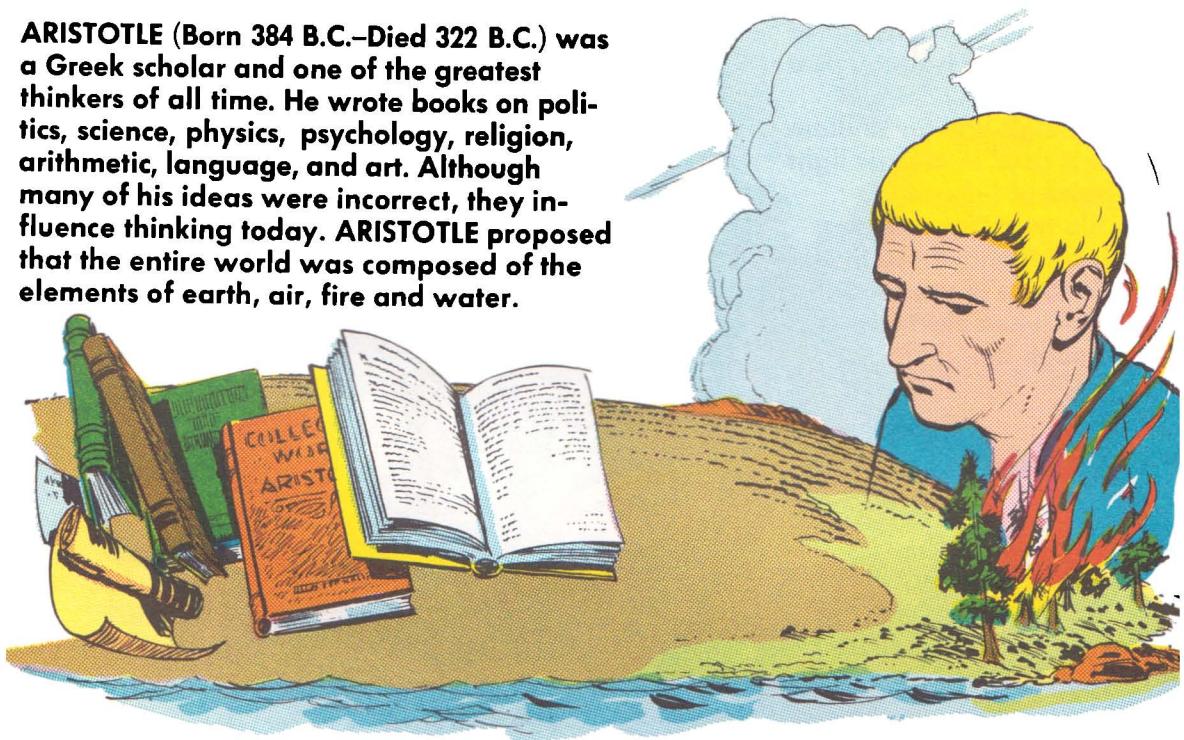


ARIES . . .

This is the first constellation or group of stars in the Zodiac. It is shown as the sign  in imitation of the ram's head. According to Greek legend it is the lamb with the golden fleece which helped a brother and sister (Phrixus and Helle) escape from their evil stepmother, the goddess Hera.

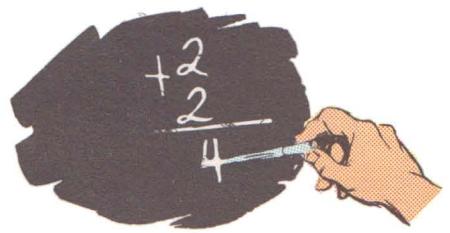
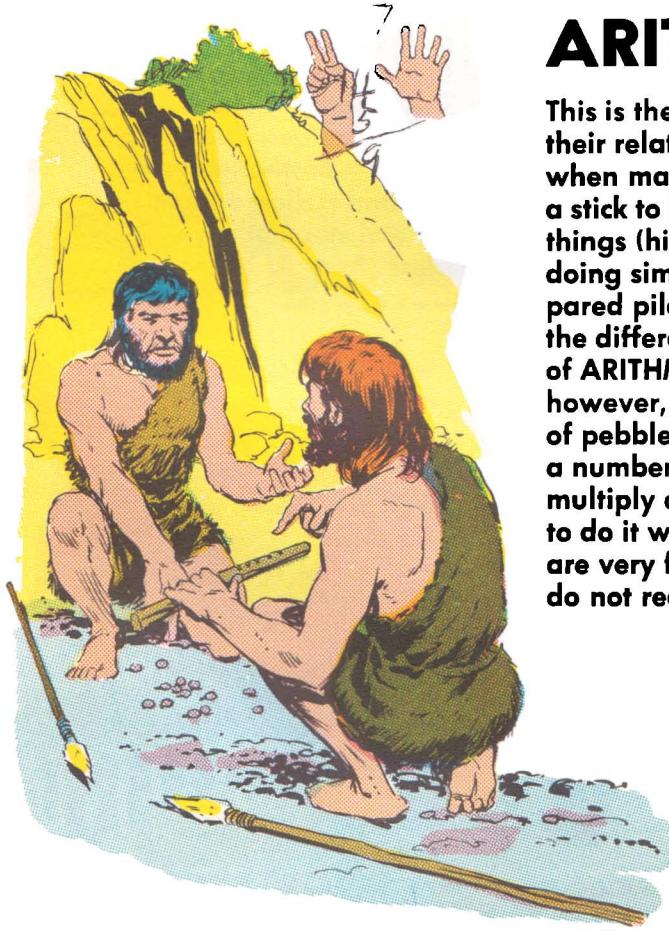
ARISTOTLE . . .

ARISTOTLE (Born 384 B.C.—Died 322 B.C.) was a Greek scholar and one of the greatest thinkers of all time. He wrote books on politics, science, physics, psychology, religion, arithmetic, language, and art. Although many of his ideas were incorrect, they influence thinking today. ARISTOTLE proposed that the entire world was composed of the elements of earth, air, fire and water.



ARITHMETIC . . .

This is the study dealing with numbers and their relations to each other. Long ago when man used pebbles or cut notches in a stick to keep a record of a number of things (his sheep or his arrows), he was doing simple ARITHMETIC. When he compared piles of pebbles or notches to "see" the difference, he was thinking in terms of ARITHMETIC. His thinking of numbers, however, was limited by the number of pebbles or notches. When man devised a number system, he could add, subtract, multiply or divide without actually having to do it with the objects concerned. There are very few things we do today which do not require some ARITHMETIC.



ARIZONA



ARIZONA, nicknamed the "Copper State," has Phoenix for its capital and largest city. It was admitted in 1912 as the 48th state. Its late admission is not surprising, for even in 1912 ARIZONA was still a real frontier area complete with feuds, gun play, and range wars between the cattlemen and sheep ranchers. The state was the scene of some warfare (1861-1886) between U.S. soldiers and the Apache Indians led notably by Cochise and Geronimo. Rich in history, the state is equally wealthy in scenic wonders such as Indian ruins, the Grand Canyon, the Painted Desert, the Petrified Forest and the beauty of parched deserts at the foot of snow-capped mountains.

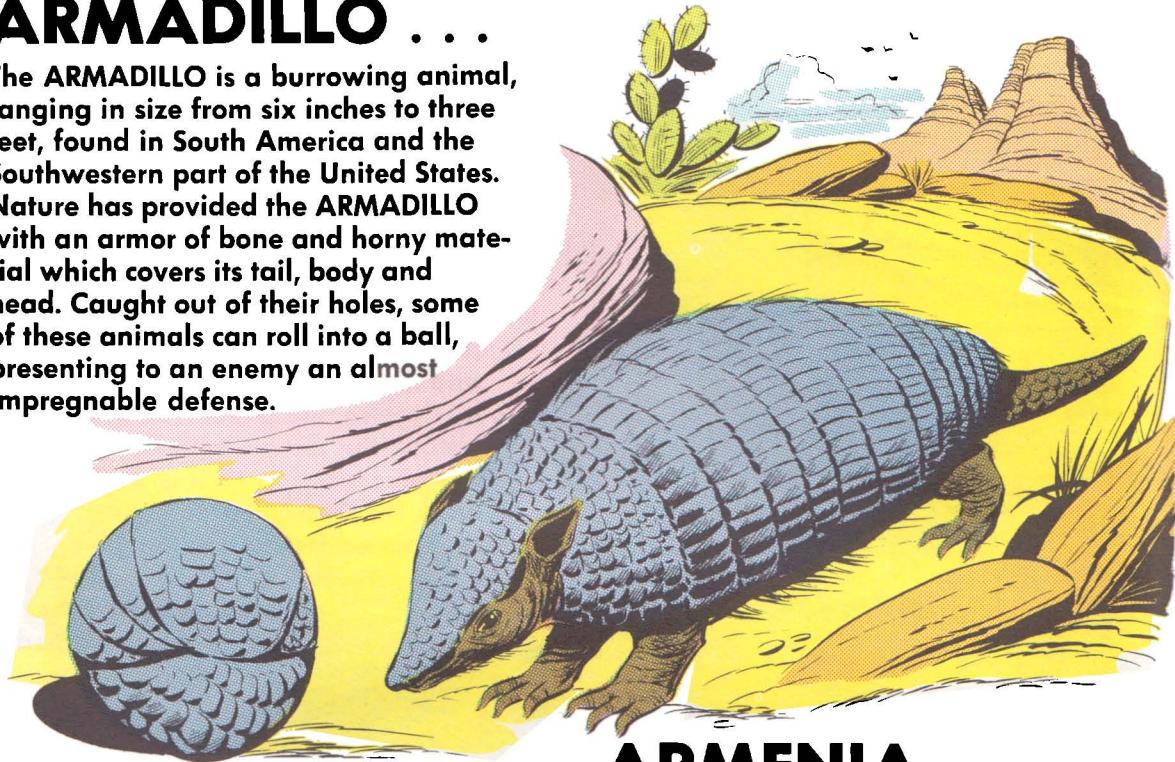
ARKANSAS . . .

Located in the south central part of the United States, ARKANSAS was admitted to the Union in 1836 as the 25th state. Its capital and largest city is Little Rock. No state in this part of the U.S. has a more varied surface, or possesses more natural waterways than ARKANSAS. It is also rich in minerals, particularly in bauxite (ARKANSAS has 90% of the nation's supply) from which aluminum is extracted. Its chief products are agricultural, and cotton is the major crop. The land is rich in hard woods and many a handle for hammer or axe has been fashioned by the people of the Ozark and Ouachita Mountains.



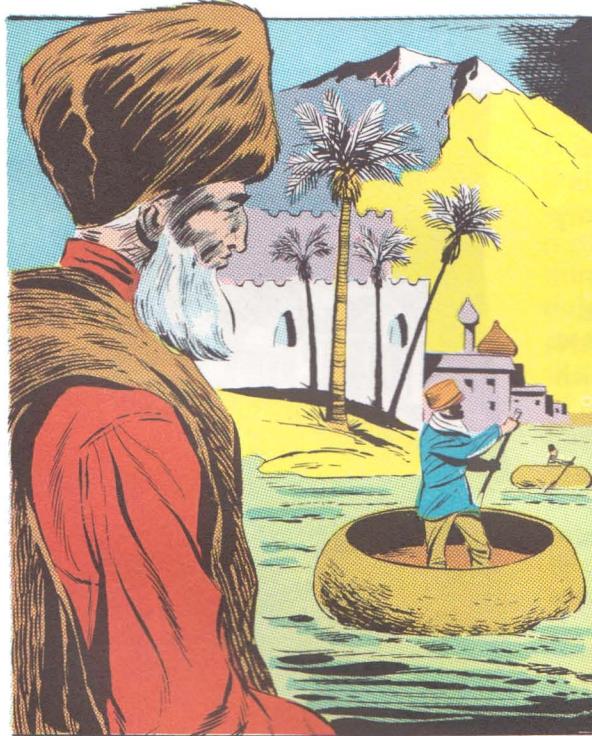
ARMADILLO . . .

The ARMADILLO is a burrowing animal, ranging in size from six inches to three feet, found in South America and the Southwestern part of the United States. Nature has provided the ARMADILLO with an armor of bone and horny material which covers its tail, body and head. Caught out of their holes, some of these animals can roll into a ball, presenting to an enemy an almost impregnable defense.

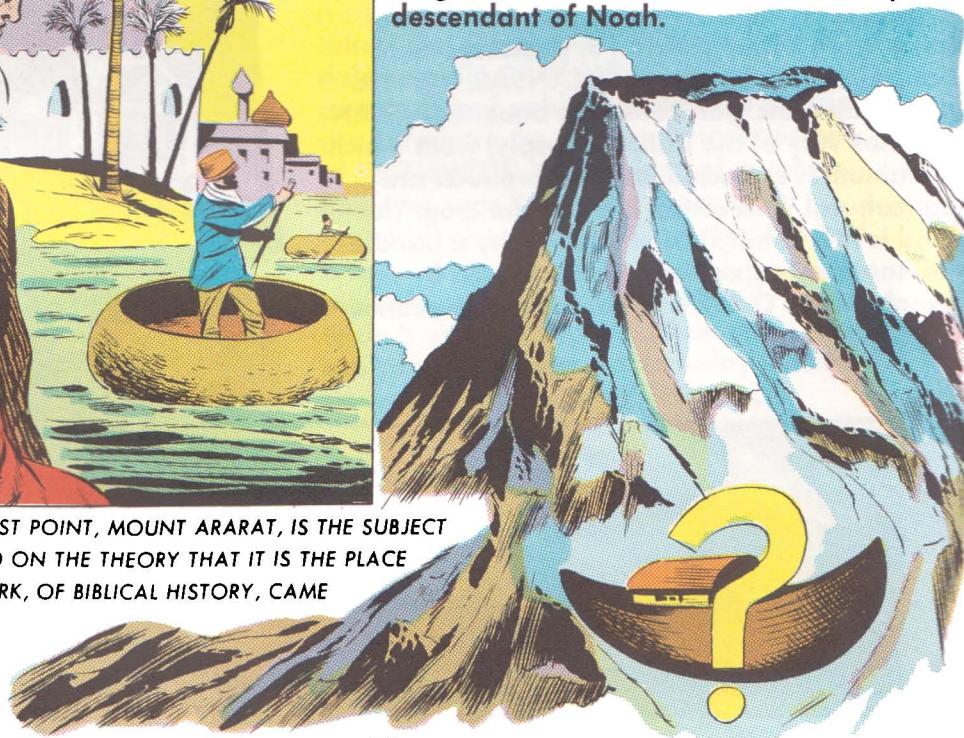


ARMENIA . . .

This was a former region and country in Asia Minor, part of which today is occupied by Turkey and Russia. This region is the source of many of the rivers of Southwest Asia, notably the Euphrates and Tigris Rivers. Tradition has it that the kingdom of ARMENIA was founded by a descendant of Noah.



ARMENIA'S HIGHEST POINT, MOUNT ARARAT, IS THE SUBJECT OF STUDIES BASED ON THE THEORY THAT IT IS THE PLACE WHERE NOAH'S ARK, OF BIBLICAL HISTORY, CAME TO REST.



ARMOR . . .

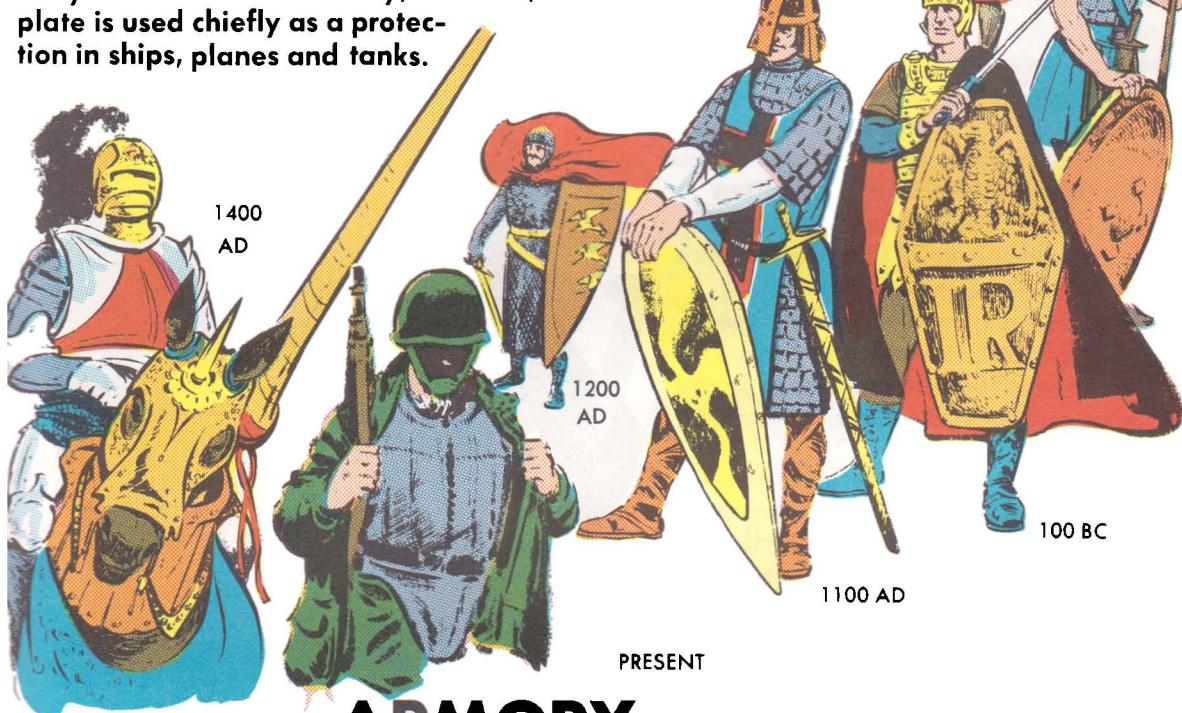
This is the apparatus used for the defense of people, animals, or vehicles of war. The history of ARMOR is closely allied to the development of the weapons against which it was intended to give protection. Examples of ancient ARMOR are shields of wood or animal hide. These, however, were replaced by metal ARMOR which passed many stages until, as in the time of the medieval knights, it covered almost the entire body of the wearer. Today, ARMOR, or steel plate is used chiefly as a protection in ships, planes and tanks.



1600 BC



500 BC

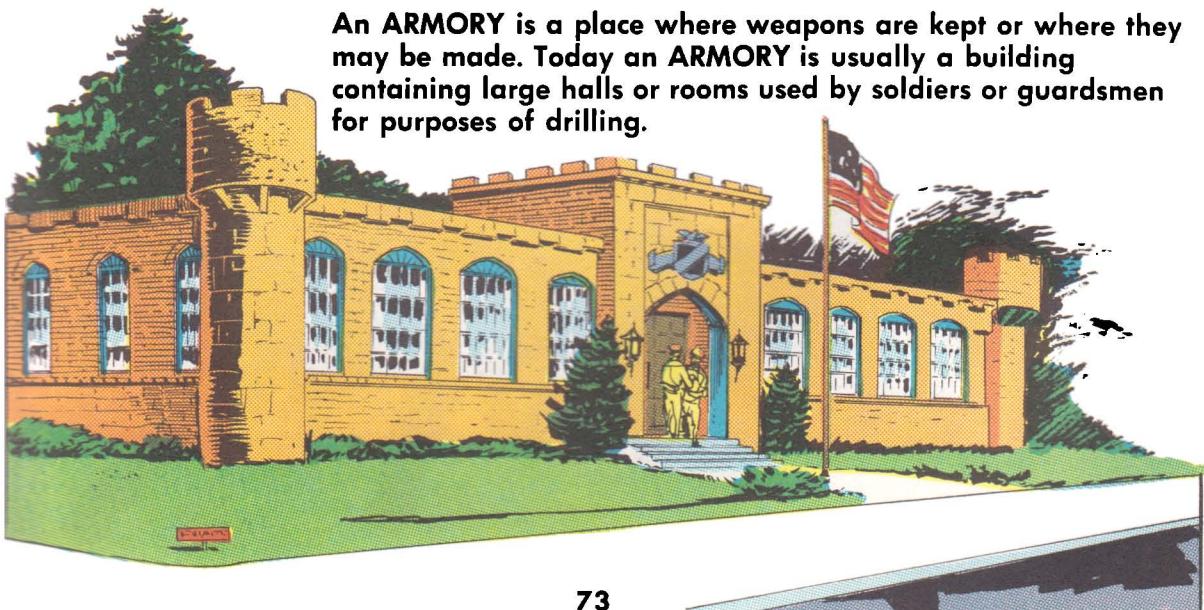


100 BC

PRESENT

ARMORY . . .

An ARMORY is a place where weapons are kept or where they may be made. Today an ARMORY is usually a building containing large halls or rooms used by soldiers or guardsmen for purposes of drilling.



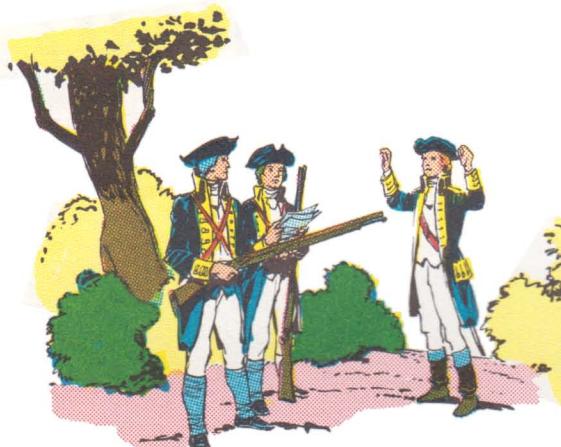
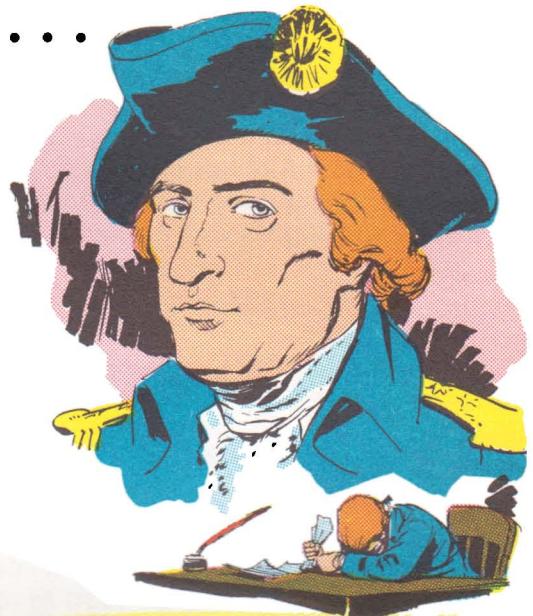
ARMY . . .

An ARMY is an organized body trained and equipped to wage war on land. It is usually organized into various combat and service units, each with a leader or officer of special rank. At present, ARMIES are normally composed of professional soldiers just as they were in the earliest of ARMIES of the Assyrians and Egyptians. Many times in history, however, as during the American Revolution, they were formed by volunteer citizens. As ARMIES became larger and more complete, it became necessary to add groups whose job it was to supply the fighting or combat units with food, shelter, arms and transportation. For this purpose some ARMIES have admitted women to their ranks. In many ARMIES, newly developed units like the air force have tended to become independent branches of the armed forces. In time of peace, the ARMY is considered the national police force. In the United States its Commander-in-Chief is the President.



ARNOLD, BENEDICT . . .

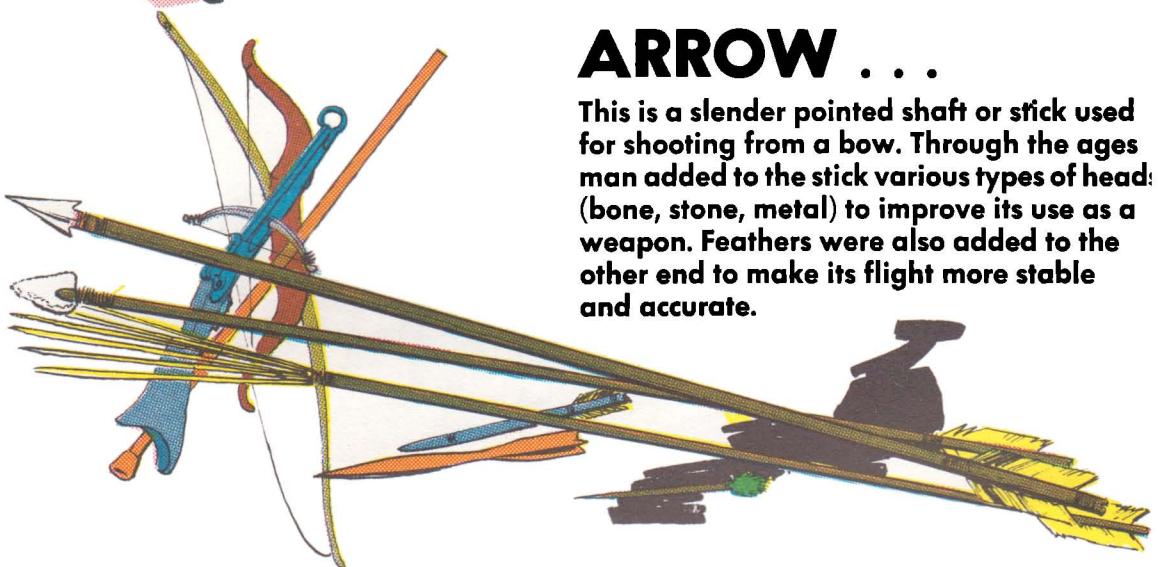
BENEDICT ARNOLD (Born 1741-Died 1801) was an American Revolutionary War general and a traitor. ARNOLD led several brilliant battles for America during the Revolutionary War, but when placed in command at West Point, he plotted to turn over the fort to the British.



THE PLOT UNCOVERED, ARNOLD ESCAPED TO ENGLAND WHERE HE LIVED IN DISGRACE WITH THE ENGLISH AS WELL AS WITH THE AMERICANS.

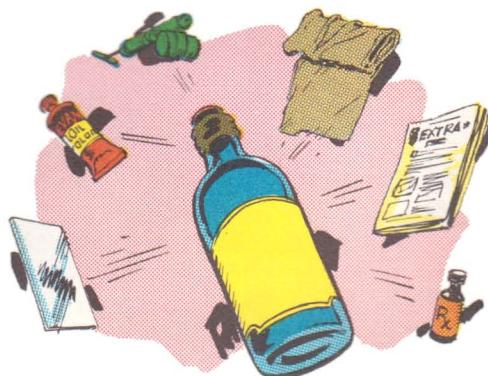
ARROW . . .

This is a slender pointed shaft or stick used for shooting from a bow. Through the ages man added to the stick various types of heads (bone, stone, metal) to improve its use as a weapon. Feathers were also added to the other end to make its flight more stable and accurate.



ARSENIC . . .

This is a strong poison but, when combined with other elements, it serves man in many capacities. It is used in making glass, pigments, calico, insecticides and in printing and tanning. It is widely used in medicines for skin diseases, anemia and malaria.

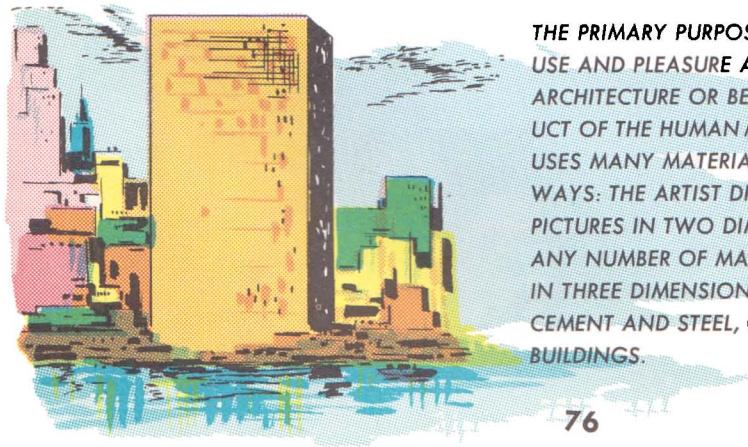
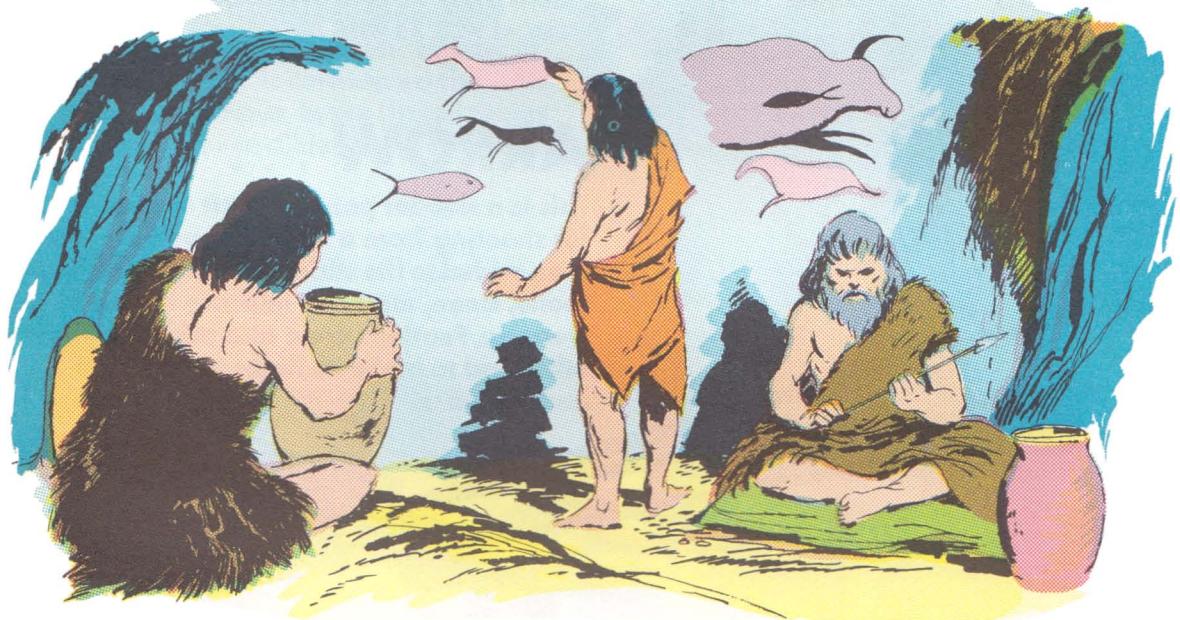


ART . . .

The word ART comes from the Latin word ARS, meaning skill or the application of skill to bring about a desired result. Through the years ART has come to mean creating something which is beautiful and interesting, as well as useful.



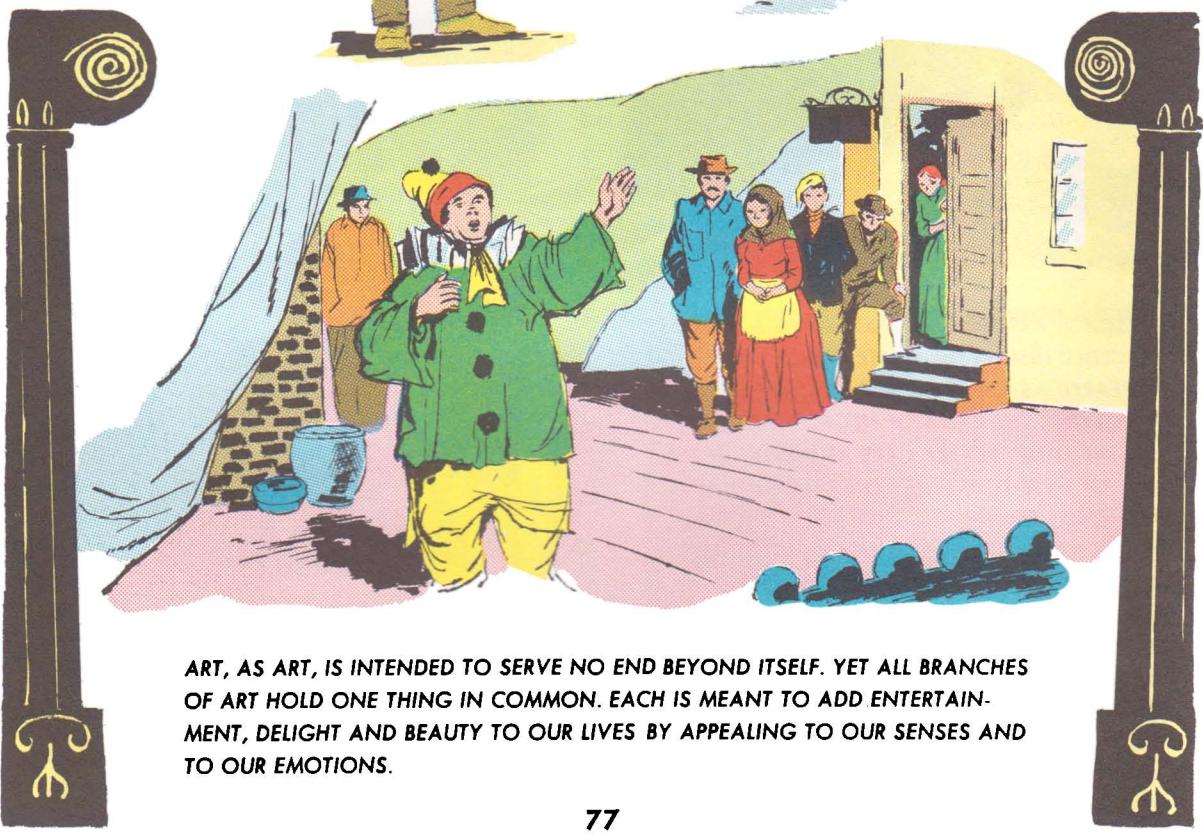
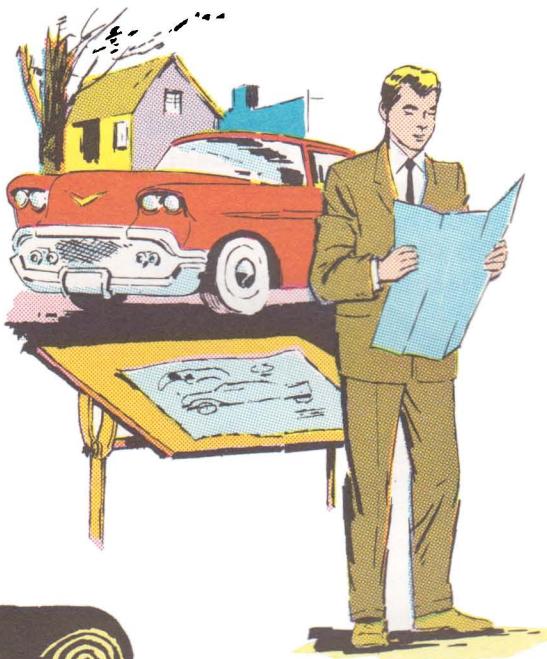
THE CAVE DWELLERS KNEW HOW TO SHAPE ARROW HEADS OR AXES. IN THIS SENSE THEY WERE CRAFTSMEN. WHEN, HOWEVER, THEY BEGAN TO SCRATCH DESIGNS OR PICTURES ON THE THINGS THEY HAD MADE, OR WHEN THEY PAINTED THE WALLS OF THEIR CAVES SO AS TO MAKE THEM PLEASING TO THE EYE OR SENSES, THEY WERE PRACTICING ART AS WE UNDERSTAND IT TODAY.



THE PRIMARY PURPOSE OF ART IS TO GIVE PLEASURE. OFTEN USE AND PLEASURE ARE COMBINED, AS IN THE CASE OF ARCHITECTURE OR BEAUTIFUL FURNITURE. ART IS THE PRODUCT OF THE HUMAN MIND RATHER THAN OF NATURE. IT USES MANY MATERIALS AND IS EXPRESSED IN MANY WAYS: THE ARTIST DRAWS OR, USING PIGMENTS, PAINTS PICTURES IN TWO DIMENSIONS. THE SCULPTOR, USING ANY NUMBER OF MATERIALS, CREATES SHAPES AND FORM IN THREE DIMENSIONS. THE ARCHITECT, WITH STONE, CEMENT AND STEEL, CREATES HARMONY AND BEAUTY IN BUILDINGS.

THE WRITER EXPRESSES HIS FEELINGS OR EMOTIONS WITH WORDS. THE DANCER USES MOVEMENTS OF THE HUMAN BODY. THERE ARE OTHER ARTS WHICH DO NOT USE THE MATERIALS TAKEN FROM NATURE BUT WHICH ARE PURE WITHIN THEMSELVES, SUCH AS MUSIC, WHICH USES SOUNDS. THERE ARE THE INDUSTRIAL ARTS, WHICH ADD BEAUTY TO THE THINGS WE USE DAILY: DRESS DESIGNING; INTERIOR DECORATION, POTTERY, PACKAGING, AND AUTOMOBILE DESIGN.

ART (Continued)

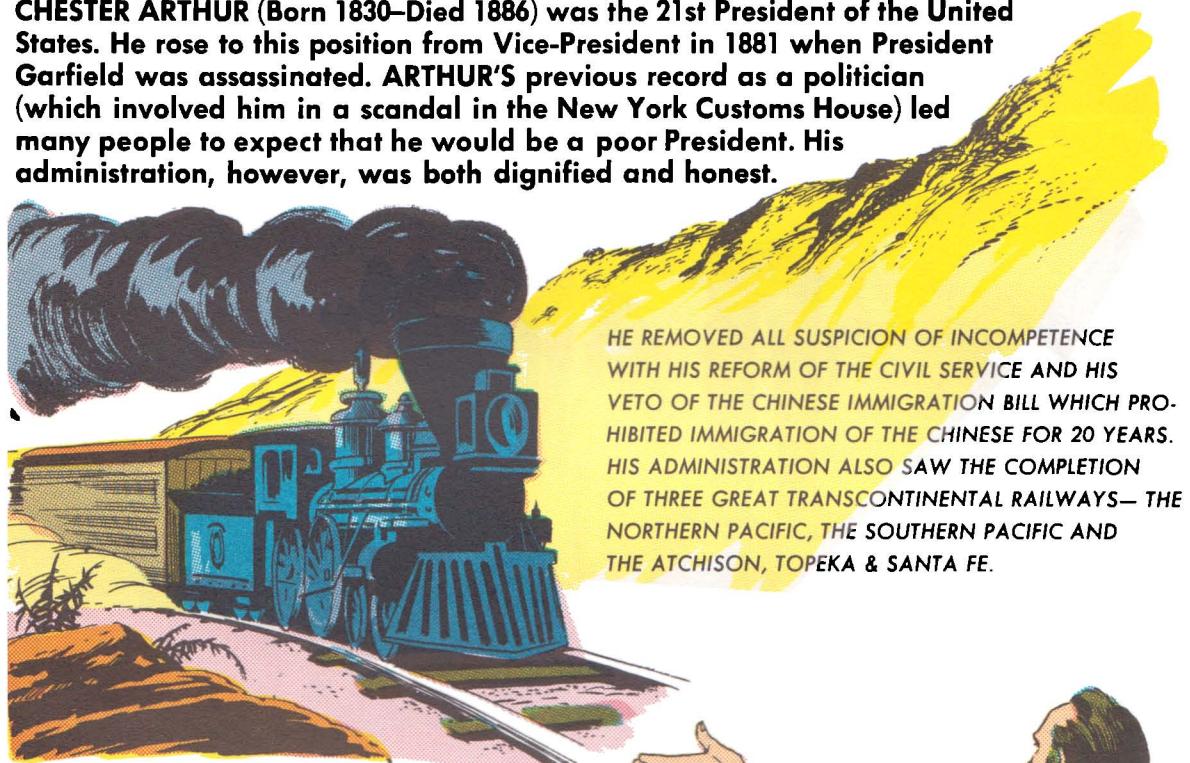


ART, AS ART, IS INTENDED TO SERVE NO END BEYOND ITSELF. YET ALL BRANCHES OF ART HOLD ONE THING IN COMMON. EACH IS MEANT TO ADD ENTERTAINMENT, DELIGHT AND BEAUTY TO OUR LIVES BY APPEALING TO OUR SENSES AND TO OUR EMOTIONS.



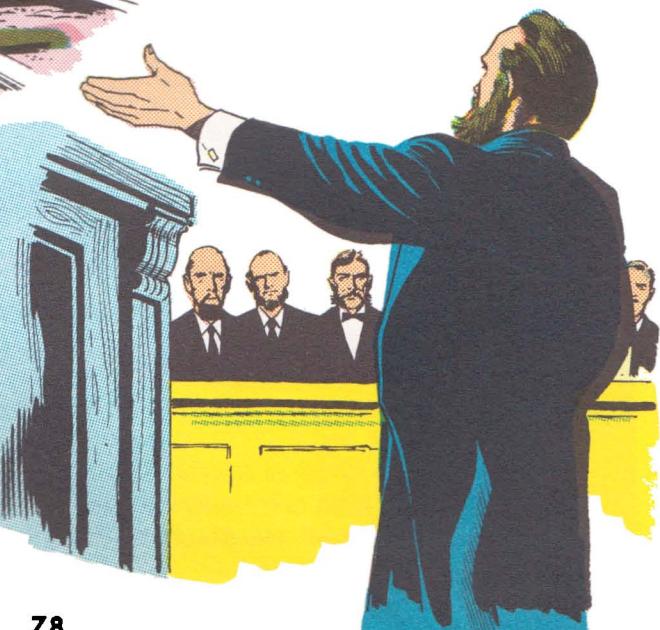
ARTHUR, CHESTER ALAN . . .

CHESTER ARTHUR (Born 1830—Died 1886) was the 21st President of the United States. He rose to this position from Vice-President in 1881 when President Garfield was assassinated. ARTHUR'S previous record as a politician (which involved him in a scandal in the New York Customs House) led many people to expect that he would be a poor President. His administration, however, was both dignified and honest.



HE REMOVED ALL SUSPICION OF INCOMPETENCE WITH HIS REFORM OF THE CIVIL SERVICE AND HIS VETO OF THE CHINESE IMMIGRATION BILL WHICH PROHIBITED IMMIGRATION OF THE CHINESE FOR 20 YEARS. HIS ADMINISTRATION ALSO SAW THE COMPLETION OF THREE GREAT TRANSCONTINENTAL RAILWAYS— THE NORTHERN PACIFIC, THE SOUTHERN PACIFIC AND THE ATCHISON, TOPEKA & SANTA FE.

PRESIDENT ARTHUR'S REPUTATION AS A LAWYER PRECEDED HIM TO THE WHITE HOUSE. HE HAD APPEARED AS AN ATTORNEY IN A FAMOUS CASE INVOLVING THE RIGHT OF NEGROES TO RIDE ON THE SAME TROLLEY CARS AS WHITES IN THE CITY OF NEW YORK. THE COURT RULED THAT THE NEGROES WERE ENTITLED TO EQUAL PRIVILEGES. AT THE END OF HIS TERM, PRESIDENT ARTHUR SOUGHT RENOMINATION IN THE REPUBLICAN CONVENTION OF 1884, BUT HE WAS DEFEATED AND RETURNED TO NEW YORK WHERE HE SPENT THE REST OF HIS LIFE.

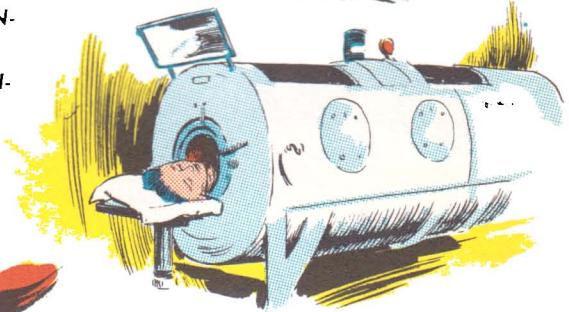


ARTIFICIAL RESPIRATION

• • • This is a method of forcing air into the lungs of a person who is unable to breathe for himself. It has been found that it is easier to begin natural breathing again when large amounts of air are forced into the lungs. The Nielsen back pressure method, which makes use of this theory, has been officially recognized as most effective.



ARTIFICIAL RESPIRATION MAY ALSO BE GIVEN BY MECHANICAL MEANS, SUCH AS THE IRON LUNG USED TO HELP PEOPLE WITH INFANTILE PARALYSIS. THE PULMOTOR IS ANOTHER TYPE OF MECHANICAL ARTIFICIAL RESPIRATION FREQUENTLY USED ON VICTIMS OF SUFFOCATION OR GAS POISONING.

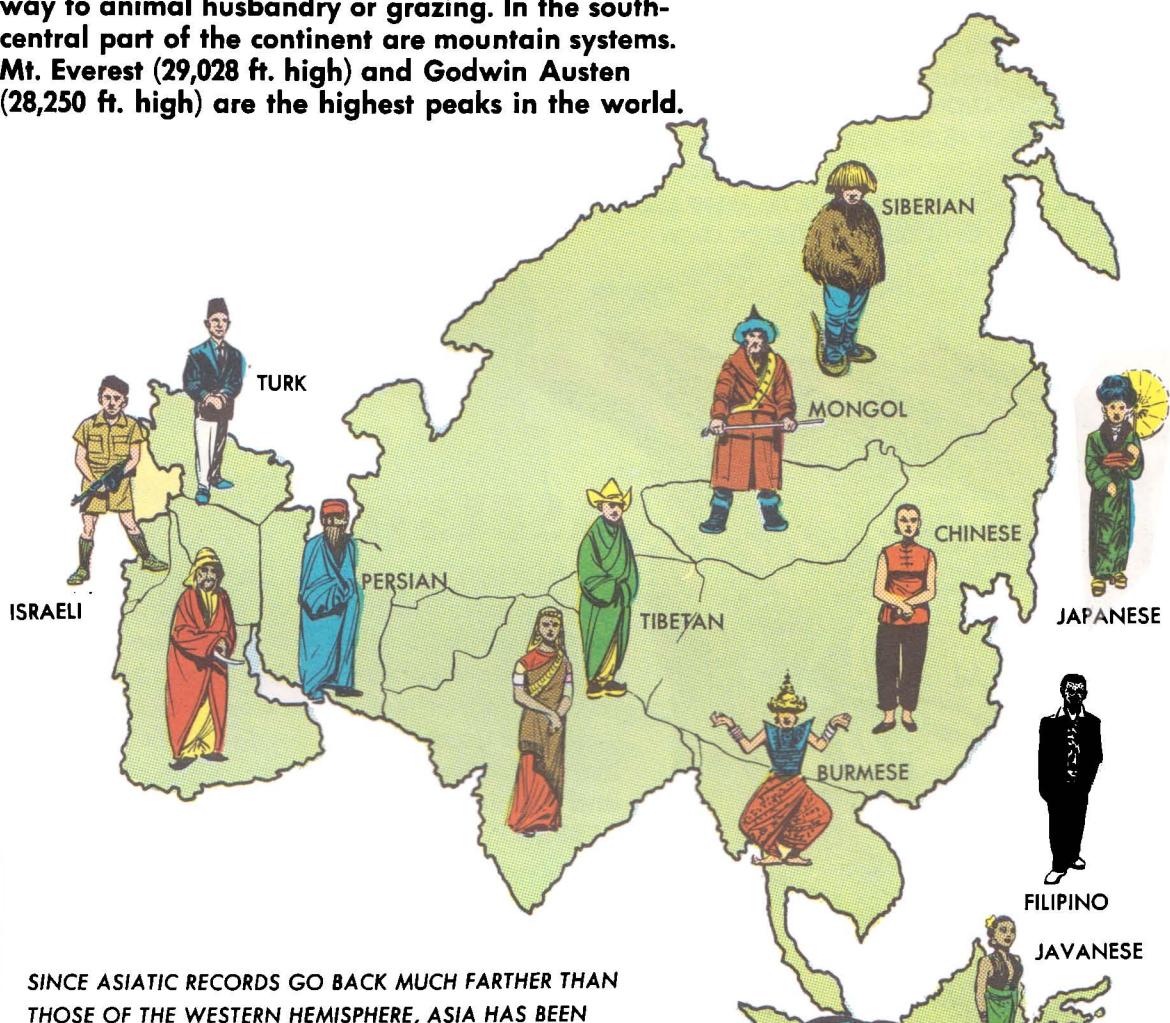


ASBESTOS . . .

ASBESTOS is composed of fibers which are sometimes soft and delicate and sometimes hard and brittle. All of them have the properties of being incombustible (won't burn). In ancient times, these fibers were woven into cloth and used to cover the dead. We now use them as coverings for steam boilers and pipes, and as shields against heat and flame. ASBESTOS is found in Arizona, South Africa and Quebec.

ASIA . . .

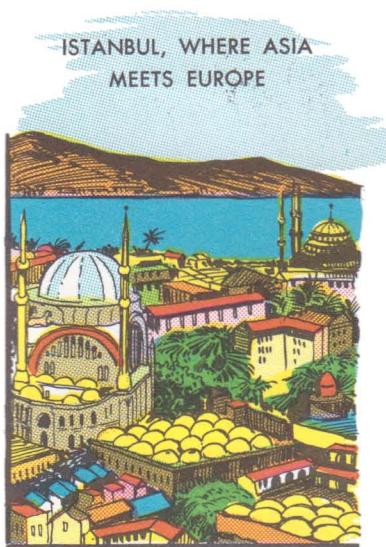
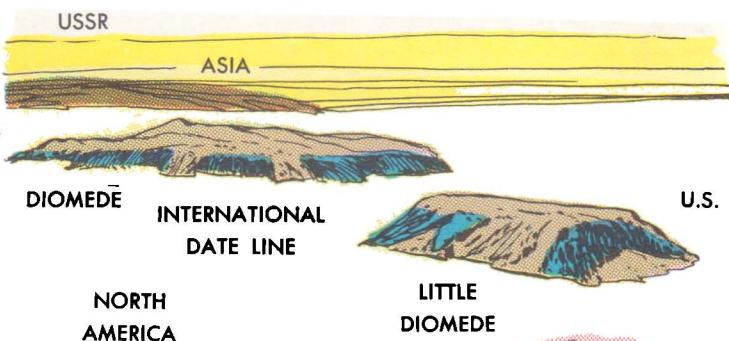
ASIA is the largest continent in the world. It has an area of about 16,000,000 square miles (about 5 times as large as the United States) and a population well over 1,050,000,000, which is almost half the world's total. The climate of ASIA ranges from arctic cold in Siberia to torrid heat in India, Indo-China and the East Indies, and from torrential rainfall in the monsoon area to extreme dryness in the Gobi and Thar deserts. Although the region is very rich in mineral resources, the major occupation of the people is farming. In the dry regions it gives way to animal husbandry or grazing. In the south-central part of the continent are mountain systems. Mt. Everest (29,028 ft. high) and Godwin Austen (28,250 ft. high) are the highest peaks in the world.



SINCE ASIATIC RECORDS GO BACK MUCH FARTHER THAN THOSE OF THE WESTERN HEMISPHERE, ASIA HAS BEEN THOUGHT OF AS THE BIRTHPLACE OF CIVILIZATION. CERTAINLY, RECORDS INDICATE THAT THERE WERE ADVANCED CIVILIZATIONS IN ASIA LONG BEFORE RECORDED HISTORY IN EUROPE. THE MOST ACCURATE ACCOUNTS OF THE VAST RICHES AND ADVANCED SOCIETY OF THIS VAST AREA WERE BROUGHT TO THE ATTENTION OF EUROPE THROUGH THE WRITINGS OF MARCO POLO, A VENETIAN MERCHANT AND DISCOVERER IN THE 13TH CENTURY.

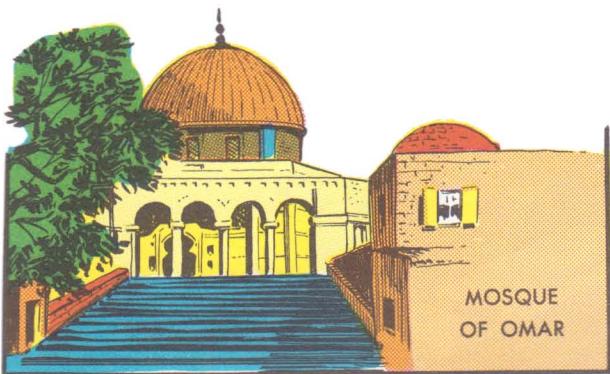


BACTRIAN CAMEL
TRAIN

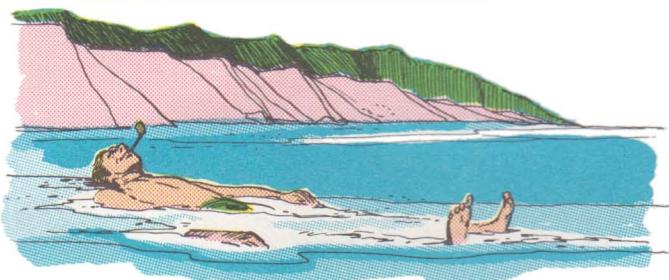


ISTANBUL, WHERE ASIA
MEETS EUROPE

EUROPE'S INCREASING TRADE WITH ASIA BROUGHT GREATER KNOWLEDGE OF THE STRANGE CONTINENT. IT WAS THE SEARCH FOR A SHORTER ALL-WATER ROUTE TO THIS CONTINENT WHICH LED TO THE DISCOVERY OF THE LANDS IN THE WESTERN HEMISPHERE. ASIATIC CIVILIZATION, WHEN "DISCOVERED," WAS FAR IN ADVANCE OF EUROPEAN CIVILIZATION. BUT THE INDUSTRIAL REVOLUTION AND THE INITIATIVE OF EUROPEAN PEOPLES SOON THRUST THE IMPORTANCE OF ASIA INTO THE BACKGROUND.



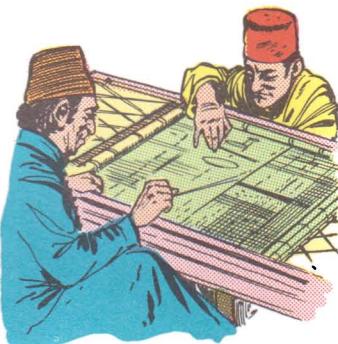
MOSQUE
OF OMAR



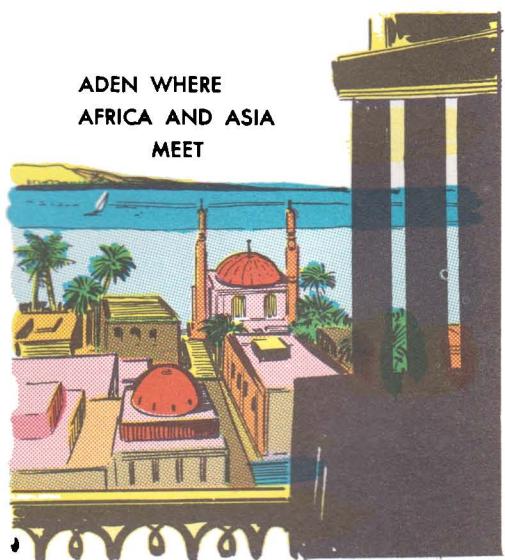
THE DEAD SEA



BUDDHA OF
WESTERN TIBET



INDIAN CLOTH
WEAVERS



ADEN WHERE
AFRICA AND ASIA
MEET

ASTEROIDS . . .

These are small heavenly bodies like planets revolving about the sun. Their orbits or paths about the sun lie partially between the planets Mars and Jupiter. The size of the ASTEROIDS, which number over 1,500, vary from less than a mile to over 450 miles in diameter. Theories about their origin differ. One theory holds that they are fragments of a planet which exploded; another claims they originated in the same manner and at the same time as the planets in the solar system.



ASTROLOGY . . .

This is a method of predicting the future based on the belief that stars influence human affairs and affect the course of events. Though generally discredited, many people still depend on astrologers to guide their actions. Foretelling the future is done by means of a chart of the Zodiac which contains 12 constellations. ASTROLOGY was the direct forerunner of the science of astronomy.

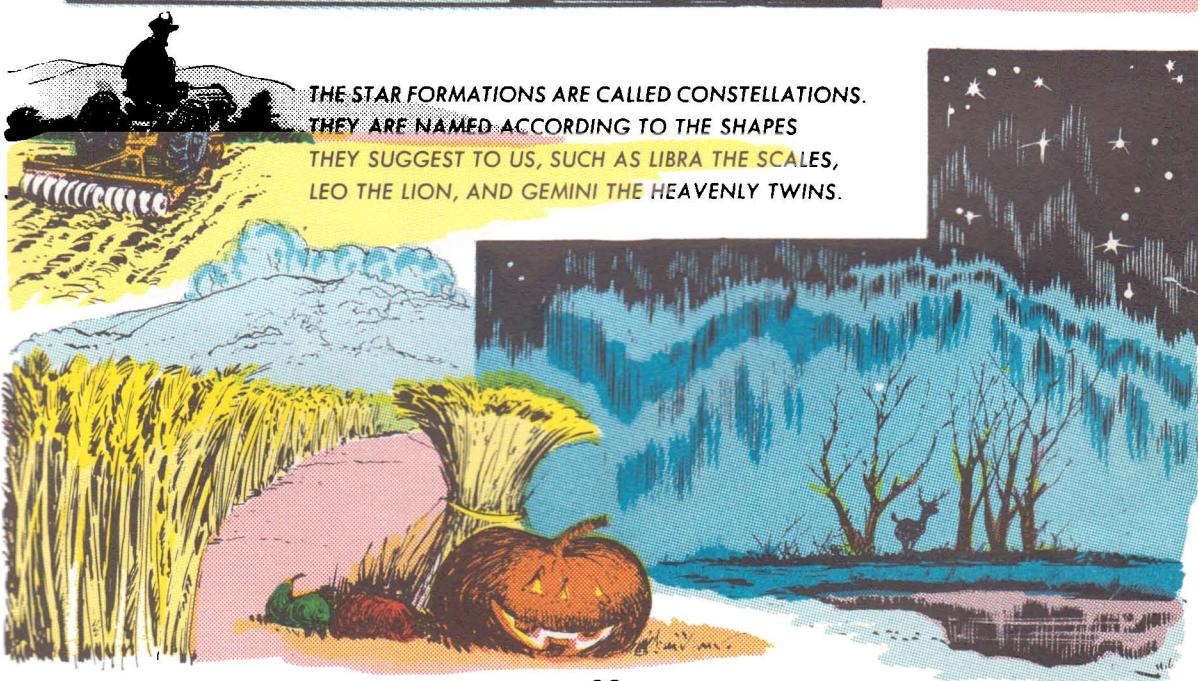


ASTRONOMY

ASTRONOMY is the science which tells us what man has found out about the heavenly bodies. Stars are tremendous masses of hot gas, just like our sun. The closest star to the earth is about 25,000 billion miles away. A jet traveling 700 miles an hour would reach the nearest star in just about one million years.



NAVIGATORS ON THE SEA AND IN THE AIR DEPEND ON ASTRONOMY TO GUIDE THEM. ASTRONOMY HELPS US TO MEASURE THE SIZE OF THE EARTH AND TO ESTIMATE THE SIZE OF THE UNIVERSE.



THE STAR FORMATIONS ARE CALLED CONSTELLATIONS. THEY ARE NAMED ACCORDING TO THE SHAPES

THEY SUGGEST TO US, SUCH AS LIBRA THE SCALES, LEO THE LION, AND GEMINI THE HEAVENLY TWINS.

(Continued)

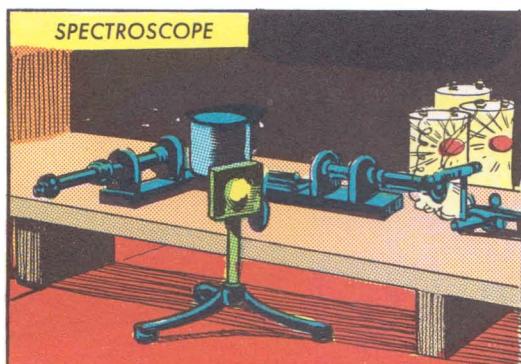
ASTRONOMY is perhaps the oldest of all the sciences. China, India, Egypt and Greece all had their ideas about the heavens above them. Some of their findings were remarkably accurate.



SEVERAL IMPORTANT DISCOVERIES LED TO A BETTER UNDERSTANDING OF THE HEAVENLY BODIES. THE FIRST WAS MADE BY ARISTARCHUS OF SAMOS. HE WAS THE ONLY ANCIENT ASTRONOMER WHO BELIEVED THAT THE EARTH WENT AROUND THE SUN. HE ALSO STATED THE CAUSES OF DAY AND NIGHT AND OF CHANGE OF SEASONS.

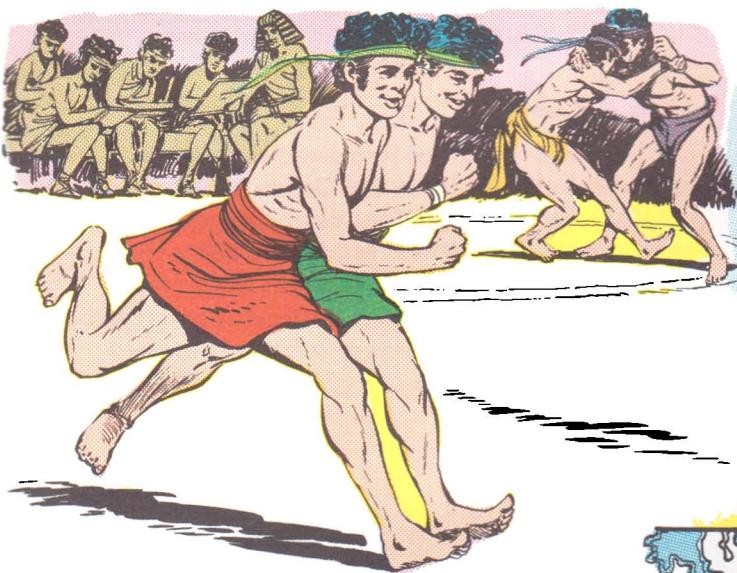
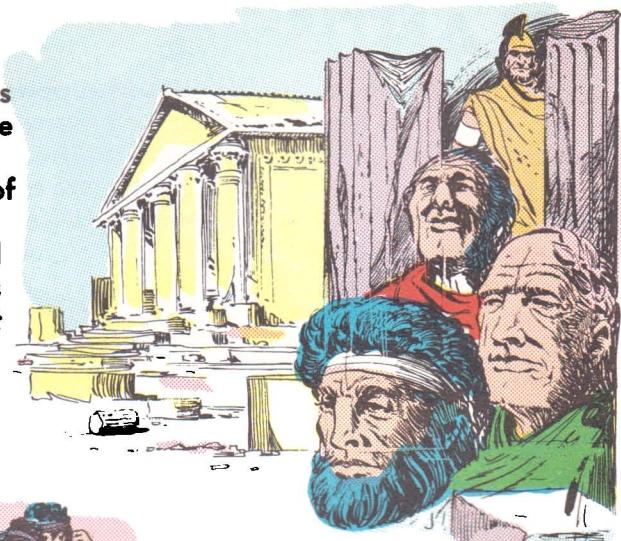


THE NEXT DISCOVERY WAS MADE BY TWO MEN, BRAHE AND KEPLER, WHO MADE EXACT MEASUREMENTS OF THE MOVEMENTS OF THE PLANETS IN THE SKY. AFTER THAT, THE SCIENCE OF ASTRONOMY WAS ADVANCED BY THE INVENTION OF THE TELESCOPE AND THE SPECTROSCOPE. THE TELESCOPE GIVES US A MAGNIFIED VIEW OF THE HEAVENLY BODIES. THE SPECTROSCOPE, BY BREAKING UP LIGHT INTO ITS SEPARATE COLORS, HELPS US LEARN THE NATURE OF MATTER IN THE SUN AND STARS.



ATHENS . . .

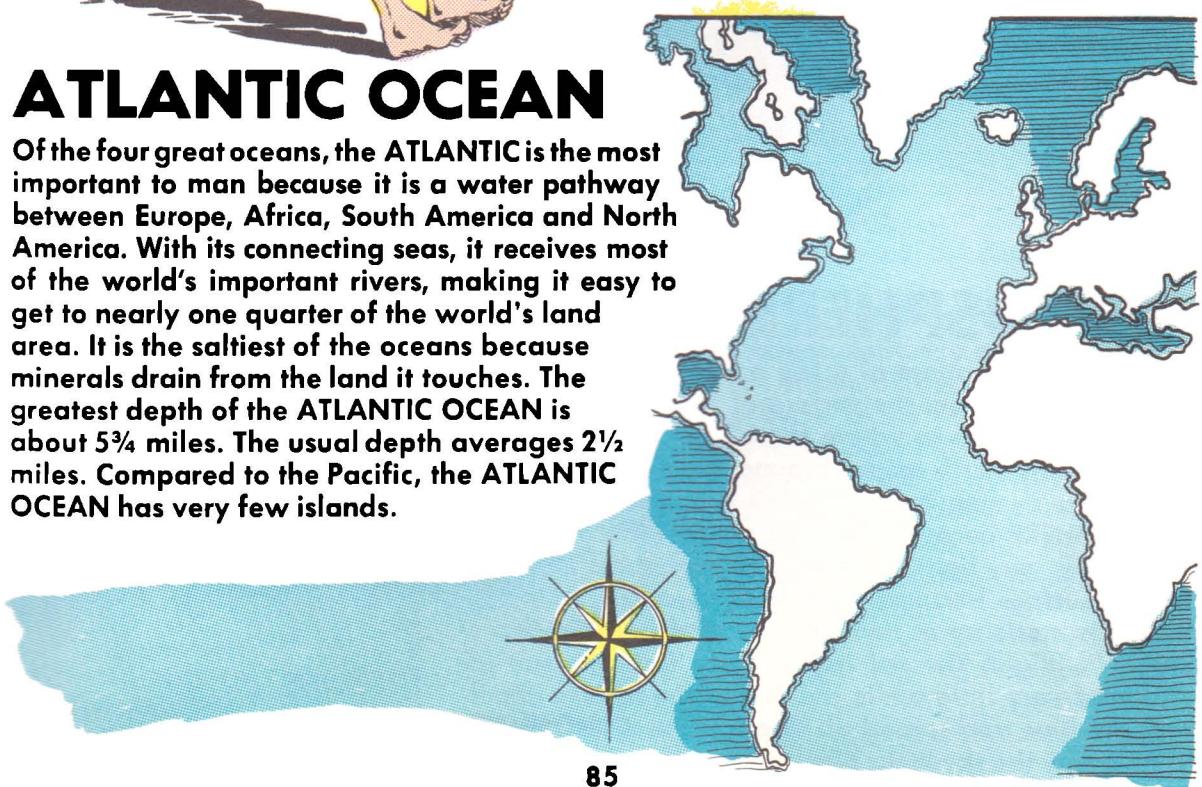
ATHENS was the cradle of democracy. It was the greatest city of its time. The art, literature and philosophy (a way of thinking) of ATHENS greatly affect the art and thought of today. Today, ATHENS is the capital of Greece. Should you visit ATHENS you would be thrilled by the ancient but beautiful ruins of famous Greek buildings. A boy of ancient Greece started school at six. He wrote on waxed tablets. He had to learn to play the flute or lyre. At 14, he was trained in wrestling, running and many other sports.



A GREAT LEADER OF ATHENS, PERICLES, INVITED GREAT TEACHERS TO HIS CITY. THE MOST FAMOUS GREEK TEACHER WAS SOCRATES, A NATIVE ATHENIAN. HIS NAME LIVES ON THROUGH THE WRITINGS OF HIS DISCIPLE, PLATO.

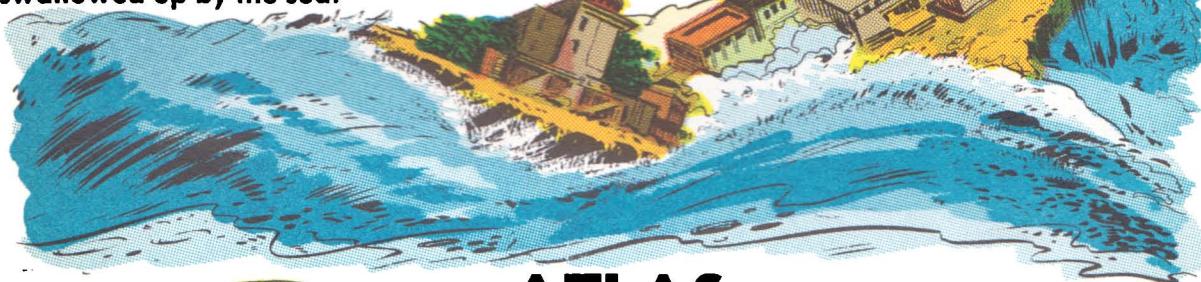
ATLANTIC OCEAN

Of the four great oceans, the ATLANTIC is the most important to man because it is a water pathway between Europe, Africa, South America and North America. With its connecting seas, it receives most of the world's important rivers, making it easy to get to nearly one quarter of the world's land area. It is the saltiest of the oceans because minerals drain from the land it touches. The greatest depth of the ATLANTIC OCEAN is about $5\frac{3}{4}$ miles. The usual depth averages $2\frac{1}{2}$ miles. Compared to the Pacific, the ATLANTIC OCEAN has very few islands.



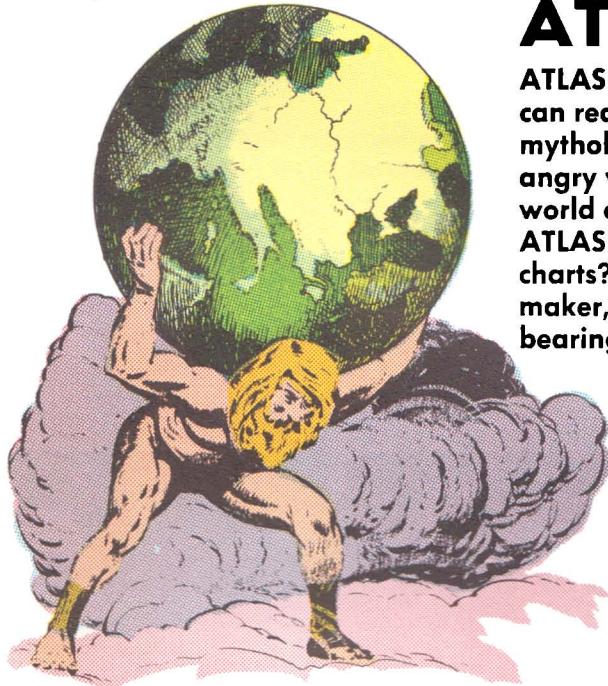
ATLANTIS . . .

ATLANTIS was a make-believe island supposedly in the Straights of Gibraltar. Plato and many other famous Greeks wrote about ATLANTIS. The people were supposed to have built a great state and conquered all the surrounding territory except Athens. Without warning, the island was suddenly swallowed up by the sea.



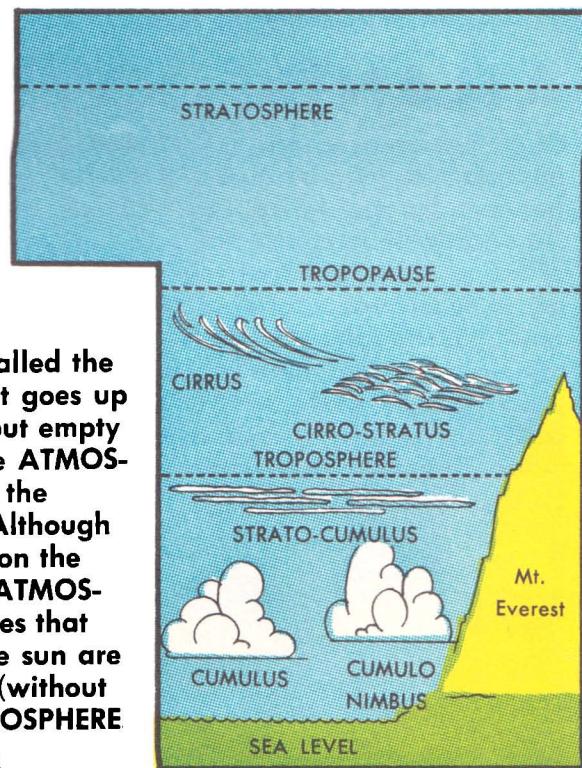
ATLAS . . .

ATLAS was a man of tremendous strength. You can read about him in old Greek tales called mythology. Zeus, the leader of the gods, became angry with ATLAS and made him carry the world on his shoulders. How did the name ATLAS come to mean a collection of maps and charts? In the 16th Century a famous map-maker, Mercator, used the figure of ATLAS bearing the world, on the page of a book.



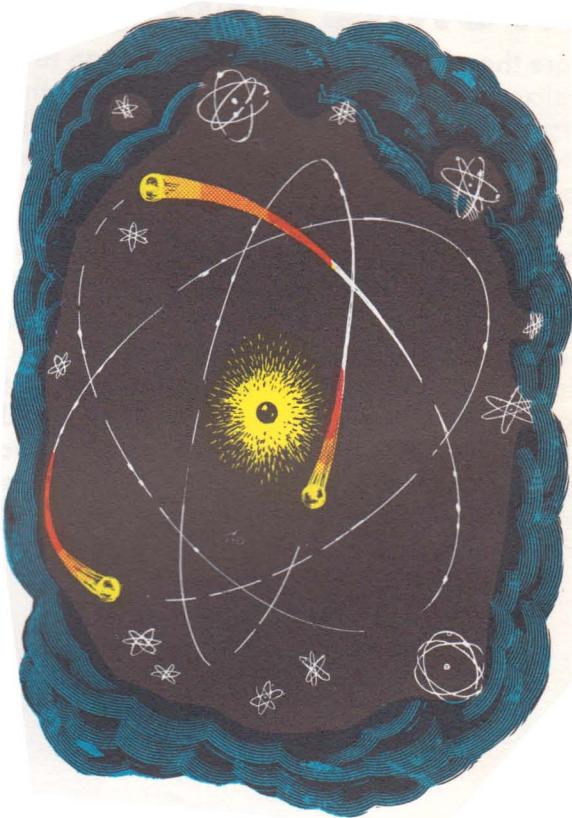
ATMOSPHERE . . .

We live at the bottom of a big ocean of air called the ATMOSPHERE. From the surface of the earth it goes up hundreds of miles to where there is nothing but empty space. As the earth moves around the sun the ATMOSPHERE moves with it. We couldn't live without the ATMOSPHERE because its gases support life. Although air itself is very light, it forms great pressures on the earth's surface because there is so much air. ATMOSPHERE is made up of tiny specks called particles that scatter sunlight. The red rays coming from the sun are scattered very little while the rest of the rays (without red) are blue and spread all through the ATMOSPHERE. That is why the sky looks blue.



ATOM . . .

Everything in the universe is composed of tiny particles called ATOMS. Take the smallest grain of sand you can find, the smallest you can see with your naked eye, and there are still billions of atoms in it. Perhaps you have seen a picture of the solar system with the sun in the center and several planets around it. An ATOM looks much the same, except for size. The ATOM is made up of many small particles of matter called electrons, protons, and neutrons. Electrons travel constantly in loops around the nucleus. Ancient Alchemists tried to change cheap metals, such as lead, into gold. They never succeeded, but today, it is possible to change some elements into other elements by changing the number of protons, neutrons and electrons in them.



ATOM BOMB . . .

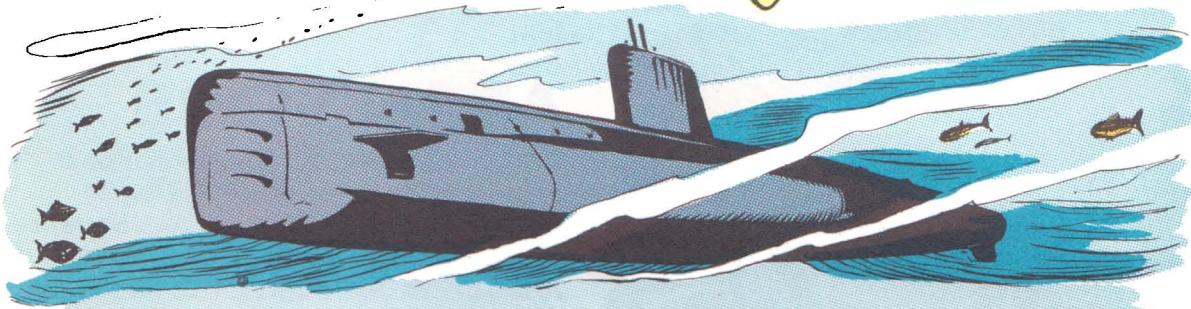
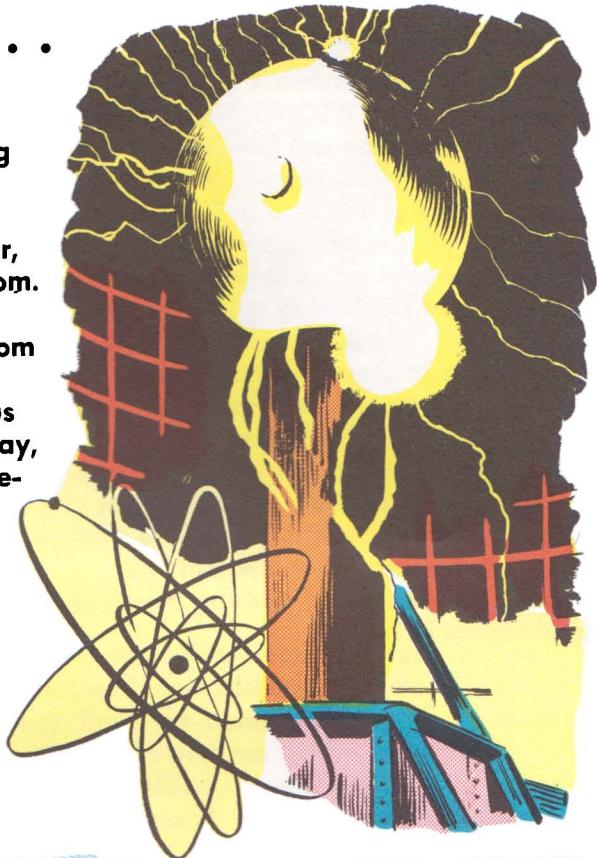
On August 6, 1945, an American plane dropped a single bomb on the city of Hiroshima, Japan. The explosion flattened nearly four square miles of the city. About 70,000 people were killed. This was the first ATOM BOMB. The heat and force of this explosion was caused by the splitting of tiny atoms. After a second bomb was dropped on Nagasaki the Japanese asked for peace.

This bomb, the deadliest in warfare, cost the U.S. two billion dollars to make. Although thousands of people worked on it, it was the best kept secret of the war.

Since the first ATOM BOMB, scientists have developed even more powerful Hydrogen bombs. They are constantly working to produce a "clean" bomb without "fallout." Fallout is radiation that can be fatal to life over large areas.

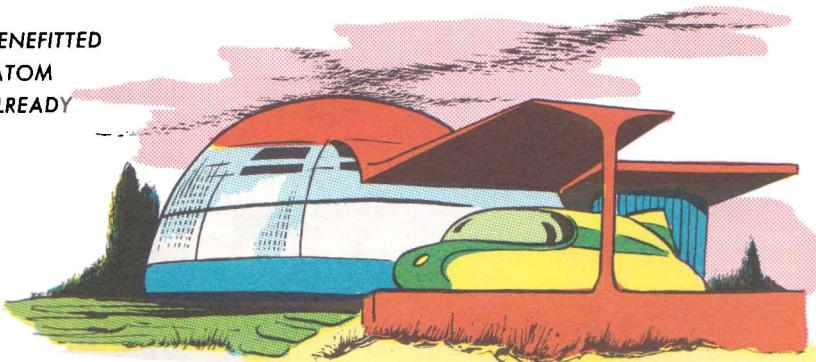
ATOMIC ENERGY . . .

More than 50 years ago, scientists began to realize that if an atom could be smashed, the large amount of energy that had been holding it together might be released for a useful purpose. Famous scientists like Enrico Fermi, O. Hahn, F. Strassman, Lise Meitner, Niels Bohr, and Albert Einstein experimented with the atom. The scientists succeeded in smashing the first atom and found that the neutrons released from the first smashed atoms would smash other atoms. The chain reaction generated enormous explosive forces in a fraction of a second. Today, ATOMIC ENERGY is being harnessed for peaceful uses. Already in the United States, there is a complete city drawing all its electricity from atomic power.



THE SUBMARINE, NAUTILUS, IS POWERED BY ATOMIC ENERGY AND CAN TRAVEL AROUND THE WORLD UNDERWATER WITHOUT COMING UP TO RECHARGE BATTERIES.

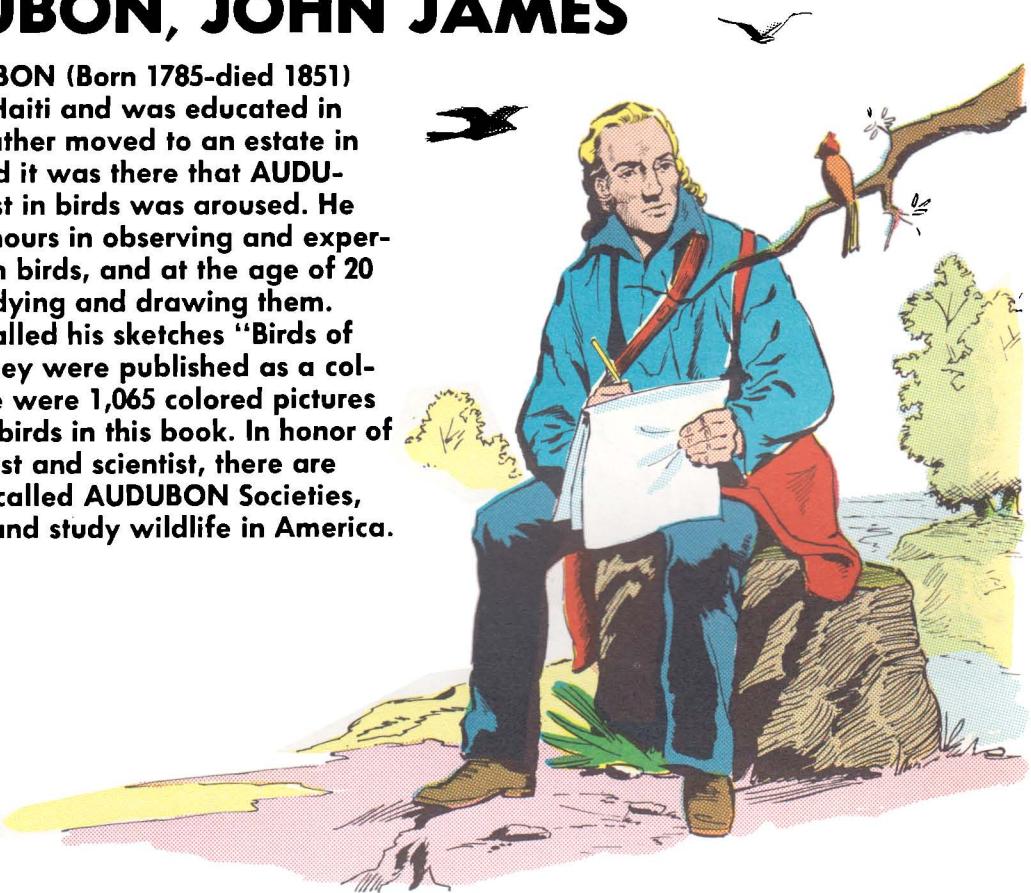
THE MEDICAL PROFESSION HAS BENEFITTED GREATLY THROUGH THE USE OF ATOM RESEARCH. ATOMIC ENERGY IS ALREADY BEING USED IN THE TREATMENT OF CANCER.



IN THE NOT-TOO-FAR-OFF ATOMIC AGE, OUR HOMES WILL BE LIGHTED, HEATED AND EVEN BUILT WITH ATOMIC ENERGY. THIS WILL RELIEVE THE BURDEN OF OUR DIMINISHING MINERAL SUPPLY, SINCE ONLY SIX TONS OF URANIUM (THE METAL NOW USED FOR ATOMIC ENERGY) WOULD PROVIDE THE UNITED STATES WITH ALL THE ELECTRICITY NEEDED FOR ONE YEAR.

AUDUBON, JOHN JAMES

JOHN AUDUBON (Born 1785-died 1851) was born in Haiti and was educated in France. His father moved to an estate in Kentucky, and it was there that AUDUBON's interest in birds was aroused. He spent many hours in observing and experimenting with birds, and at the age of 20 turned to studying and drawing them. AUDUBON called his sketches "Birds of America." They were published as a collection. There were 1,065 colored pictures of American birds in this book. In honor of the great artist and scientist, there are many clubs, called AUDUBON Societies, that protect and study wildlife in America.



AURORA . . .

If you live in the northern part of the U.S. you have probably seen the "Northern Lights," also known as AURORA BOREALIS, which occur about 25 times a year. The brilliant display appears when particles from sunspots hit the atmosphere. AURORAS are more likely to happen in the spring and fall. The AURORA can have many colors and many forms. Sometimes it is white with greenish edges, sometimes it is yellow or red. Other times it fills the whole sky with fiery light, and at times it is only a pale ghostly glow in the sky.

There are also "Southern Lights" called the AURORA AUSTRALIS. They are in the Southern Hemisphere.

AUSTRALIA . . .

AUSTRALIA is the world's smallest continent. It lies southeast of Asia and because it is south of the equator, it is sometimes called the country "down under." The coastline is so regular that good seaports are few. AUSTRALIA is the driest and flattest of all the continents. Like South America, AUSTRALIA'S climate in the north is much warmer than in the south.

ONE THIRD OF THE PEOPLE LIVE ON FARMS AND RANCHES; THE REST LIVE IN THE CITIES.

IMPORTANT CITIES OF AUSTRALIA ARE SYDNEY, WHICH BOASTS ONE OF THE WORLD'S GREAT HARBORS, MELBOURNE, BRISBANE, ADELAIDE, AND PERTH.

WESTERN AUSTRALIA

NORTHERN TERRITORY

QUEENSLAND

BRISBANE

NEW SOUTH WALES

SYDNEY

ADELAIDE
VICTORIA

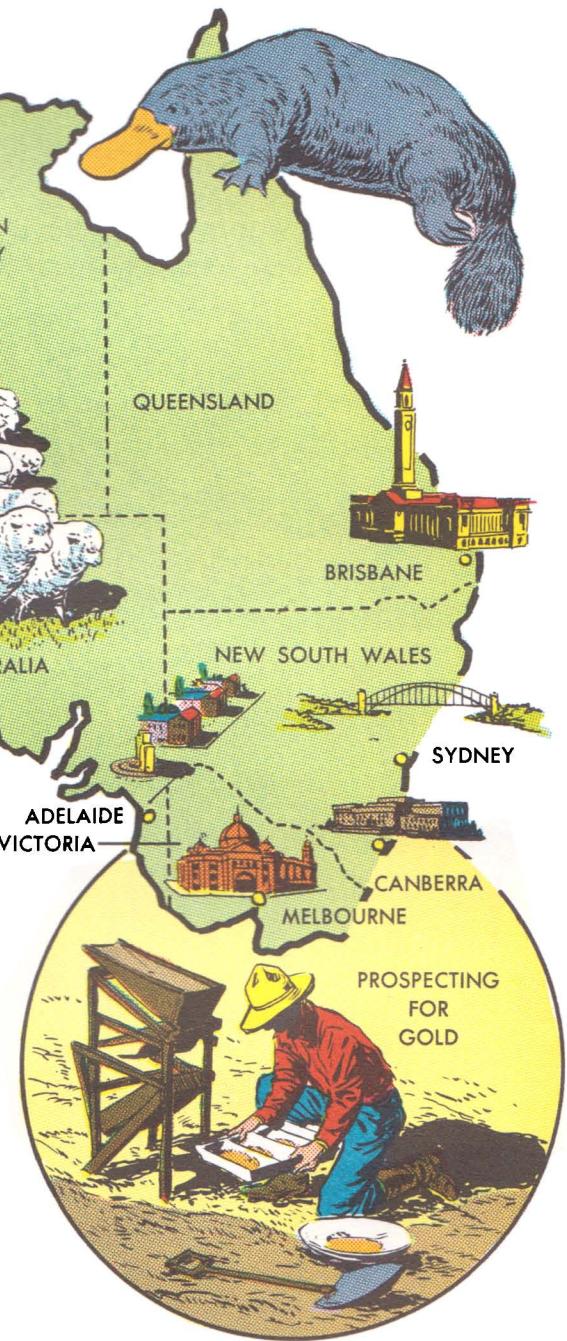
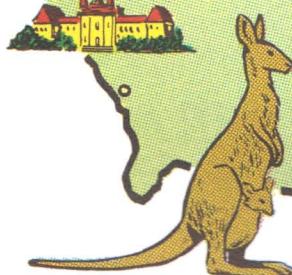
MELBOURNE

CANBERRA

CANBERRA IS THE NATIONAL CAPITAL.

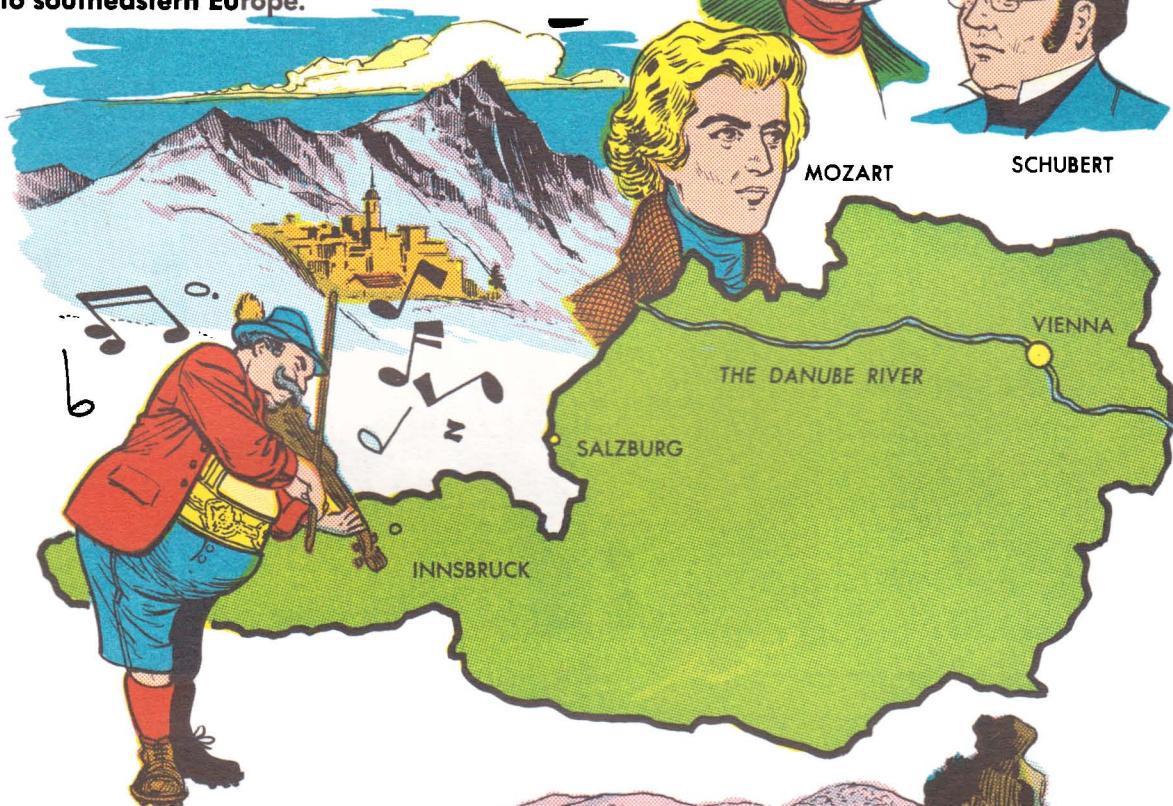
SHEEP-RAISING IS THE BACKBONE OF AUSTRALIA'S WEALTH. THERE ARE MORE SHEEP IN AUSTRALIA THAN PEOPLE. CATTLE-RAISING IS IMPORTANT, TOO. MINING, FARMING AND FISHING ARE CARRIED ON IN AUSTRALIA. THE CONTINENT IS HIGHLY INDUSTRIALIZED. IT PRODUCES IRON AND STEEL IN GREAT QUANTITIES.

OF ALL THE STRANGE ANIMALS IN THE WORLD, THE STRANGEST ARE FOUND IN AUSTRALIA. AMONG THEM ARE THE KANGAROO, THE FURRY KOALA, THE BANDICOOT, THE PLATYPUS, THE ECHIDNA, THE EMU, THE KOOKABURRA, AND THE LYRE-BIRD.



AUSTRIA . . .

AUSTRIA is situated in southern Europe, and is a link between Germany and Italy. Vienna, AUSTRIA'S most beautiful city, guards the Danube River, the main water-route from north to southeastern Europe.



AUSTRIA IS VERY MOUNTAINOUS AND BOASTS SOME OF THE WORLD'S MOST MAGNIFICENT SCENERY, PARTICULARLY IN THE TYROL SECTION. THE CLIMATE RESEMBLES THAT OF NORTHERN FRANCE. HEAVY RAIN AND SNOW ARE USUAL IN THE NORTHERN AND SOUTHERN EDGES OF THE MOUNTAINS. MOST AUSTRIANS SPEAK GERMAN. OVER 90% ARE CATHOLIC. THE PEOPLE ARE HARDWORKING AND DEEPLY RELIGIOUS. THEY LOVE MUSIC. MANY GREAT MUSICIANS WERE BORN OR LIVED IN AUSTRIA, INCLUDING BEETHOVEN, MOZART AND SCHUBERT. AUSTRIAN UNIVERSITIES ARE WORLD-FAMOUS.

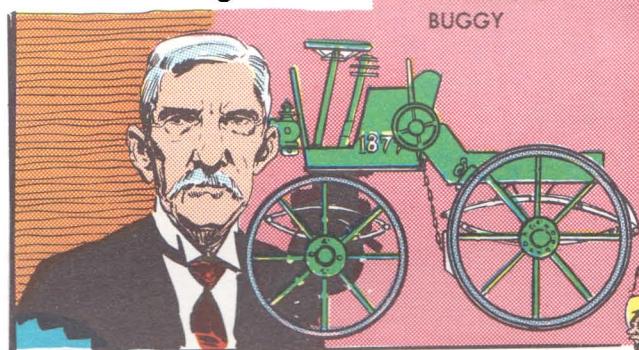
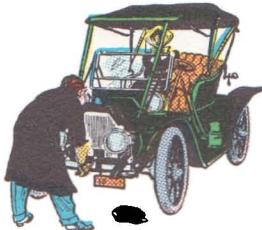
FARMING AND FORESTRY SUPPLY MOST OF THE COUNTRY FOLK THEIR MEANS OF LIVING. HEAVY INDUSTRY IS CENTERED IN VIENNA AND GRAZ. THE TOURIST TRADE IS IMPORTANT IN AUSTRIA. MANY PEOPLE VISIT AUSTRIA FOR ITS SCENERY, SPORTS, AND MUSIC FESTIVALS.



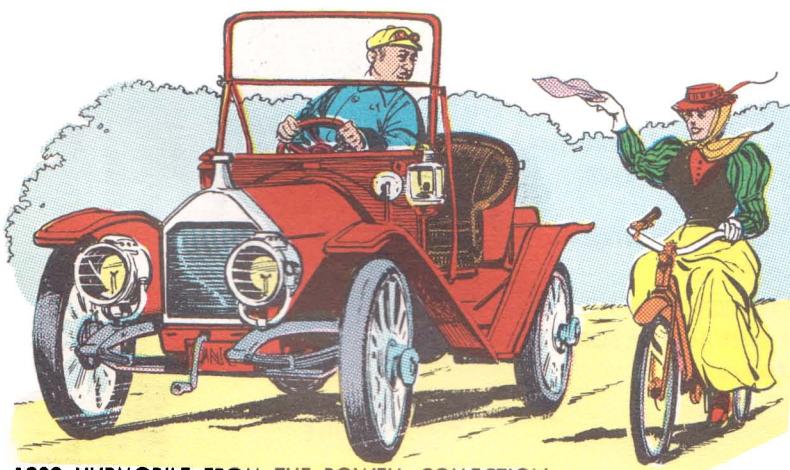
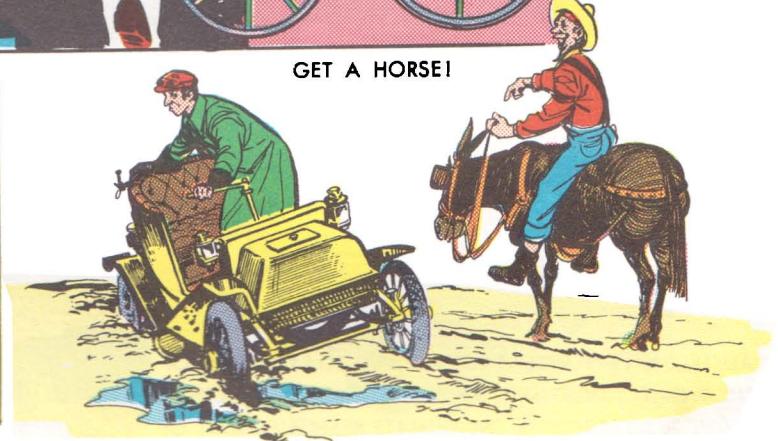
AUTOMOBILE . . .

The earliest inventors of the AUTOMOBILE used steam engines. Many of these AUTOS would run, but none of them were good enough to become popular. The "modern" AUTOMOBILE was really born about 80 years ago. Men of all countries were working on the problem. Gottlieb Daimler and Karl Benz, both German, produced an AUTOMOBILE that used a gas engine as today's AUTOS do.

In the United States, a man named George B. Selden got patents in 1895 that covered an AUTOMOBILE of the basic kind we still use. Even before Selden got his patent, Charles and Frank Duryea had made AUTOMOBILES and Henry Ford was making one.

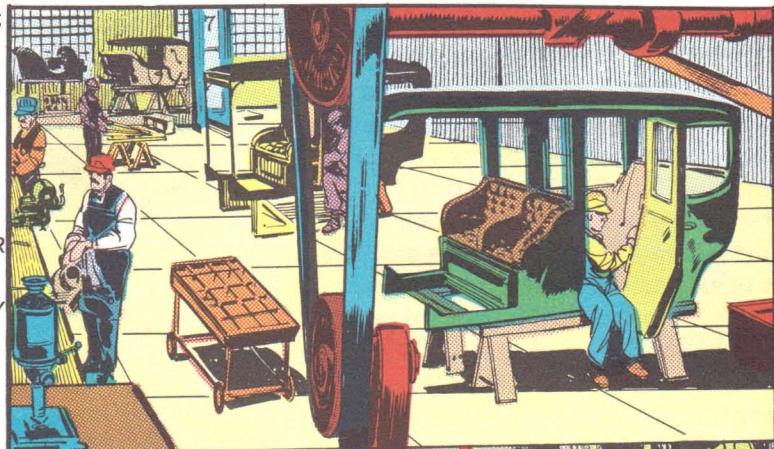


THE EARLY AUTOS HAD ONLY ONE OR TWO CYLINDERS. THEY RAN WITH A LOUD CHUG-CHUG. THEY HAD NEITHER WINDSHIELD NOR WINDOWS. TO START THEM YOU HAD TO GET IN FRONT AND TURN A CRANK. THE SPRINGS WERE STIFF; SHOCK ABSORBERS HAD NEVER BEEN HEARD OF, AND THE ROADS WERE BAD.

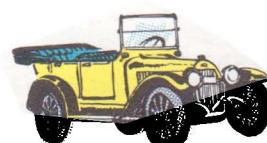


MOST CARS HAD NO HEADLIGHTS, BUT SOME USED ACETYLENE GAS LAMPS THAT BURNED WITH A DIM, FLICKERING LIGHT. IF AN AUTOMOBILE COULD GO 12 MILES AN HOUR, THAT WAS PRETTY GOOD, AND 25 MILES AN HOUR WAS BREEZING ALONG AT A GREAT SPEED.

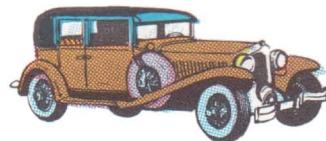
THE MANUFACTURING OF AUTOMOBILES INTRODUCED METHODS THAT HAD NEVER BEEN SEEN BEFORE. THESE METHODS HAVE COME TO BE CALLED "MASS PRODUCTION" AND "ASSEMBLY-LINE PRODUCTION." AUTOMOBILE MANUFACTURERS DISCOVERED THAT AUTOMOBILES COULD BE MADE CHEAPER IF THEY COULD BE TURNED OUT IN GREAT QUANTITIES. HENRY FORD REALLY SAW HIS DREAM COME TRUE WITH MORE THAN ONE MILLION CARS ROLLING OFF HIS ASSEMBLY LINE EVERY YEAR. TODAY, EVERY AUTOMOBILE PLANT USES MASS-PRODUCTION METHODS.



1918



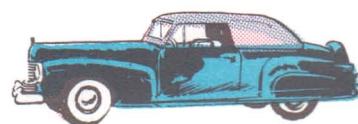
1922



1930



1940

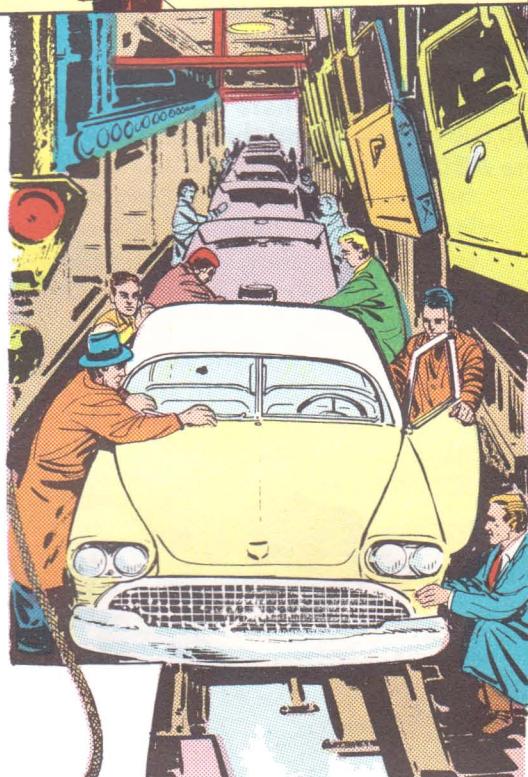


1942

1955



1958



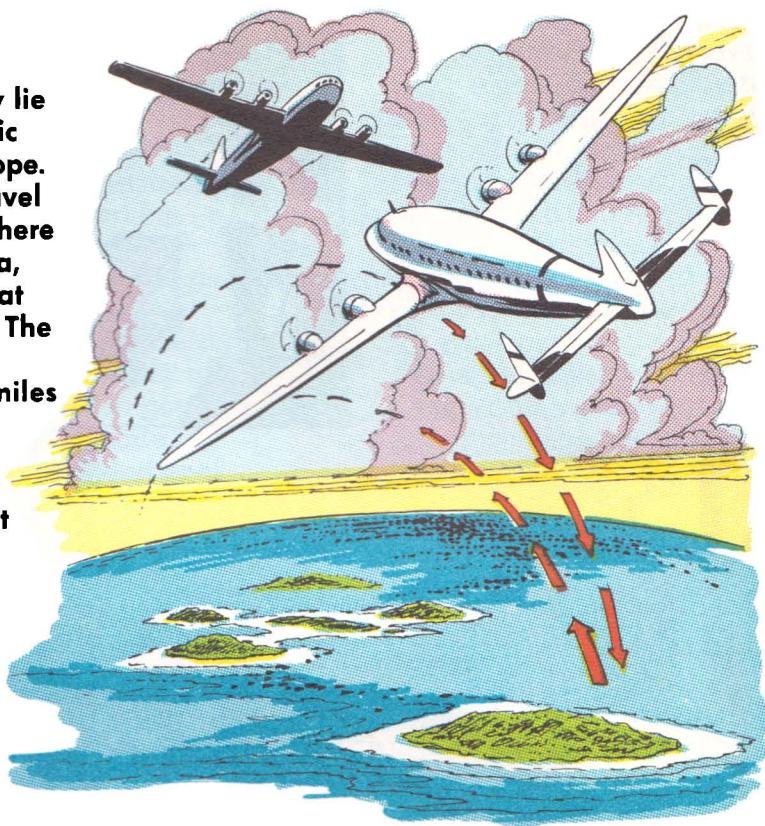
AN ASSEMBLY LINE IS A MOVING BELT THAT CARRIES THE AUTOMOBILE FROM ONE DEPARTMENT TO ANOTHER. EVERY WORKMAN HAS EXACTLY ONE JOB TO DO — TO ASSEMBLE A BUMPER OR A STEERING WHEEL, PAINT A DOOR OR A FENDER, AND SO ON. AT THE END OF THE BELT IS THE FINISHED PRODUCT.



19??

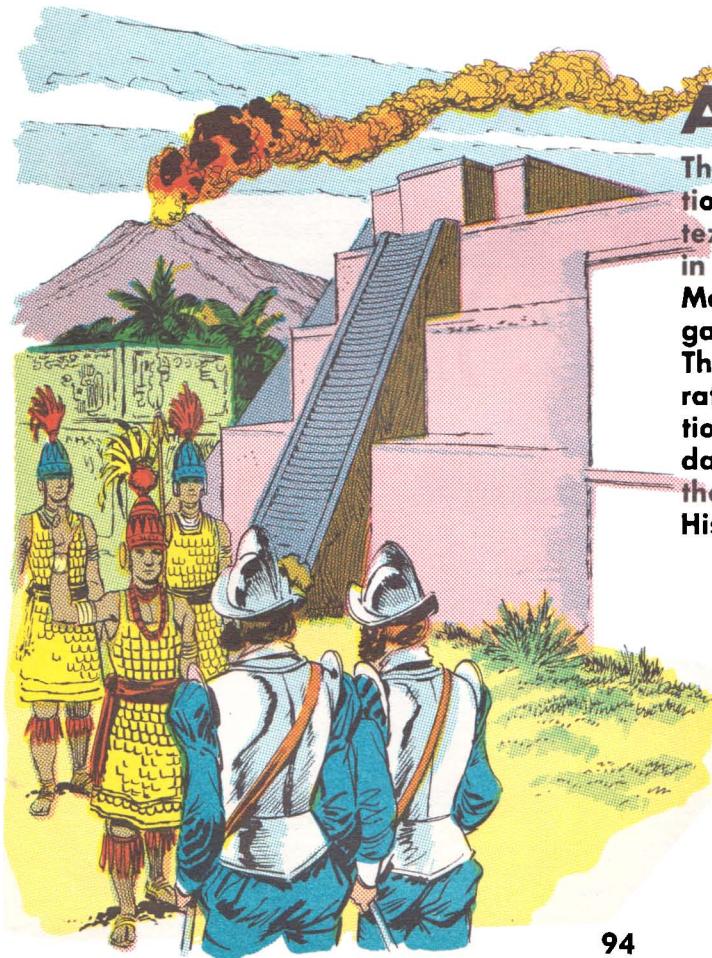
AZORES . . .

The AZORES are a group of nine islands owned by Portugal. They lie about in the middle of the Atlantic between North America and Europe. They are very important to air travel and communication. Planes stop here to refuel. Great cables from Africa, North America and Europe meet at Fayal island, one of the AZORES. The AZORES stretch out 400 miles in length. One island is only 1,300 miles from North America and another island is only 800 miles from Portugal. The islands contain many volcanoes. There are about 320,000 people living throughout the AZORES.



AZTECS . . .

The AZTECS were an Indian civilization which ruled in Mexico when Cortez arrived with his Spanish soldiers in 1519. Conquerors of the Toltecs, Mayas, and Zapotecs, the AZTECS gained new ideas from each victory. They lived a splendid life and decorated their palaces with rich decorations. The AZTECS invented a calendar, a copy of which can be seen at the American Museum of Natural History.



B

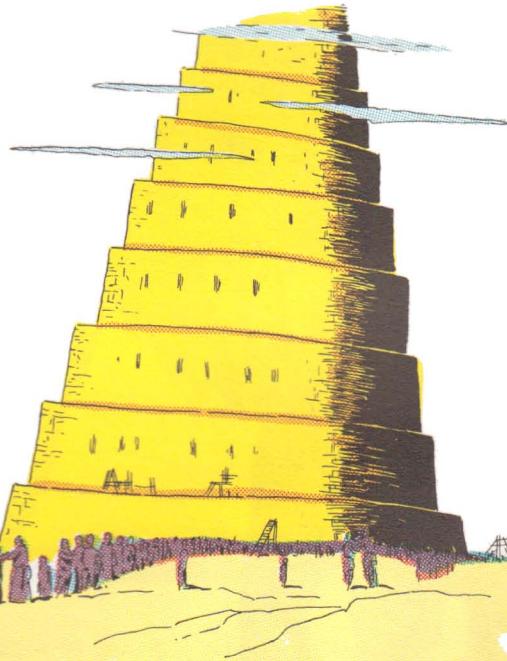
The second letter of our alphabet was adopted by the Phoenicians from Egyptian picture writing. It originally looked like the picture of a house open on one side. The Phoenicians called this letter beth, meaning house. This became beta in the Greek alphabet.



THE GREEKS CURVED SOME OF THE STRAIGHT LINES AND WROTE IT FROM LEFT TO RIGHT, AS WE DO. IT NEXT BECAME A LETTER OF THE LATIN ALPHABET, AND THEN PASSED DOWN TO OUR MODERN ALPHABET.

BAAL . . .

This is the term used to refer to the gods of Canaan in the Old Testament. At first the Hebrews adopted BAAL as their god, but when the conflict between Canaanite polytheism (belief in many gods) and Hebrew monotheism (belief in one God) increased, the term BAAL became identified with evil. Many places in the Middle East are named after BAAL. It was the practice in those days to form BAAL'S name by adding the name of the place in which he was worshipped, as BAALGAD, BAALPEOR and BAALBEK.



BABEL . . .

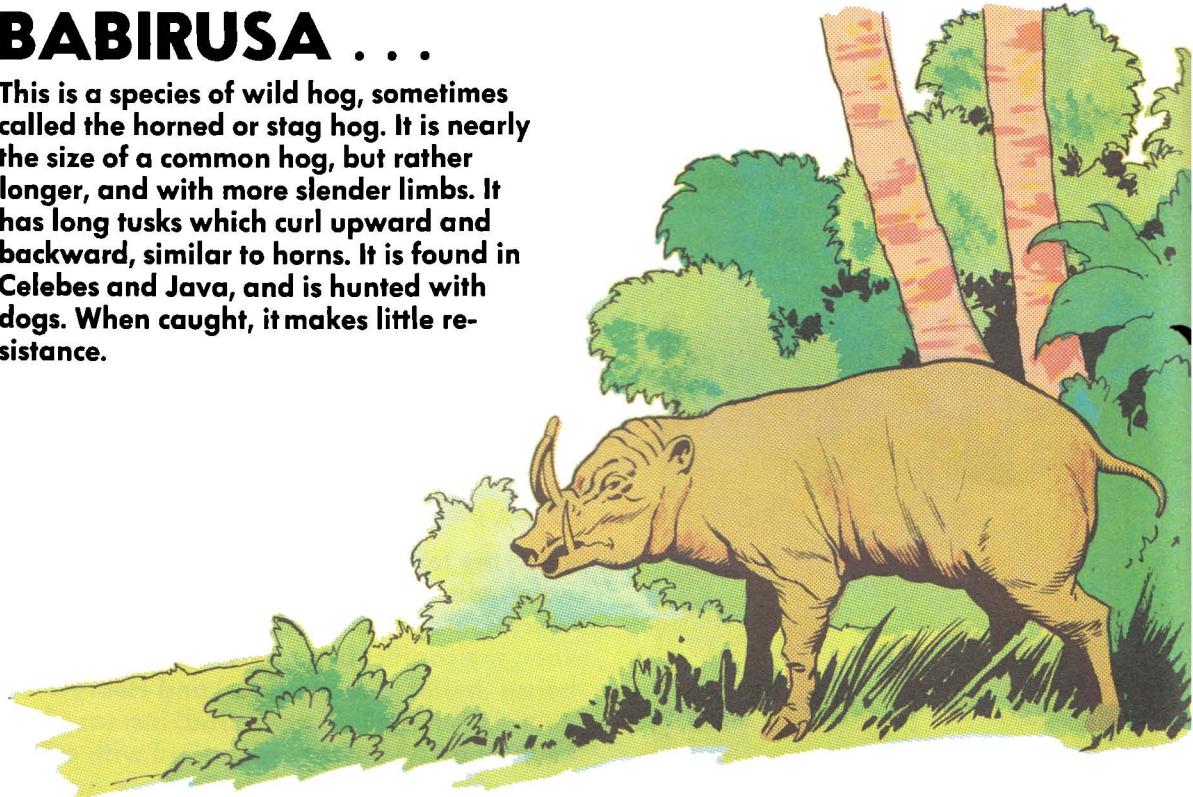
The Tower of BABEL was located on the plain of Shinar in Mesopotamia. It was built by the descendants of Noah after the great Floods. Displeased with their attempt to erect a tower to heaven, Jehovah caused the speech of the builders to be confused. Each spoke a different language and no one could understand another.



THE WORD BABEL HAS THUS COME TO MEAN ANY CONFUSION OF SOUND, ALTHOUGH, LITERALLY, THE WORD MEANS GATE OF GOD.

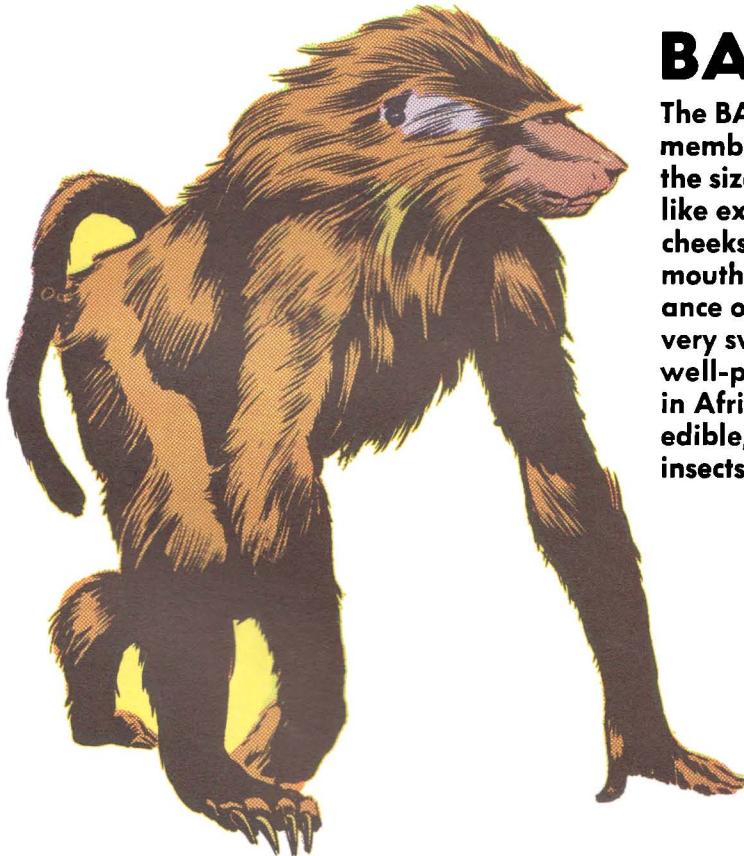
BABIRUSA . . .

This is a species of wild hog, sometimes called the horned or stag hog. It is nearly the size of a common hog, but rather longer, and with more slender limbs. It has long tusks which curl upward and backward, similar to horns. It is found in Celebes and Java, and is hunted with dogs. When caught, it makes little resistance.

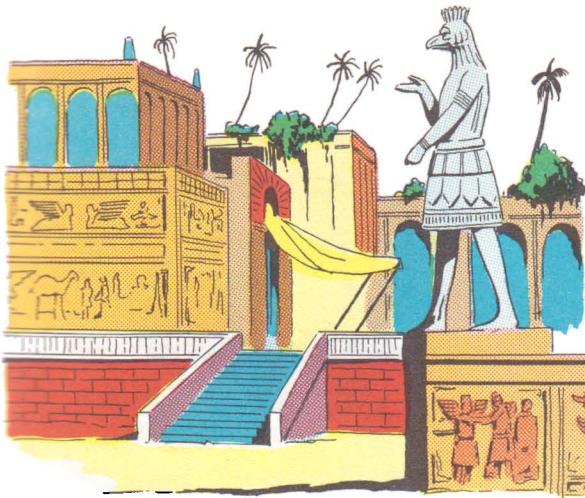


BABOON . . .

The BABOON is the ugliest and fiercest member of the monkey family. It is about the size of a dog, and its face has a dog-like expression. The deep-set eyes, flabby cheeks, heavy eyebrows and pouting mouth give the BABOON the appearance of being ill-tempered. It can run very swiftly, for its legs are strong and well-proportioned. BABOONS are found in Africa. Their diet consists of anything edible, but mainly fruit, roots, eggs and insects.



BABYLON . . .



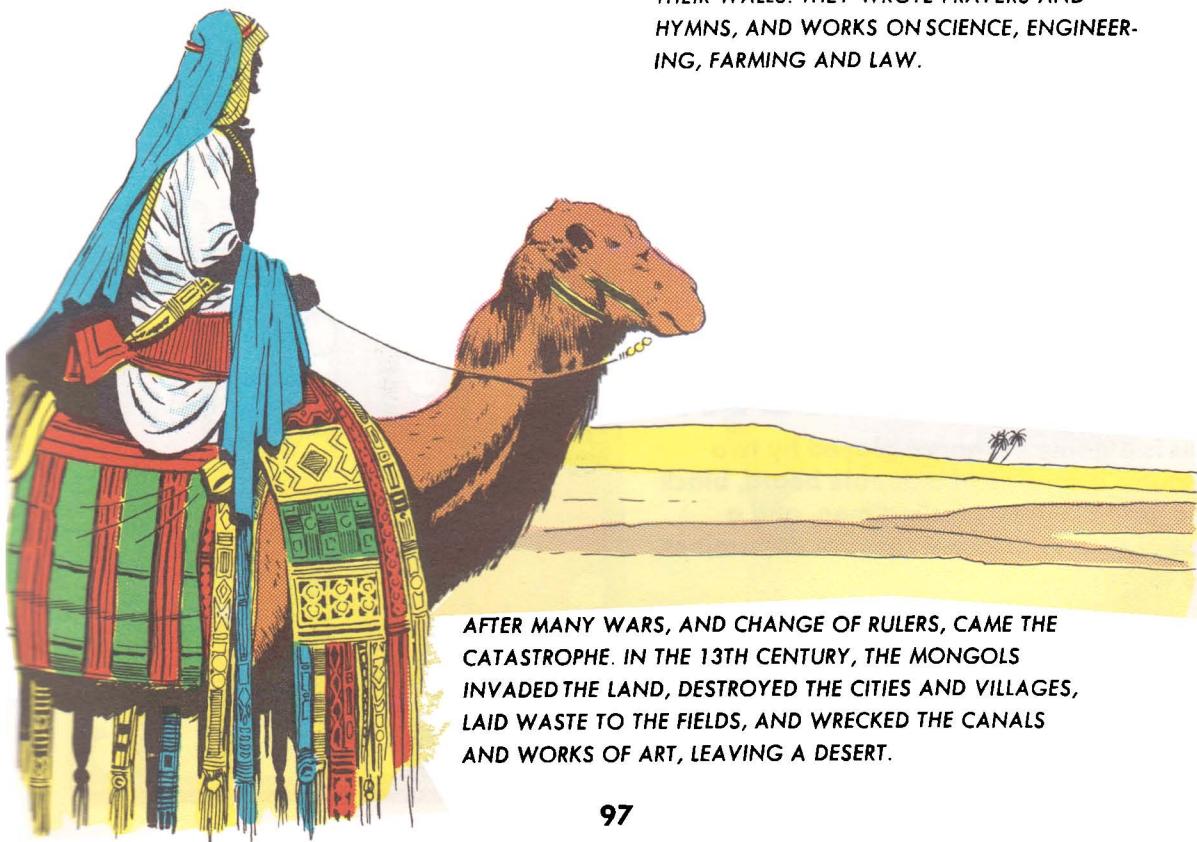
This was once the mightiest, wealthiest and most splendid city in the world. The Hanging Gardens, one of the Seven Wonders of the Ancient World, were built here by Nebuchadnezzar. Great works of art and imposing buildings were constructed in BABYLON. The glory of this city began to decline, and in 538 B.C., the Persians, under Cyrus the Great, conquered the city without a struggle.

BABYLONIA . . .

Once the home of a great civilization, BABYLONIA is now a dry, deserted, out-of-the-way portion of the kingdom of Iraq. Forty centuries ago the people of the southern plains between the Tigris and Euphrates Rivers built large cities and irrigation canals.



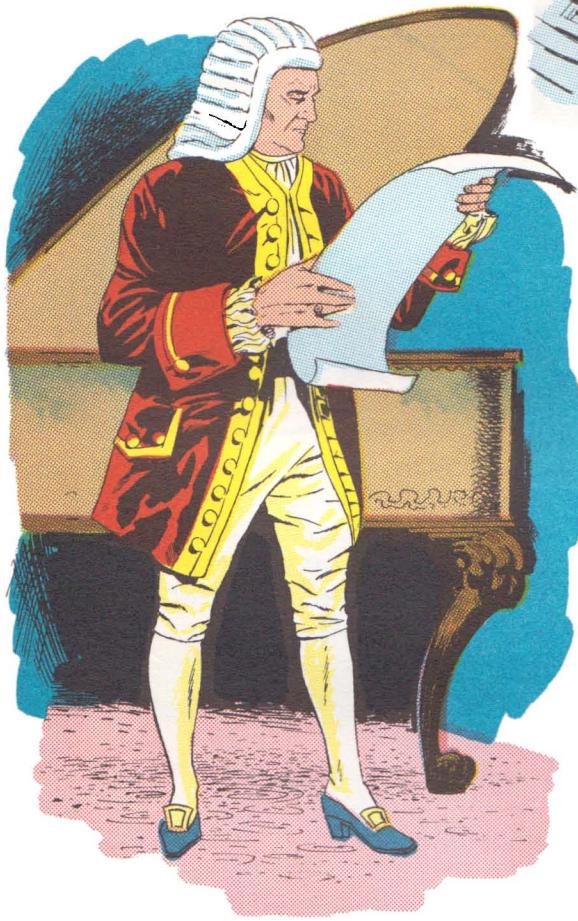
THE BABYLONIANS WERE FOND OF LITERATURE AND ART, WRITING STORIES AND LAWS ON CLAY TABLETS AND CARVING FIGURES ON THEIR WALLS. THEY WROTE PRAYERS AND HYMNS, AND WORKS ON SCIENCE, ENGINEERING, FARMING AND LAW.



AFTER MANY WARS, AND CHANGE OF RULERS, CAME THE CATASTROPHE. IN THE 13TH CENTURY, THE MONGOLS INVADED THE LAND, DESTROYED THE CITIES AND VILLAGES, LAID WASTE TO THE FIELDS, AND WRECKED THE CANALS AND WORKS OF ART, LEAVING A DESERT.

BACH, JOHANN S...

JOHANN SEBASTIAN BACH (Born 1685—Died 1750) was raised in Eisenach, Germany. When he was 10 years old his father died. To earn a living he entered the choir of St. Michael's. At the age of 18, BACH became court musician at Weimar. Later on, he was made Director of Concerts at Leipzig.

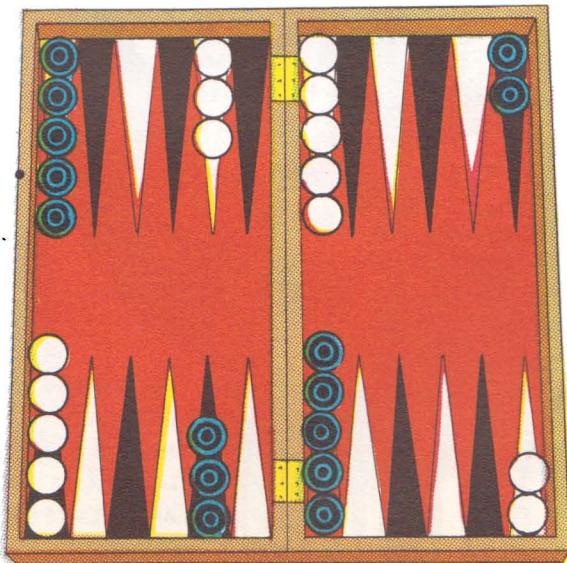


EARLIEST OF THE GREAT GERMAN COMPOSERS, BACH IN HIS OWN DAY WAS LOOKED UPON ONLY AS A MASTER ORGANIST AND MUSICIAN. IT WASN'T UNTIL 100 YEARS AFTER HIS DEATH THAT THE WORLD CAME TO RECOGNIZE HIM AS ONE OF THE GREATEST COMPOSERS OF ALL TIME. BESIDES HIS MANY COMPOSITIONS FOR THE ORGAN, HE WROTE SCORES OF STUDIES FOR THE PIANO. HIS WRITING INFLUENCED SO MANY OTHER MUSICIANS THAT HE IS KNOWN AS THE "MASTER OF MASTERS."

BACH'S CLOSE STUDIESAffected HIS EYES, AND AN OPERATION LEFT HIM TOTALLY BLIND. THIS HASTENED HIS DEATH. HE DIED IN LEIPZIG.

BACKGAMMON . . .

This is a game of chance played by two persons. It consists of a double board, black and white counters, called men, and a pair of dice. A throw of the dice determines the moves.

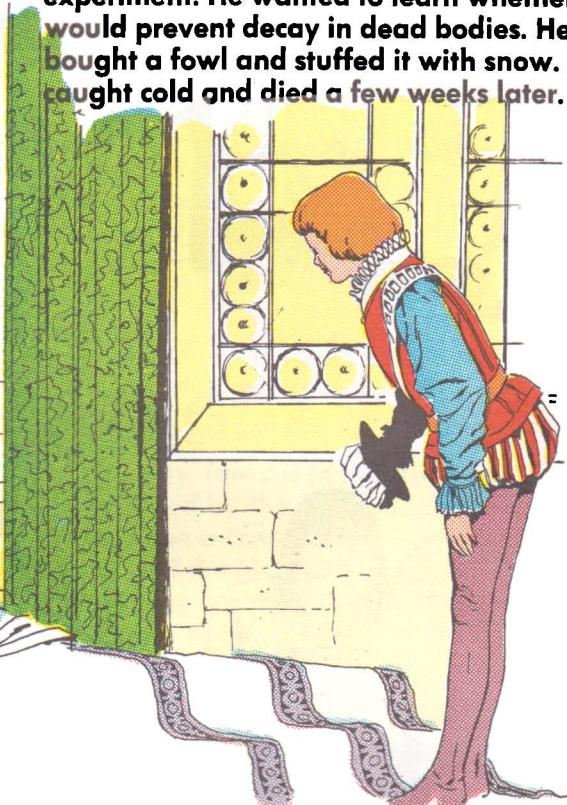


BACON, FRANCIS . . .

FRANCIS BACON (Born 1561—Died 1626) was an English scholar, statesman, philosopher and scientist. BACON died as a result of a scientific experiment. He wanted to learn whether cold would prevent decay in dead bodies. He bought a fowl and stuffed it with snow. He caught cold and died a few weeks later.



AT THE AGE OF 21, HE BECAME A LAWYER. TWO YEARS LATER HE BECAME A MEMBER OF PARLIAMENT. IN 1618, AFTER MUCH SUCCESS IN VARIOUS HIGH LEGAL OFFICES, HE WAS MADE LORD HIGH CHANCELLOR, AND AFTERWARD A VISCOUNT, BECOMING LORD BACON.



BACON WAS A FAVORITE AT ELIZABETH'S COURT. HIS WITTICISMS NEVER FAILED TO AMUSE THE ENGLISH QUEEN. HE WAS ALSO ONE OF THE MOST FAMOUS ESSAYISTS IN ENGLISH LITERATURE.

BACON, ROGER . . .

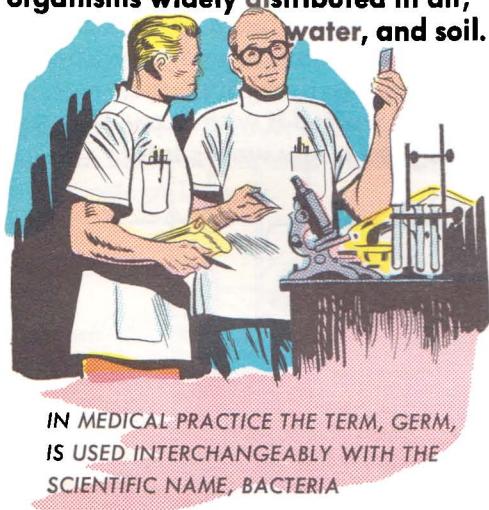
ROGER BACON, an English monk who lived 700 years ago, predicted that some day there would be such things as automobiles, airplanes, steamships and machines that lift great weights. His superiors, believing he studied and wrote "black magic," imprisoned him for many years. BACON was one of the most profound and original thinkers of his day and did much to stimulate scientific methods.

HIS MOST IMPORTANT WRITING IS THE "OPUS MAJUS," IN WHICH HE DISCUSSED LANGUAGE AND EXPERIMENTAL SCIENCE.

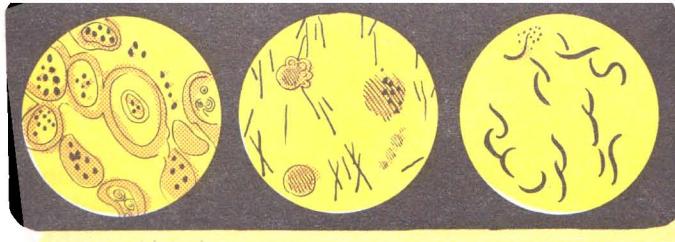


BACTERIA . . .

BACTERIA are minute, one-celled organisms widely distributed in air, water, and soil.



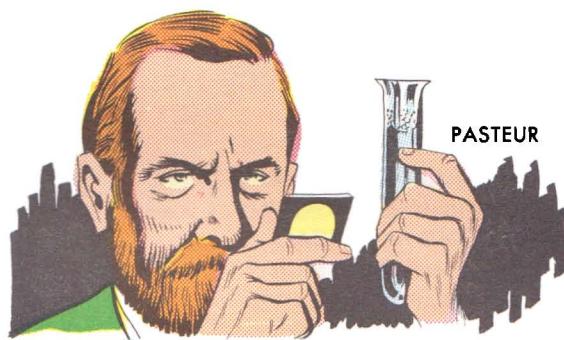
IN MEDICAL PRACTICE THE TERM, GERM, IS USED INTERCHANGEABLY WITH THE SCIENTIFIC NAME, BACTERIA



THERE ARE THREE GENERAL TYPES OF BACTERIA: COCCUS (ROUND), BACILLUS (ROD SHAPED) AND SPIRILLUM (SPIRAL). THEY MULTIPLY RAPIDLY BY DIVISION AND THRIVE IN DARKNESS. SOME ARE HARMFUL DISEASE CARRIERS. OTHERS ARE ACTIVE IN A PROCESS SUCH AS FERMENTATION. SOME OF THE BACTERIA ARE SO SMALL THAT NO MAN HAS EVER SEEN THEM, EVEN WITH THE MOST POWERFUL MICROSCOPE.



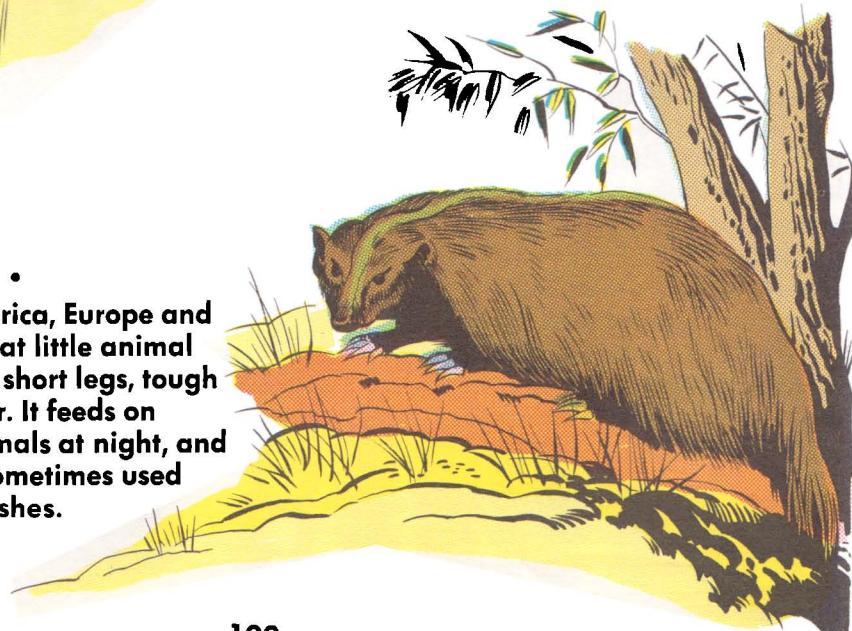
LEEUWENHOEK



BACTERIA WERE FIRST DISCOVERED AND DESCRIBED BY LEEUWENHOEK IN THE 17TH CENTURY. LOUIS PASTEUR IS OUTSTANDING AMONG THE EARLY PIONEERS.

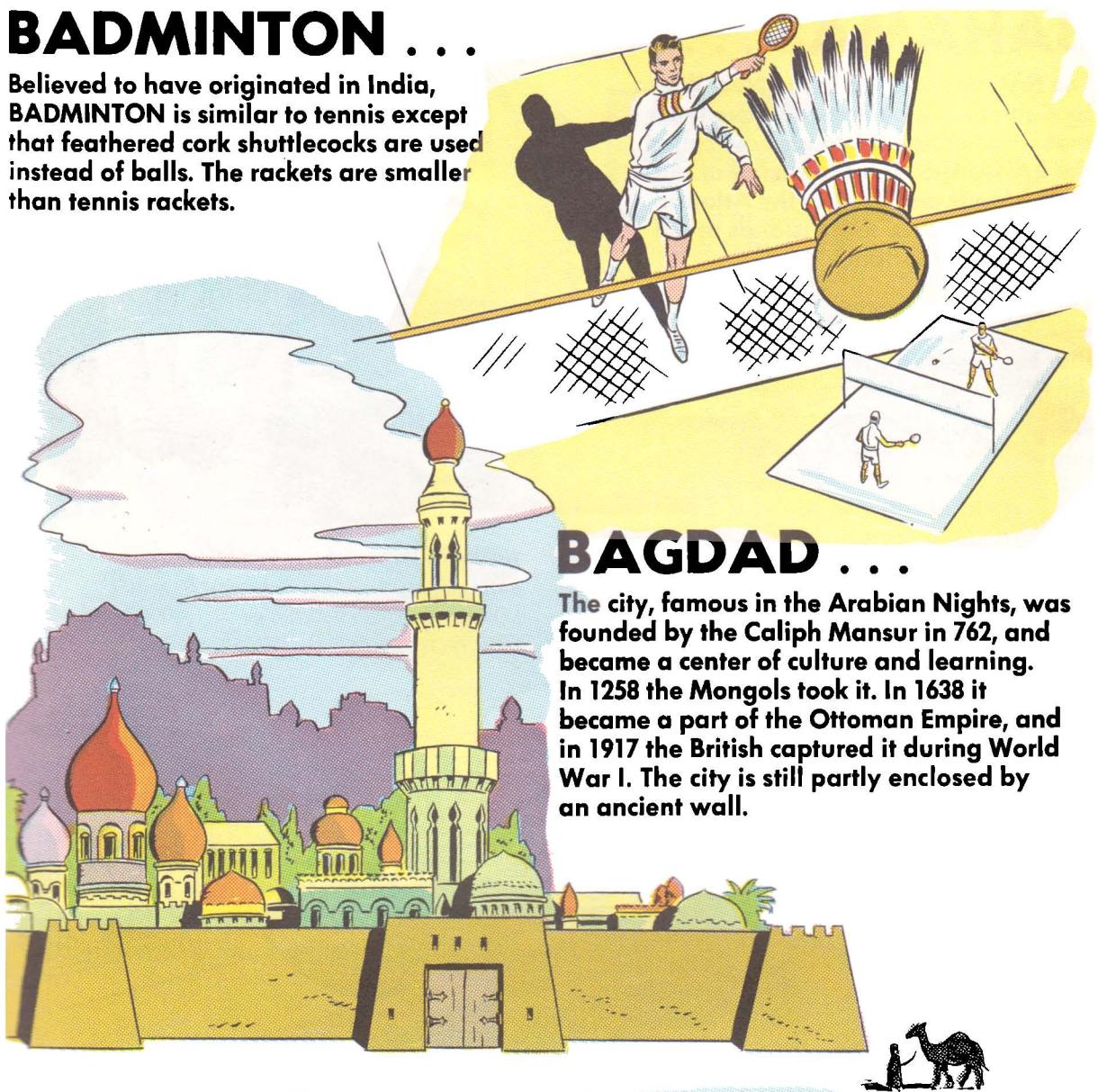
BADGER . . .

Found in the north of America, Europe and Asia, the BADGER is a squat little animal the size of a dog, but with short legs, tough hide, and long, coarse hair. It feeds on vegetables and small animals at night, and sleeps by day. Its hair is sometimes used to make artists' paint brushes.



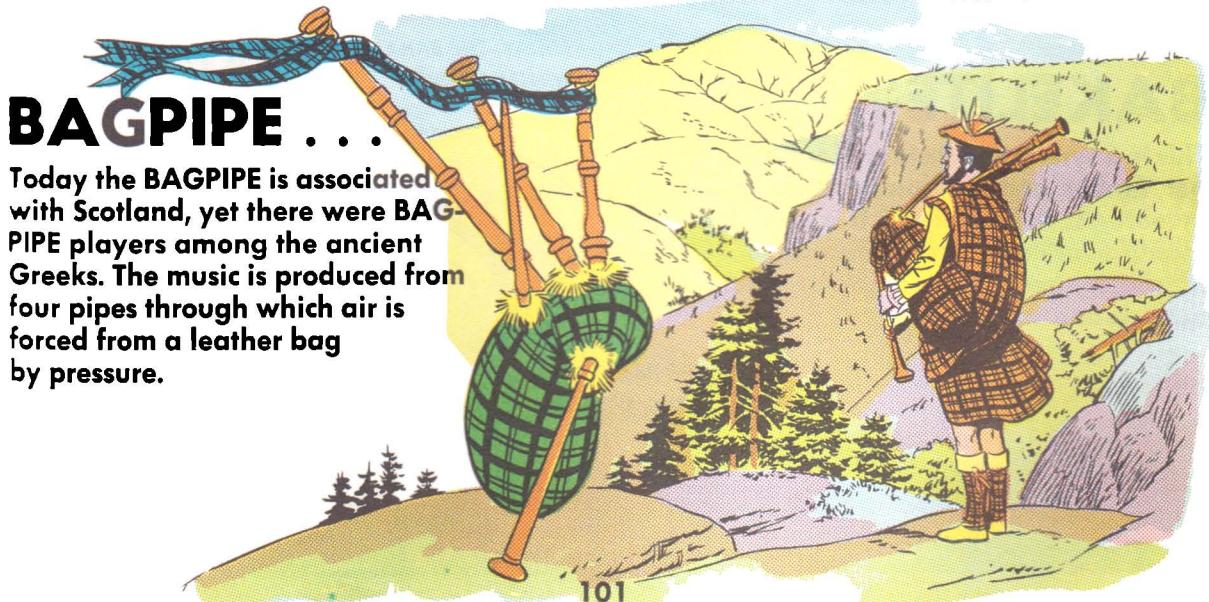
BADMINTON . . .

Believed to have originated in India, BADMINTON is similar to tennis except that feathered cork shuttlecocks are used instead of balls. The rackets are smaller than tennis rackets.



BAGDAD . . .

The city, famous in the Arabian Nights, was founded by the Caliph Mansur in 762, and became a center of culture and learning. In 1258 the Mongols took it. In 1638 it became a part of the Ottoman Empire, and in 1917 the British captured it during World War I. The city is still partly enclosed by an ancient wall.

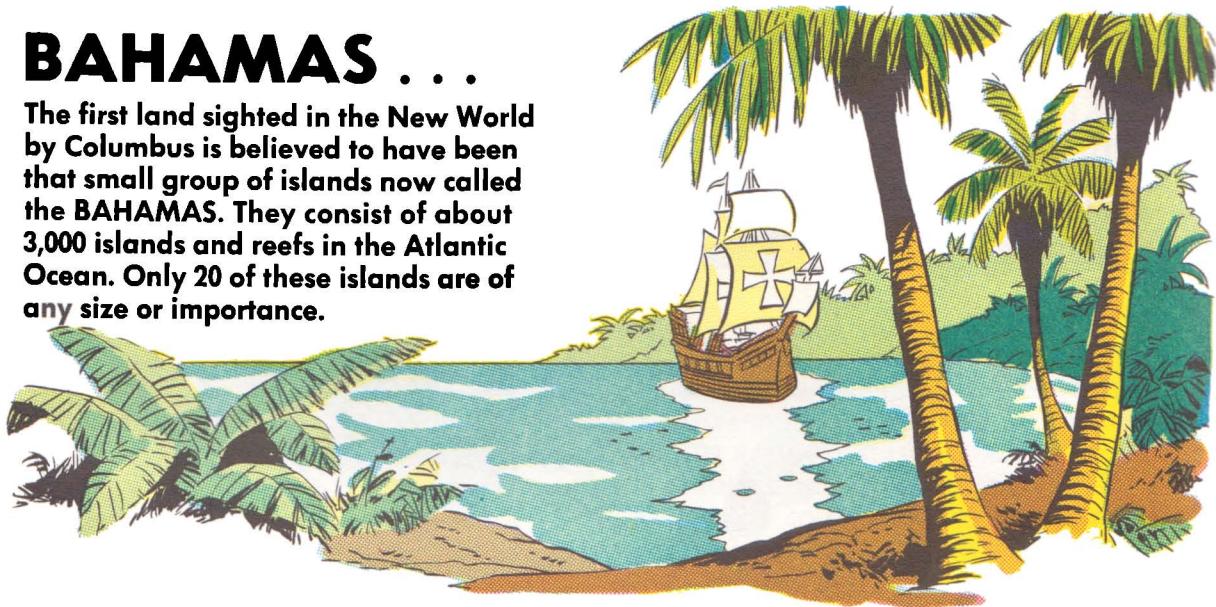


BAGPIPE . . .

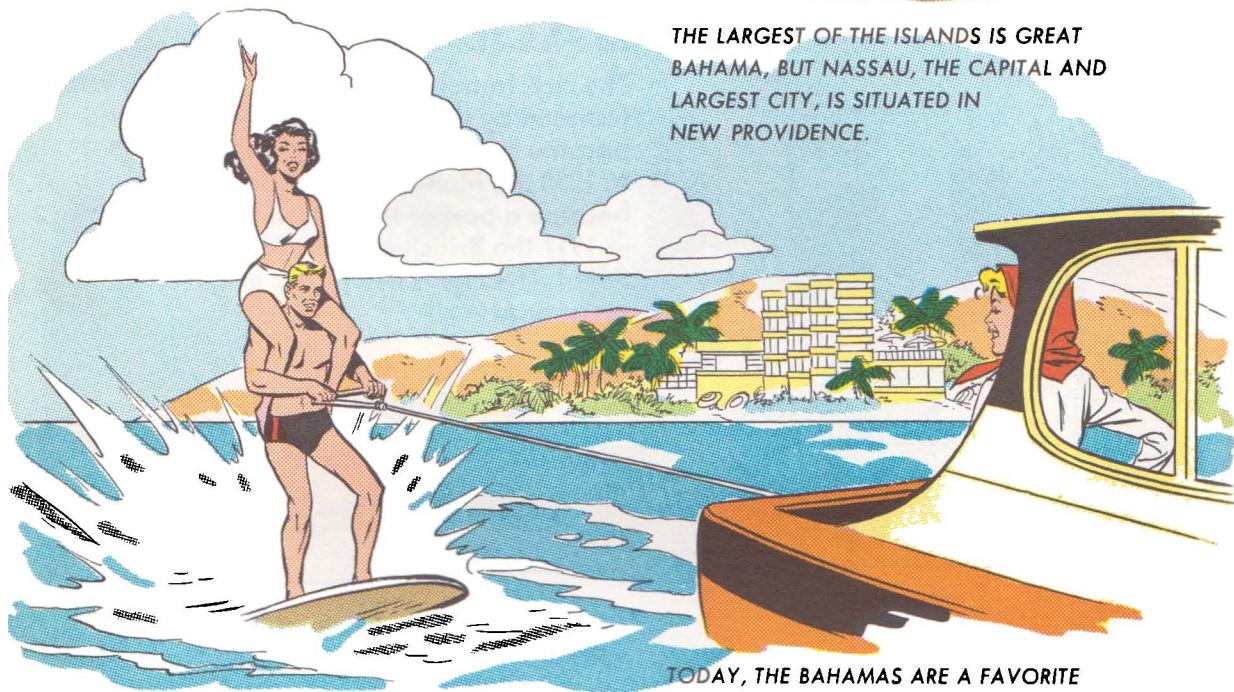
Today the BAGPIPE is associated with Scotland, yet there were BAGPIPE players among the ancient Greeks. The music is produced from four pipes through which air is forced from a leather bag by pressure.

BAHAMAS . . .

The first land sighted in the New World by Columbus is believed to have been that small group of islands now called the BAHAMAS. They consist of about 3,000 islands and reefs in the Atlantic Ocean. Only 20 of these islands are of any size or importance.



THE LARGEST OF THE ISLANDS IS GREAT BAHAMA, BUT NASSAU, THE CAPITAL AND LARGEST CITY, IS SITUATED IN NEW PROVIDENCE.

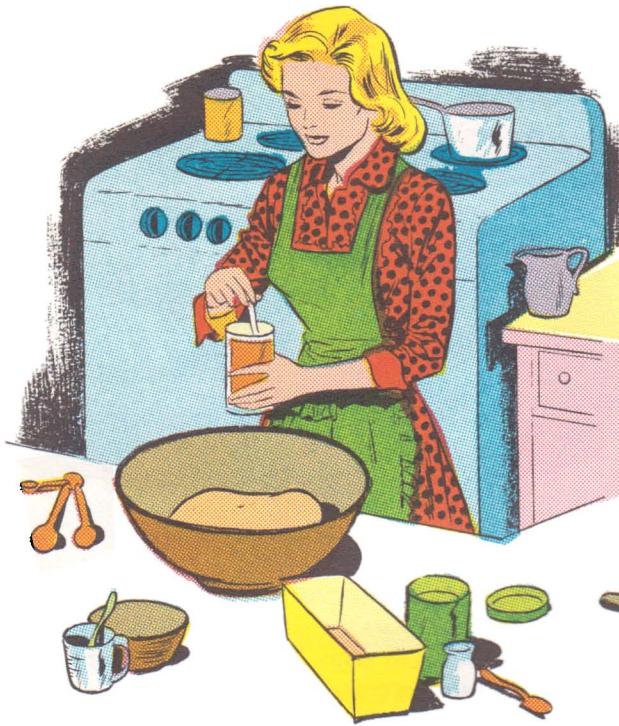


TODAY, THE BAHAMAS ARE A FAVORITE WINTER RESORT.

BAKELITE . . .

This is a synthetic substitute for hard rubber, amber, and celluloid, named for its inventor, L. H. Baekeland. It is used in the manufacture of electrical insulators, machinery gears, phonograph records, buttons and varnish.





BAKING POWDER . . .

The magic of BAKING POWDER makes a lump of thin, wet dough come out of the oven a light, fluffy cake or airy white biscuit. It is made of cream of tartar, soda, and starch or flour. When the BAKING POWDER is wet, the cream of tartar and soda act upon each other chemically and set free carbonic-acid gas, which passes through the dough and makes it light. Dough "rises" because it is full of tiny gas bubbles.

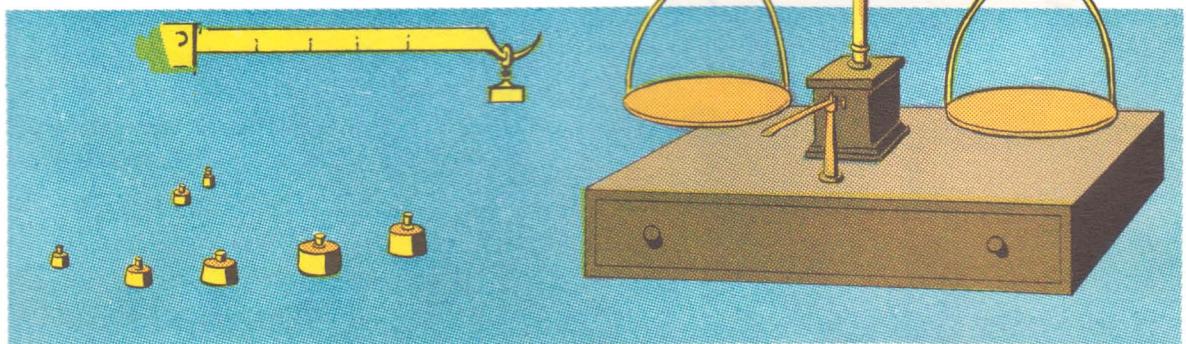
BALALAIKA . . .

The BALALAIKA is a musical instrument of very ancient Slavic origin. It is popular among the Russians and Tartars. It is a narrow shallow guitar with only three strings.



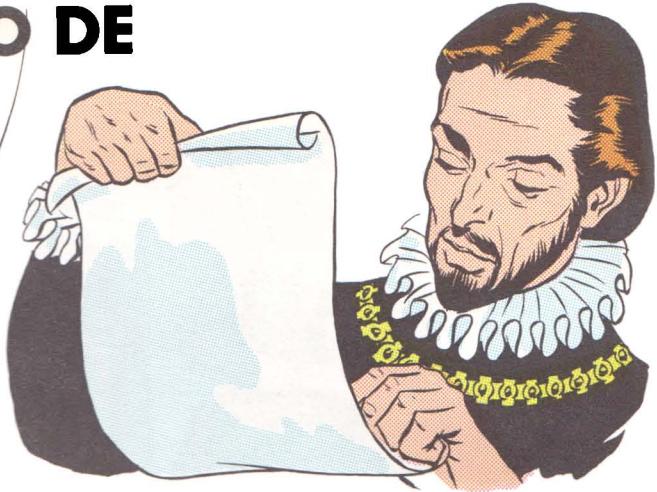
BALANCE . . .

A BALANCE is an instrument used for weighing. BALANCES are of various forms, the most common and well known being the "beam and scales."



BALBOA, VASCO DE

BALBOA was a celebrated Spanish explorer and adventurer whose great ambition seems to have been to extend the boundaries of Spanish conquests.



ON SEPT. 1, 1513, BALBOA, ACCOMPANIED BY A SMALL BAND OF FOLLOWERS, BEGAN HIS JOURNEY THROUGH THE JUNGLES AND MOUNTAINS OF THE Isthmus of Panama, GUIDED BY AN INDIAN CHIEF NAMED PONCA. ON SEPT. 25, 1513, BALBOA AND HIS COMPANIONS REACHED THE PEAK OF THE MOUNTAIN RANGE AND SAW THE VAST OCEAN OFF IN THE DISTANCE. BLUE AND QUIET, THE WATERS STRETCHED OUT BEFORE THEM WITH NO LAND IN SIGHT TO SHOW WHERE THEY ENDED. THE TALE OF THE INDIANS WAS TRUE.

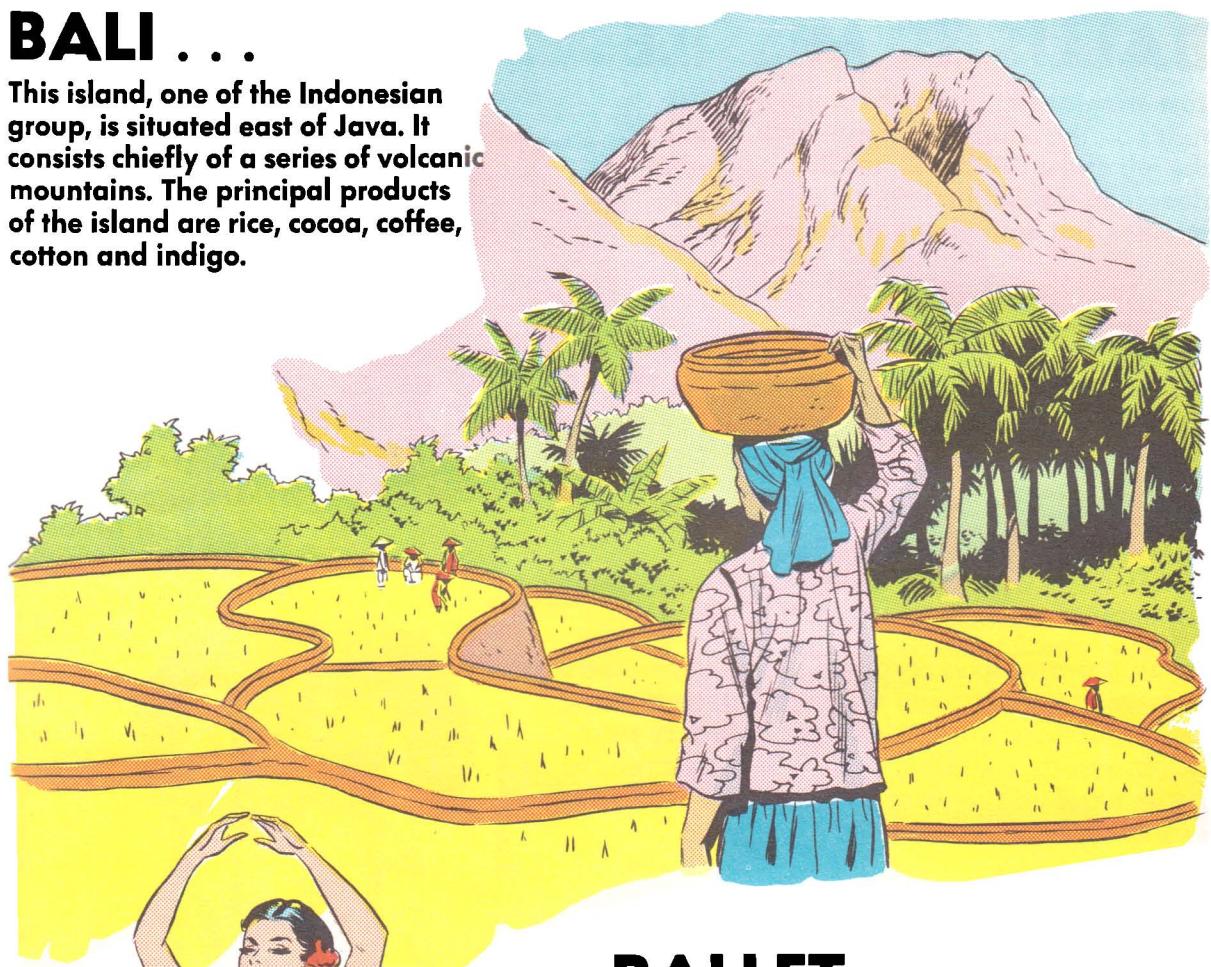
BALBOA JOINED AN EXPEDITION TO THE NEW WORLD AND SETTLED IN HAITI. LATER, HE BECAME GOVERNOR OF THE COLONY OF DARIEN, IN EASTERN PANAMA. TALK AMONG THE INDIANS ABOUT A GREAT BODY OF WATER BEYOND THE MOUNTAINS PROMPTED HIM TO ORGANIZE AN EXPEDITION.



HIS STRUGGLES WERE NOT IN VAIN. FOUR DAYS LATER, BALBOA REACHED THE SHORE AND, WITH UP-RAISED SWORD, CLAIMED THE SEA FOR SPAIN. LITTLE DID HE KNOW THAT THIS NEW SEA WAS THE LARGEST BODY OF WATER IN THE WORLD, THE PACIFIC OCEAN.

BALI . . .

This island, one of the Indonesian group, is situated east of Java. It consists chiefly of a series of volcanic mountains. The principal products of the island are rice, cocoa, coffee, cotton and indigo.



BALLET . . .

A BALLET is a dance which tells a dramatic story. It is performed by one dancer or a group of dancers. BALLET is performed in pantomime (drama using movement instead of speech). The movements of the body, legs, arms and hands interpret the story.

INTERPRETIVE DANCING IS CENTURIES OLD. MANY ANCIENT TRIBES USED THE DANCE AS PART OF THEIR RELIGIOUS RITES. THE WORD BALLET COMES FROM THE ITALIAN WORD "BALLO," A DANCE.

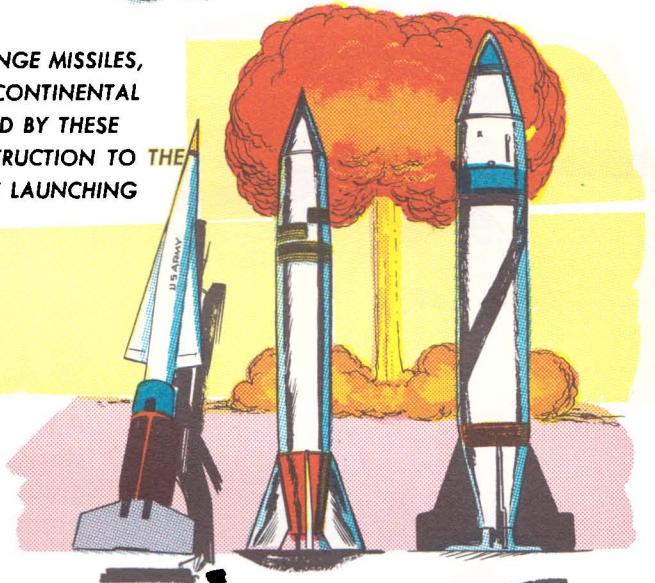
BALLISTIC MISSILE . . .

Just imagine being able to bomb a target that's on the other side of the earth. That's the job of the **BALLISTIC MISSILE**. Not only does it do this job in a matter of minutes, but with pinpoint accuracy.



GUIDED MISSILES
FIRST CAME INTO MOD-
ERN WARFARE WHEN THE
GERMANS USED THEIR FAM-
OUS V-2 ROCKET TO BOMB
ENGLAND DURING WORLD
WAR II.

TODAY, SCIENTISTS HAVE DEVELOPED SHORT-RANGE MISSILES, INTERMEDIATE MISSILES, AND THE SUPER INTERCONTINENTAL BALLISTIC MISSILES. ATOMIC WARHEADS CARRIED BY THESE GUIDED MISSILES WILL BRING DEATH AND DESTRUCTION TO THE ENEMY THOUSANDS OF MILES AWAY FROM THE LAUNCHING BASE OF THE MISSILE.



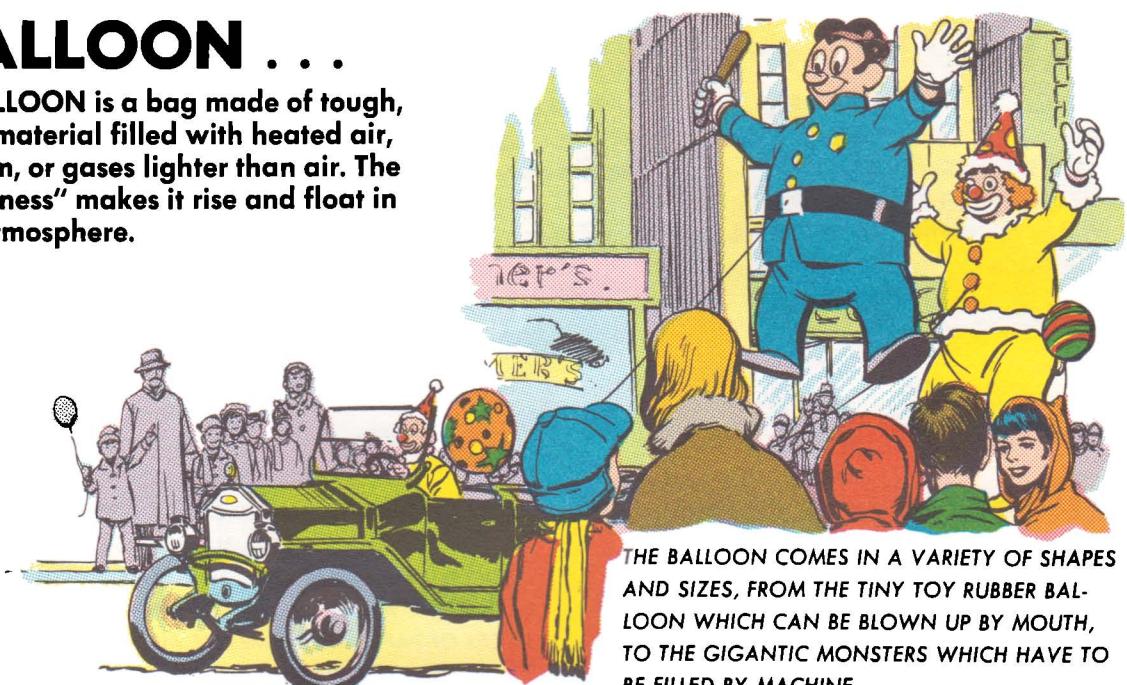
EACH DAY BRINGS STARTLING NEW ADVANCES IN THE DEVELOPMENT OF BALLISTIC MISSILES; NEW FUELS TO POWER THEM, NEW CONTROLS TO GUIDE THEM, NEW TARGETS FOR THEM TO CONQUER. ALREADY THE MISSILE IS RESPONSIBLE FOR GETTING OUR MAN-MADE SATELLITE INTO ITS ORBIT. THE RACE BETWEEN NATIONS CONTINUES, NOT ONLY TOWARD THE PERFECTION OF BALLISTIC MISSILES FOR ATTACK, BUT ALSO IN THE FIELD OF INTERCEPTOR BALLISTIC MISSILES.



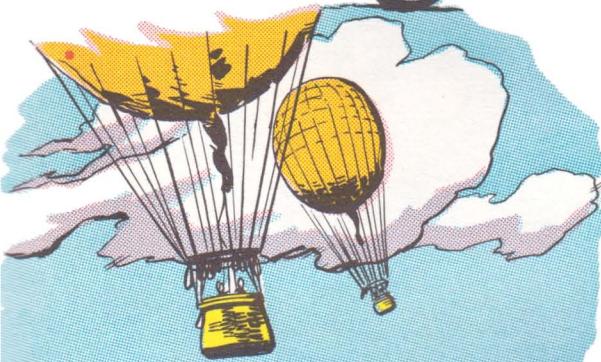
BECAUSE OF NECESSARY SECURITY REASONS, ONLY A LIMITED AMOUNT OF TECHNICAL DATA IS AVAILABLE ON THE SUBJECT. HOWEVER, IT'S AN ACCEPTED FACT THAT MISSILES WILL, IN THE NEAR FUTURE, MEAN THE CONQUEST OF OUTER SPACE.

BALLOON . . .

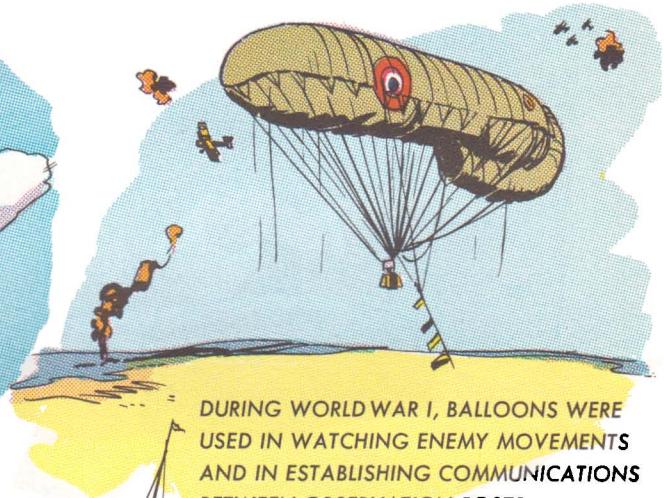
A BALLOON is a bag made of tough, light material filled with heated air, helium, or gases lighter than air. The "lightness" makes it rise and float in the atmosphere.



THE BALLOON COMES IN A VARIETY OF SHAPES AND SIZES, FROM THE TINY TOY RUBBER BALLOON WHICH CAN BE BLOWN UP BY MOUTH, TO THE GIGANTIC MONSTERS WHICH HAVE TO BE FILLED BY MACHINE.



A NETTING ENCLOSURES THE BAG AND SUPPORTS A BASKET IN WHICH BALLAST (EXTRA WEIGHTED MATERIAL), PASSENGERS OR INSTRUMENTS CAN BE CARRIED. A CORD CONNECTED TO A VALVE CONTROLS THE GAS. RELEASING GAS CAUSES IT TO GO DOWN. RELEASING BALLAST CAUSES THE BALLOON TO RISE.



DURING WORLD WAR I, BALLOONS WERE USED IN WATCHING ENEMY MOVEMENTS AND IN ESTABLISHING COMMUNICATIONS BETWEEN OBSERVATION POSTS.



IN WORLD WAR II, BALLOONS WERE USED TO PREVENT ENEMY AIRCRAFT FROM FLYING OVER CITIES. THEY WERE FLOATED AT GREAT HEIGHTS AND ANCHORED TO THE GROUND BY STEEL CABLES.



RECENTLY, ATTENTION HAS BEEN FOCUSED ON THE USE OF BALLOONS FOR METEOROLOGICAL OBSERVATION. THE BALLOON IS VERY IMPORTANT IN GOVERNMENT RESEARCH. IT IS USED FOR NUMEROUS PURPOSES. TODAY, AT THIS VERY MINUTE, BALLOONS ARE IN FLIGHT OR ANCHORED AT GREAT HEIGHTS ABOVE THE UNITED STATES.

BALLOT . . .

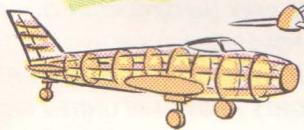
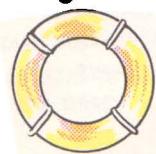
A BALLOT is a ball, ticket or paper by which a vote is registered in secret. The name comes from the French (balla) and Italian (ballotta), meaning "little balls."



SECRET VOTING DATES BACK TO ANCIENT GREECE AND ROME, WHEN COLORED BALLS OR STONES WERE USED IN CASTING VOTES. A BLACK BALL DROPPED IN THE BALLOT BOX WAS A "NO" VOTE, A WHITE BALL MEANT A "YES" VOTE. MODERN BALLOTS ARE PIECES OF PAPER. THE NAMES OF ALL THE NOMINEES ARE PRINTED ON THE BALLOT WITH SPACE FOR CHECKING YOUR CHOICE. THE BALLOTS ARE MARKED IN A CLOSED BOOTH TO INSURE SECRECY.

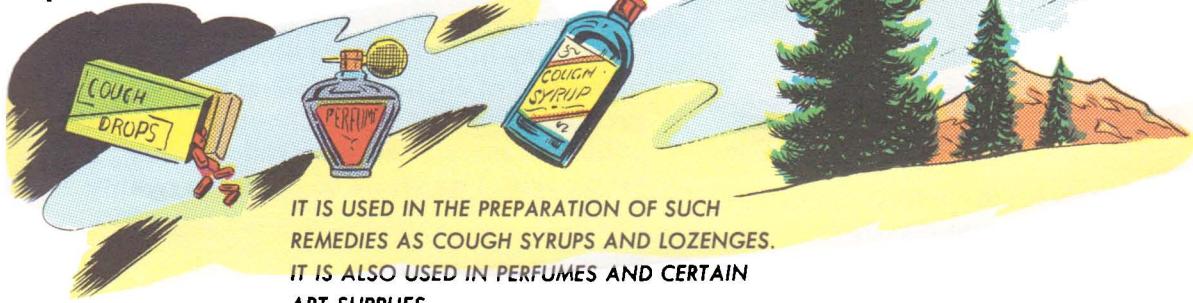
BALSA . . .

In the hot, tropical regions of South America, grow the BALSA trees. They grow rapidly and reach a height of about 40 feet. The BALSA wood is the lightest ever found. It is very soft and about one-half as heavy as cork. Because the wood is so light and porous, it is often waterproofed and used for life preservers and life rafts. It is also used in airplane construction and for insulating refrigerators and storage rooms.

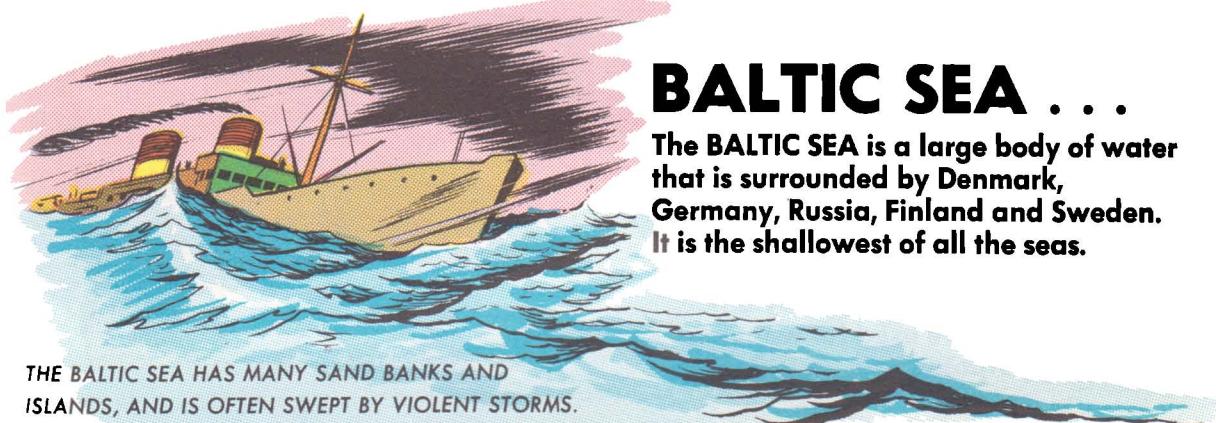


BALSAM . . .

BALSAM fir trees are found in the northern part of the United States, in Canada, in Peru, in Central America and in Ceylon. The wood, being weak and coarse, has little use in the lumber and paper industry. However, the BALSAM sap, a clear, sticky, resinous substance from the bark, is of great importance to medicine.



IT IS USED IN THE PREPARATION OF SUCH REMEDIES AS COUGH SYRUPS AND LOZENGES.
IT IS ALSO USED IN PERFUMES AND CERTAIN ART SUPPLIES.



THE BALTIC SEA HAS MANY SAND BANKS AND ISLANDS, AND IS OFTEN SWEPT BY VIOLENT STORMS. DESPITE ALL THIS, THE BALTIC SEA IS IMPORTANT TO THE FISHING AND SHIPPING TRADES OF THE COUNTRIES AROUND IT.

BALTIC SEA . . .

The BALTIC SEA is a large body of water that is surrounded by Denmark, Germany, Russia, Finland and Sweden. It is the shallowest of all the seas.



BALTIMORE . . .

BALTIMORE is a city in Maryland, situated on the north shore of the Patapsco River, 14 miles from Chesapeake Bay. Its unusually fine harbor, and its convenient location with respect to ocean trade has made BALTIMORE an important port, industrially and commercially. The principal products are clothing, copper goods, meat, sugar, tinware, cotton goods, machinery and fertilizers.

THE MAIN INDUSTRIES ARE CLOTHING MANUFACTURING, OYSTER CANNING, AUTOMOBILE MANUFACTURING, PRINTING AND PUBLISHING.

FEW CITIES IN THE COUNTRY HAVE AS MANY FINE INSTITUTIONS OF ART AND LEARNING AS DOES BALTIMORE.

BALZAC, HONORE DE . . .

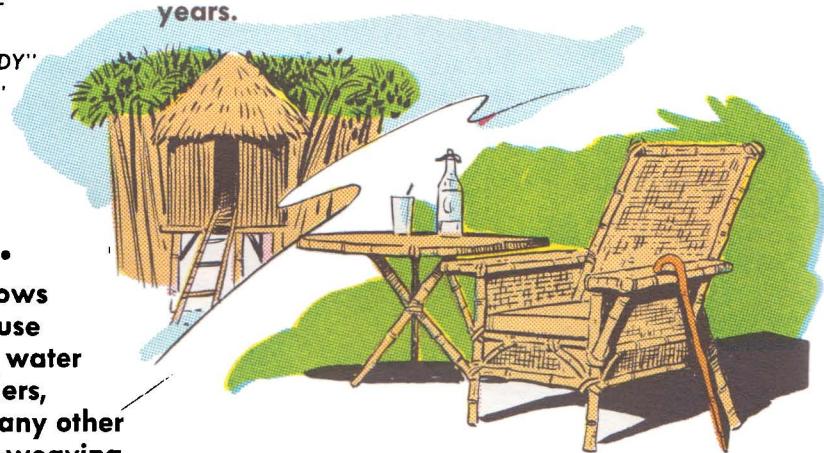


AMONG BALZAC'S MASTERPIECES ARE "LOST ILLUSIONS," "THE PEASANTS," "POOR RELATIONS," "HUMAN COMEDY" AND "THE QUEST OF THE ABSOLUTE."

HONORE De BALZAC (born 1799—died 1850) was a French author. He was educated at the College of Vendome and then went on to study law at the Sorbonne. In 1819, at the age of twenty, he left home to seek his fortune as a writer in Paris. The next 10 years were filled with many hardships and much debt. Finally, at the age of 30, he got his first taste of success. "The Last of the Chouans," his first published novel, was soon followed by "The Magic Skin." He wrote 85 novels in twenty years.

BAMBOO . . .

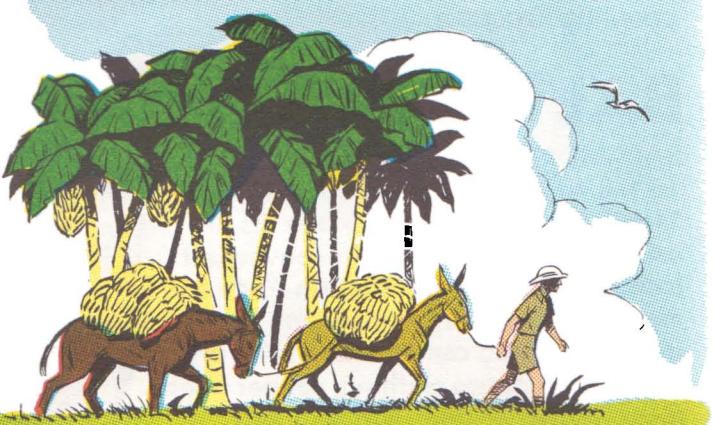
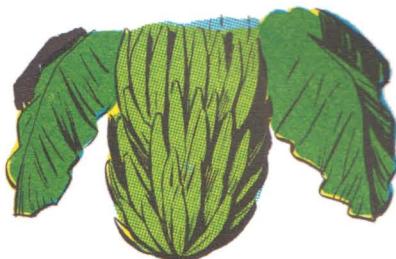
This is a giant grass which grows in tropical countries. Natives use BAMBOO for houses, bridges, water pipes, tables, toys, flutes, ladders, fences, masts for boats and many other items. The leaves are used for weaving and packing purposes.



IN AMERICA AND IN EUROPE BAMBOO IS USED TO MANUFACTURE SPECIAL KINDS OF PAPER, WALKING STICKS, SPORTS EQUIPMENT AND OUTDOOR FURNITURE.

BANANA . . .

The BANANA is a fruit grown in the tropics. BANANAS grow in huge, upthrusting bunches of big-leaved plants. The trunk of the plant, which may be 30 feet high, is not really a trunk but a sheath of leaves with a channel in the center. Each plant produces just one bunch. When they reach the proper size, and are still green, the trunk is cut.



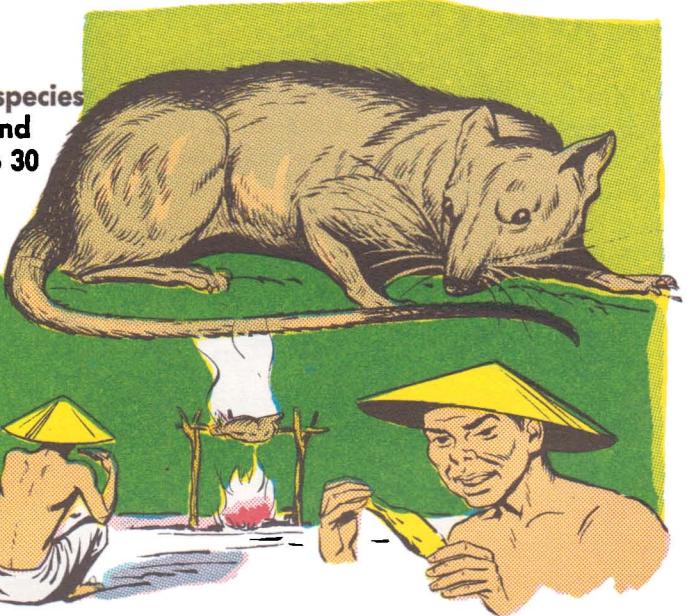
THEY ARE CARRIED OUT OF JUNGLE-LIKE PLANTATIONS ON PACK MULES, WHICH TAKE THEM TO THE RAILWAYS FOR EXPORT.



BANDICOOT . . .

The BANDICOOT is the largest known species of rat. It weighs two to three pounds, and has a length, including the tail, of 24 to 30 inches. Found in India and Ceylon, the BANDICOOT causes much destruction to the rice fields and gardens of these countries.

HOWEVER, ITS FLESH IS SAID TO BE DELICATE AND TASTY, SIMILAR TO YOUNG PORK, AND IS A FAVORITE FOOD AMONG THE COOLIES.



BANGKOK . . .

BANGKOK, the capital city of Siam, is situated on both banks of the Menam River. The foreign trade of Siam centers in BANGKOK, as ships can dock right along the Menam.



THE CHIEF EXPORTS ARE RICE, SUGAR, SESAME, FINE WOODS, HIDES, IVORY AND FEATHERS. THE IMPORTS ARE TEA, MANUFACTURED SILKS, HARDWARE, MACHINERY AND GLASS WARES.

BANJO . . .

The BANJO, a musical instrument with five strings, has a drumlike head resembling a tambourine, and a neck like a guitar. It is played by plucking the strings with the thumb and fingers of one hand, and "stopping" the strings with the fingers of the other hand. Most of the time a celluloid pick is used to pluck the strings.

IT WAS A FAVORITE INSTRUMENT AMONG THE MINSTRELS A FEW DECADES AGO, AND ALSO AMONG THE PLANTATION NEGROES OF THE SOUTH.

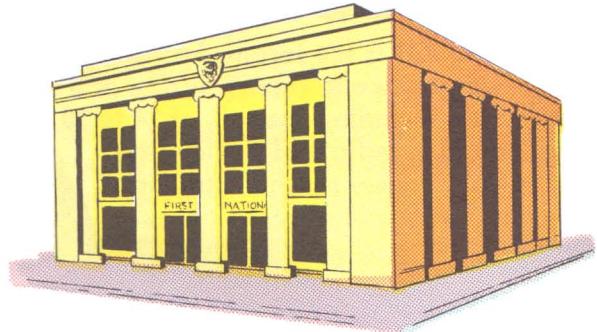


BANKING . . .

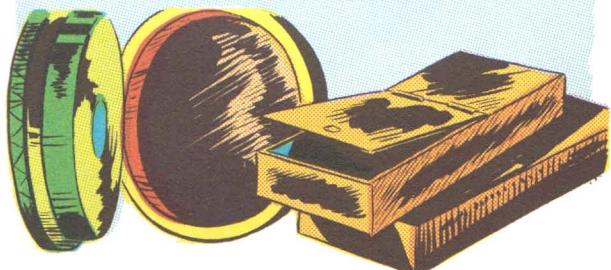
BANKING in the United States is carried on by privately owned and operated financial institutions. Banks are classified by the source of authority which charters them. There are national banks chartered by the federal government, and state banks authorized by the various states.



SAVINGS BANKS ACCEPT MONEY IN THE FORM OF A DEPOSIT, AND THE AMOUNT IS CREDITED TO THE ACCOUNT. THE DEPOSITOR RECEIVES A BANKBOOK IN WHICH EACH DEPOSIT IS RECORDED.



COMMERCIAL BANKS DO A GENERAL ALL-AROUND SERVICE FOR BIG BUSINESS. THEY ACCEPT DEPOSITS FOR SAVINGS, RENT DEPOSIT VAULTS FOR VALUABLES, SUPPLY LOANS, AND INVEST IN SECURITIES.

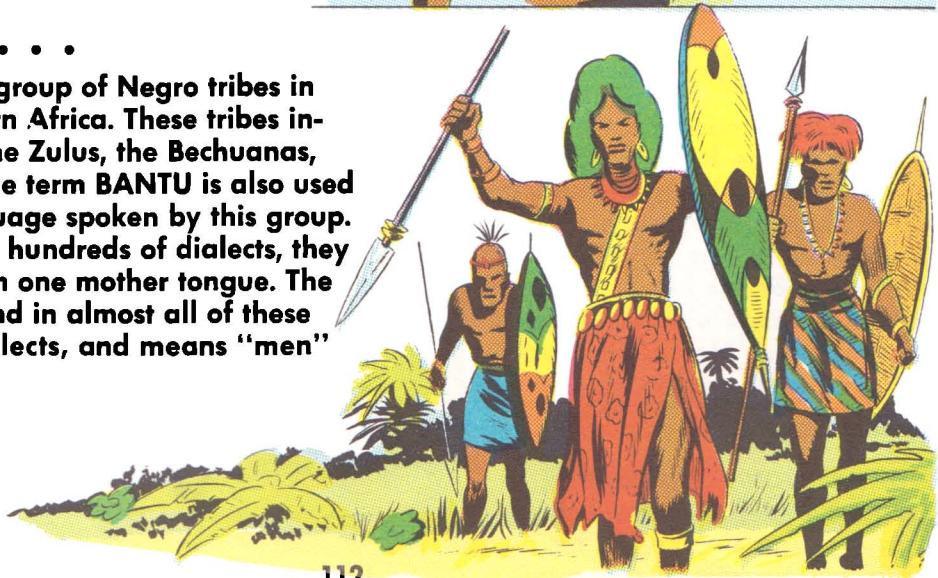


TRUST COMPANIES ARE THE THIRD TYPE OF BANK. THEY HOLD FUNDS AND SECURITIES IN CUSTODY FOR INDUSTRIAL CONCERN. THEY SERVE AS EXECUTORS AND GUARDIANS.



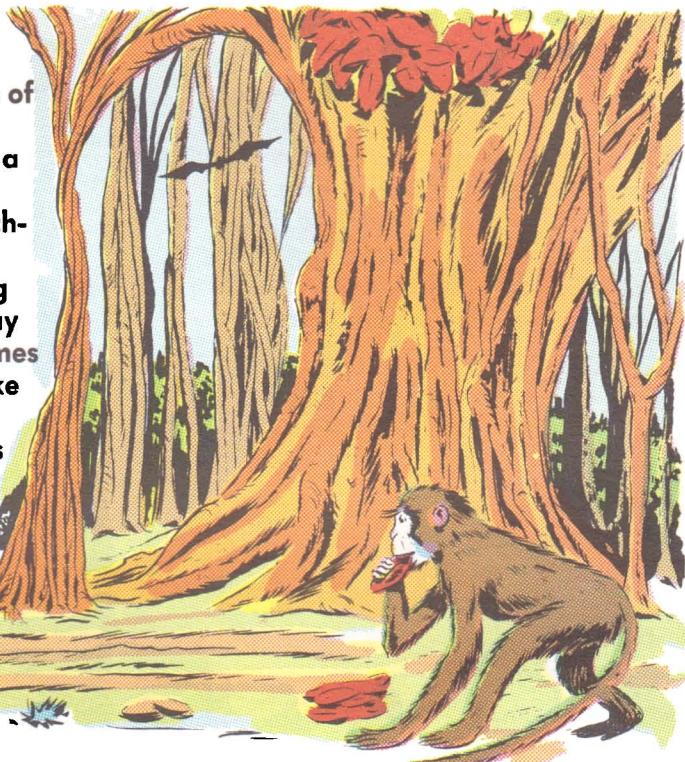
BANTU . . .

BANTU refers to a group of Negro tribes in central and southern Africa. These tribes include the Kaffirs, the Zulus, the Bechuanas, and the Swahili. The term BANTU is also used to denote the language spoken by this group. Although there are hundreds of dialects, they are all derived from one mother tongue. The word ban-tu is found in almost all of these languages and dialects, and means "men" or "people".



BANYAN . . .

The BANYAN tree is a strange species of fig tree that grows in India and many islands of the Pacific. It is regarded as a sacred tree by the Hindus, and they would never chop one down. Its branches produce long shoots which descend to the ground and take root, becoming still another trunk. With its strange way of growing, the BANYAN tree sometimes covers a large area of land. The fig-like fruit of the BANYAN is a rich scarlet color. It is eaten by the monkeys, birds and huge bats which live in the thick forest of its branches.



BAPTISTS . . .

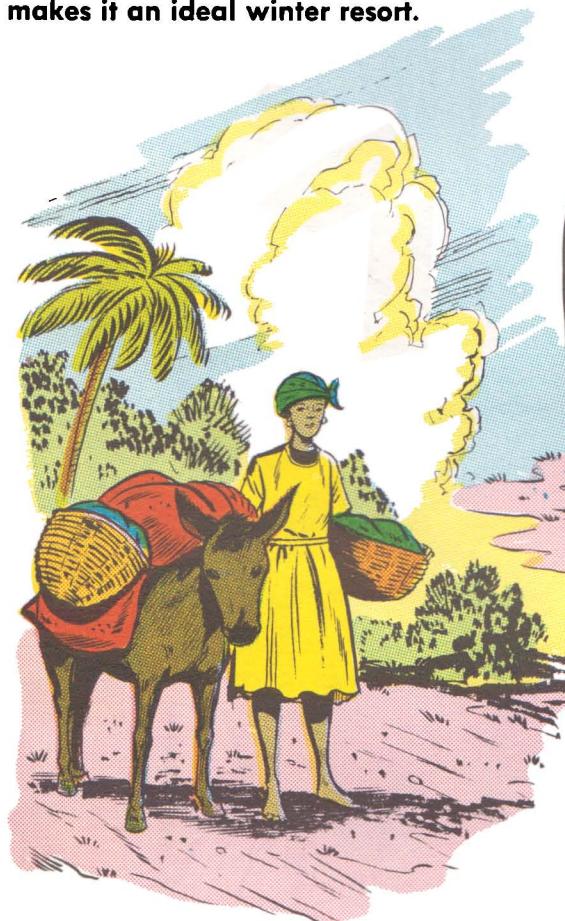
BAPTISTS are a Protestant denomination of Christians. BAPTIST Churches have more members than any other Christian church in the United States. Each church, under its officers of pastor and deacons, is a spiritual democracy possessed of the power of self-government. Thus it manages its own affairs. There are about twenty branches of the BAPTIST Church, but they all have similar beliefs. Among the outstanding features of BAPTIST doctrine and practice are baptism by total immersion, exclusion of infant baptism, liberty of conscience, and separation of church and state.



THE BAPTISTS HAVE NO OFFICIAL CREED, FOR THEY BELIEVE THAT THE BIBLE ITSELF IS THE ONLY GUIDE TO RELIGION, AND THAT THE PEOPLE SHOULD BE FREE TO READ AND UNDERSTAND IT AS THEY CHOOSE. THE FIRST BAPTIST CHURCH IN AMERICA WAS ORGANIZED BY ROGER WILLIAMS IN PROVIDENCE, R. I., IN 1639.

BARBADOS . . .

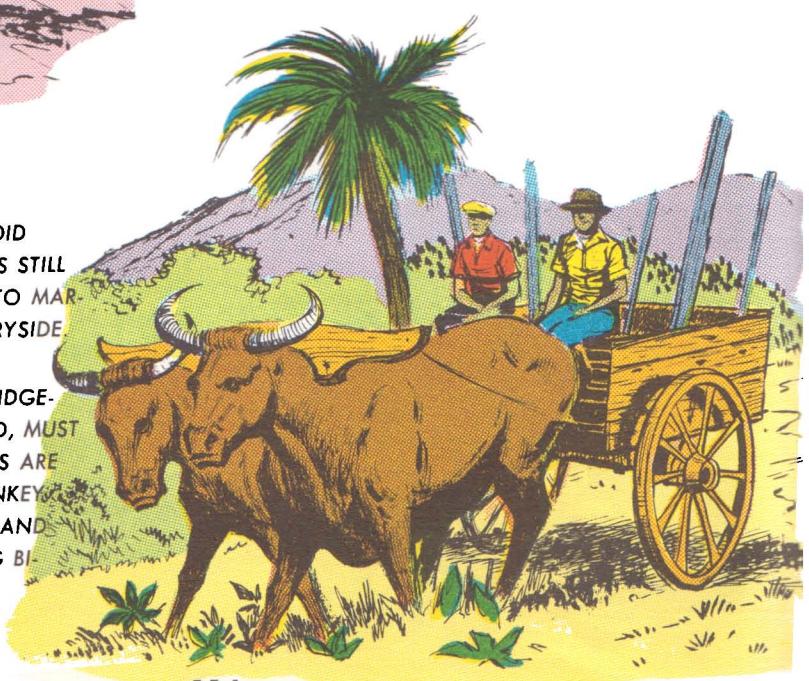
This is an island in the West Indies which was first colonized in 1605 by Great Britain, and has always remained under the British flag. Although it is a tropical island, it is cooled by breezes from the Atlantic Ocean, and its warm, even climate makes it an ideal winter resort.



MOST OF THE PEOPLE ARE NEGROES. THEY WORK AS FARMERS, GROWING SUGAR CANE, COTTON, TOBACCO AND COFFEE. SOME WORK IN FACTORIES, MAKING MOLASSES AND CIGARETTES. OTHERS EARN THEIR LIVING BY FISHING.

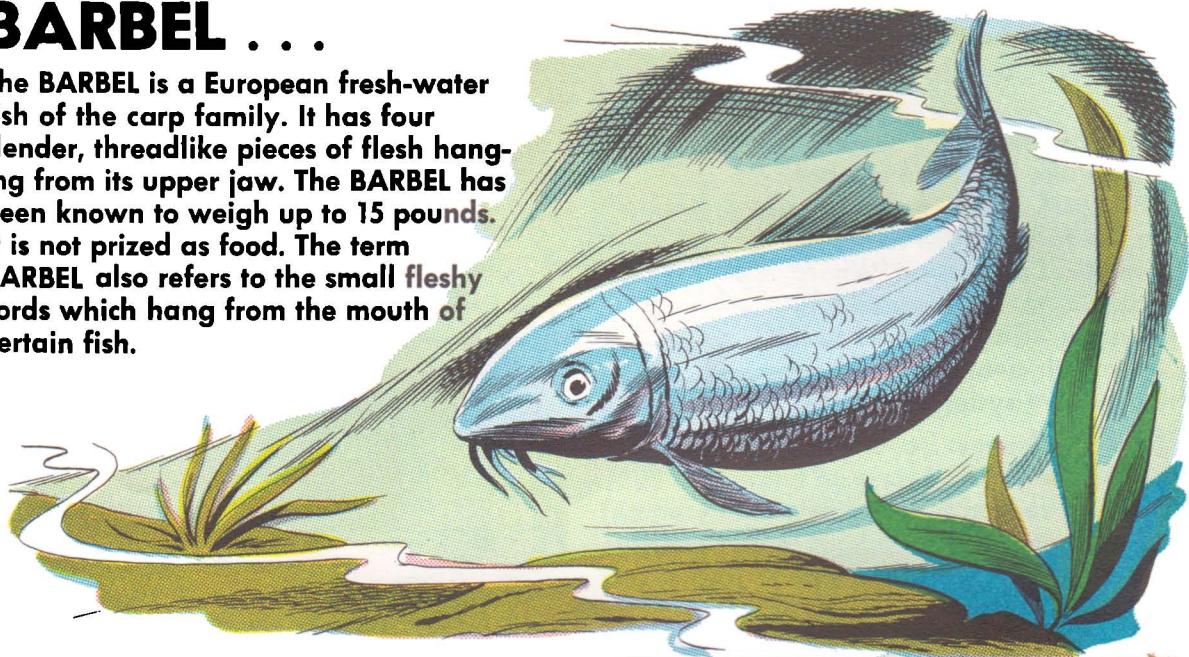
PART OF THE ISLAND LOOKS AS IT DID OVER 200 YEARS AGO. THE NATIVES STILL DRIVE THEIR TWO-WHEELED CARTS TO MARKET THROUGH THE GRASSY COUNTRYSIDE.

CAR DRIVERS IN THE STREETS OF BRIDGETOWN, THE CAPITOL OF THE ISLAND, MUST BE EXTREMELY CAREFUL. THE STREETS ARE FILLED WITH SLOWLY MOVING DONKEY CARTS, MEN PUSHING HANDCARTS AND MANY PEOPLE WALKING OR RIDING BICYCLES.



BARBEL . . .

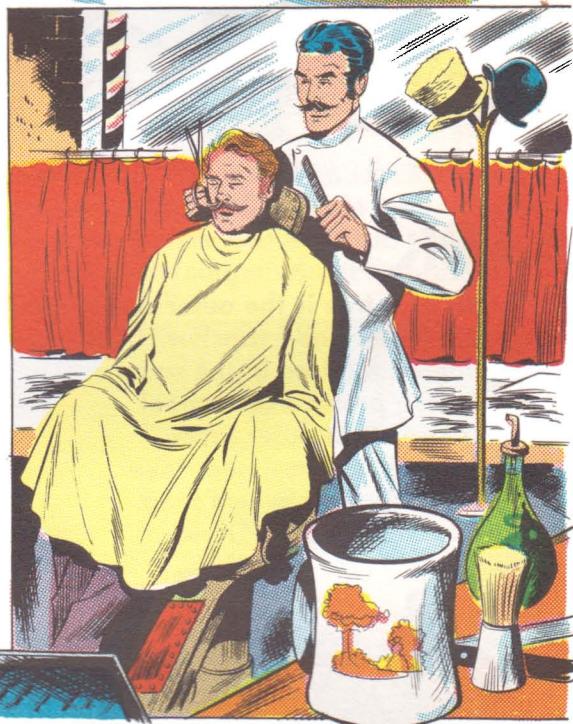
The BARBEL is a European fresh-water fish of the carp family. It has four slender, threadlike pieces of flesh hanging from its upper jaw. The BARBEL has been known to weigh up to 15 pounds. It is not prized as food. The term BARBEL also refers to the small fleshy cords which hang from the mouth of certain fish.



BARBER . . .

A BARBER is a person who makes his living by cutting hair and shaving men's faces. A BARBER must receive training before he is allowed to work, and he must get a license before he can open a shop. Today everything in a BARBER shop is completely sanitary. Combs and brushes are sterilized, and clean towels are used.

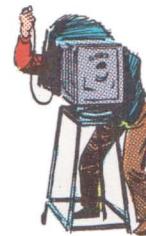
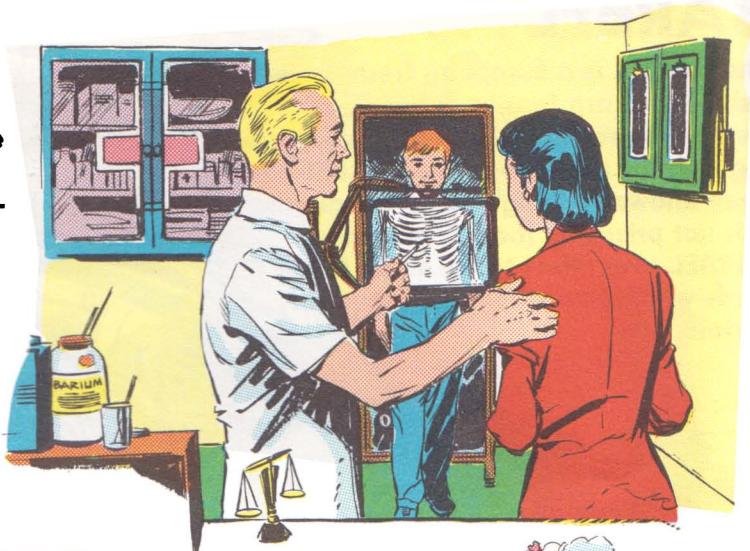
UNTIL THE LAST CENTURY BARBERS DID MUCH MORE THAN JUST TRIM BEARDS AND CUT HAIR. THEY ALSO PULLED TEETH AND DID MINOR SURGERY.



BLEEDING AS A CURE FOR ILLNESS WAS PRACTICED BY THE BARBER. THUS, THE POLE IN FRONT OF HIS SHOP WAS PAINTED RED, HAD A WHITE STRIP OF CLOTH WOUND ABOUT IT AND HAD A BASIN HANGING FROM THE TOP. THIS WAS THE BARBER'S SYMBOL OF HIS TRADE. TODAY, EVEN THOUGH THE BARBER HAS ABANDONED ALL OF HIS SURGICAL PRACTICES, HIS POLE STILL REMAINS.

BARIUM . . .

BARIUM is a metallic element found only in combination with other substances. It is silver-white and soft like lead. The symbol for **BARIUM** is Ba. The most common use for **BARIUM** today is in the medical profession. When **BARIUM** is taken internally, it allows the X-ray machine to follow its path clearly throughout the digestive system to locate irregularities.



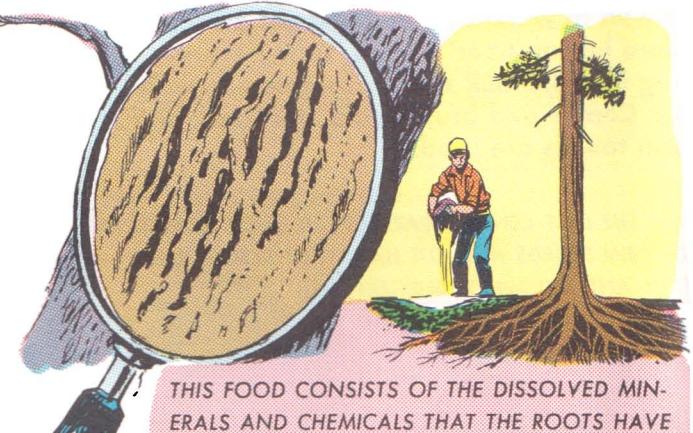
IT IS USED IN RADIO TUBES, X-RAY, PHOTOGRAPHY AND INSECTICIDES.

BARK . . .

The **BARK** of a tree is the outer covering of its trunk and branches. **BARK** protects the tree in the same way that skin protects an animal. It is made up of an outer layer called the **cork**, and an inner layer of live tissue through which food is carried to all parts of the tree.



THE FIBERS IN THE INNER BARK ARE CALLED **BAST**. IN SOME COUNTRIES A KIND OF CLOTH IS MADE FROM THE SOFT BAST OF CERTAIN TREES. THIS MATERIAL IS CALLED **BARK CLOTH**. **BARK** AND **BAST** HAVE MANY USES. THE BARK OF SOME TREES Oozes out **TANNIC ACID**, WHICH IS USED IN THE TANNING AND PRESERVATION OF LEATHER.



THIS FOOD CONSISTS OF THE DISSOLVED MINERALS AND CHEMICALS THAT THE ROOTS HAVE SUCKED UP FROM THE SOIL.



CINNAMON IS OBTAINED FROM THE INNER BAST FIBERS OF SMALL EVERGREEN TREES FOUND IN CEYLON AND BRAZIL. QUININE IS OBTAINED FROM THE BARK OF THE CINCHONA TREES THAT GROW IN SOUTH AMERICAN COUNTRIES. MANY OTHER USEFUL MEDICINES AND DYES FOR COLORING CLOTH COME FROM THE BARK OF THE TREES.

BARLEY . . .

BARLEY is an important food crop that is grown in almost all parts of the world. It belongs to the family of plants known as "cereal grasses." This plant is extremely hardy and is not easily attacked by disease.



BARNACLE . . .

The BARNACLE is a small sea animal whose body is covered by a shell. It has six pairs of feathery legs with which it pushes the water, carrying bits of food into its mouth. The leathery stalk on one side of its body acts as a suction cup with which it attaches itself to the bottom of a ship.

BARNUM, PHINEAS TAYLOR . . .

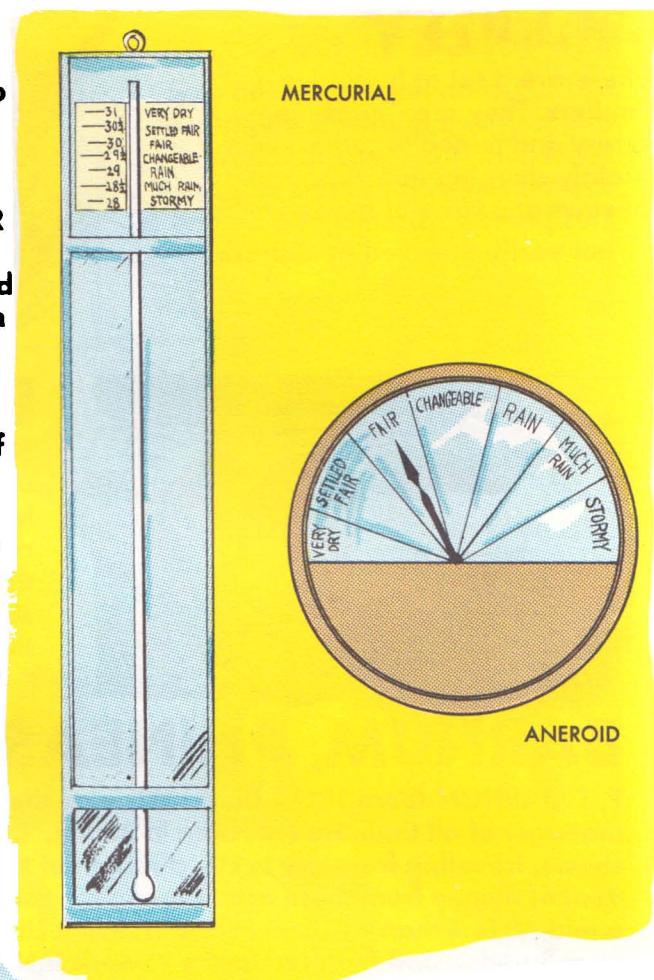
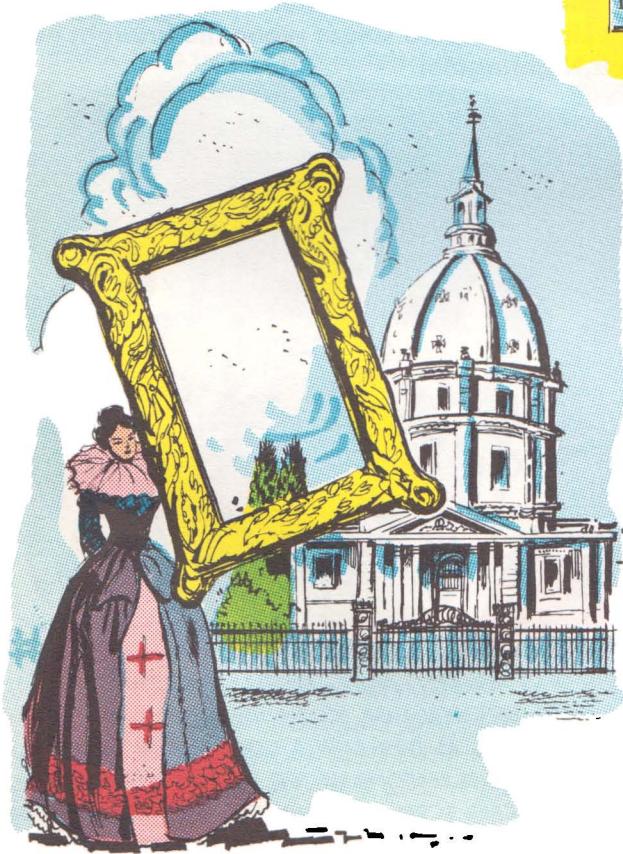
P. T. BARNUM (Born 1819—Died 1891) was the most famous showman and circus manager of all time. He was born in Bethel, Connecticut. Starting with small one-act shows, traveling from city to city throughout the United States, BARNUM made a great deal of money from these acts. Among his earliest stars were General Tom Thumb, a midget less than two feet tall, and Jenny Lind, an opera singer whom he brought over from Sweden and featured as the "Swedish Nightingale."



BARNUM WAS ALWAYS AMONG PEOPLE. THROUGH HIS EXPERIENCES, HE KNEW THAT PEOPLE DIDN'T MIND BEING FOOLED, AS LONG AS THEY SAW A GOOD SHOW FOR THEIR MONEY. HE IS RESPONSIBLE FOR THE FAMOUS WORDS, "THERE'S A SUCKER BORN EVERY MINUTE," AND THE TRAVELING CIRCUS NAMED "THE GREATEST SHOW ON EARTH."

BAROMETER . . .

The **BAROMETER** is an instrument used to measure air pressure. There are two common types of **BAROMETERS**. The **mercurial BAROMETER** and the **aneroid BAROMETER**. The **mercurial BAROMETER** consists of a glass tube filled with mercury (a liquid metal sometimes called quicksilver) placed in an upright position in an open metal container filled with mercury. Changes in air pressure on its surface cause the mercury to rise and fall. The **aneroid BAROMETER** consists of a metal box which has been made a vacuum by the removal of air. Changes in air pressure on its surface result in the motion of a steel spring. The higher the air pressure against the box, the further the pointer moves along the dial. **BAROMETERS** are used in weather forecasting, in aviation to indicate altitude, and in various fields of scientific work.

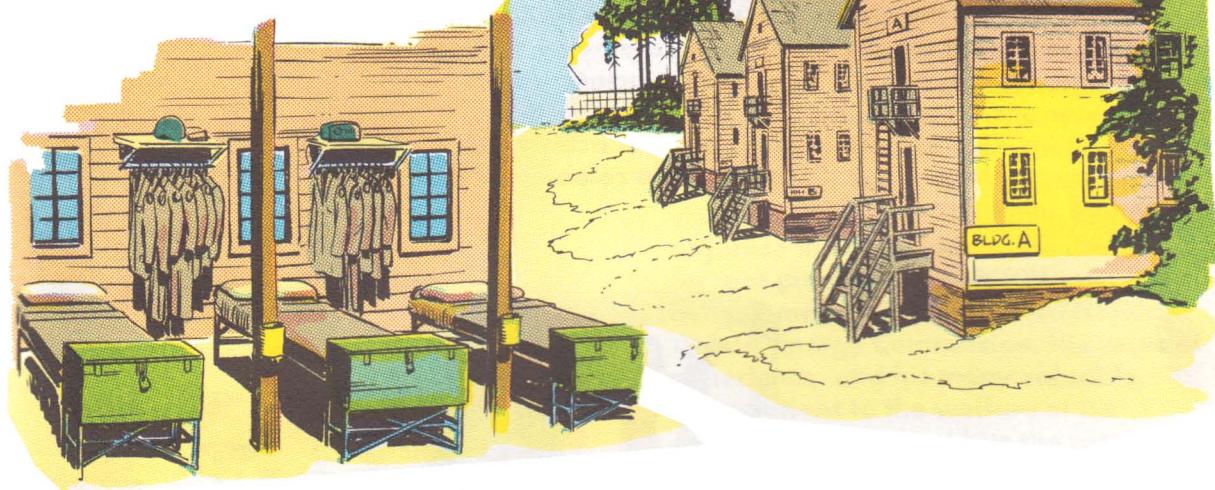


BAROQUE . . .

BAROQUE is a style of art started in Europe about four hundred years ago. It is characterized by its fancy swirls and frills, extremely elaborate and decorative. Every branch of art was affected. More trills were added to music, more gold was used in furniture, more ribbons and ruffles were added to clothing, and buildings had more columns and statues and high domes. Cupids and wreaths of flowers are found in the painting and sculpture of the **BAROQUE** style.

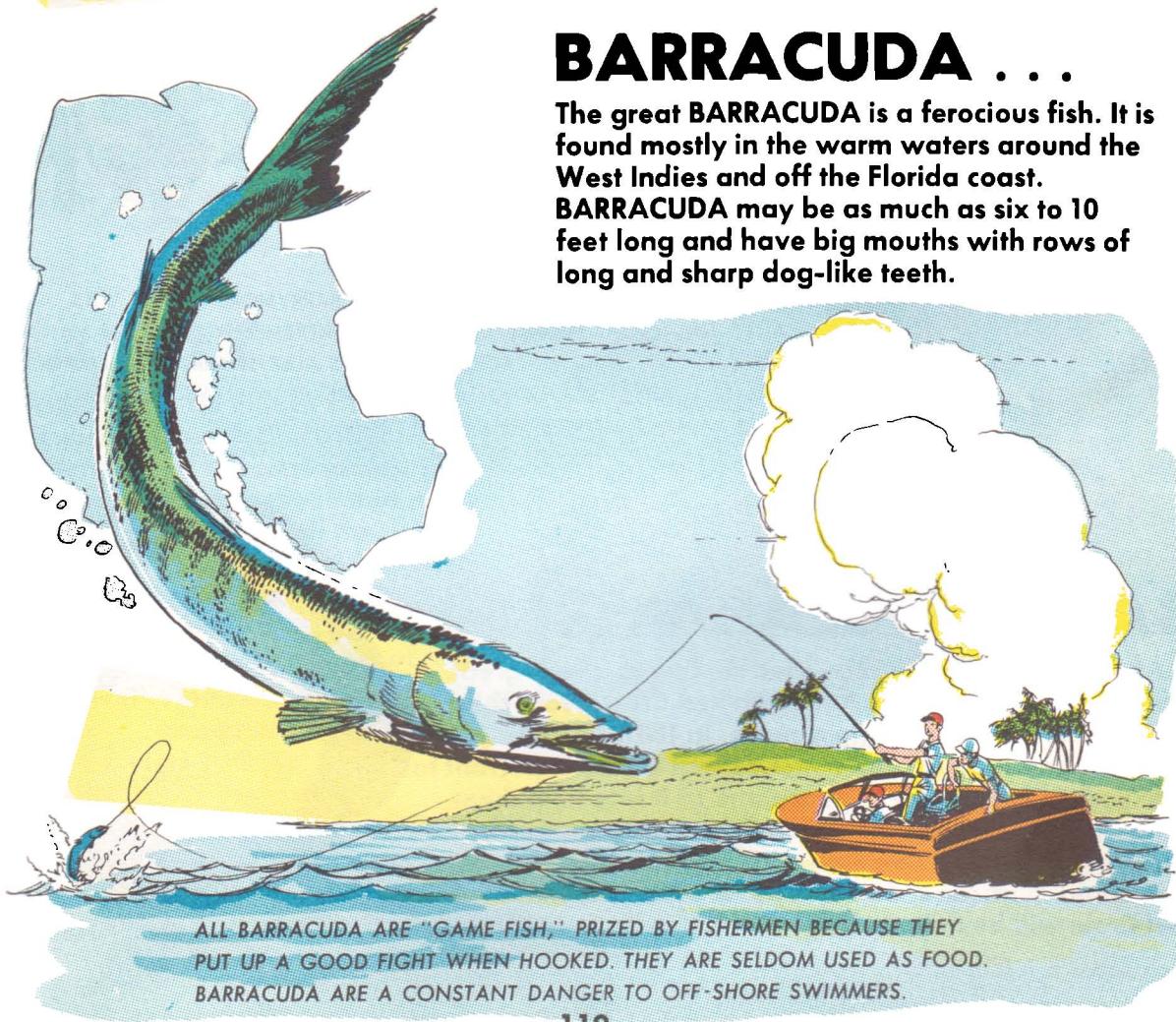
BARRACKS . . .

These are a set of buildings for lodging soldiers. They are usually constructed in a row and joined together. They are mainly sleeping quarters, and consist of rows and rows of bunks.



BARRACUDA . . .

The great BARRACUDA is a ferocious fish. It is found mostly in the warm waters around the West Indies and off the Florida coast. BARRACUDA may be as much as six to 10 feet long and have big mouths with rows of long and sharp dog-like teeth.



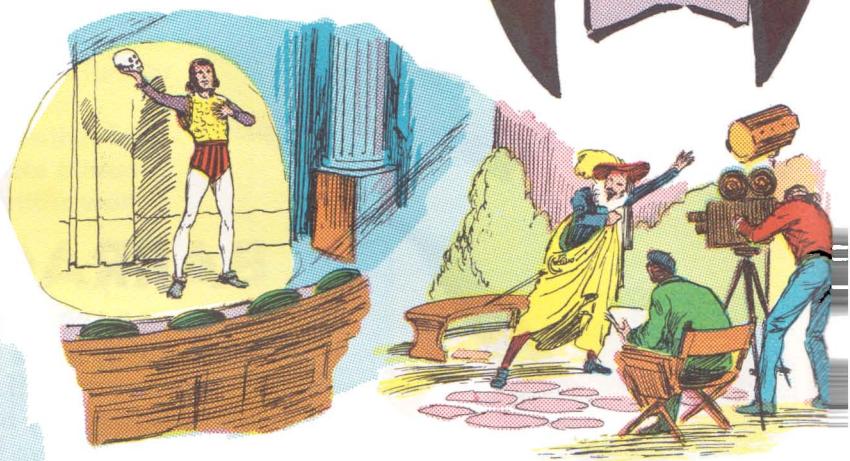
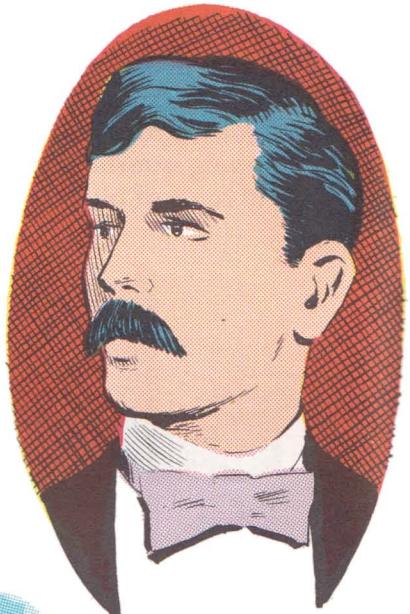
ALL BARRACUDA ARE "GAME FISH," PRIZED BY FISHERMEN BECAUSE THEY PUT UP A GOOD FIGHT WHEN HOOKED. THEY ARE SELDOM USED AS FOOD. BARRACUDA ARE A CONSTANT DANGER TO OFF-SHORE SWIMMERS.

BARRYMORE . . .

BARRYMORE is the name of a great family of American actors. An English actor, Herbert Blythe, took the stage name of Maurice BARRYMORE and became a great success in the United States. Georgiana BARRYMORE, his wife, was also in the theater. Their three children, Lionel, Ethel and John, became even more famous than their parents.

Lionel BARRYMORE, the oldest son, was born in 1878. On the stage he was a great success in *Macbeth*, a play by William Shakespeare. He was one of the first stage actors to star in the movies and on radio. He died in 1954.

Ethel BARRYMORE was born in 1879. A great actress, she starred in many stage plays. Today she is a celebrity of the movies and television.



JOHN BARRYMORE, THE YOUNGEST OF THE BARRYMORE FAMILY, WAS CALLED THE "GREAT PROFILE." HE WAS AN EXTREMELY HANDSOME MAN, AND A SIDE VIEW OF HIS FACE SHOWED HIS ALMOST PERFECT FEATURES. HE MADE A GREAT REPUTATION IN SHAKESPEAREAN PLAYS AND ALSO ACTED IN MANY MOVIES. HE DIED IN 1942, AT THE AGE OF SIXTY.

BARTON, CLARA . . .

CLARA BARTON (Born 1821—Died 1912) was a very great woman who founded the American Red Cross. From childhood she dreamed of being a nurse. In 1881, CLARA BARTON finally convinced America that it is as important to help people who suffer in peacetime as it is to help them in wartime. So the American Red Cross was organized. Because of her work, we know that whenever there is a war, flood, hurricane, earthquake, or other disaster, the Red Cross will be there to help.



BARUCH, BERNARD . . .



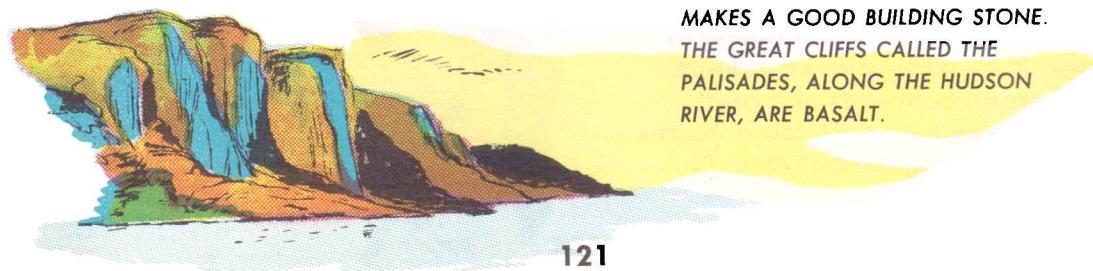
BERNARD BARUCH is the name of an American who became known as the "Adviser to Presidents." After he had made a fortune in business, he offered his services to seven different Presidents, from Woodrow Wilson to Dwight Eisenhower. During World War I, BARUCH'S great experience in business and production was useful to the government. He was responsible for seeing that all supplies were produced in time. When World War II broke out, he advised the government on how to organize the industries of the country for war production. BARUCH later became a member of the United Nations Atomic Energy Commission. His years of experience, and his many valuable contributions to the welfare of his country, have earned him the respectful title of elder statesman.

BASALT . . .

BASALT is a kind of rock which scientists believe forms a layer underneath all the continents and oceans. They also believe that many millions of years ago all the rock in the world was BASALT. Then great heat and pressure and weather changed most of the BASALT to all the other kinds of rock we find on the earth's surface today.



BASALT IS EXTREMELY HARD AND MAKES A GOOD BUILDING STONE. THE GREAT CLIFFS CALLED THE PALISADES, ALONG THE HUDSON RIVER, ARE BASALT.

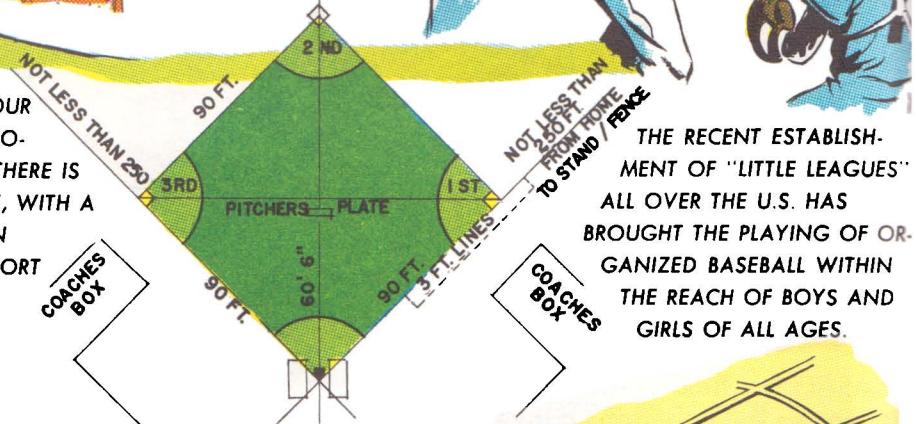


BASEBALL . . .

BASEBALL is the national game of the United States. Colonel Abner Doubleday is the originator of the game. The first game was played in Cooperstown, N.Y. in 1839. Organized BASEBALL was established in 1871. After the turn of the century, two major leagues were established, the American League, and the National League. Today each league has eight member teams. At the end of each baseball season, the leading teams in each league play in a World Series for the title of World Champions.

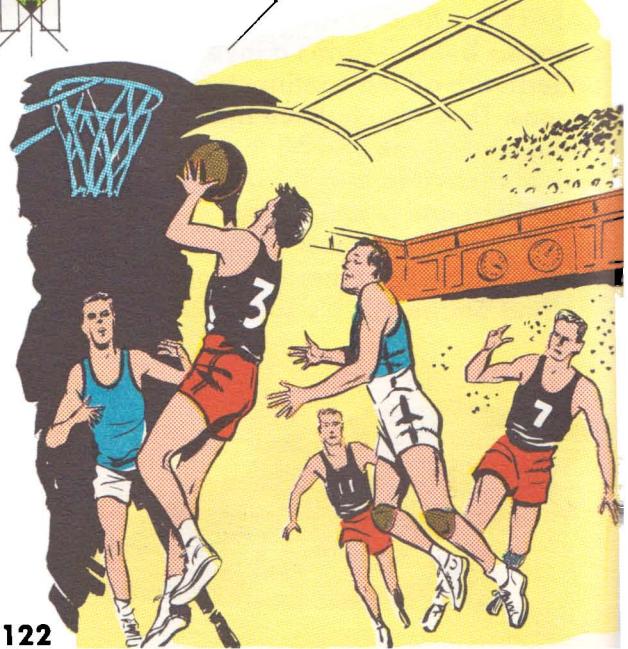


BASEBALL HAS BECOME AN IMPORTANT PART OF OUR AMERICAN WAY OF LIFE. TODAY, IN COOPERSTOWN, THERE IS A BASEBALL HALL OF FAME, WITH A BUST OF EACH GREAT MAN ASSOCIATED WITH THIS SPORT



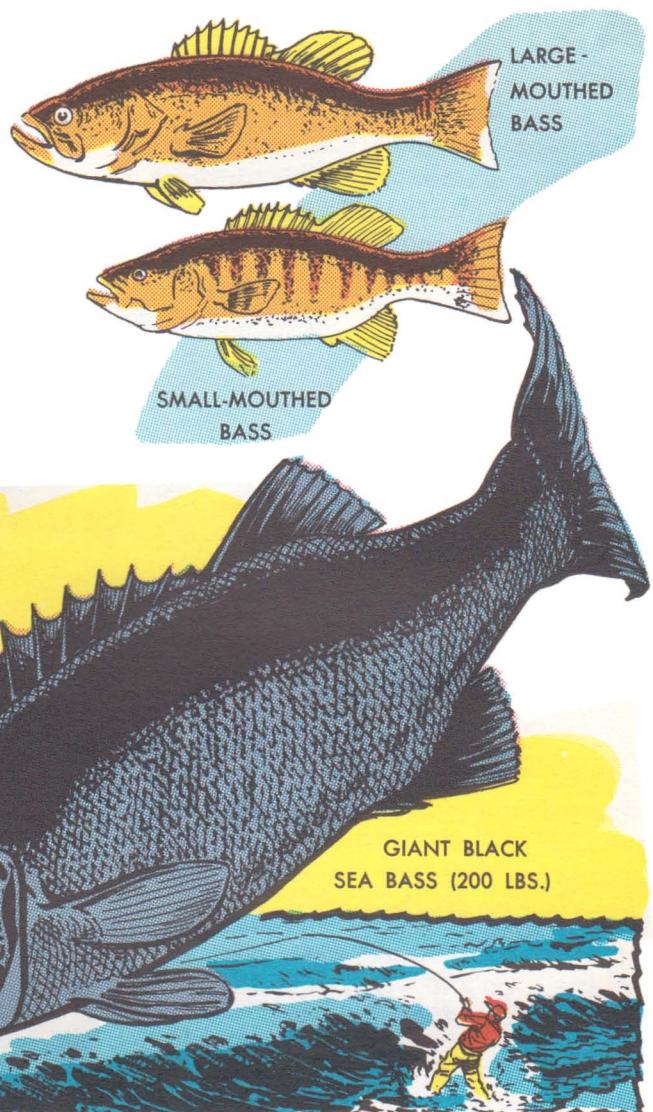
BASKETBALL . . .

This sport was invented in 1891. The game was originally played by branches of the YMCA and later taken up by schools and athletic clubs. In recent years, BASKETBALL has become a favored sport of colleges throughout the United States. Professional teams now engage in contests. BASKETBALL enthusiasts enjoy the fast action and skilled ball handling in the game. It is usually played indoors, with baskets on both ends of a court. There are five men on each team. Scores are made by tossing the ball through the opponents' basket.

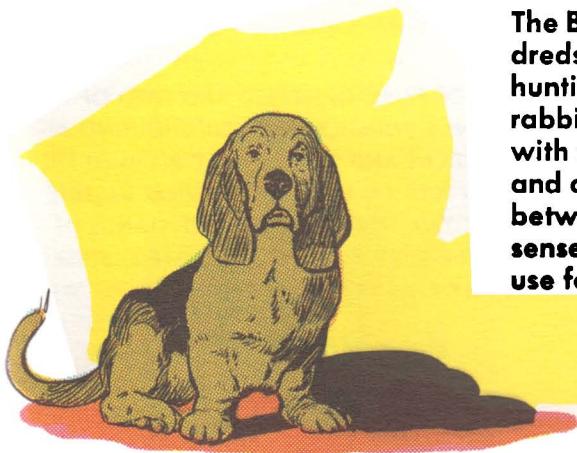


BASS . . .

BASS is the name of a fish. Some BASS live in salt water, and some live in fresh water. Sea BASS and striped BASS live in the ocean. The striped BASS, called "stripers," may weigh 20 pounds or more and are delicious to eat. Excellent game fish, they may be caught by surf-casting or by fishing from a boat. Stripers live all along the Atlantic coast. The large-mouthed black BASS and the small-mouthed BASS live in fresh water. Fishermen try to catch them with artificial flies or plugs.



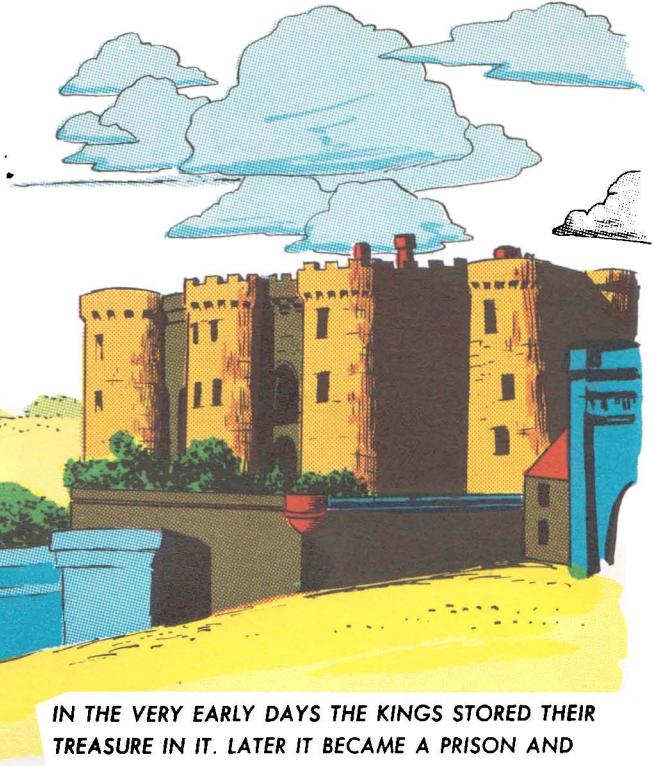
BASSET HOUND . . .



The BASSET HOUND, popular for many hundreds of years in France and Belgium as a hunting dog, is used in the United States to hunt rabbits, foxes, and pheasant. It is a gentle dog with a long, sad-looking face, very long ears, and a long straight tail. It usually weighs between 30 and 40 pounds. It has a very keen sense of smell, and is an excellent dog to use for trailing.

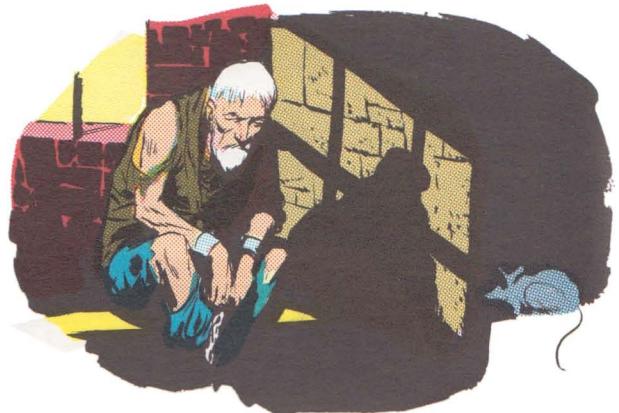
BASTILLE . . .

A long time ago in the city of Paris in France, there was built a mighty fortress. It had tall towers, dark cells, and a deep dark dungeon. This fortress was called the BASTILLE. Surrounding the fortress was a moat filled with water. It could be crossed only by means of a drawbridge.



IN THE VERY EARLY DAYS THE KINGS STORED THEIR TREASURE IN IT. LATER IT BECAME A PRISON AND THAT IS WHAT IT IS MOST FAMOUS FOR.

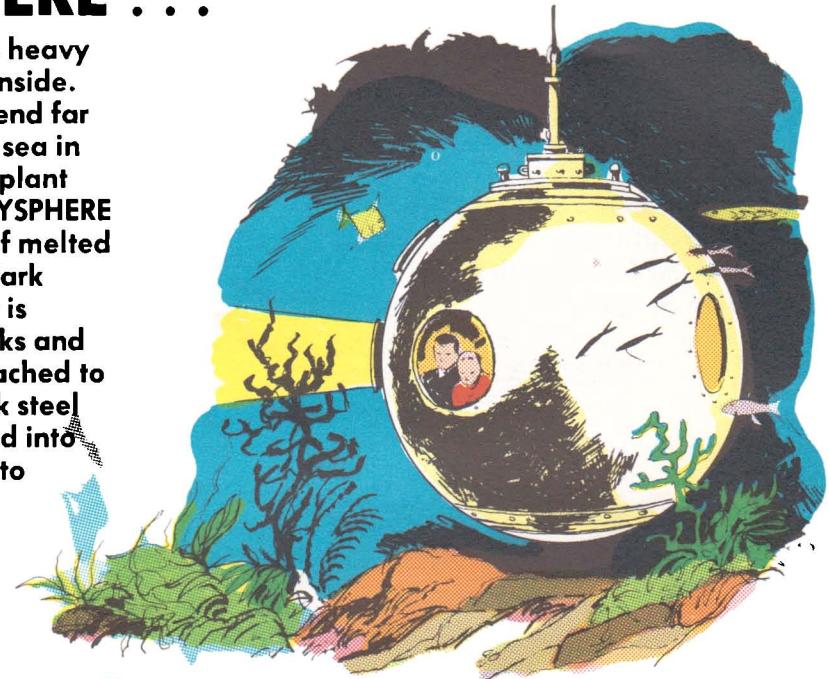
CRUEL KINGS HAD PEOPLE IMPRISONED AND THROWN INTO ITS DUNGEONS WITHOUT EVEN A TRIAL. THE PRISONERS WERE GIVEN VERY LITTLE FOOD AND WERE KEPT THERE FOR YEARS WITHOUT EVER SEEING ANYONE.



THE PEOPLE OF PARIS, OPPRESSED AND TIRED OF THE GOVERNMENT'S INJUSTICE, REBELLED. SHOUTING AND CARRYING STICKS AND STONES, THEY STORMED THE BASTILLE ON JULY 14, 1789. THE ORIGINAL BASTILLE WAS DESTROYED. NOW A MONUMENT STANDS IN ITS PLACE. THE FRENCH PEOPLE CELEBRATE BASTILLE DAY ON JULY 14 EVERY YEAR.

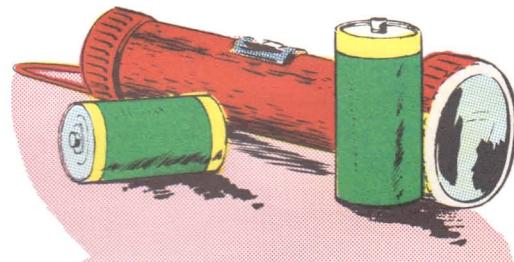
BATHYSHERE . . .

A BATHYSHERE is a huge, heavy steel ball which is hollow inside. Men climb into it and descend far beneath the surface of the sea in order to observe deep sea plant and animal life. The BATHYSHERE has thick windows made of melted quartz. Because it is very dark deep down in the ocean, it is equipped with oxygen tanks and powerful searchlights. Attached to the BATHYSHERE is a thick steel cable by which it is lowered into the ocean and then raised to the surface again.

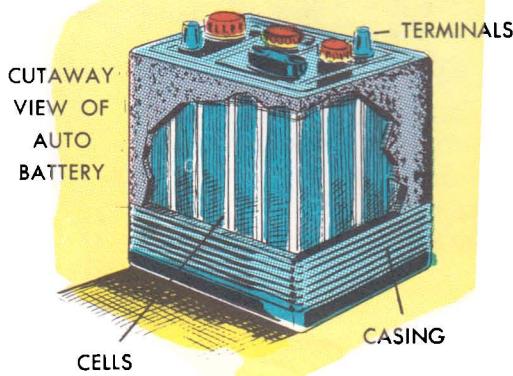


BATTERY . . .

A BATTERY is a container which makes and stores electricity. The BATTERY supplies electricity to flashlights or engines when it is connected to them by wires. The BATTERY was invented by an Italian named Alessandro Volta in 1799. Sometimes it is called a Voltaic cell in his honor. The invention of the BATTERY is based on the idea that when two different metals are placed against each other, electricity will flow between them.



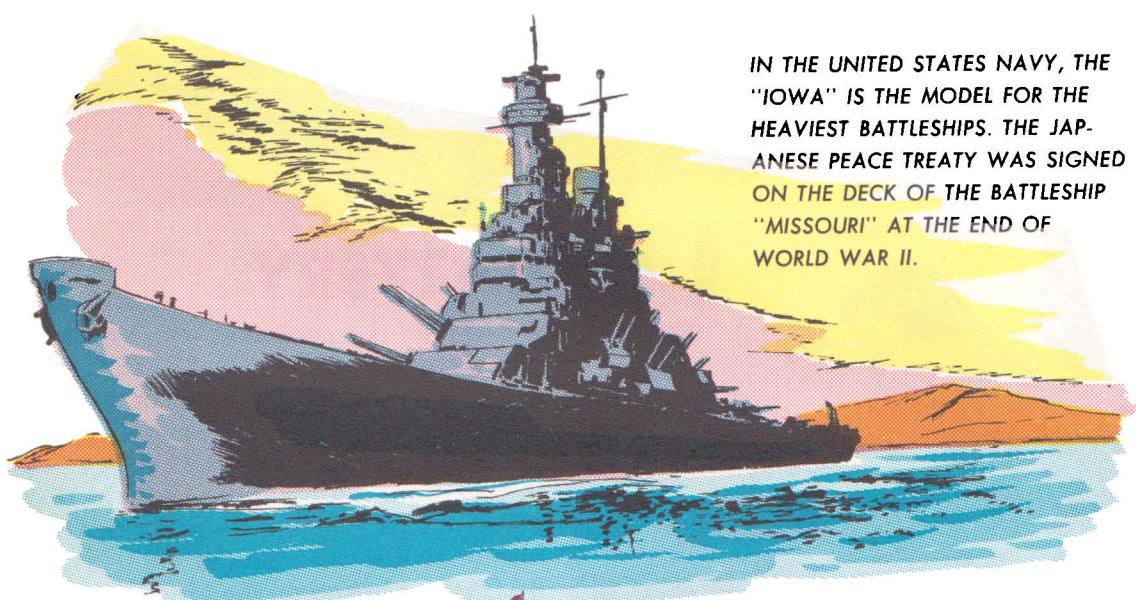
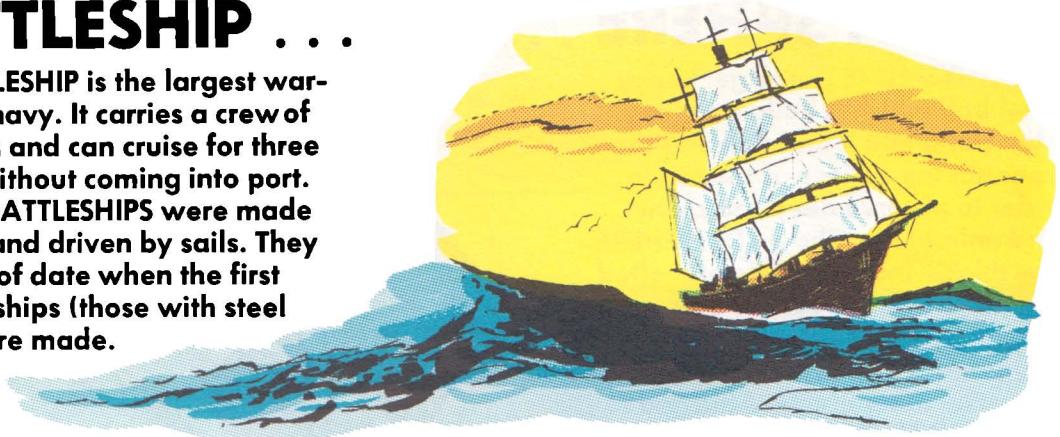
ACID CAUSES BITS OF ELECTRICITY TO FORM ON THE NEGATIVE POLE AND FLOW THROUGH THE WIRE TO THE POSITIVE POLE. WHEN USED IN CARS, THE BATTERY PROVIDES ELECTRICITY FOR THE MOTOR.



THE DRY CELL IS ANOTHER TYPE OF BATTERY. IT CONTAINS A PASTE OF ZINC CHLORIDE AND AMMONIUM. TWO METAL POLES ARE INSIDE THE PASTE. THE POSITIVE POLE IS MADE OF CARBON AND THE NEGATIVE IS MADE OF ZINC. THESE CELLS ARE USED IN FLASHLIGHTS.

BATTLESHIP . . .

The BATTLESHIP is the largest warship in a navy. It carries a crew of 2,500 men and can cruise for three months without coming into port. The first BATTLESHIPS were made of wood and driven by sails. They went out of date when the first armored ships (those with steel sides) were made.



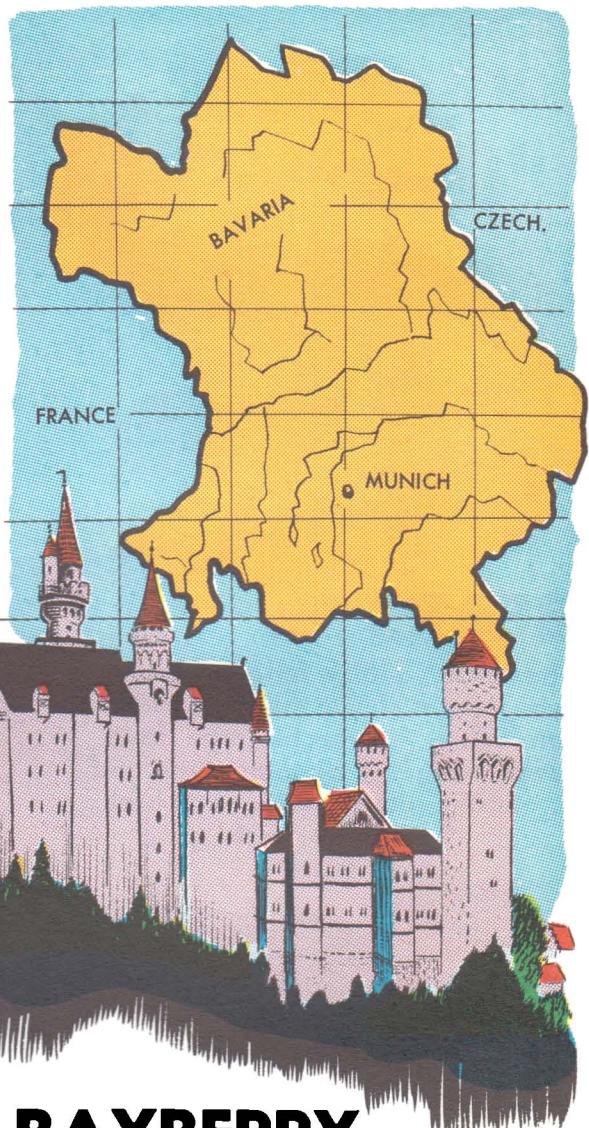
IN THE UNITED STATES NAVY, THE "IOWA" IS THE MODEL FOR THE HEAVIEST BATTLESHIPS. THE JAPANESE PEACE TREATY WAS SIGNED ON THE DECK OF THE BATTLESHIP "MISSOURI" AT THE END OF WORLD WAR II.



THE "MONITOR" AND THE "MERRIMAC", BUILT IN AMERICA DURING THE WAR BETWEEN THE STATES, WERE THE FIRST ARMORED BATTLESHIPS. THE INVENTION OF THE STEAM ENGINE MADE THE BATTLESHIP FASTER AND MORE POWERFUL. THE FIRST MODERN BATTLESHIP WAS THE DREADNOUGHT, BUILT BY THE BRITISH NAVY IN 1906. SINCE THEN, BATTLESHIPS HAVE FOLLOWED THE SAME DESIGN, BUT HAVE BECOME LARGER AND MORE POWERFUL. THE U.S. HAS RETIRED ALL OF ITS BATTLESHIPS.

BAVARIA . . .

BAVARIA is the second-largest state in the Federal Republic of West Germany. Its area is 27,000 square miles and its population is 9,000,000 people. Munich is the capital of BAVARIA. BAVARIA is a beautiful land with fertile valleys and thick forests. Both the Rhine and Danube Rivers flow through it. On rocky hills rise very old castles which were built in the Middle Ages. Along the Swiss border tower the snow-capped Alps. Wheat, barley, hops, and fruit are the principle farm products. Automobiles and airplanes are made in factories in the cities. Beautiful dolls and mechanical toys are made in the city of Nuremberg. The people of Nuremberg are considered the best toymakers in the world.



BAYBERRY . . .

The BAYBERRY is a shrub that grows wild along the east coast of America. The plant bears small gray berries in the fall. These berries are gathered and boiled down to make wax. From the wax, BAYBERRY candles are made. These candles are greenish in color and have a pleasant fragrance.

IN THE WEST INDIES THERE GROWS A KIND OF BAYBERRY WHICH IS USED TO MAKE SKIN LOTIONS.

BEAGLE . . .

The BEAGLE is a very old breed of hunting dog. It is about 12 to 16 inches high at the shoulder and weighs 20 to 30 pounds. Its coat is smooth and is usually brown, tan, black or white, or all of these colors combined. The BEAGLE is used for hunting rabbits in England and the United States. Because of its good and gentle nature, the BEAGLE is a good pet and can be trained to obey orders very easily.

BEARS . . .

The BEAR is a large fur-coated animal who lives mainly in the cooler northern regions. He uses his large claws for catching fish, climbing trees, and scratching ants out of logs and bark.



DURING THE SUMMER THE BEAR EATS PLENTY OF FOOD AND STORES UP FAT FOR THE WINTER. WHEN THE WEATHER BECOMES VERY COLD, HE CRAWLS INTO A HOLLOW TREE OR CAVE AND SLEEPS UNTIL SPRING. THIS IS CALLED HIBERNATION.

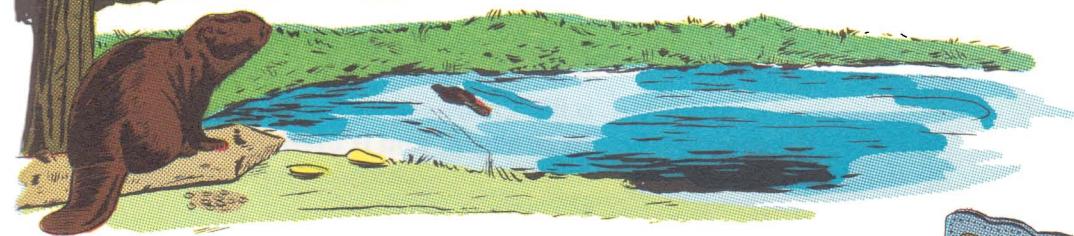


HONEY IS A SPECIAL TREAT FOR A BEAR. HE ALSO LIKES FRUIT, ROOTS, AND OTHER PLANTS AS WELL AS THE MEAT OF ANOTHER ANIMAL. HE CAN RUN AS FAST AS 30 MILES AN HOUR. HE WALKS AS A MAN DOES, BY STEPPING ON THE ENTIRE SOLE OF THE FOOT.



BEAVER . . .

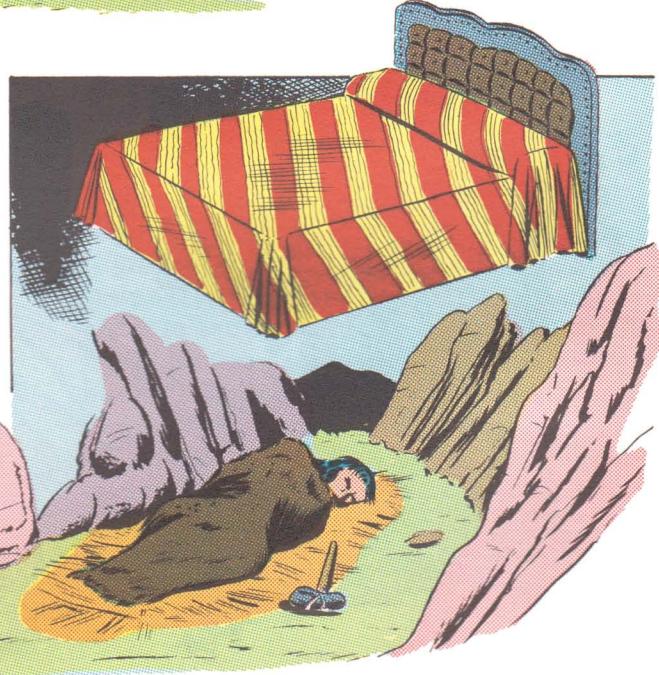
The BEAVER is a remarkable animal. With a long, low body, he may weigh as much as 50 pounds. He has a broad, flat tail which he uses as a rudder and an oar when swimming.



HIS TEETH ARE VERY STRONG AND ARE MADE FOR GNAWING. THE BEAVER IS ABLE TO GNAW THROUGH A TREE AS NEATLY AS IF THE WOOD HAD BEEN CHISELED. HE USES TREES TO DAM UP STREAMS AND WEIGHTS THEM DOWN SECURELY WITH STONES AND MUD. HE MAY SINK A TREE IN THE WATER NEAR HIS HOME TO USE AS EMERGENCY FOOD. HE CAN EVEN DIG A CANAL TO FLOAT A TREE TO THE RIVER.

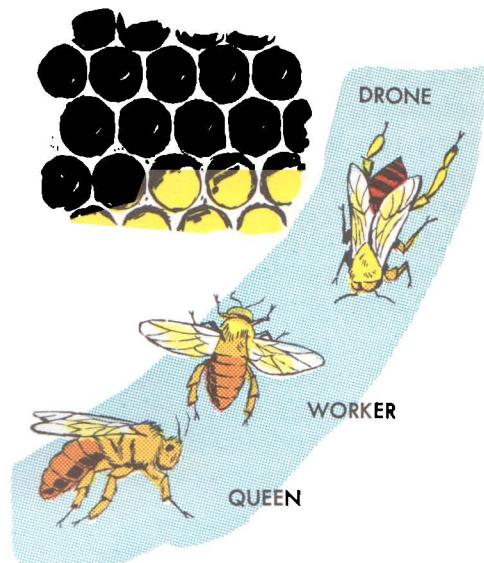
BED . . .

A BED is a piece of furniture on which one sleeps. The BEDS used by the cave dwellers were probably made of piles of leaves and twigs covered with the hides of animals. As man became more civilized, BEDS became more refined and higher off the floor. In ancient Egypt BEDS were raised five or six steps above the floor.

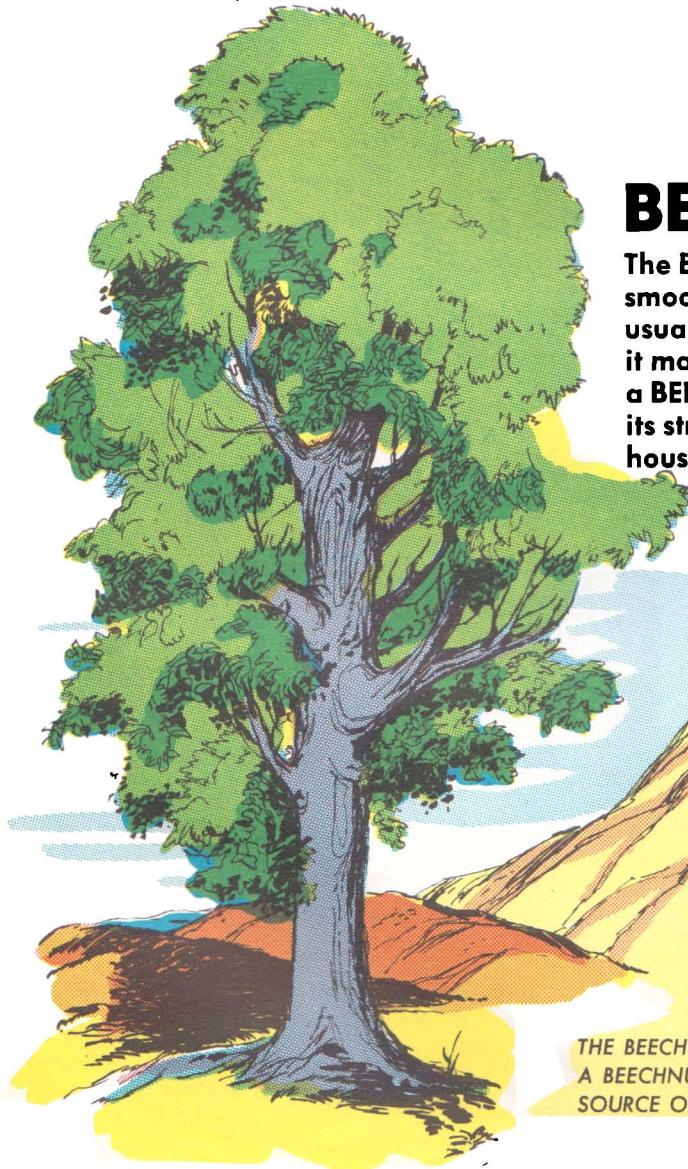


BEE . . .

BEES are very busy and very interesting social insects. They live in a hive composed of millions of tiny cells. These are called honeycombs, and are made from wax which oozes out of the BEE'S body. The society of the BEES is divided into 3 groups: the workers, the drones, and the queen BEE. The queen BEE is the largest. She lays many eggs each day, and places each egg in a cell near the bottom of the hive. There the egg remains until it hatches into a new BEE. The workers are the rest of the female BEES. They gather nectar from flowers, store it in the hive, and make honey. They follow the queen BEE as she lays eggs and deposit food into each cell so that the baby BEE will have something to eat when he hatches.

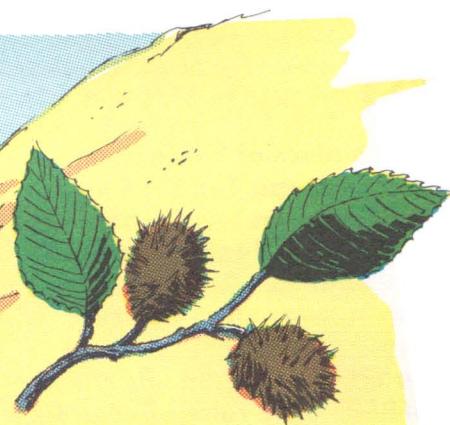


THE WORKERS RUN THE BEE HIVE.
THE DRONES FERTILIZE THE EGGS
OF THE QUEEN BEE.



BEECH . . .

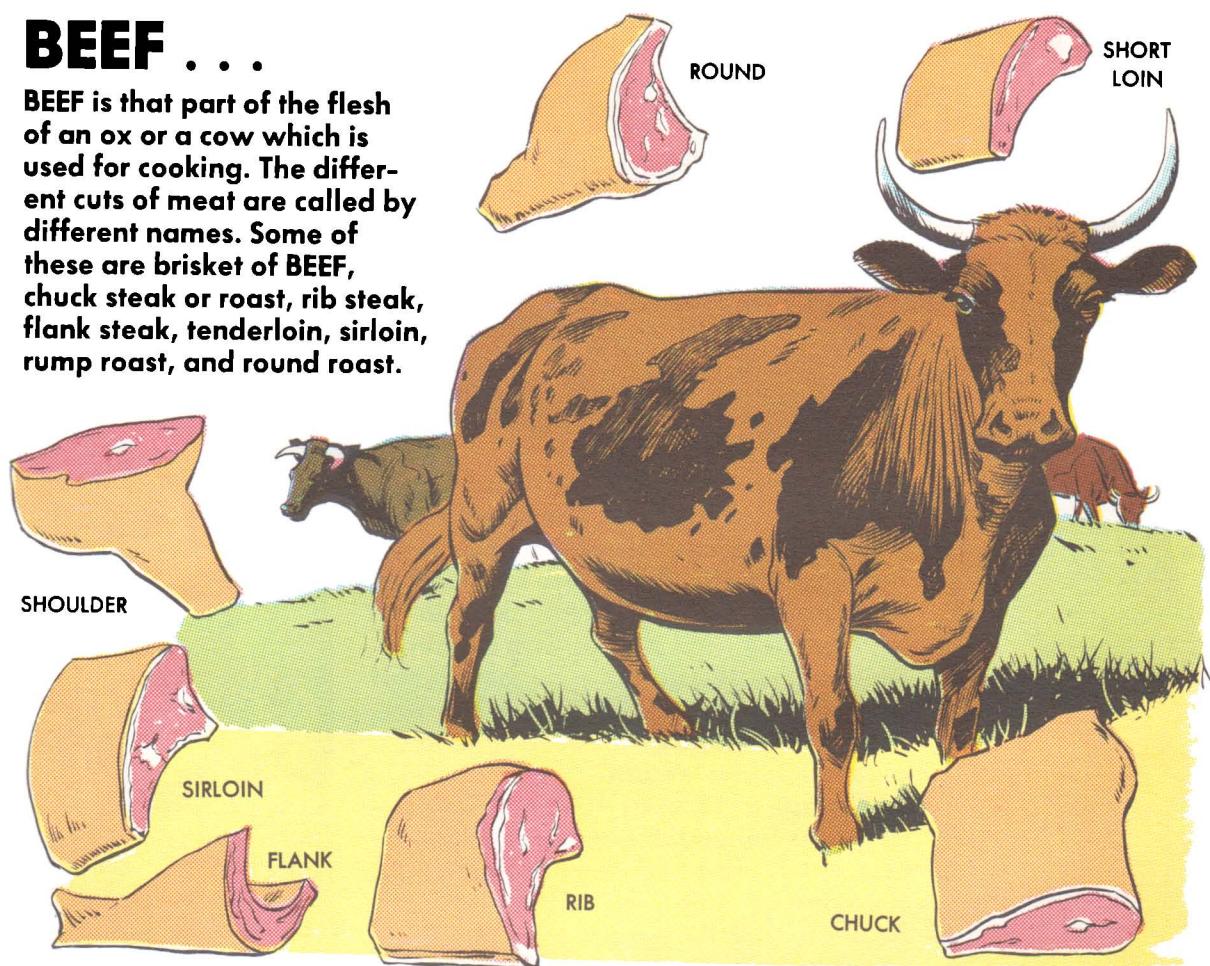
The BEECH is a hardwood tree with a smooth, shiny bark, gray in color. Its usual growth is about 80 feet high, but it may grow much higher. The wood of a BEECH tree is valuable because of its strength, and is used in building houses and in making furniture.



THE BEECH TREE BEARS A TASTY NUT CALLED
A BEECHNUT WHICH CAN BE EATEN AND IS A
SOURCE OF COOKING OIL.

BEEF . . .

BEEF is that part of the flesh of an ox or a cow which is used for cooking. The different cuts of meat are called by different names. Some of these are brisket of BEEF, chuck steak or roast, rib steak, flank steak, tenderloin, sirloin, rump roast, and round roast.



BEET . . .

The BEET is a vegetable grown for its large root. Most BEETS have red ball-shaped roots. These are the common variety that you see in the vegetable store or super market. When cooked, the BEET has a very sweet taste. The sugar BEET, with its long, tapering root, is grown for another purpose. When it is ripe it is crushed by huge machines in order to squeeze out the juice. This liquid is mixed with lime and is then heated, causing the water to evaporate. The raw sugar that remains is a brownish color. It is then dissolved in water and treated with charcoal, after which it comes out white. This end product is BEET sugar.

BEETHOVEN, LUDWIG VAN . . .

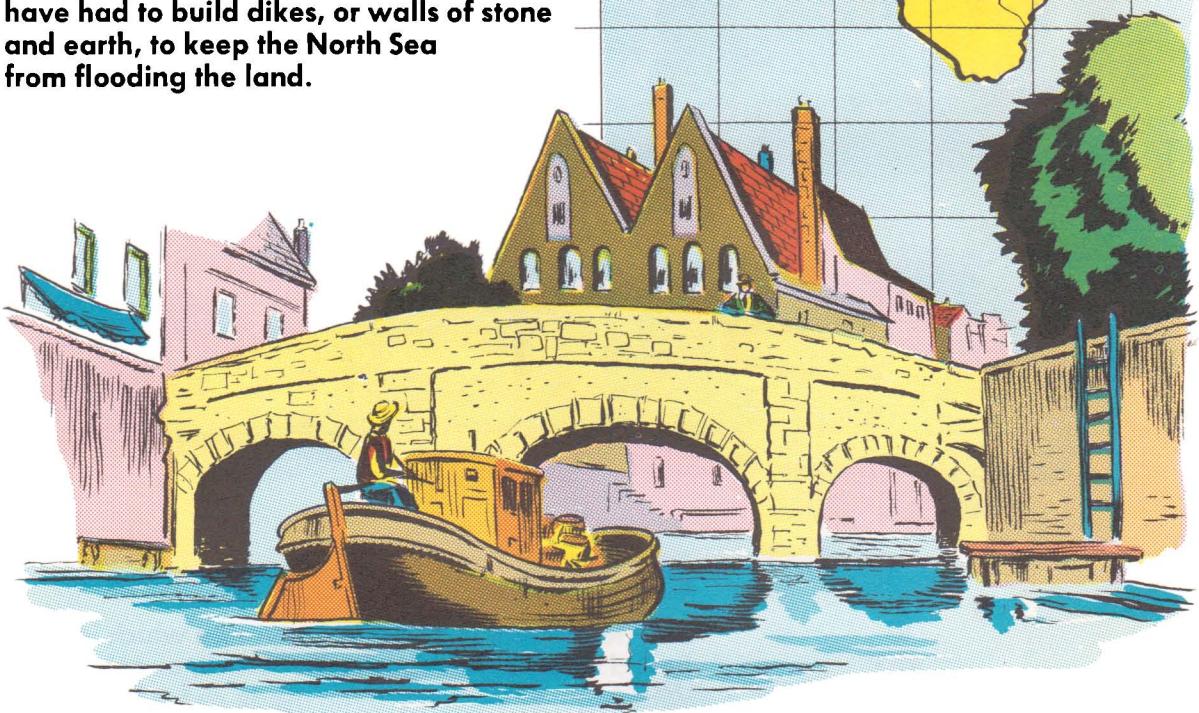


LUDWIG VAN BEETHOVEN (Born 1770—Died 1827) is considered the foremost German composer. He was born in Bonn, Germany, and before he was five, he showed signs of musical talent. In 1792 he began his studies with Haydn in Vienna. Shortly after that he met Mozart who predicted a brilliant future for BEETHOVEN, and even found time to give him a few lessons.

At the age of 28, BEETHOVEN'S hearing began to fail and during the next few years he realized he was becoming deaf. It was during this sad period that he wrote such masterpieces as the "Sonata Pathetique" and the "Sonata in D." Despite his increasing deafness, BEETHOVEN wrote many symphonies, concertos, sonatas, and an opera, "Fidelio." Among his best-known compositions are the "Kreutzer Sonata," "Moonlight Sonata," "Sonata Appassionata," and the "Great Fugue." His most famous symphonies are the Third, or "Eroica"; the Fifth, whose opening measures spell out the letter V in Morse code; the Sixth, or "Pastoral," which showed his love of nature; and the Ninth, which he never heard because he was totally deaf when he completed it.

BELGIUM . . .

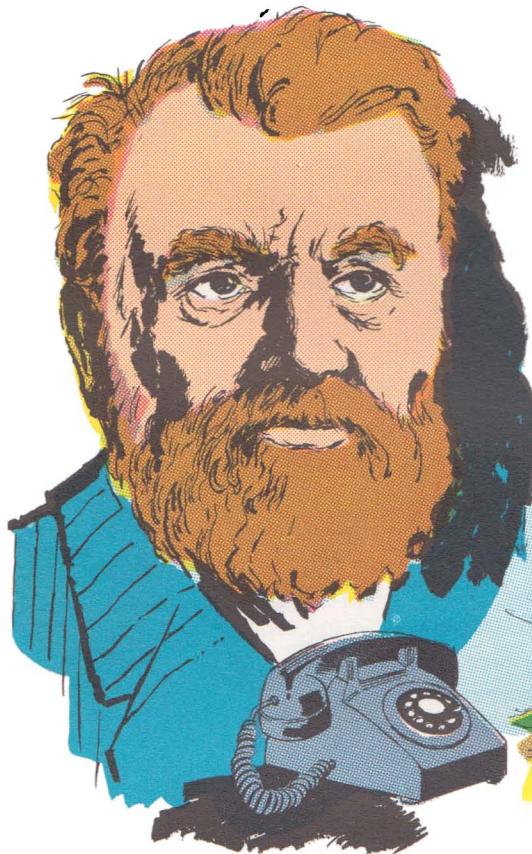
This little European country, situated between France and The Netherlands, is no bigger than the state of Maryland. However, with its nine million people, BELGIUM has more inhabitants for its size than any other country in Europe. If you visit BELGIUM, you will find that it is mostly a low, level country, with many rivers and canals. Much of the land lies below sea level. Therefore, the people have had to build dikes, or walls of stone and earth, to keep the North Sea from flooding the land.



MANY OF THE PEOPLE IN THE CITIES OWN THEIR OWN SHOPS, AND BELGIUM HAS SOMETIMES BEEN CALLED "A NATION OF SHOPKEEPERS." OTHERS WORK IN THE RICH COAL MINES IN THE CENTRAL AND NORTHERN PARTS OF THE COUNTRY. STILL OTHERS ARE FARMERS. MAJOR AGRICULTURAL PRODUCTS ARE SUGAR BEETS, CEREAL GRAINS, FRUITS AND VEGETABLES. THE LEADING CITIES OF BELGIUM ARE BRUSSELS (THE CAPITAL), ANTWERP, LIEGE AND GHENT. GOODS ARE SHIPPED ON THE MEUSE AND SCHELDT RIVERS AND A LARGE CANAL SYSTEM.



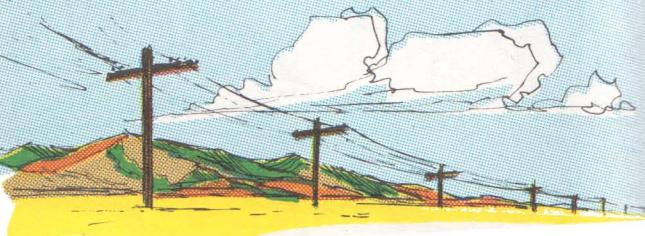
BELL, ALEXANDER GRAHAM . . .



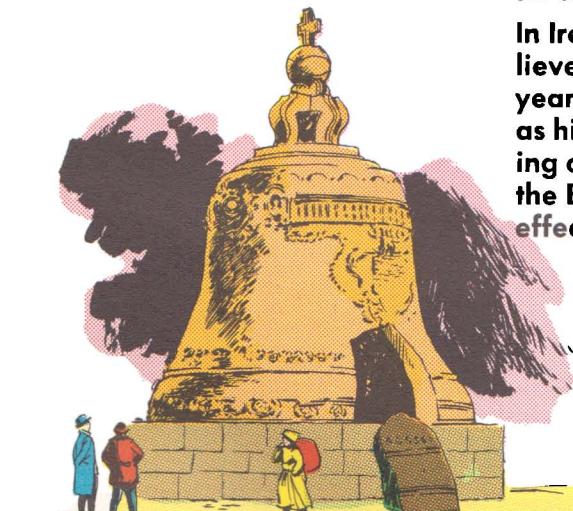
ALEXANDER GRAHAM BELL (Born 1847—Died 1922) is most famous for his invention of the telephone, but he was also a teacher of deaf and dumb people and a distinguished scientist. He was born in Scotland in 1847. His father invented a lip reading system for deaf mutes.

Coming to America, he worked on his idea for sending messages by electric waves. Working in his laboratory, in 1876, **BELL** spoke the first words on the telephone to an assistant two floors below.

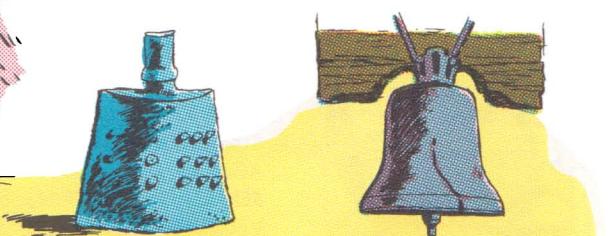
EARLY TELEPHONES HAD A SINGLE OPENING THROUGH WHICH A PERSON SPOKE AND LISTENED. MODERN TELEPHONES ARE MORE PRIVATE, BUT THE BASIC IDEA OF THE TELEPHONE IS MUCH THE SAME AS BELL FIRST PLANNED IT.



BELLS . . .



In Ireland there is a **BELL** in a museum which is believed to have belonged to St. Patrick, over 1,500 years ago. **BELLS** have been made as far back as history is recorded. **BELL**-founding, the casting of **BELLS**, was first done in China, where the **BELLS** were believed to have a magical effect upon evil spirits.



THE LARGEST BELL IN THE WORLD IS THE KREMLIN BELL, IN MOSCOW, ABOUT 200 YEARS OLD. ONE OF THE MOST FAMOUS BELLS IS "BIG BEN" IN LONDON. IN AMERICA, THE LIBERTY BELL IN PHILADELPHIA IS THE BEST KNOWN. IN 1776 IT RANG IN CELEBRATION OF THE SIGNING OF THE DECLARATION OF INDEPENDENCE.

BELSHAZZAR . . .

In the Bible BELSHAZZAR was the last king of Babylon, a most important ancient city in Babylonia. On the night of his great feast, handwriting mysteriously appeared on the wall. It told of evil times to come. That very night BELSHAZZAR'S kingdom was conquered by his enemy, King Cyrus. The modern expression, "Heed the writing on the wall," has come down to us through many centuries. It means to listen to your heart and conscience when it warns you against a particular action or decision.



BENZENE . . .

This is a chemical used in making many dyes and explosives. It is composed of hydrogen and carbon. BENZENE is of particular interest to chemists because the atoms in it form a sort of a ring, called the "BENZENE ring," that is also found in other chemicals. This is an important basis for research.

BENZINE . . .

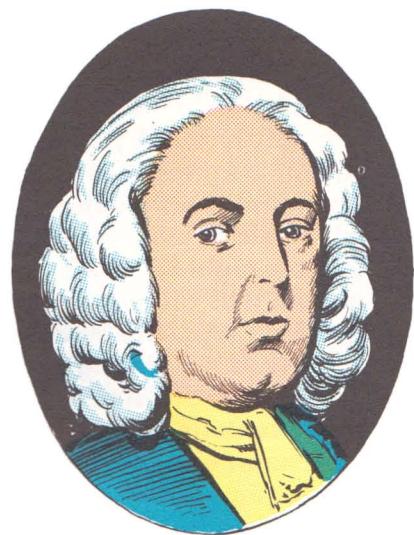
This is a chemical that is somewhat like gasoline. It is used as a cleaning fluid, and is also used in the manufacture of certain dyes and varnishes.



BERKELEY, GEORGE . . .

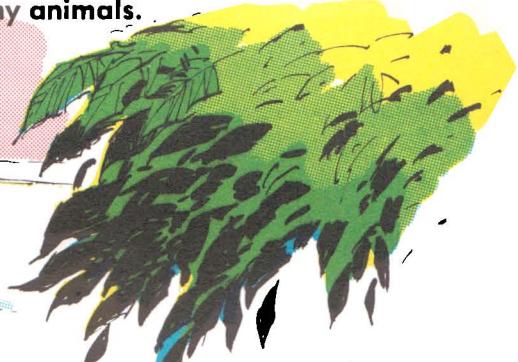
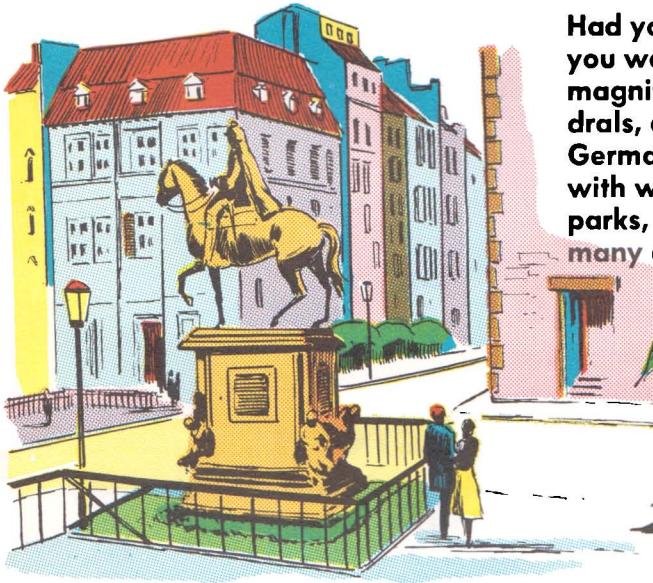
GEORGE BERKELEY (Born 1685-Died 1753), an Irish philosopher and philanthropist, became Catholic Bishop of Cloyne in 1734. He attempted to found an institution in Bermuda for the conversion of the American Indians, but failed for lack of government support. His important works are "Essays Towards a New Theory of Vision" and "Principles of Human Knowledge." He once said, "Westward the course of empire makes its way."

In 1868, when a new city was being settled on the west coast of the United States, people remembered what Bishop BERKELEY had said. They decided to name it after him. So, BERKELEY, California, got its name.

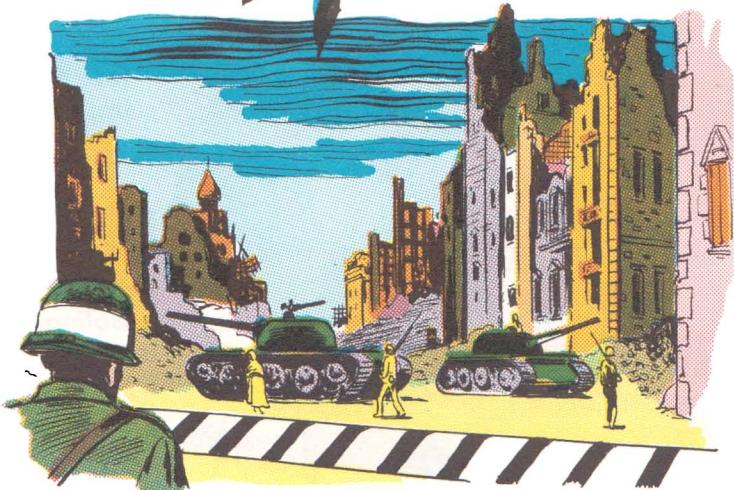


BERLIN . . .

Had you visited BERLIN before World War II, you would have found a charming city with magnificent buildings, universities, cathedrals, and opera houses. This, the capital of Germany, was a picturesque, friendly city, with wide, tree-lined streets, enormous parks, and a famous zoo filled with many animals.

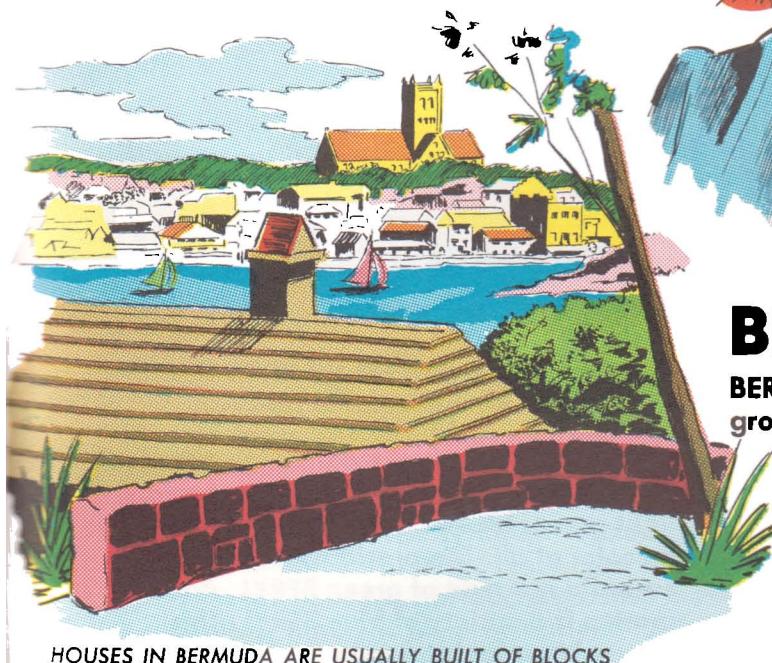


DURING WORLD WAR II, HEAVY BOMBERS DROPPED "BLOCK-BUSTERS" ON BERLIN, THE SEAT OF HITLER'S NAZI GOVERNMENT. THESE DAY AND NIGHT BOMBINGS HELPED WIN THE WAR, BUT THEY DESTROYED A LARGE PORTION OF THE CITY. TODAY, BERLIN IS DIVIDED INTO TWO ZONES—WEST BERLIN, CONTROLLED BY THE U.S., GREAT BRITAIN, AND FRANCE, AND EAST BERLIN, UNDER COMMUNIST DOMINATION.



BERLIOZ, HECTOR . . .

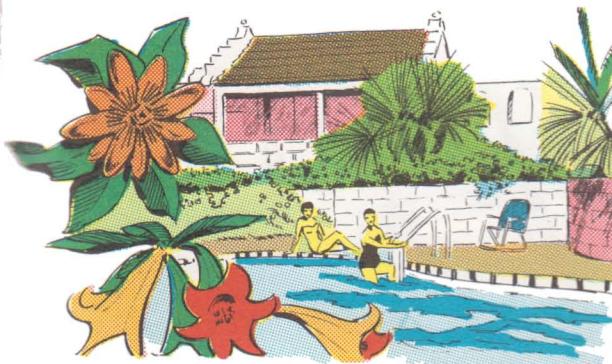
HECTOR BERLIOZ (Born 1803—Died 1869) was a famous French composer. One of his pieces was published when he was 15 years old. His father wanted him to be a doctor, but while HECTOR was going to medical school he decided to become a musician instead. He tried many new experiments with instruments. He wrote dramatic symphonies that tell stories as operas do, his most famous being "Romeo and Juliet."



HOUSES IN BERMUDA ARE USUALLY BUILT OF BLOCKS CUT OUT OF THE CORAL THAT FORMS THE ISLANDS. MARK TWAIN SAID THAT THE BERMUDA HOUSE "IS EXACTLY LIKE THE WHITE ICING OF A CAKE."

BERMUDA . . .

BERMUDA is the name given to a group of coral islands off the coast of the United States. These islands are the tops of underwater mountains. On the sides of these mountains, the water quickly reaches great depths, which makes BERMUDA a good place to study all kinds of sea life.



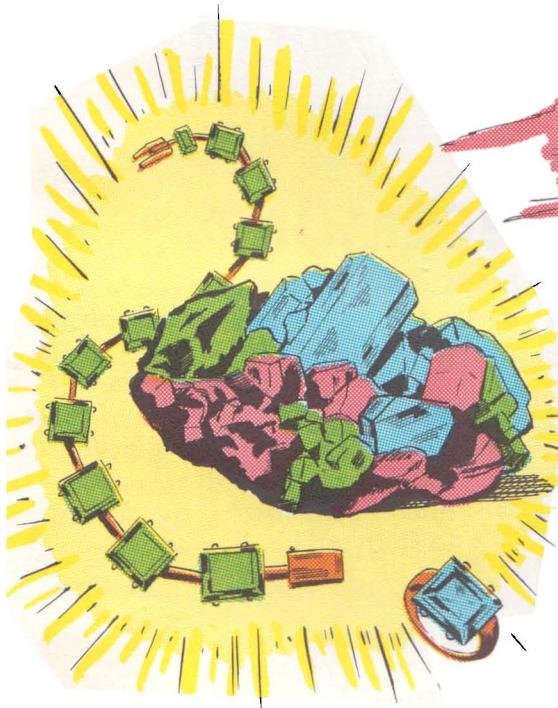
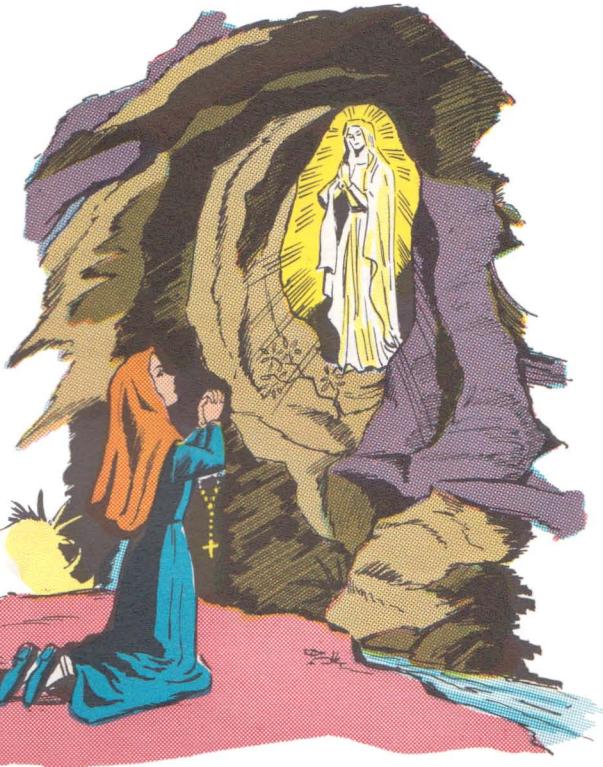
BERMUDA IS A BEAUTIFUL PLACE WITH MANY COLORFUL FLOWERS. THE WEATHER IS PLEASANTLY WARM AND SUNNY. THE PEOPLE MAKE THEIR LIVING BY SELLING THINGS TO THE THOUSANDS OF TOURISTS WHO COME TO THE ISLAND EACH YEAR.



THERE ARE SOME AUTOMOBILES ON THE ISLANDS, BUT MOST PEOPLE RIDE BICYCLES.

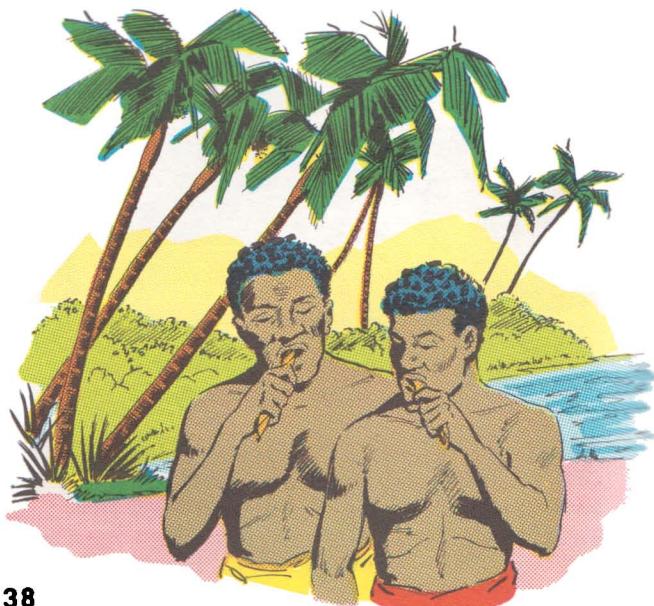
BERNADETTE . . .

BERNADETTE of Lourdes was a French girl who lived about a hundred years ago. She was playing in the caves, or grottos, when suddenly she believed she saw the Virgin Mary before her. She listened and thought she heard Mary say that the waters of Lourdes could heal the sick. Many believed her and came from all over to be healed. Many miraculous cures have been reported. After her death BERNADETTE was made a saint by the Roman Catholic Church.



BERYL . . .

BERYL is a mineral mined in South America and Australia. It is found in various colors, light green, blue or pink, and sometimes has no color at all. The precious gem called emerald is a type of green BERYL. Aquamarine is a variety of blue BERYL. This mineral is valuable because of its clearness and brightness, rather than its size.



BETEL . . .

The BETEL palm is a tree that grows in southern Asia, especially in Ceylon and Malaya. It bears a large seed which is called the BETEL nut. Many people of the East chew BETEL nuts, much as people of the West chew gum or smoke cigarettes. Some Malayan tribes believe that BETEL-chewing clears the stomach and brain, and strengthens the gums and teeth. They use BETEL-chewing as part of their most important ceremonies.

BETHLEHEM . . .

BETHLEHEM is the place where Jesus was born almost 2,000 years ago. The Church of St. Mary, built in 330, made BETHLEHEM a great pilgrim shrine. Convents now surround the church. In the church is the Grotto of the Nativity which represents the birthplace of Jesus. The grotto contains a silver star fitted into the marble paving. Around the star are 15 lamps that burn night and day.



BIBLE . . .

The BIBLE is the Holy Book of the Jewish and Christian religions. The first part of it, called the Old Testament, was written before the birth of Jesus. The Old Testament is the longer part of the BIBLE and is divided into three parts: The Law—includes the first five books of Moses. The Prophets—include some books that tell the history of the ancient Jews. The Writings—include the poetry and beautiful literature of the BIBLE. The New Testament is the part of the BIBLE that tells the life of Jesus, his teachings, and the reasons why Christians should follow him. The New Testament contains the Gospels, the Epistles, the Acts of the Apostles, and the Revelation of St. John the Divine.

RECENTLY, ANCIENT SCROLLS WERE DISCOVERED IN CAVES ALONG THE DEAD SEA, ADDING PROOF TO MANY OF THE STORIES IN THE BIBLE.



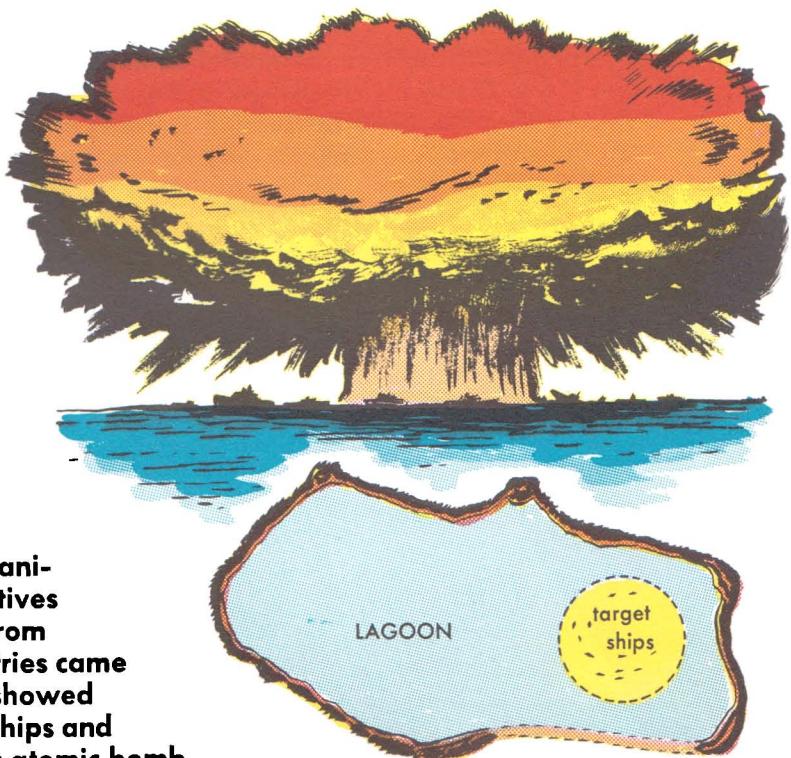
BICYCLES . . .

The BICYCLE gets its name because it's a "Two Wheeler"—BI means "Two" and CYCLE means "wheel." There are more than 20 million BICYCLES in the United States, and in Europe there are more BICYCLES than autos. In many countries there are special BICYCLE paths, with small houses along the way, called hostels, where bike riders can stop to eat and rest.



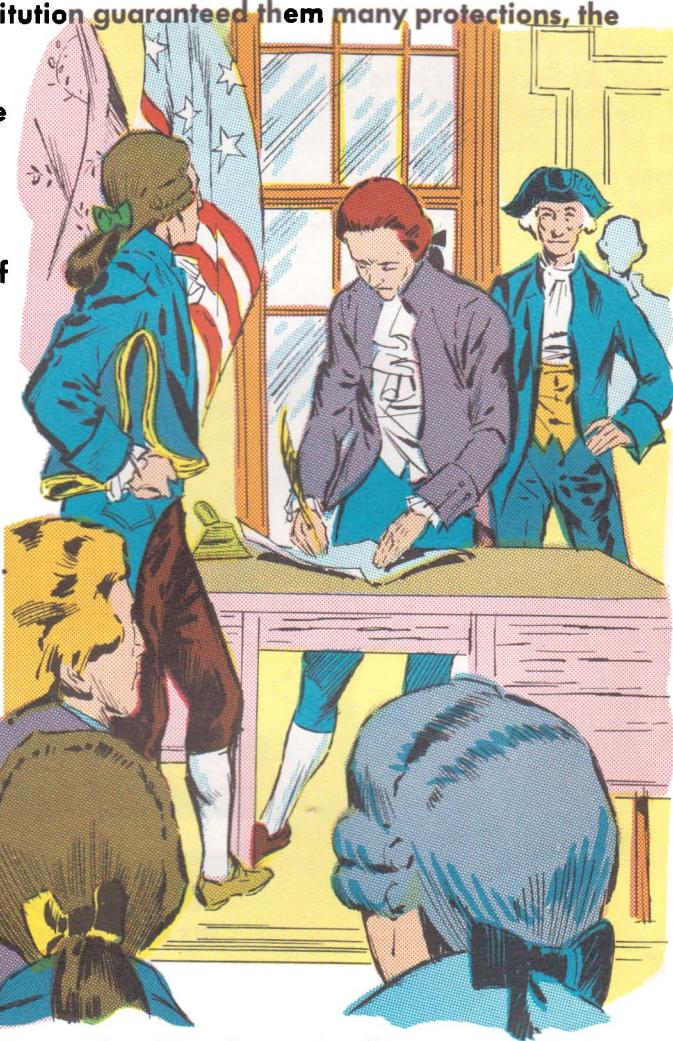
BIKINI . . .

The BIKINI Atoll is the Pacific island where two atom bombs were exploded in July, 1946. BIKINI is in the northwestern part of the Marshall Islands group, and consists of a ring of 27 small coral islands around a lagoon (a pool of still water). In 1946, the native population was removed to another island. About 70 Japanese and American ships were left in the lagoon. These ships had 5,000 animals on them, as well as many scientific instruments. The terrible explosions and the deadly rays released by the bombs completely destroyed many of the ships and killed the plant and animal life on BIKINI. Representatives from the United Nations and from newspapers of all major countries came to BIKINI. The test explosions showed how human beings and their ships and instruments are affected by an atomic bomb explosion.



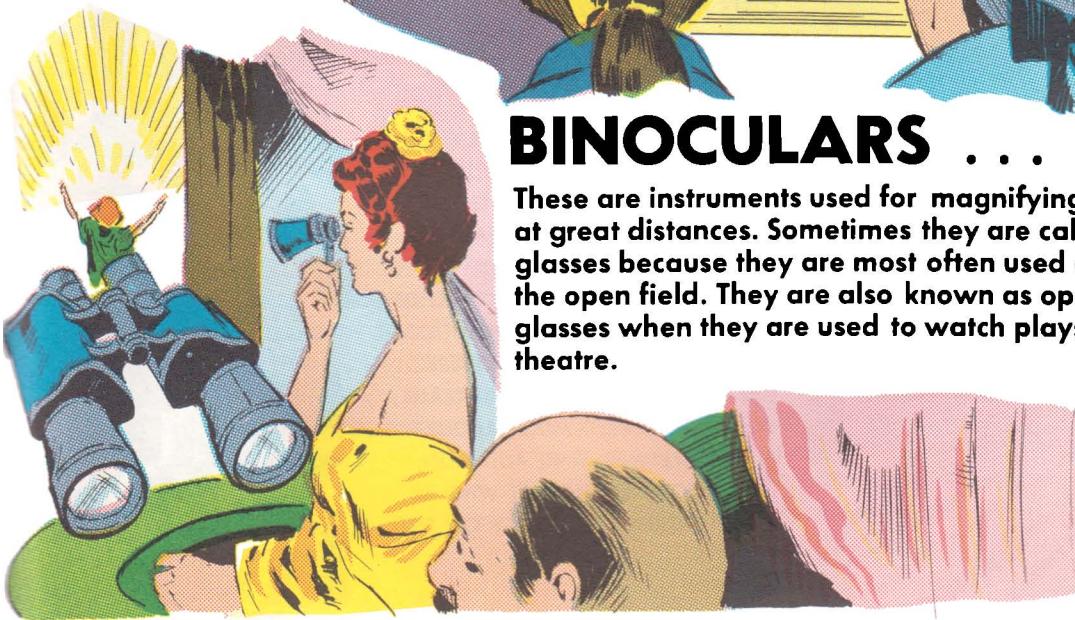
BILL OF RIGHTS . . .

One of the main reasons the American colonies fought for their freedom from England was that they felt they were being mistreated. When the people obtained their liberty and formed the United States, they wanted to be sure these hard-won freedoms would be perpetuated. Although the Constitution guaranteed them many protections, the states said they would sign the new Constitution only if some amendments were added guaranteeing the people more rights. In July 1789, 10 of the amendments introduced by James Madison were adopted and quickly approved by the states. Since they all dealt with the rights of the people, they have become known as the BILL OF RIGHTS. Some of them are: The right to worship as you choose; the right to gather in peaceful groups; the right to express your opinion in speech or in print; the right to know why you have been arrested, and to have a speedy trial; the right to trial by jury.



BINOCULARS . . .

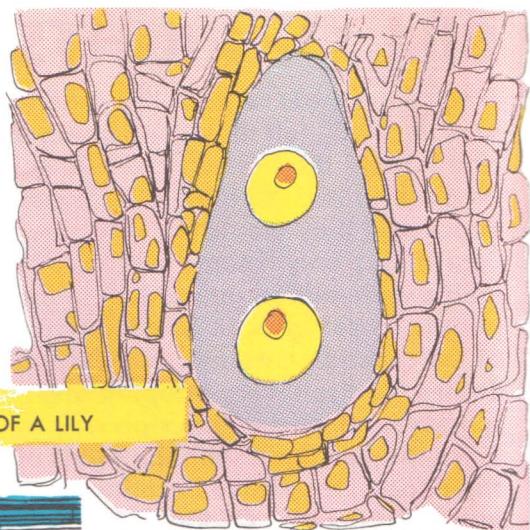
These are instruments used for magnifying objects at great distances. Sometimes they are called field glasses because they are most often used out in the open field. They are also known as opera glasses when they are used to watch plays in a theatre.



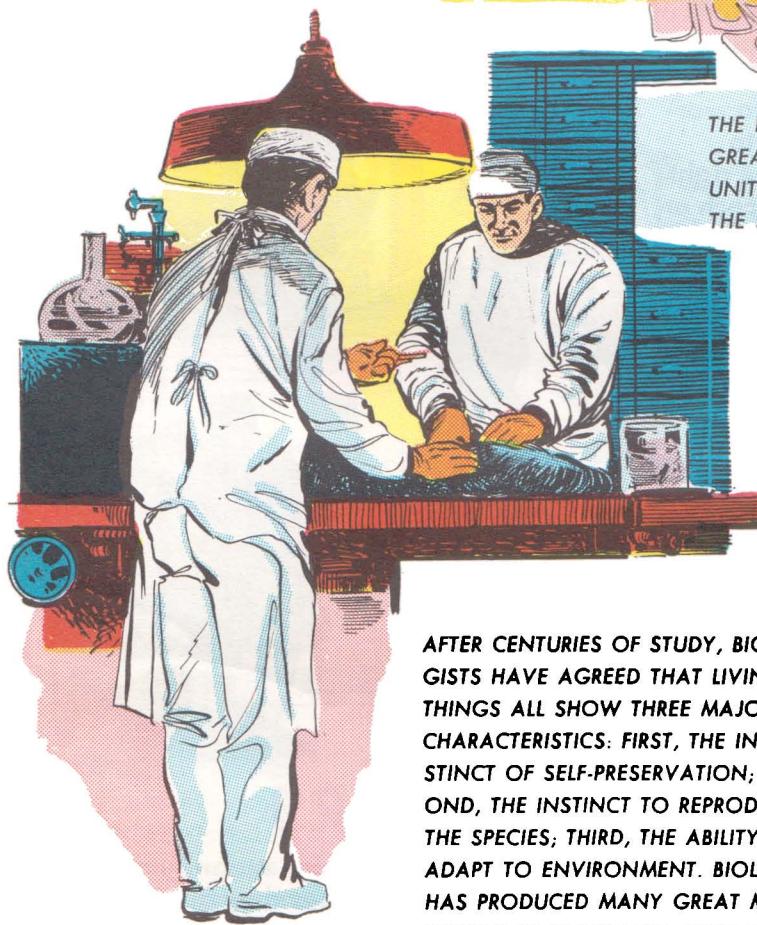
BIOLOGY . . .

BIOLOGY is the study of all living things. It is divided into two parts—zoology and botany. Zoology is the study of animals and botany is the study of plants. The early Greeks and Romans collected many BIOLOGICAL facts. But little more was done until the Renaissance, in the 1600's. Practically all of the great discoveries have been made since then by BIOLOGISTS in Europe and, later on, in America.

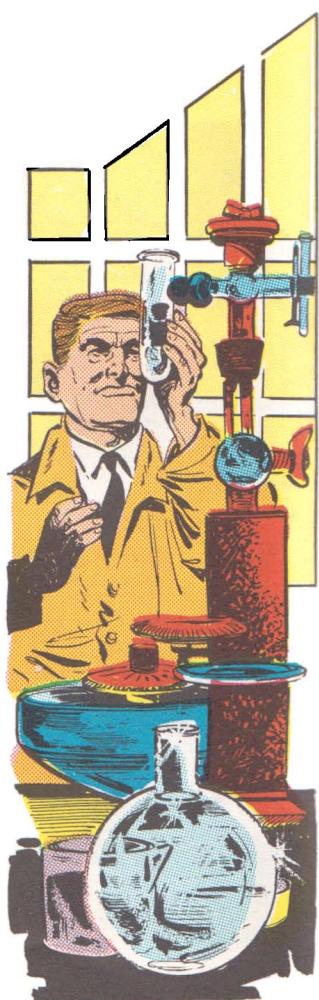
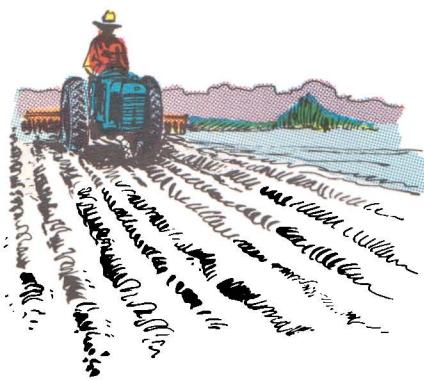
EGG CELL OF A LILY



THE BIOLOGIST NOW KNOWS A GREAT DEAL ABOUT THE SIMPLEST UNIT OF ANIMAL AND PLANT LIFE — THE SINGLE CELL

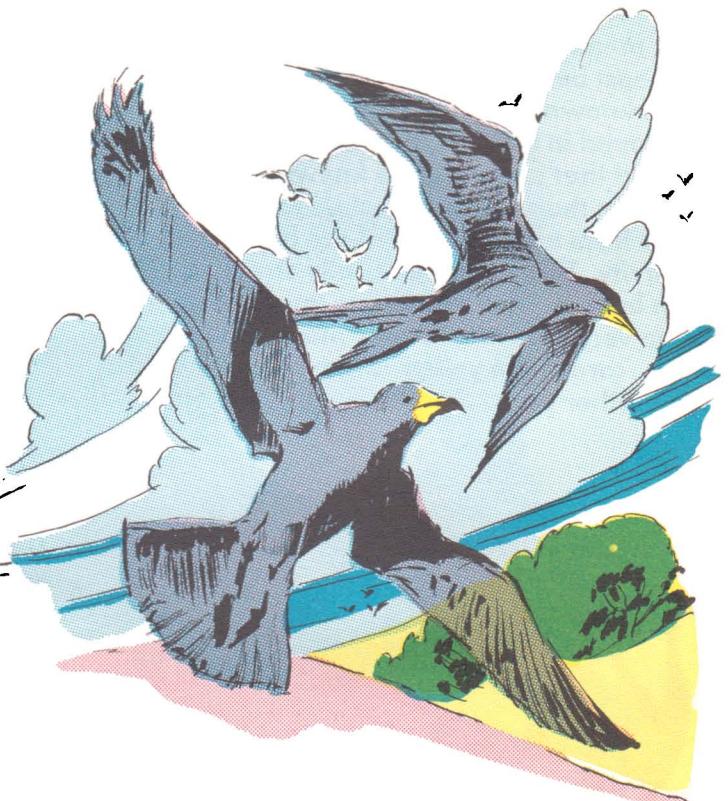


AFTER CENTURIES OF STUDY, BIOLOGISTS HAVE AGREED THAT LIVING THINGS ALL SHOW THREE MAJOR CHARACTERISTICS: FIRST, THE INSTINCT OF SELF-PRESERVATION; SECOND, THE INSTINCT TO REPRODUCE THE SPECIES; THIRD, THE ABILITY TO ADAPT TO ENVIRONMENT. BIOLOGY HAS PRODUCED MANY GREAT MEN. THESE INCLUDE CUVIER, WHO DEVELOPED ANATOMY; DARWIN, WHO DEVELOPED A THEORY OF EVOLUTION; PASTEUR AND KOCH, WHO WERE GREAT BACTERIOLOGISTS; BURBANK, WHO DISCOVERED MUCH ABOUT PLANT-BREEDING, AND AUDUBON, THE FAMOUS ZOOLOGIST WHO BECAME A GREAT AUTHORITY ON BIRD LIFE.



BIRDS . . .

BIRDS are a species of warm-blooded, feathered animals. Each country seems to have some species of **BIRDS** that belong to it alone. Certain types of **BIRDS** are shared with other countries. Due to their migratory habits the same **BIRDS** appear in different places at various times of the year. Many **BIRDS** spend most of their time in flight, coming down to earth only during the mating season.



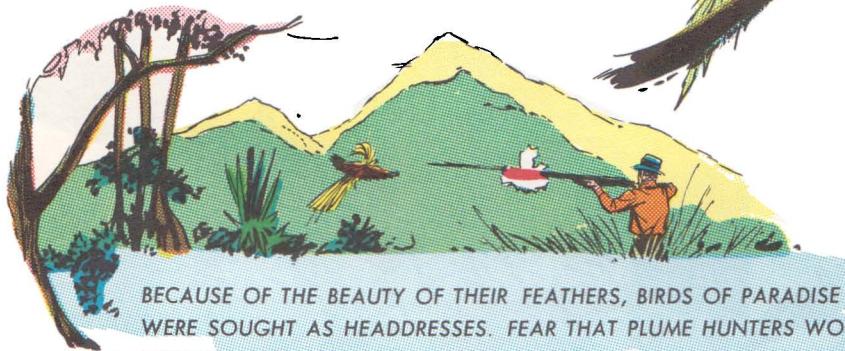
BIRDS BUILD NESTS IN WHICH THEY LAY EGGS. THE MOTHER AND FATHER BIRDS TAKE TURNS KEEPING THE EGGS WARM UNTIL THE YOUNG BIRDS HATCH. THEN THEY BRING THE BABY BIRDS FOOD UNTIL THEY ARE STRONG ENOUGH TO FLY.



BIRDS LIVE LONGER IN CAPTIVITY THAN IN THE WILD. LARGER BIRDS HAVE A LONGER LIFE THAN SMALLER ONES. BIRDS USE JUST ABOUT EVERYTHING ABOUT THEM FOR FOOD. THEY HELP MAN BY EATING INSECTS THAT ARE HARMFUL TO CROPS.

BIRD OF PARADISE . . .

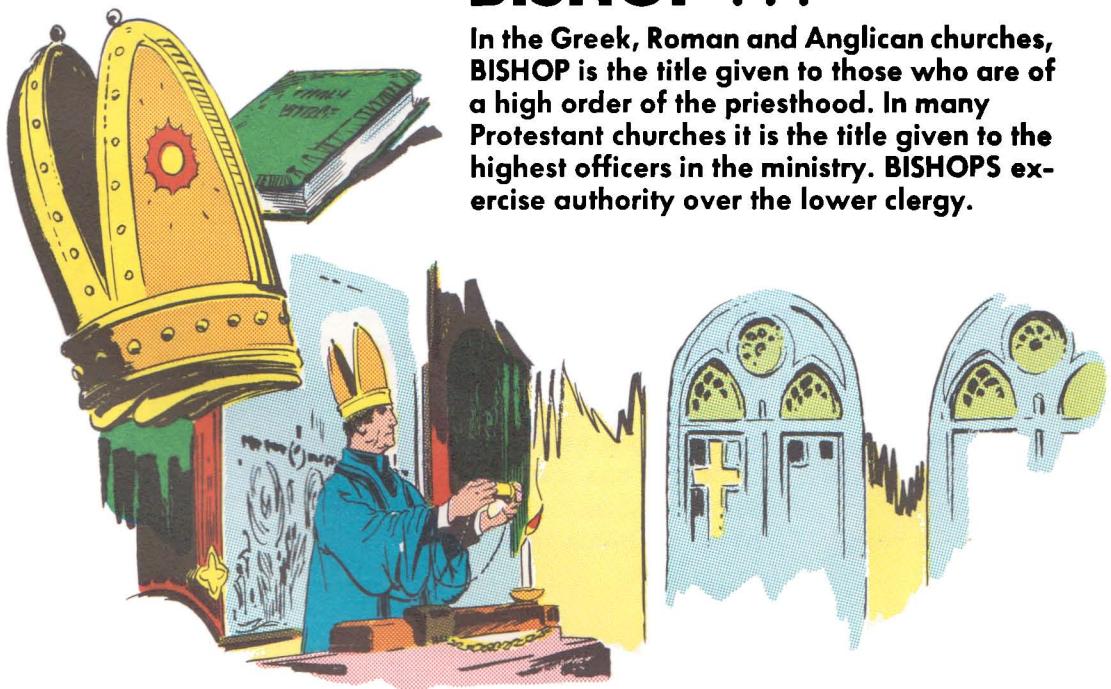
This member of the bird family has the most beautiful and varied plumage of all known birds. **BIRDS OF PARADISE** are found in New Guinea and the islands around that area. Little is known of their habits in the wild and most descriptions come from observations of the birds in captivity. The eggs are usually streaked with brown. Their voices are loud and often very pleasing. Unlike many other birds, care of the young is almost always the mother's job.



BECAUSE OF THE BEAUTY OF THEIR FEATHERS, BIRDS OF PARADISE WERE SOUGHT AS HEADDRESSES. FEAR THAT PLUME HUNTERS WOULD DESTROY THE SPECIES LED TO PROTECTIVE LAWS AGAINST HUNTING THESE BIRDS.

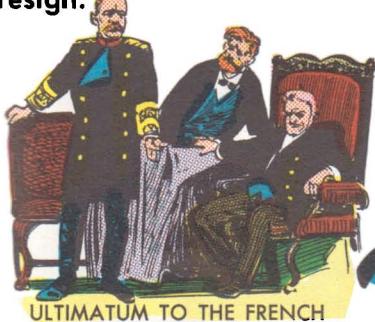
BISHOP . . .

In the Greek, Roman and Anglican churches, **BISHOP** is the title given to those who are of a high order of the priesthood. In many Protestant churches it is the title given to the highest officers in the ministry. **BISHOPS** exercise authority over the lower clergy.

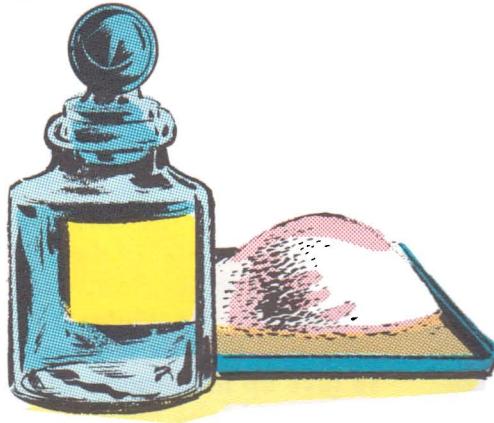
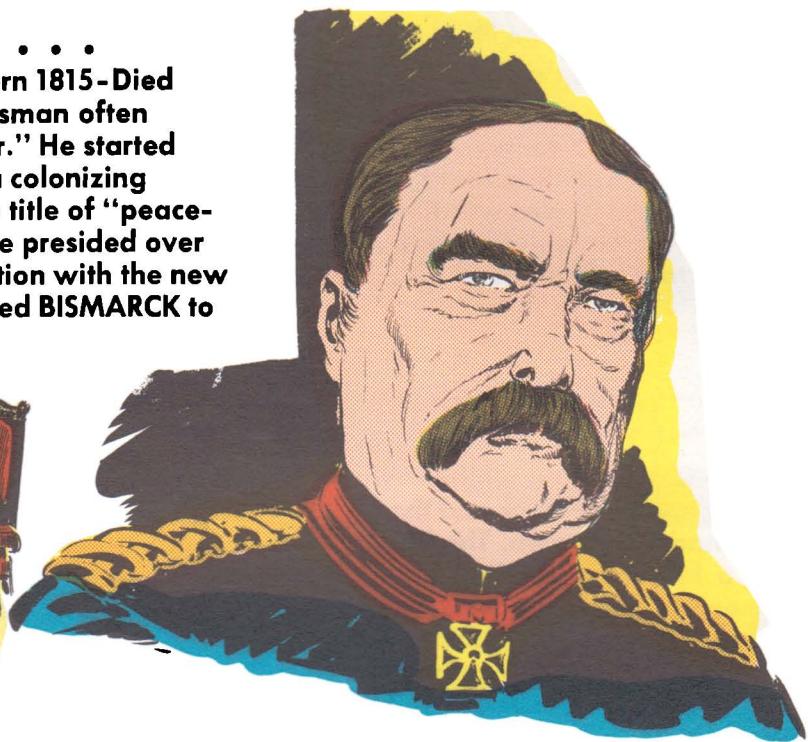


BISMARCK . . .

OTTO VON BISMARCK (Born 1815-Died 1898) was a German statesman often called the "Iron Chancellor." He started Germany on its career as a colonizing power. He also earned the title of "peace-keeper" of Europe when he presided over the Berlin Conference. Friction with the new Emperor, Frederick II, caused BISMARCK to resign.



ULTIMATUM TO THE FRENCH

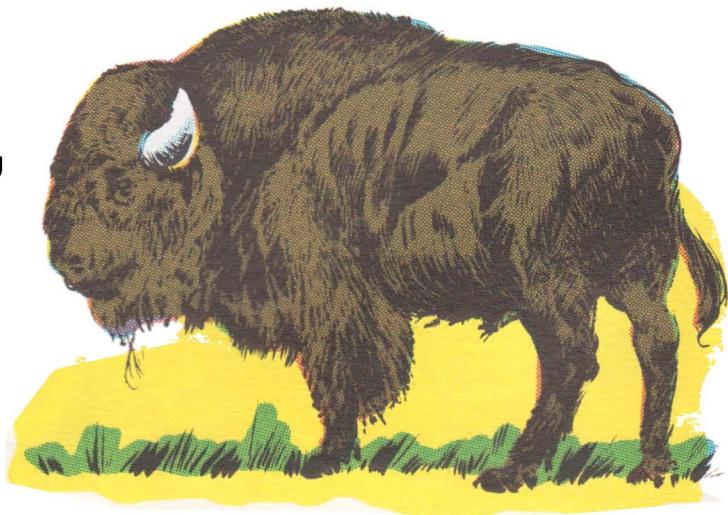


BISMUTH . . .

This is a metallic chemical element which became popular during the middle ages. When not tarnished it is a silver-white color with a red tinge. Bolivia supplies the chief commercial source. The salts of BISMUTH, when taken internally, act as a most powerful antiseptic. There are no after effects and there is hardly a safer drug.

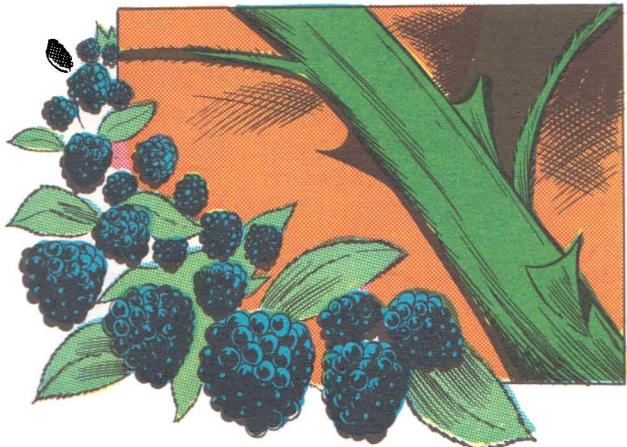
BISON . . .

This is a form of wild cattle similar to the American buffalo. Its appearance is massive and shaggy. The head is broad with short curved horns. A mop of long hair covers the forehead nearly hiding the small eyes. The bulls have large beards on their chins and throats. Their woolen-like hair can be woven. They live in the northern hemisphere and are nearly extinct, except for a few small protected herds.



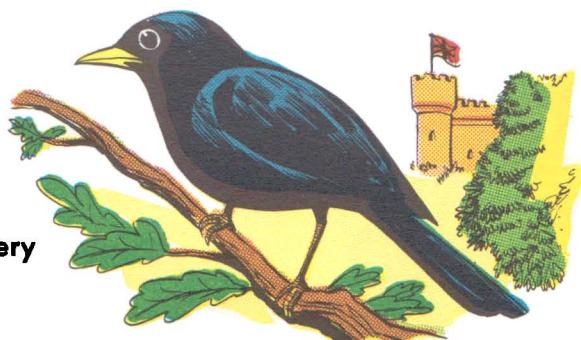
BLACKBERRY . . .

Great centers of wild BLACKBERRIES appear in Europe and in the eastern United States. BLACKBERRY roots live for many years. The BLACKBERRY plant has a prickly stem, and leaves which may still be seen during the winter. It is one of the most important and profitable bush-fruits.



BLACKBIRD . . .

This name is given to a well-known British bird. The male is all black and the female is various shades of brown. The bill of the male is a bright yellow. It is a shy bird and rarely seen in flocks. It mainly thrives on fruits and insects. BLACKBIRDS aid man as a vermin-killer. They will imitate the calls of the birds around them. They are found in every European country but rarely beyond the Arctic Circle.



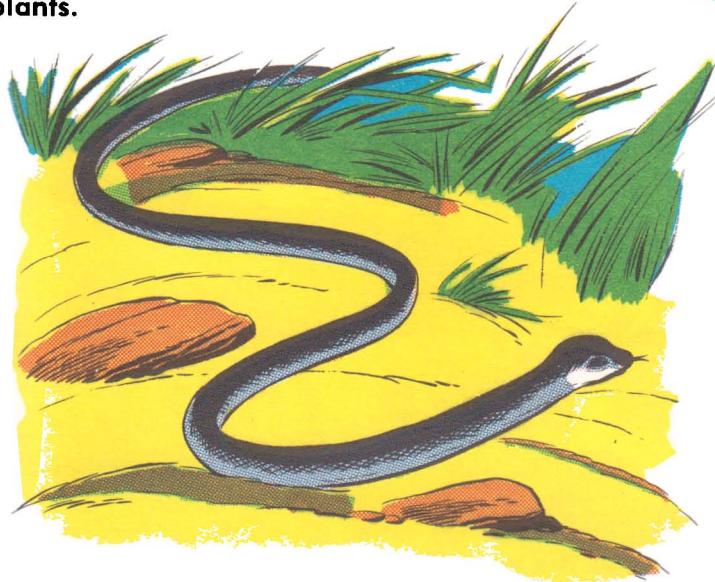
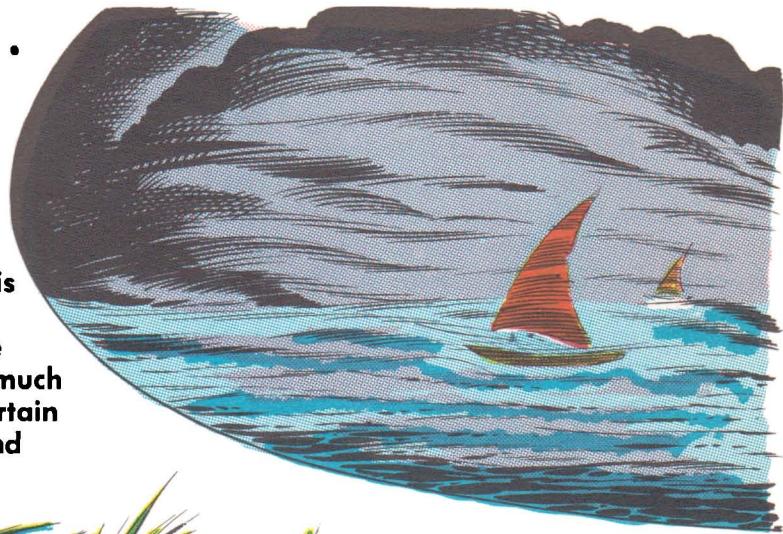
BLACK HAWK

BLACK HAWK (born 1767-died 1838) was a chief of the Sac Indians. He was very much against giving in to the whites but his tribe and the Fox Indians agreed to give up their lands. BLACK HAWK said the other chiefs were drunk when they did this, and in 1832 he fought with the whites in what is known as the BLACK HAWK War. The Indians were defeated and BLACK HAWK and his two sons were captured. They were released in 1833 when they joined their tribe on its reservation in Iowa.

TODAY, A 50-FOOT STATUE OF BLACK HAWK STANDS
NEAR OREGON, ILLINOIS.

BLACK SEA . . .

The BLACK SEA lies between Europe and Asia. A possible reason for its name is the heavy fog that settles over it in the winter. It is connected to the Mediterranean Sea by the Bosphorus. At its deepest it is over one mile (7,000 feet) and its area is larger than the state of California. There is not too much life in the water because of certain chemicals that kill most fish and plants.

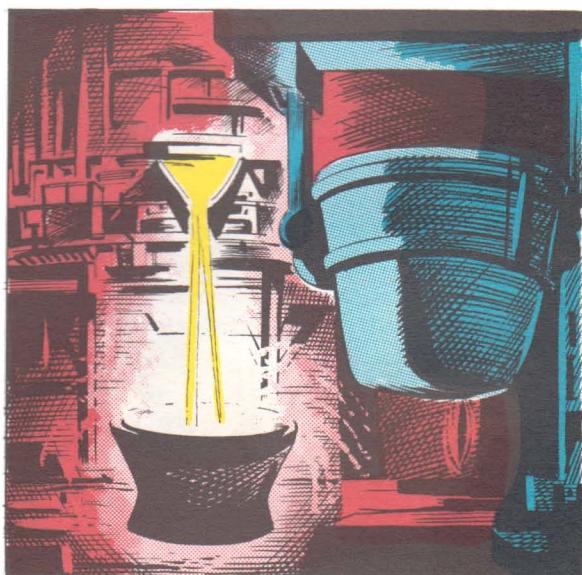


BLACKSNAKE

This is a common, harmless snake found in eastern North America from Canada to Florida. The adult is black above, slate color underneath, with white on the throat. Farther west, due to a blue color, it is called the blue racer. Its length rarely exceeds 6 feet. It feeds on insects and frogs and it has been known to attack other snakes. In winter it hibernates. In Australia the name is given to a very different and dangerously poisonous snake.

BLAST FURNACE . . .

Iron is one of our most useful metals but few people realize what must be done before we can get it. Iron is found in the ground in a mixed form known as iron ore. The iron must be separated from the rest of the ore before it can be used. The BLAST FURNACE does the separating. Into the top of the huge furnace, shaped something like a barrel, is poured the iron ore and other chemicals. A terrific blast of hot air is blown in which melts the ore. The melted iron settles to the very bottom of the furnace while the other melted impurities, called slag, float on top of the iron. The iron is drawn out from the bottom and runs into molds.



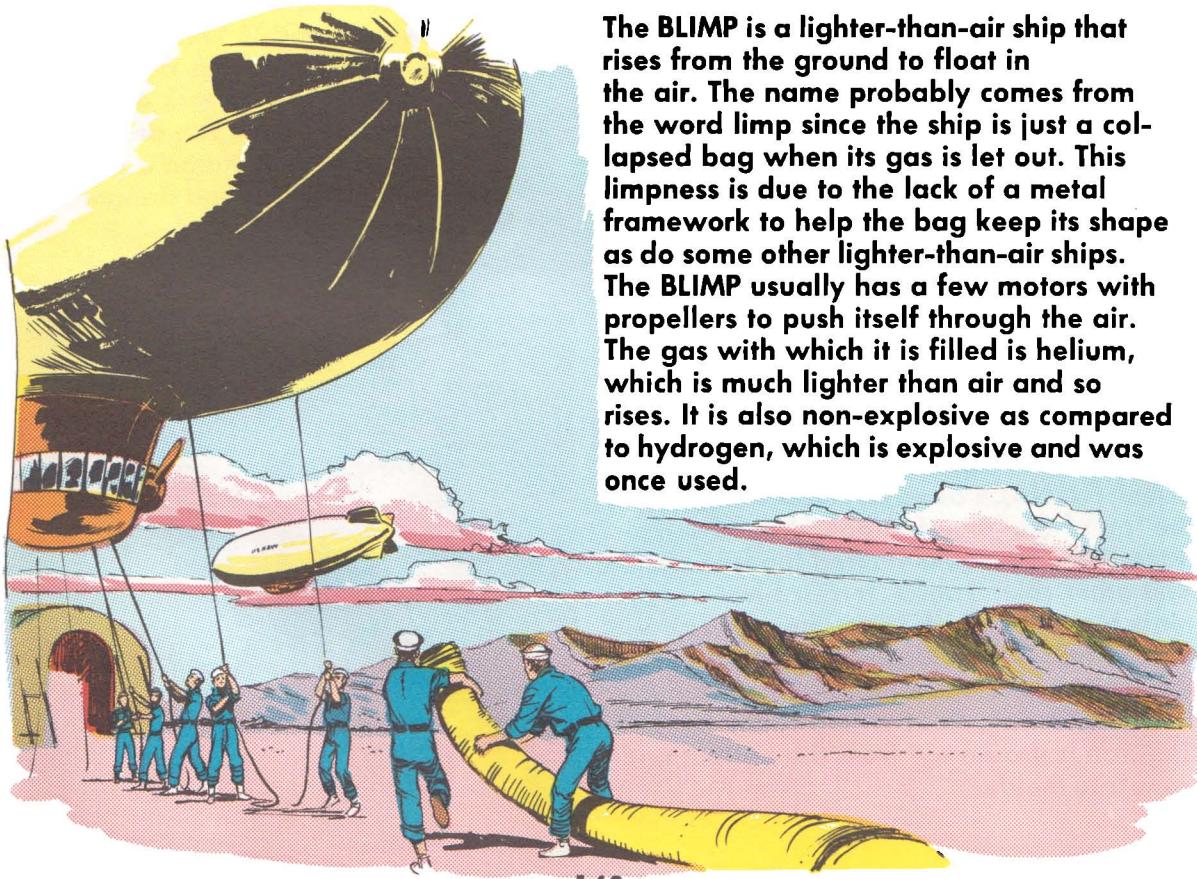
BLEACHING . . .

Most things we know have color, and there are many times when we wish to get rid of the color. The process of whitening or taking away color is known as BLEACHING. The fading of colors in sunlight is a form of BLEACHING but commercially it is a complicated process requiring the special machinery of modern factories. In olden days (1700's) the Dutch handled most of the world's BLEACHING. It required as long as six months to bleach a fabric. They steeped it in potash lye, soaked it in sour milk or buttermilk for about a week, and then washed and spread it on the ground to whiten in the sun for many more weeks. The modern method uses chemicals and takes much less time.



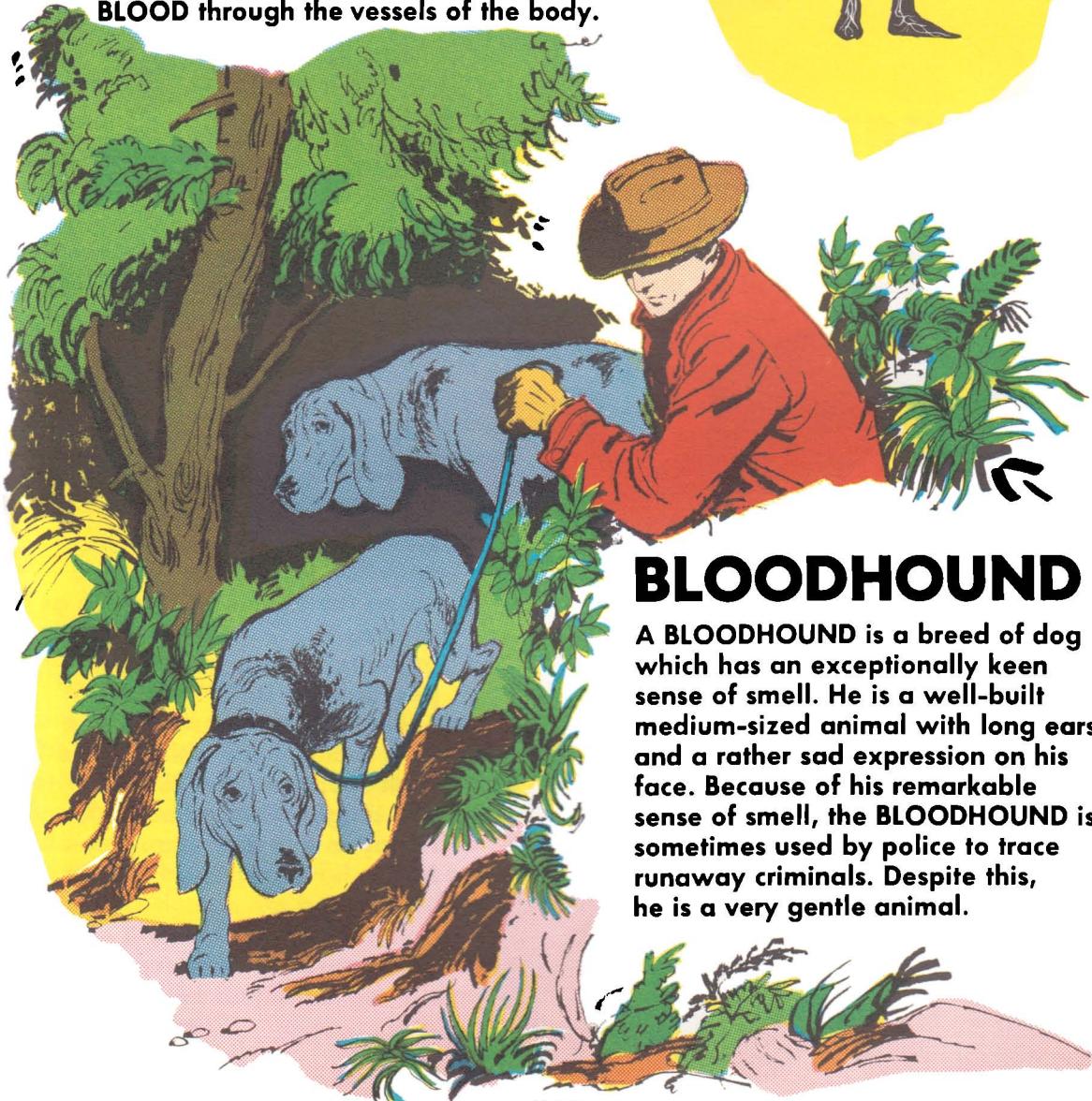
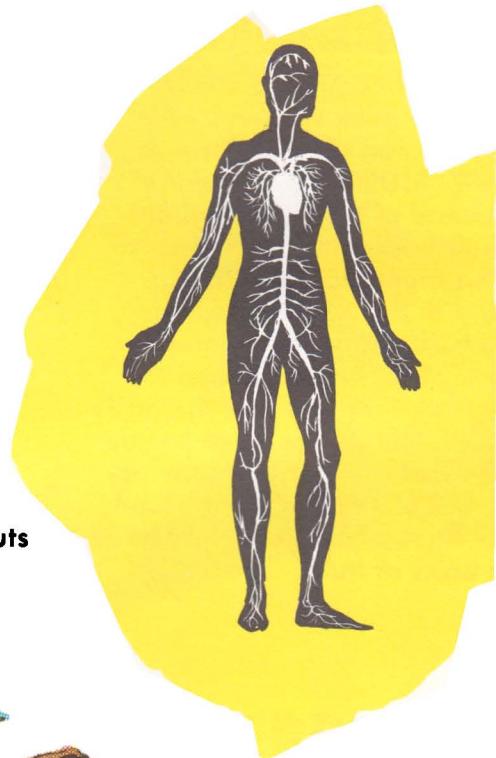
BLIMP . . .

The BLIMP is a lighter-than-air ship that rises from the ground to float in the air. The name probably comes from the word limp since the ship is just a collapsed bag when its gas is let out. This limpness is due to the lack of a metal framework to help the bag keep its shape as do some other lighter-than-air ships. The BLIMP usually has a few motors with propellers to push itself through the air. The gas with which it is filled is helium, which is much lighter than air and so rises. It is also non-explosive as compared to hydrogen, which is explosive and was once used.



BLOOD . . .

The adult human body contains about six and one-half quarts of BLOOD. The BLOOD is made up largely of plasma which is colorless but which appears red because of the millions of red corpuscles floating in it. Corpuscles are microscopic discs thinner in the center than at the edges. There are about 300,000,000 in a single drop of BLOOD. BLOOD also contains white corpuscles and platelets. Each type of corpuscle does a special job. The red ones carry oxygen to the cells of the body and remove waste products from the cells. The white corpuscles help fight diseases which attack the body. The platelets help the BLOOD to clot and thus help cuts to heal. The heart is the pump which forces the BLOOD through the vessels of the body.



BLOODHOUND

A BLOODHOUND is a breed of dog which has an exceptionally keen sense of smell. He is a well-built medium-sized animal with long ears and a rather sad expression on his face. Because of his remarkable sense of smell, the BLOODHOUND is sometimes used by police to trace runaway criminals. Despite this, he is a very gentle animal.

BLUEBEARD . . .

BLUEBEARD is the main character in a book written by the Frenchman Charles Perrault in 1697. BLUEBEARD murdered several of his wives and hid their bodies in a locked room. This room was forbidden territory to the wife he happened to be living with. Eventually one of his wives opened the locked door and saw the grisly sight. She was rescued before she met a like fate. Many fictional plots have been based on this story which might have a basis of truth.

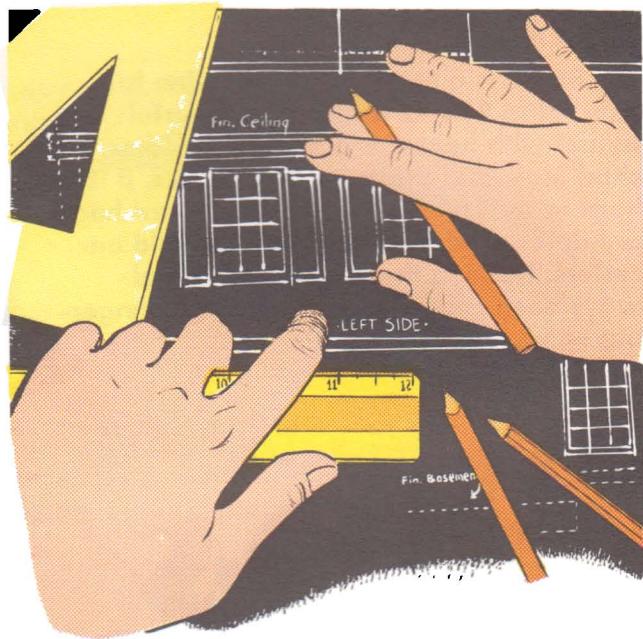


BLUEBIRD . . .

The BLUEBIRD is a gentle and sweet-voiced little bird which goes but a little way south to spend the winter and returns as soon as the first green of spring appears. It nests in old wood-pecker holes and knotholes in hollow limbs or posts but also likes a birdhouse which is free from sparrows. The BLUEBIRD is a songbird and seems to be happy to live near man's dwellings.

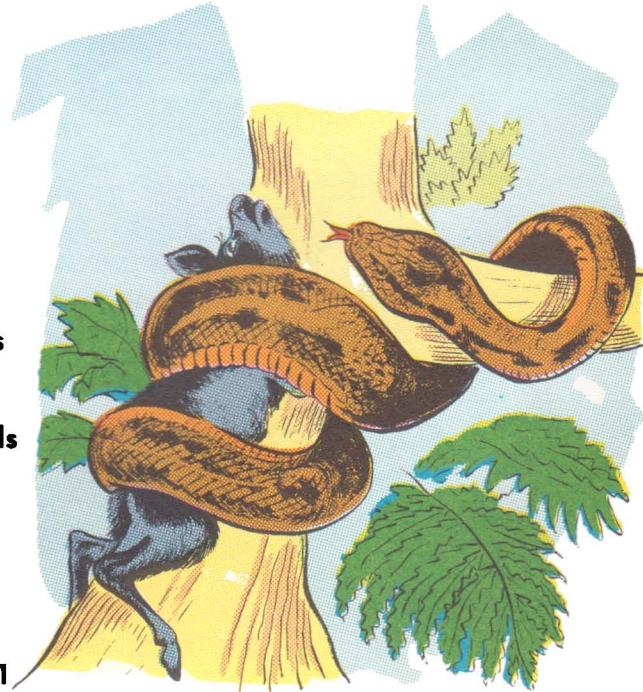
BLUEPRINT . . .

When a house is built it is necessary to make copies of the original plans so that each group of workmen shall have a copy of the plans to guide them. These copies or duplicates are usually made by a process called BLUEPRINTING. The original drawing is made on a piece of tracing cloth. The drawing is then placed over the blueprint paper which has been chemically treated and is exposed to light. The BLUEPRINT paper turns blue except where the lines were drawn on the original. These lines appear white, thus producing a perfect copy of the original.



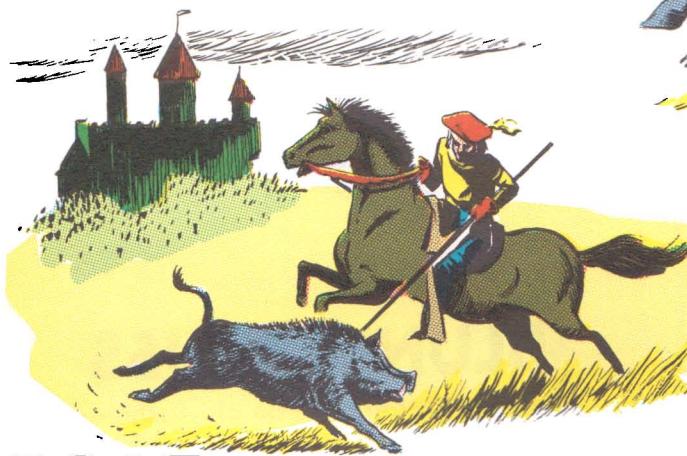
BOA . . .

The BOA, more commonly called the BOA CONSTRICTOR, is a snake rarely more than twelve feet in length which is found in Brazil and Guiana. It feeds on small animals which are crushed into soft masses by its powerful coil. It spends much of its time in the branches of trees ready to drop on unsuspecting victims. Since its jaws open both up and out, it can swallow an animal larger in diameter than its head.



BOAR . . .

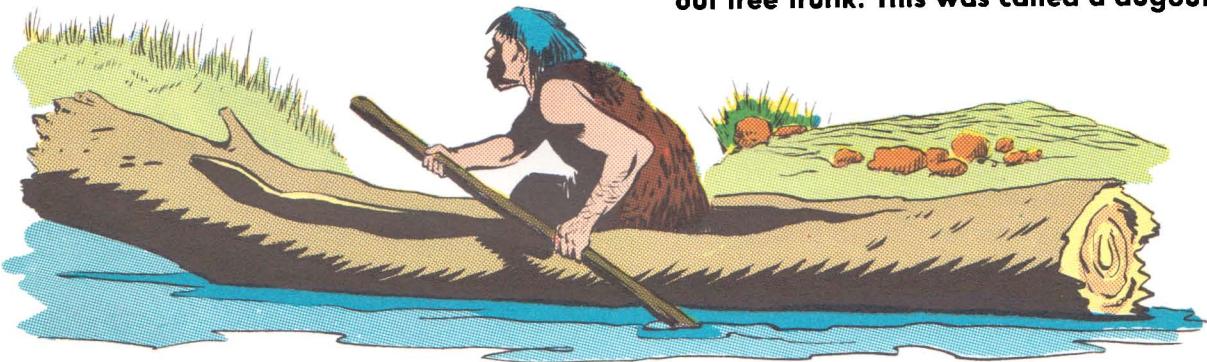
The BOAR is a member of the swine family. Wild BOARS are large, powerful beasts with heavy, blackbristled bodies, short legs, and sharp upcurved tusks. It is hard to realize that our lazy barnyard hogs are descended from such vicious, wild ancestors. Hunting the wild BOAR has always been considered an exciting, dangerous sport.



BOARS HAVE LONG BEEN EXTINCT IN ENGLAND BUT REMAIN ABUNDANT IN PARTS OF AFRICA AND ASIA WHERE WILD BOAR HUNTS ARE STILL HELD.

BOAT . . .

BOATS were one of the first means of transportation known to man. To move over water man has always used BOATS. The first boat was probably nothing more than a hollowed-out tree trunk. This was called a dugout.



THERE ARE MANY DIFFERENT KINDS OF BOATS. THE KAYAK IS A LIGHT BOAT USED BY THE ESKIMOS. OUR AMERICAN INDIANS USED THE CANOE. FISHERMEN USE ROWBOATS. LIFEBOATS ARE ROWBOATS USED BY SHIPS AND RESCUE STATIONS.



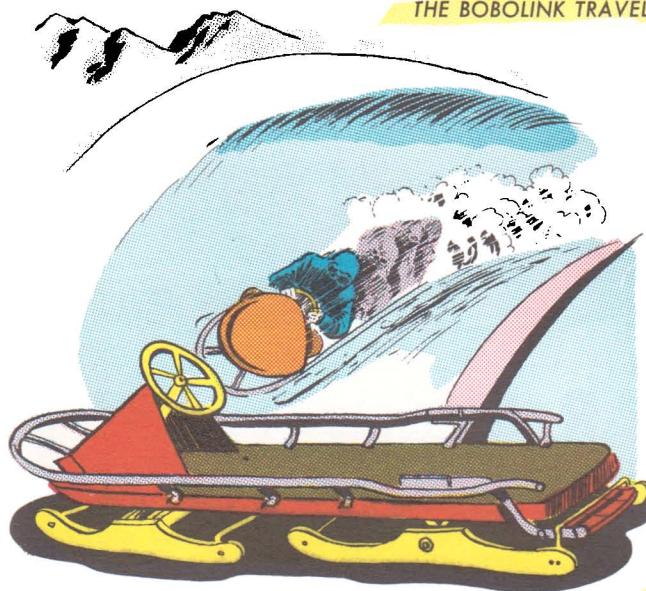
A MOTORBOAT IS CALLED AN INBOARD WHEN THE MOTOR IS BUILT AS A PERMANENT UNIT INSIDE THE BOAT. MOST SMALL BOATS ARE DRIVEN BY OUTBOARD MOTORS CLAMPED TO THE REAR, OR STERN. BOATS ARE DESIGNED TO FIT THEIR MEANS OF POWER, THEIR PURPOSE, AND THE WATER CONDITIONS.

BOBOLINK . . .

The BOBOLINK could be described as a happy-go-lucky minstrel. In springtime it dashes about filling the air with its songs. It makes its nest in the high grass. The BOBOLINK'S principal foods are grasshoppers, beetles, and seeds in every month except September. Oddly enough, in this month, as they are heading south, they descend on fields of cultivated rice and raid them. This is why they are sometimes called Rice Birds.



THE BOBOLINK TRAVELS AS FAR SOUTH AS PARAGUAY AND ARGENTINA.

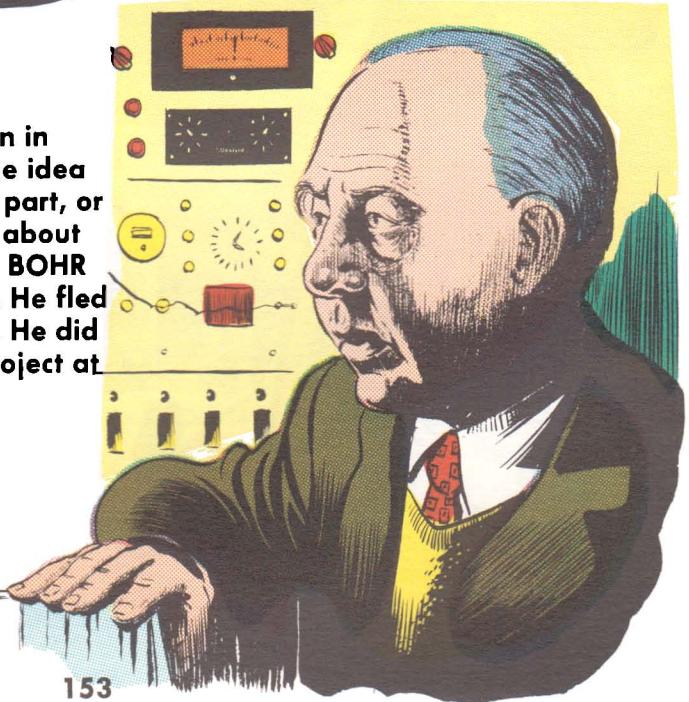
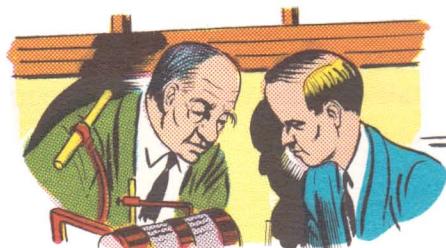


BOBSLED . . .

The BOBSLED is a sled with two pairs of runners. It is steered by a wheel which is operated by the front rider on the sled. Special BOBSLED courses are designed for winter resorts. These sleds attain a very high rate of speed which makes bobsledding a rather dangerous sport.

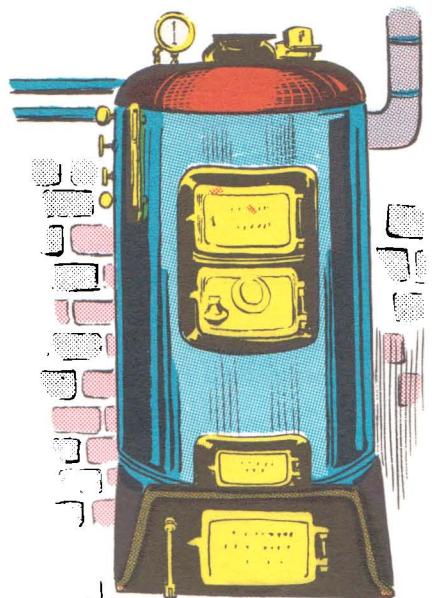
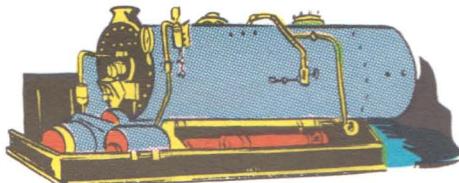
BOHR, NIELS . . .

This eminent Danish physicist was born in Copenhagen in 1885. He developed the idea that the atom is made up of a central part, or nucleus, and of electrons which travel about the nucleus in a definite path or orbit. BOHR was awarded the Nobel Prize in 1922. He fled Denmark in 1943 during World War II. He did much research on the atomic bomb project at Los Alamos, New Mexico.

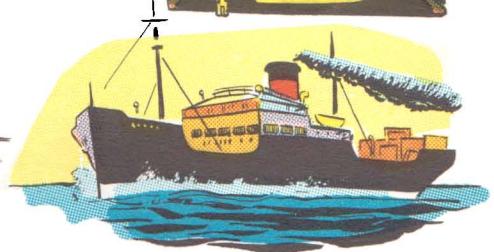
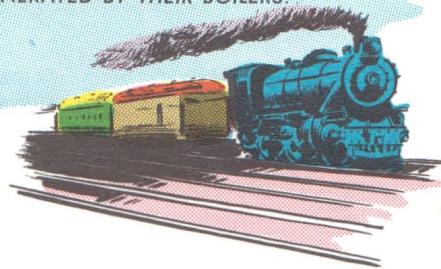


BOILER . . .

A BOILER can be as small as the one housewives use to cook food in, or as large as the ones used to power huge ocean-going ships. BOILERS used to produce heat or power are closed containers, usually in the shape of a cylinder. They have many uses. The most common use is to supply hot water and heat to the home owner.



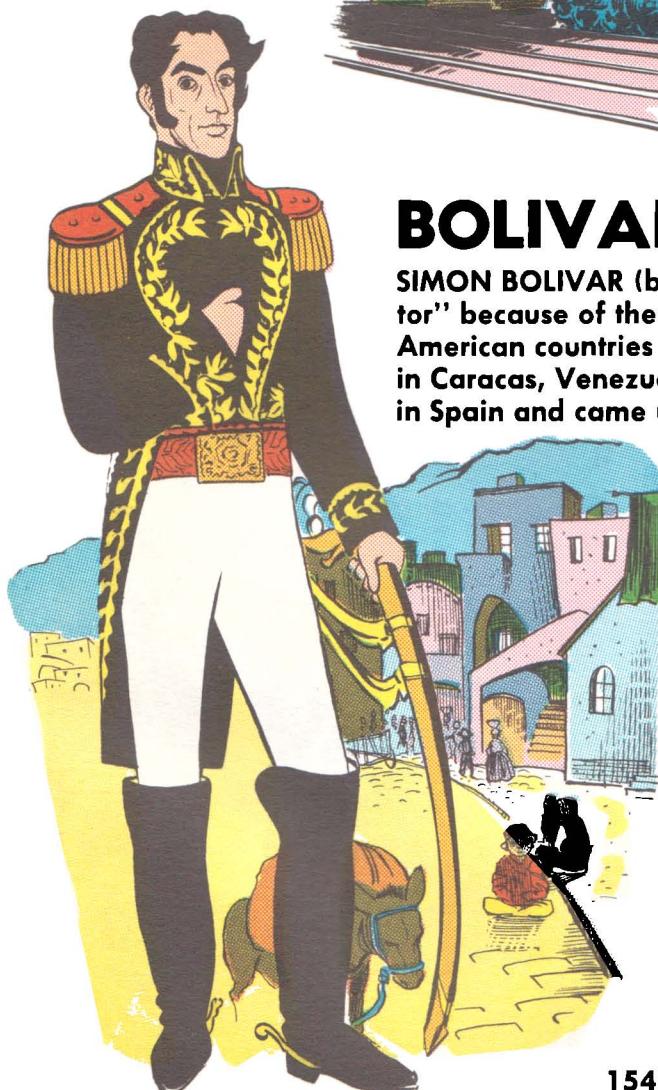
AT ONE TIME ALL RAILROAD LOCOMOTIVES CARRIED LARGE BOILERS TO PRODUCE STEAM FOR PROPULSION. MANY SHIPS ARE STILL PROPELLED BY THE STEAM GENERATED BY THEIR BOILERS.



BOLIVAR, SIMON . . .

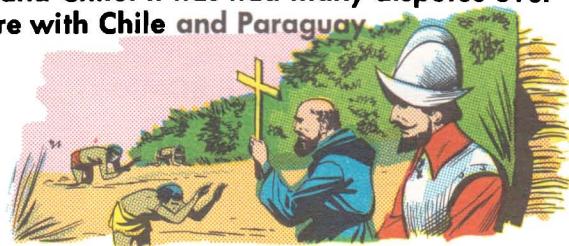
SIMON BOLIVAR (born 1783-died 1830) is called "The Liberator" because of the role he played in freeing several South American countries from the rule of Spain. BOLIVAR was born in Caracas, Venezuela, of wealthy parents. He went to school in Spain and came under the influence of a teacher, Simon

Rodriguez, who urged him to do what he could to help the colonists of South America free themselves from the terrible rule of Spain. BOLIVAR returned to South America and formed an army of colonists and soldiers of fortune. He soon liberated Venezuela and Nueva Granada and then united them as the Republic of Colombia. He was elected its first president. BOLIVAR continued to use his military genius for the cause of freedom, and by 1825 Ecuador and Peru were free countries. Upper Peru was called Bolivia in his honor.

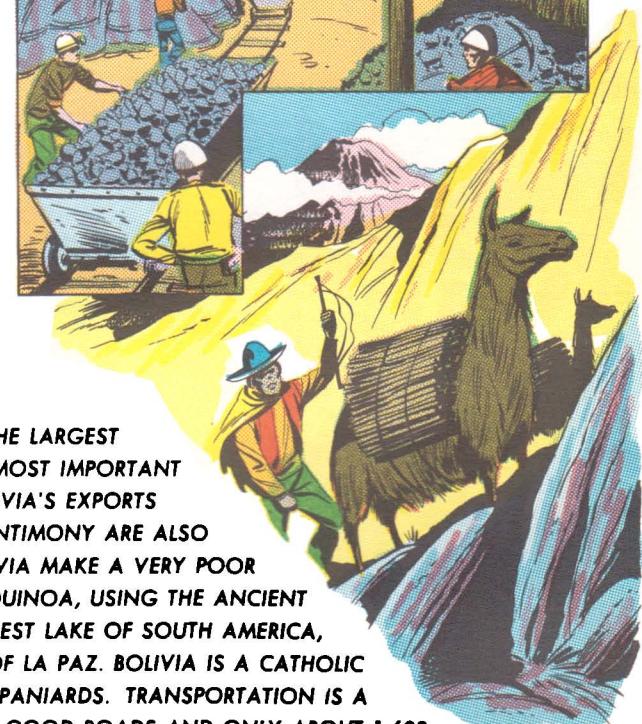


BOLIVIA . . .

Before Peru was liberated in 1825 by Simon Bolivar, this country was called Upper Peru. It was conquered by Pizarro in 1532. BOLIVIA is an inland country hemmed in by Peru, Brazil, Paraguay, Argentina, and Chile. It has had many disputes over boundaries, the most serious of which were with Chile and Paraguay.



As a result of a war fought with Chile, BOLIVIA lost the little bit of seacoast it had. Two-thirds of BOLIVIA is lowland and the remainder is one of the highest inhabited regions of any size in the world. The population is about three million.



THE CAPITAL CITY IS SUCRE, BUT LA PAZ IS BY FAR THE LARGEST AND MOST IMPORTANT CITY. MINING IS BOLIVIA'S MOST IMPORTANT INDUSTRY. MORE THAN THREE-FOURTHS OF ALL BOLIVIA'S EXPORTS ARE IN TIN. GOLD, SILVER, TUNGSTEN, LEAD AND ANTIMONY ARE ALSO MINED. MOST OF THE INDIAN POPULATION OF BOLIVIA MAKE A VERY POOR LIVING RAISING POTATOES AND A GRAIN CALLED QUINOA, USING THE ANCIENT IMPLEMENTS OF THEIR INCAN ANCESTORS. THE LARGEST LAKE OF SOUTH AMERICA, LAKE TITICACA, IS LOCATED 60 MILES NORTHWEST OF LA PAZ. BOLIVIA IS A CATHOLIC COUNTRY, HAVING RECEIVED THE FAITH FROM THE SPANIARDS. TRANSPORTATION IS A MAJOR PROBLEM IN THIS COUNTRY. THERE ARE FEW GOOD ROADS AND ONLY ABOUT 1,600 MILES OF RAILROADS. IN THE LOWLANDS, PRODUCTS ARE TRANSPORTED ON THE RIVERS WHICH FLOW THROUGH THE JUNGLE. IN THE HIGHLANDS, MULES AND LLAMAS ARE USED TO CARRY HEAVY BURDENS.

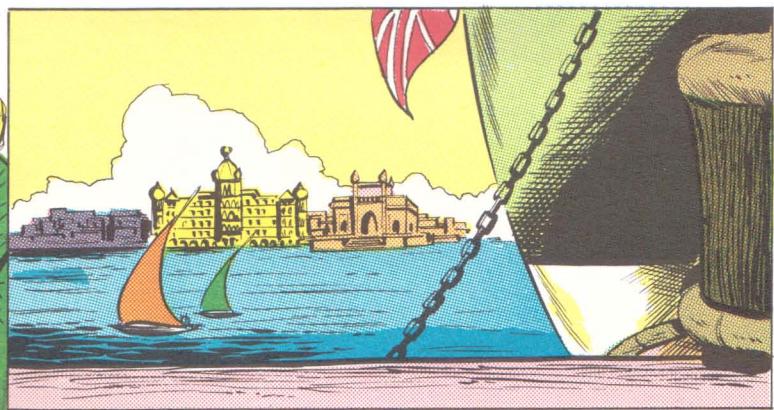
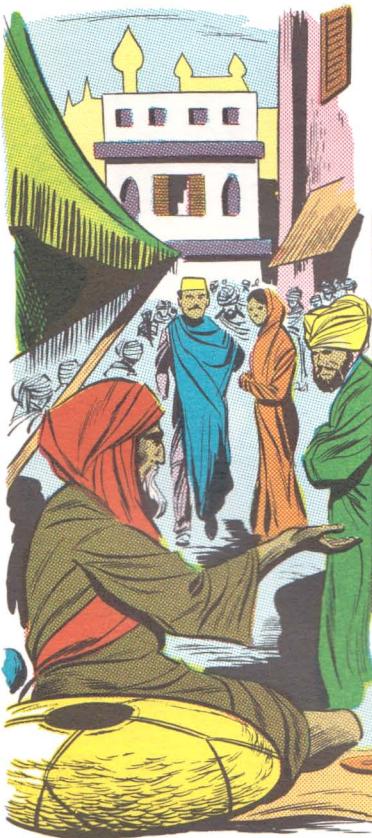
BOMB . . .

A BOMB is a hollow iron ball or shell filled with some explosive material. It may be fired from a gun, thrown by hand, dropped from an airplane, or simply laid at some convenient spot. The Chinese were among the first to use the BOMB. During World War I, BOMBS were dropped in great numbers from airplanes. The first atomic BOMB was dropped on Japan in 1945 during World War II.



BOMBAY . . .

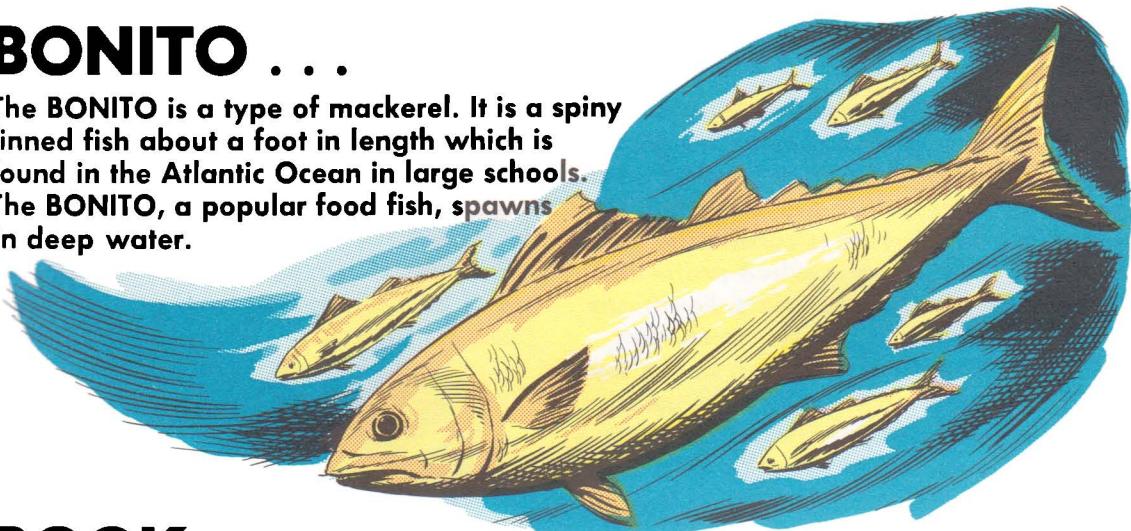
BOMBAY, the largest city in India, is built on an island that guards the entrance to large and picturesque BOMBAY Harbor on the west coast of India. It serves as the capital of BOMBAY Province and is the shipping and financial center for most of western India. This city of about 3,000,000 people is hot all year round. Public buildings and hotels overlook the harbor.



BOMBAY IS A CITY OF CONTRASTS. IT HAS BEAUTIFUL MODERN APARTMENT BUILDINGS AND MISERABLE CROWDED TENEMENT SLUMS.

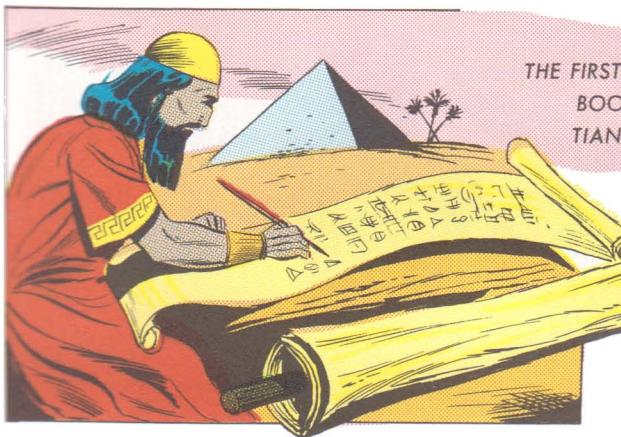
BONITO . . .

The BONITO is a type of mackerel. It is a spiny finned fish about a foot in length which is found in the Atlantic Ocean in large schools. The BONITO, a popular food fish, spawns in deep water.



BOOK . . .

The word BOOK has come to have many meanings, but it normally means a written or printed work of some length, or a division of a written work such as a BOOK of an Encyclopedia. It seems that BOOKS did not appear until some time after the use of writing had been practiced. Clay tablets, on which records appear, were in existence some 5,000 years ago, but these can hardly be considered BOOKS.



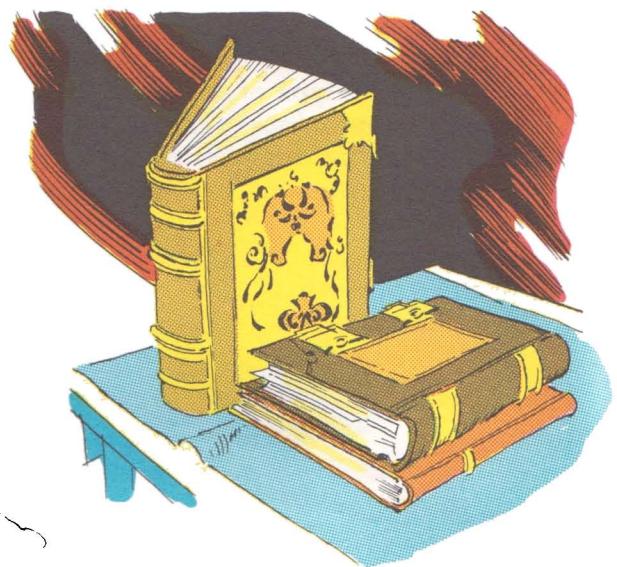
THE FIRST WRITTEN MATERIAL WHICH MIGHT BE CONSIDERED BOOKS WERE THE PAPYRUS SHEETS USED BY THE EGYPTIANS. ANOTHER EXAMPLE WERE THE PAPYRUS SCROLLS USED BY THE GREEKS. THESE SCROLLS OF PAPER ROLLED ABOUT A STICK VARIED IN LENGTH AND WIDTH. MANY WERE ONE FOOT WIDE AND 30 FEET LONG.

THE IDEA OF BINDING THE LEAVES ORIGINATED ABOUT 100 A.D. BOOK-MAKING IN LARGE QUANTITIES HAD TO AWAIT THE INTRODUCTION OF PRINTING FROM CHINA, AND THE INVENTION OF MOBILE TYPE IN THE 1400's.



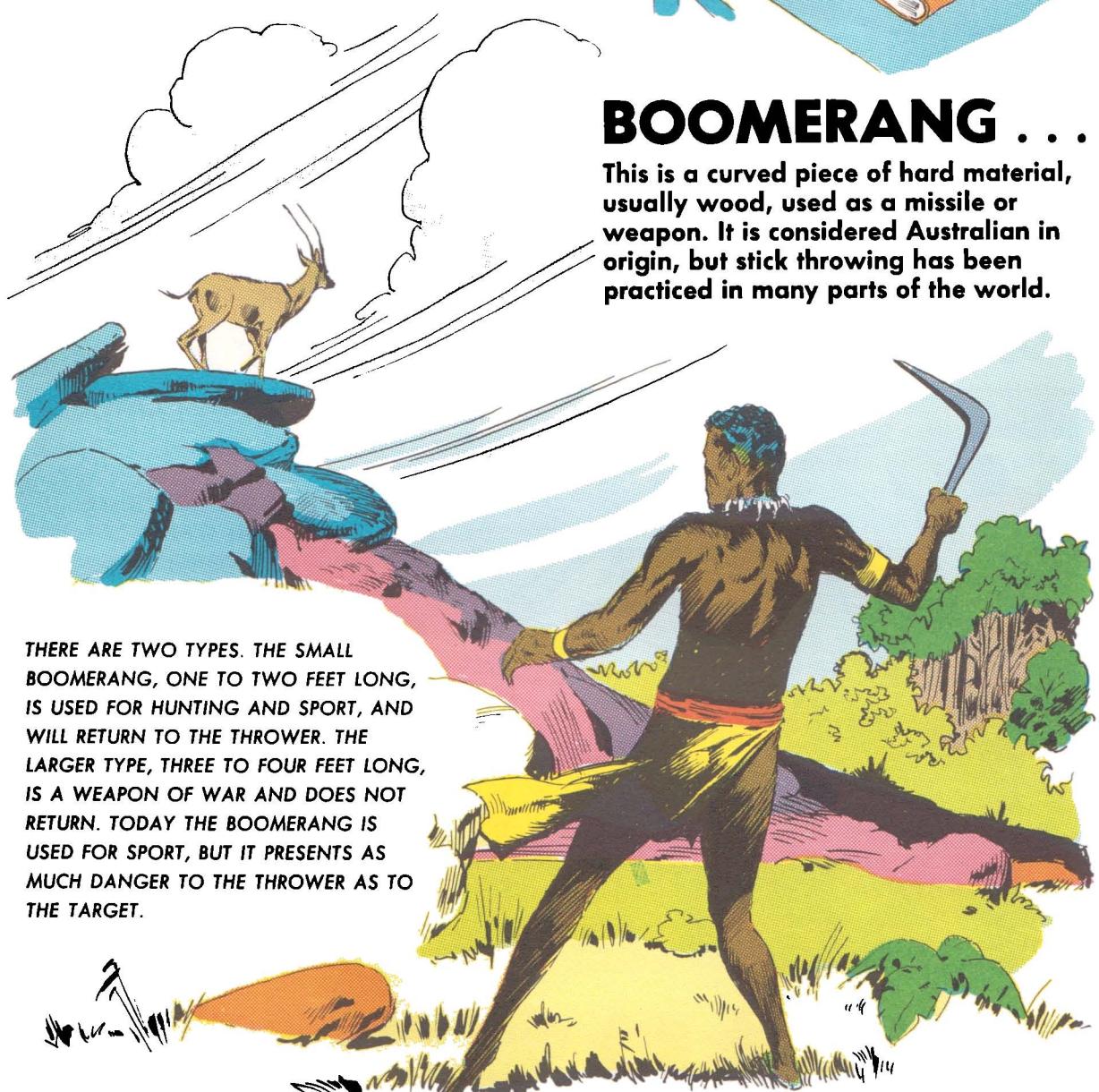
BOOKBINDING . . .

This consists of sewing together leaves of paper into small groups, combining the groups with tape, and then sewing or glueing on a cover. Today much of this process is done by machines, but hand work is considered superior. **BOOKBINDING** began when protection was desired for written materials. Egyptians used wooden covers to protect parchment sheets. In the Middle Ages, when books were scarce, great attention was given to the binding. Some covers, tooled with gold and even inlaid with jewels, are of great beauty.



BOOMERANG . . .

This is a curved piece of hard material, usually wood, used as a missile or weapon. It is considered Australian in origin, but stick throwing has been practiced in many parts of the world.

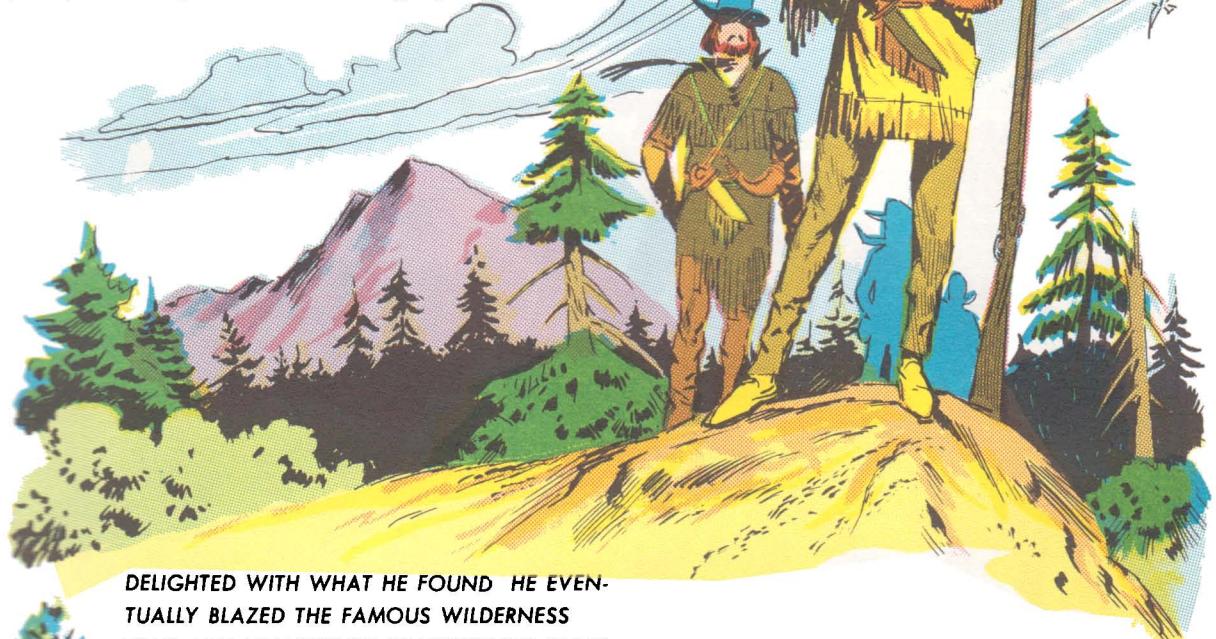


THERE ARE TWO TYPES. THE SMALL BOOMERANG, ONE TO TWO FEET LONG, IS USED FOR HUNTING AND SPORT, AND WILL RETURN TO THE THROWER. THE LARGER TYPE, THREE TO FOUR FEET LONG, IS A WEAPON OF WAR AND DOES NOT RETURN. TODAY THE BOOMERANG IS USED FOR SPORT, BUT IT PRESENTS AS MUCH DANGER TO THE THROWER AS TO THE TARGET.

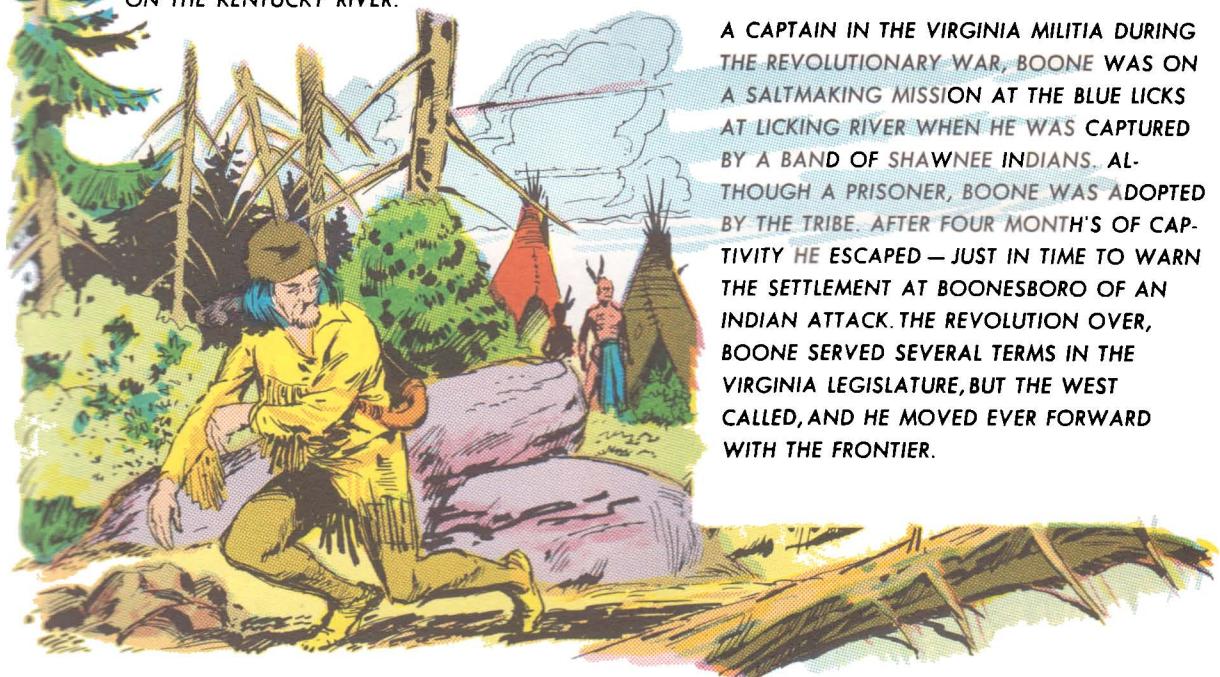
BOONE, DANIEL . . .

DANIEL BOONE (born 1734-died 1820) was an American frontiersman and pioneer.

BOONE was by occupation a farmer, but he appears to have spent more time in hunting and fishing than in tilling the soil. One of his hunting trips brought him to the region of present day Kentucky. He returned to the region two years later (1769) with a small party and explored it thoroughly.



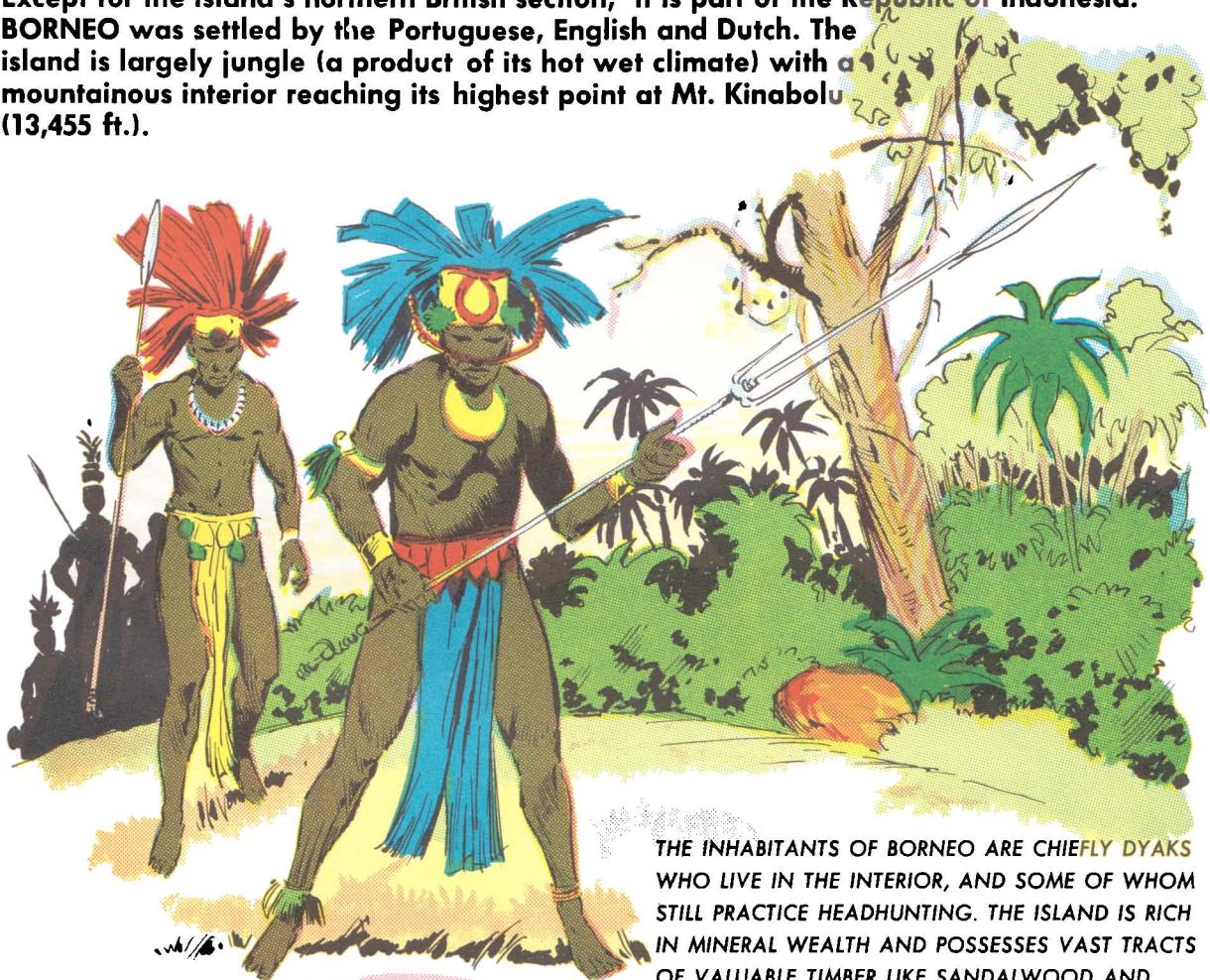
DELIGHTED WITH WHAT HE FOUND HE EVENTUALLY BLAZED THE FAMOUS WILDERNESS TRAIL AND ESTABLISHED BOONESBORO (1775) ON THE KENTUCKY RIVER.



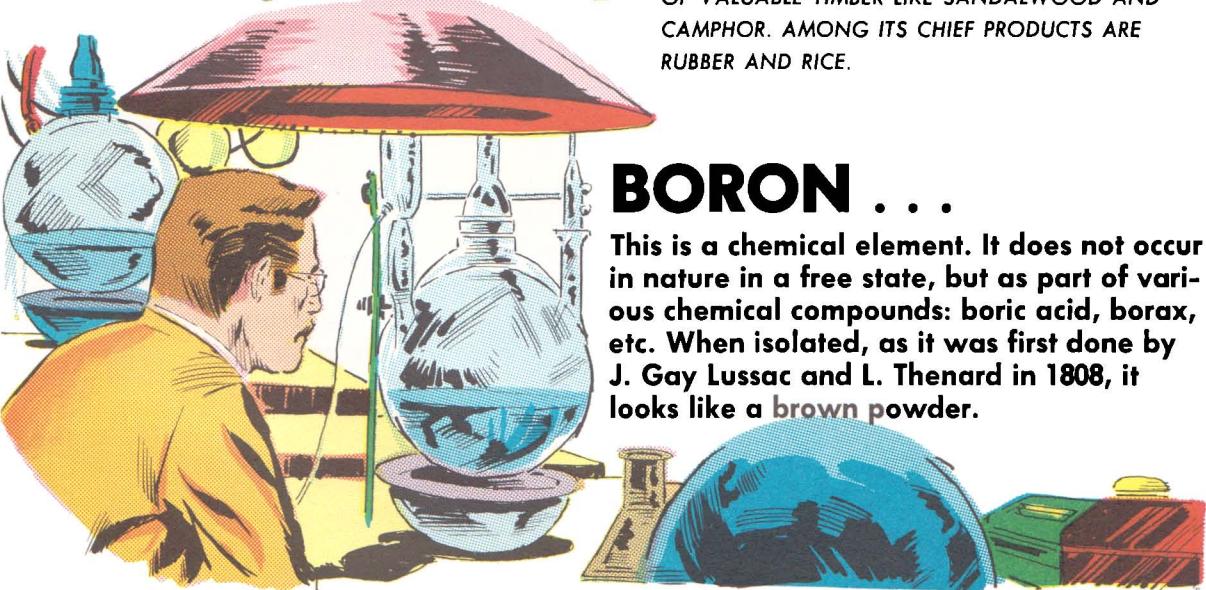
A CAPTAIN IN THE VIRGINIA MILITIA DURING THE REVOLUTIONARY WAR, BOONE WAS ON A SALTMAKING MISSION AT THE BLUE LICKS AT LICKING RIVER WHEN HE WAS CAPTURED BY A BAND OF SHAWNEE INDIANS. ALTHOUGH A PRISONER, BOONE WAS ADOPTED BY THE TRIBE. AFTER FOUR MONTH'S OF CAPTIVITY HE ESCAPED — JUST IN TIME TO WARN THE SETTLEMENT AT BOONESBORO OF AN INDIAN ATTACK. THE REVOLUTION OVER, BOONE SERVED SEVERAL TERMS IN THE VIRGINIA LEGISLATURE, BUT THE WEST CALLED, AND HE MOVED EVER FORWARD WITH THE FRONTIER.

BORNEO . . .

BORNEO is the third largest island in the world. It covers an area of about 290,000 square miles and has a population of over 3,000,000. It lies between Asia and Australia. Except for the island's northern British section, it is part of the Republic of Indonesia. BORNEO was settled by the Portuguese, English and Dutch. The island is largely jungle (a product of its hot wet climate) with a mountainous interior reaching its highest point at Mt. Kinabalu (13,455 ft.).



THE INHABITANTS OF BORNEO ARE CHIEFLY DYAKS WHO LIVE IN THE INTERIOR, AND SOME OF WHOM STILL PRACTICE HEADHUNTING. THE ISLAND IS RICH IN MINERAL WEALTH AND POSSESSES VAST TRACTS OF VALUABLE TIMBER LIKE SANDALWOOD AND CAMPHOR. AMONG ITS CHIEF PRODUCTS ARE RUBBER AND RICE.

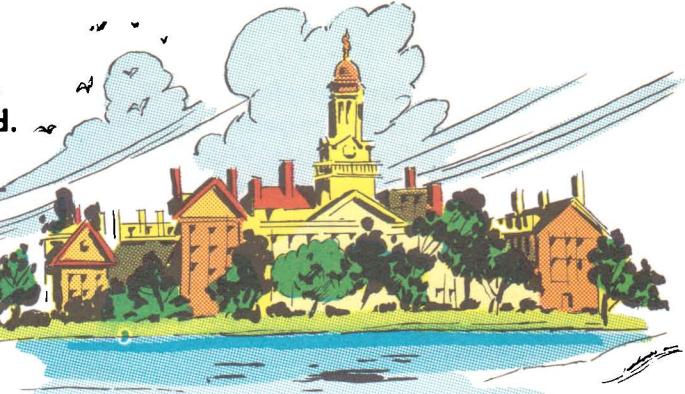


BORON . . .

This is a chemical element. It does not occur in nature in a free state, but as part of various chemical compounds: boric acid, borax, etc. When isolated, as it was first done by J. Gay Lussac and L. Thenard in 1808, it looks like a brown powder.

BOSTON . . .

BOSTON, the capital city of Massachusetts, is the largest city in New England. It was founded in 1630 by John Winthrop as the main colony of the Massachusetts Bay Company. If any place is entitled to be called the "Cradle of American Liberty" it is BOSTON. It was here that the opposition to the measures imposed on the colonies by England began. It was the home of many people and the scene of many events associated with American history: Samuel Adams, John Hancock, Paul Revere, The Boston Massacre, the Boston Tea Party, Bunker Hill.



FROM 1830 TO 1860 BOSTON WAS REGARDED AS THE CENTER OF THE ANTI-SLAVERY AND OTHER REFORM MOVEMENTS. BOSTON IS A SEAT OF AMERICAN CULTURE. ITS UNIVERSITIES, LIBRARIES, ART GALLERIES AND MUSICAL INSTITUTIONS ARE FAMOUS THROUGHOUT THE WORLD.



BOSTON TEA PARTY . . .

Colonists protested for many years the right of England to tax them. In December, 1773, three ships laden with taxed tea entered Boston Harbor. Aroused citizens led by Samuel Adams, Paul Revere, and others, disguised themselves as Mohawk Indians and emptied the cargo into the harbor.

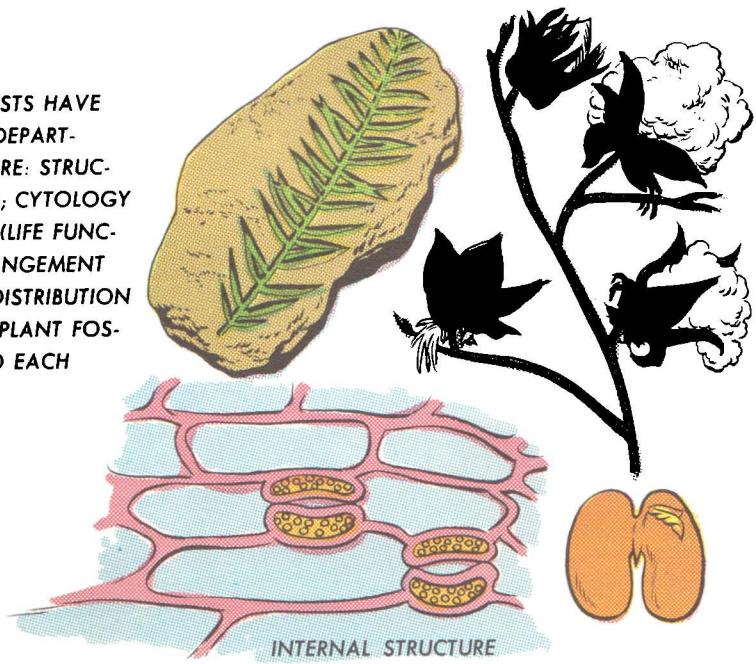
BOTANY . . .

This is the scientific study of plant life. It includes everything in the vegetable family whether living or in fossil state. Plants, which cover the globe, have attracted man from earliest times, and his major concern with them has been their use as food. The Egyptians and Greeks were early botanists although some of their theories concerned plants changing into animals.



MAN WAS EQUALLY CONCERNED WITH THE MEDICINAL PROPERTIES OF PLANTS, AND AS EARLY AS 300 B.C. WRITTEN WORKS EXISTED WHICH LISTED PLANTS AND THEIR USES AS MEDICINES.

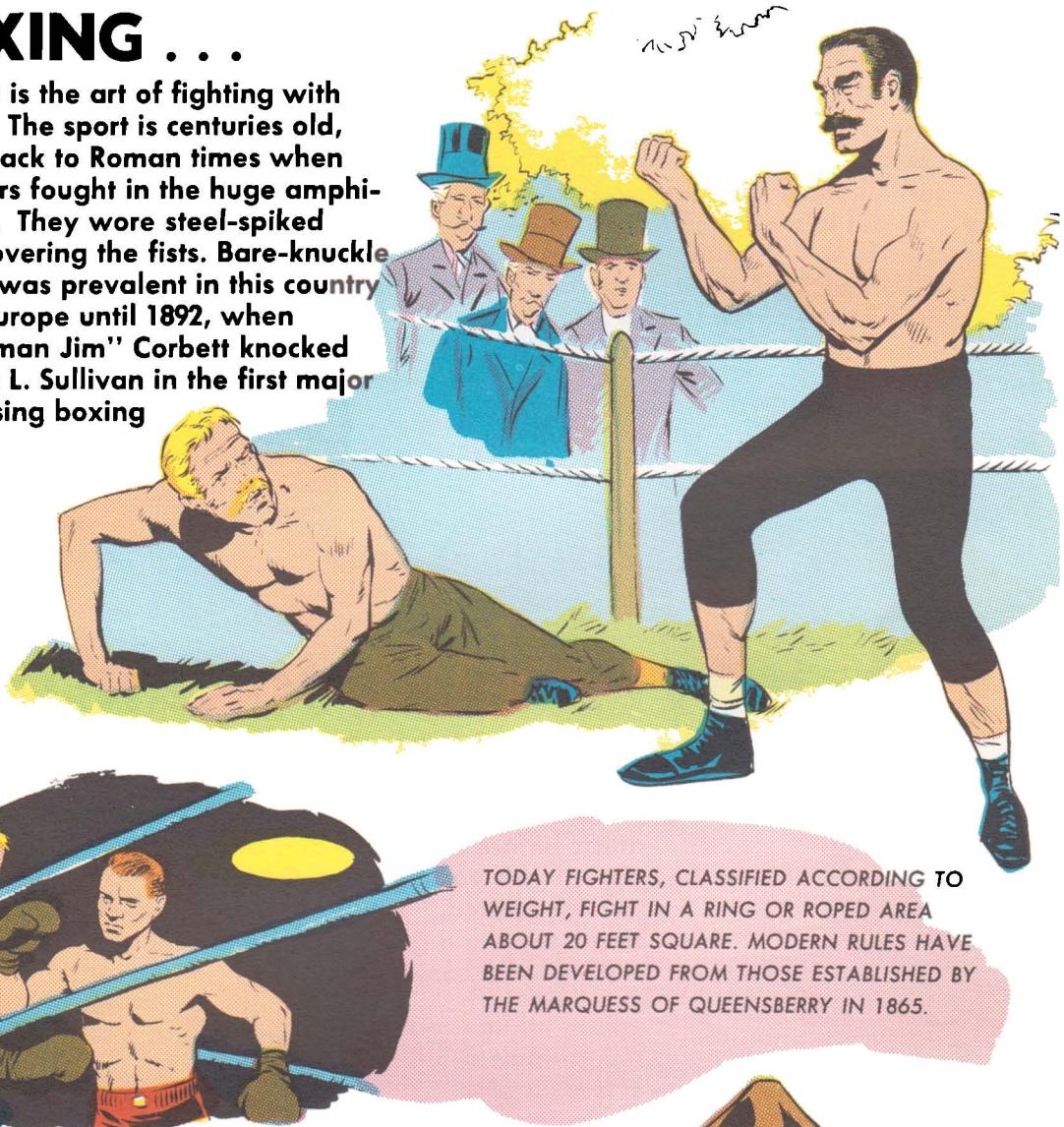
THIS SCIENCE IS SO BROAD THAT BOTANISTS HAVE HAD TO BREAK IT DOWN INTO SEVERAL DEPARTMENTS OF STUDY. THESE DEPARTMENTS ARE: STRUCTURAL (FORM AND STRUCTURE OF PLANTS); CYTOLOGY (THE INTERNAL STRUCTURE); PHYSIOLOGY (LIFE FUNCTIONS AND ORGANS); SYSTEMATIC (ARRANGEMENT AND CLASSIFICATION); GEOGRAPHICAL (DISTRIBUTION OF PLANTS); PALEONTOLOGY (STUDY OF PLANT FOSSILS); ECOLOGY (RELATION OF PLANTS TO EACH OTHER AND THEIR ENVIRONMENT).



INTERNAL STRUCTURE

BOXING . . .

BOXING is the art of fighting with the fists. The sport is centuries old, dating back to Roman times when gladiators fought in the huge amphitheatres. They wore steel-spiked bands covering the fists. Bare-knuckle fighting was prevalent in this country and in Europe until 1892, when "Gentleman Jim" Corbett knocked out John L. Sullivan in the first major match using boxing gloves.



TODAY FIGHTERS, CLASSIFIED ACCORDING TO WEIGHT, FIGHT IN A RING OR ROPED AREA ABOUT 20 FEET SQUARE. MODERN RULES HAVE BEEN DEVELOPED FROM THOSE ESTABLISHED BY THE MARQUESS OF QUEENSBERRY IN 1865.

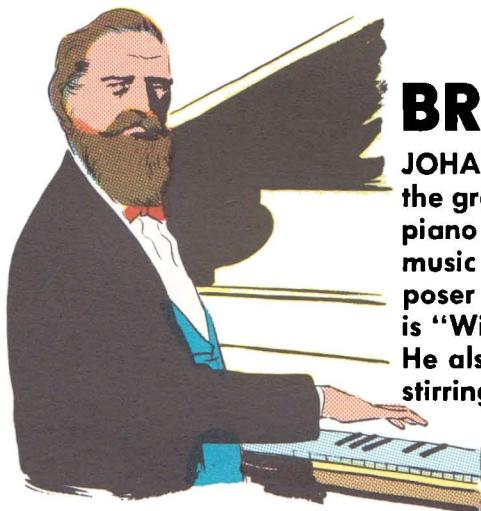
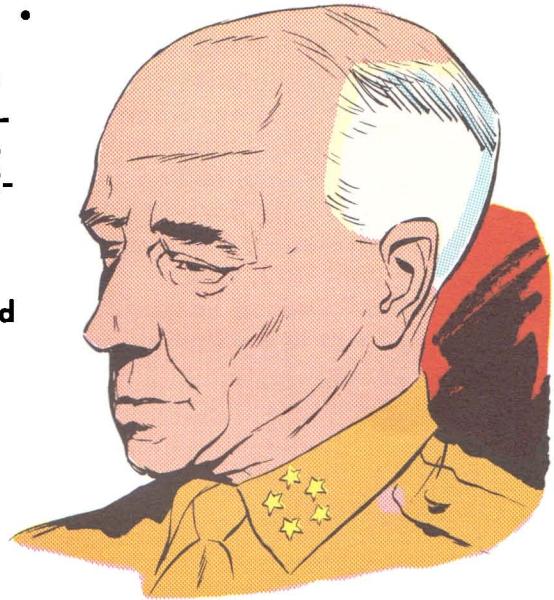
BOY SCOUTS . . .

This is an organization of boys between the ages of 12 and 19. Founded in 1908 by Sir Robert Baden-Powell in England, it was adopted in the U.S. two years later by Daniel Beard. The movement, now world-wide, stresses the physical, mental and moral development of its members. The unit of organization is the troop which is subdivided into patrols. The community services of the BOY SCOUTS, from clean-up campaigns to safety education, are well-known to all.



BRADLEY, OMAR . . .

OMAR BRADLEY was a four-star general in charge of the U. S. 1st Army in the invasion of Europe during World War II. More than 1,300,000 men served under his command. After the war, he was put in charge of the Veterans Administration. He was then made chairman of the Joint Chiefs of Staff, the top command of all the armed forces of the United States. He resigned from that position in 1953, and retired from the Army.

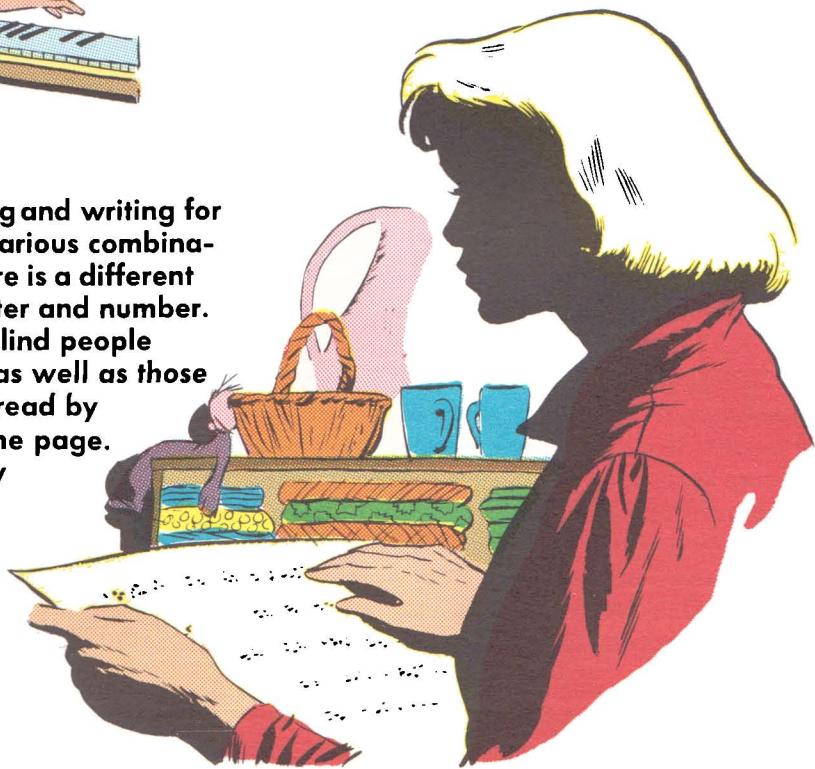


BRAHMS, JOHANNES

JOHANNES BRAHMS (born 1833-died 1897) was one of the greatest of German composers. Brahms played the piano at concerts at the age of 13. He began writing music before he was 20 and became a well-known composer in his early thirties. One of his best-loved songs is "Wiegenlied." You may know it as "Brahms Lullaby." He also wrote a group of Hungarian dances and four stirring symphonies.

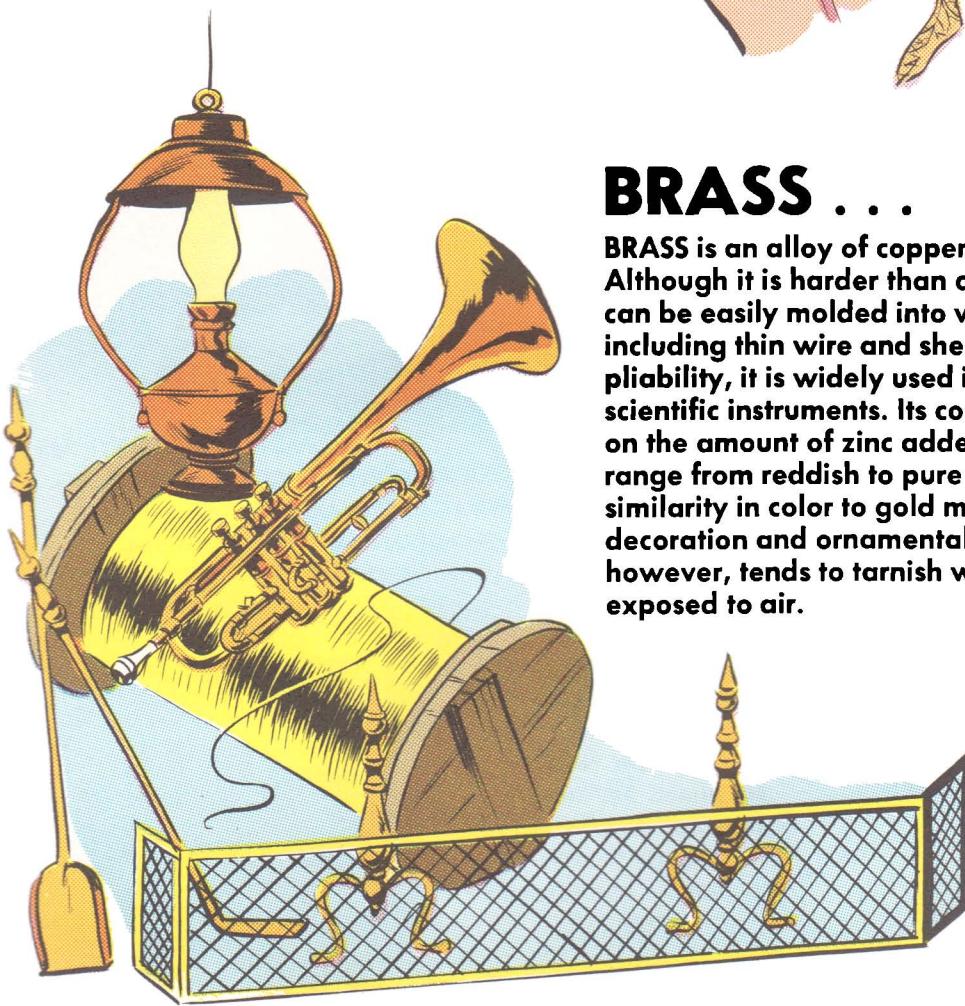
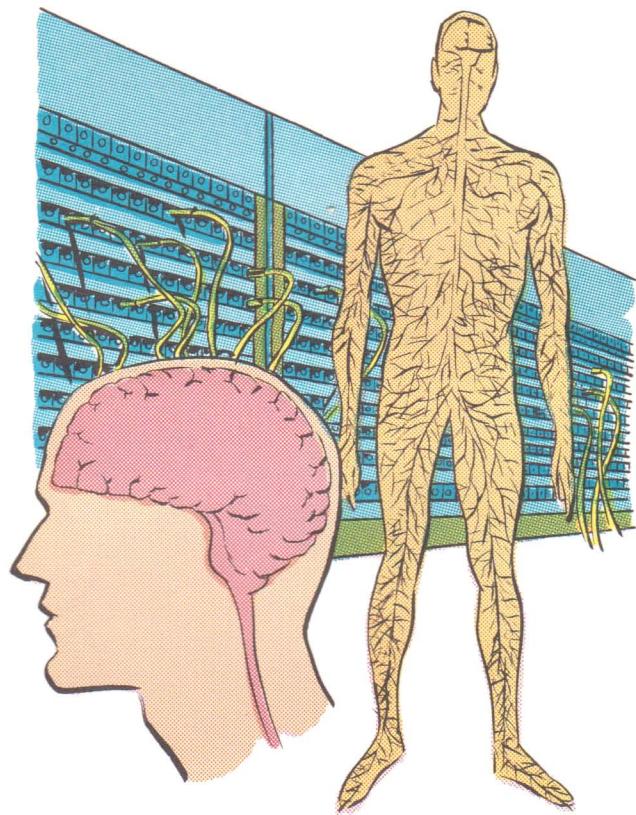
BRAILLE . . .

This is the system of printing and writing for the blind. It consists of 63 various combinations of six raised dots. There is a different pattern of dots for each letter and number. With the BRAILLE system, blind people can read and write almost as well as those who can see. Blind people read by running their fingers over the page. They write by punching tiny holes in paper which is stretched across a special frame. The inventor of this system was Louis BRAILLE, blind himself from early childhood.



BRAIN . . .

The **BRAIN** is a mass of nerve tissues contained within the upper region of the skull. It is divided into three parts: the cerebrum, controlling voluntary processes; the cerebellum, controlling balance and coordination; and the medulla oblongata, pathway from the **BRAIN** to the spinal cord. The **BRAIN** has been likened to a telephone center or switchboard. Here messages are received from the various parts of the body, and relayed back to those areas.

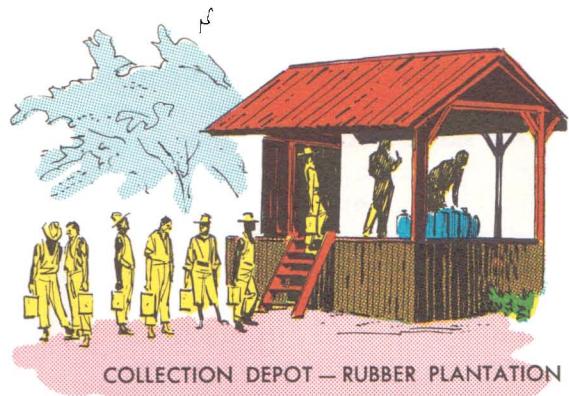


BRASS . . .

BRASS is an alloy of copper and zinc. Although it is harder than copper alone, it can be easily molded into various shapes including thin wire and sheets. Because of its pliability, it is widely used in machines and scientific instruments. Its colors, depending on the amount of zinc added to the copper, range from reddish to pure yellow. Its similarity in color to gold makes it ideal for decoration and ornamental objects. **BRASS**, however, tends to tarnish when exposed to air.

BRAZIL . . .

This republic is the largest country in South America. It covers an area of 3,288,050 square miles. It is bounded on the east by the Atlantic Ocean; on the north by the Guianas, Venezuela and Colombia; on the west and south by Peru, Bolivia, Paraguay, Argentina and Uruguay. The country has three natural divisions. The Amazon basin in the north is characterized by forest-covered plains and miles of navigable streams. Rubber is the principal product.



COLLECTION DEPOT — RUBBER PLANTATION

THE LA PLATA BASIN IN THE SOUTH IS CHARACTERIZED BY LOW PLAINS OR PAMPAS, COVERED WITH GRASS OR SCRUB.

THE CLIMATE IS LESS TROPICAL THAN THAT OF THE AMAZON BASIN. CATTLE RAISING AND AGRICULTURE ARE THE CHIEF OCCUPATIONS.

EXTENSIVE PASTURELANDS SUPPORT LARGE HERDS OF CATTLE, ONE OF BRAZIL'S MAIN SOURCES OF WEALTH.



RIO DE JANEIRO

THE PRINCIPAL FOOD PRODUCTS ARE SUGAR, COFFEE, COCOA, RICE, TOBACCO, MAIZE, WHEAT, CASSAVA, BEANS AND BANANAS.

OTHER PRODUCTS ARE DYEWOODS AND CABINET WOODS, BRAZIL NUTS, COCONUTS AND INDIAN RUBBER. BRAZIL PRODUCES MORE COFFEE THAN THE REST OF THE WORLD COMBINED.

THE POPULATION CONSISTS OF WHITES, INDIANS AND NEGROES, THOUGH THE NATIVE BRAZILIANS ARE MOSTLY PORTUGUESE DESCENDANTS. THE LANGUAGE SPOKEN THROUGHOUT THE COUNTRY IS PORTUGUESE.



BREAD . . .

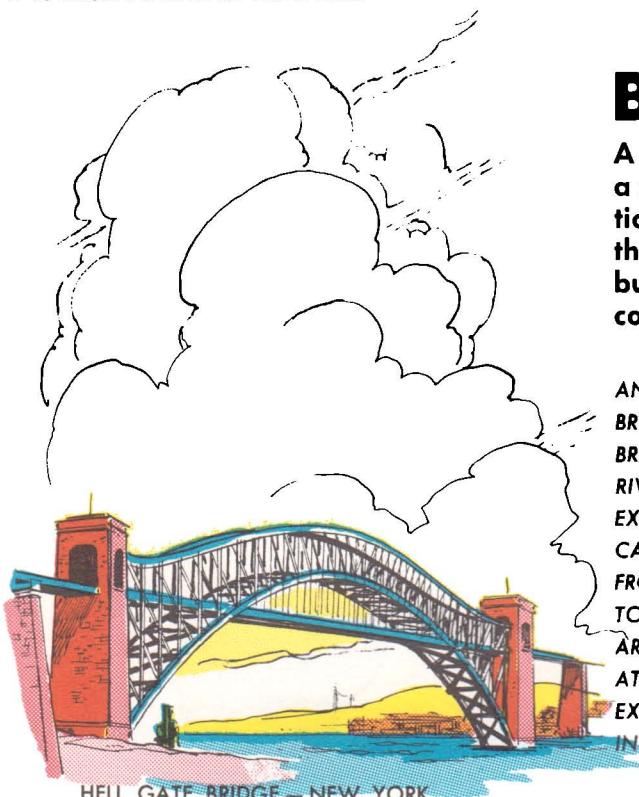
BREAD is the product of grain meal, kneaded into a paste and baked. Leavened **BREAD** is produced by allowing a mixture of water, yeast and flour to ferment. After several hours, warm water and flour are added and kneaded into a stiff dough. It is kept in a warm place where the fermentation produces swelling, and it is then baked in an oven.



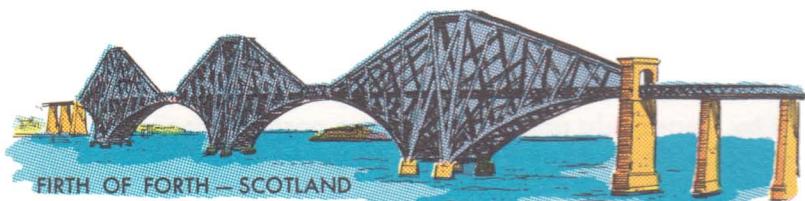
BRIDGE . . .

A BRIDGE is a structure designed to span a river, ravine or some surface obstruction. The arch **BRIDGES** were first used by the Romans. They were made of stone, but steel and concrete are now the most common materials used.

AN EXAMPLE OF THE ARCH TYPE IS THE HELLGATE BRIDGE IN NEW YORK. FOR WIDE RIVERS, THE TRUSS BRIDGE IS USED. THIS HAS PIERS EMBEDDED IN THE RIVER AND PLATFORMS PLACED ON THE PIERS. AN EXAMPLE IS THE TRIBORO BRIDGE IN NEW YORK. THE CANTILEVER BRIDGE IS MADE BY EXTENDING ARMS FROM PIERS SET OUT AWAY FROM EITHER SHORE, ONE TOWARD THE SHORE AND ONE OVER THE WATER. THESE ARMS ARE PERFECTLY BALANCED AND THE RIVER ARM IS ATTACHED IN THE CENTER TO A SINGLE TRUSS. AN EXAMPLE IS THE BRIDGE ACROSS THE FIRTH OF FORTH IN SCOTLAND.

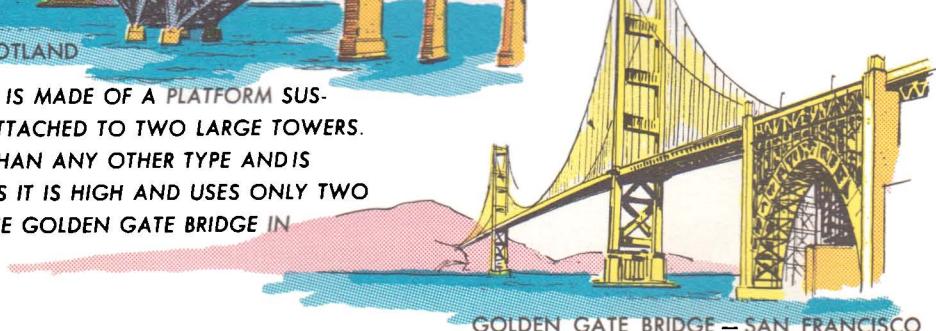


HELL GATE BRIDGE — NEW YORK



FIRTH OF FORTH — SCOTLAND

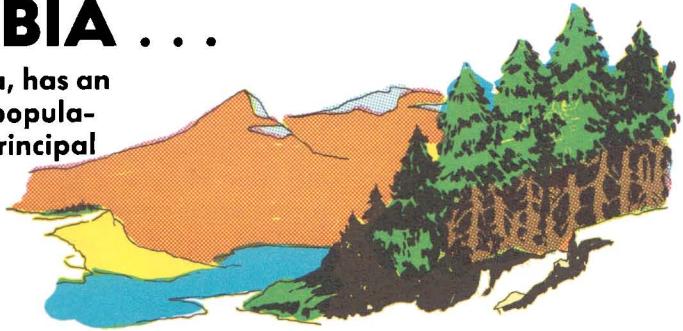
THE SUSPENSION BRIDGE IS MADE OF A PLATFORM SUSPENDED FROM CABLES ATTACHED TO TWO LARGE TOWERS. IT CAN REACH FURTHER THAN ANY OTHER TYPE AND IS SAFEST FOR SHIPPING, AS IT IS HIGH AND USES ONLY TWO PIERS. AN EXAMPLE IS THE GOLDEN GATE BRIDGE IN CALIFORNIA.



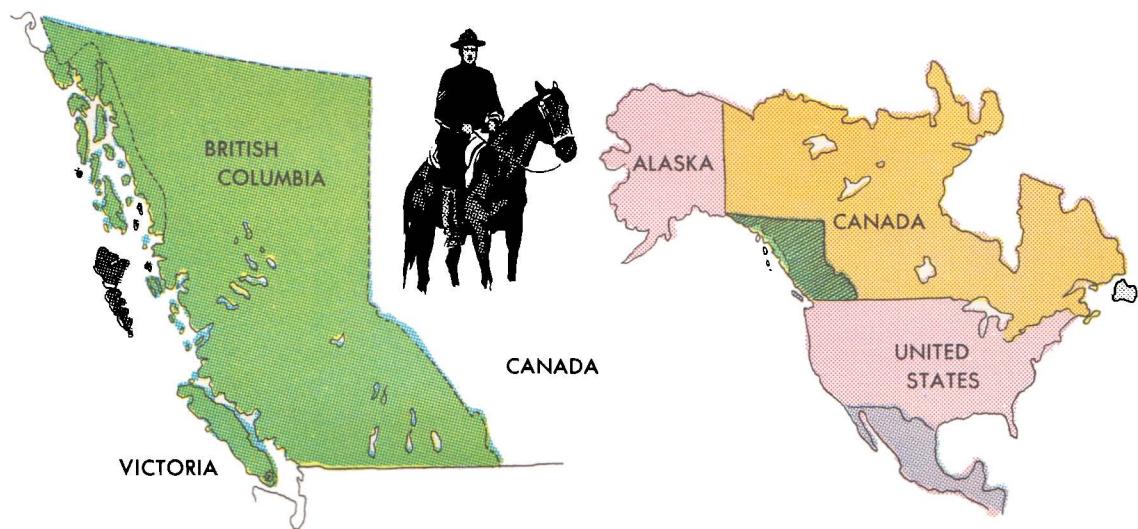
GOLDEN GATE BRIDGE — SAN FRANCISCO

BRITISH COLUMBIA . . .

This most westerly province of Canada, has an area of 366,255 square miles. It has a population of approximately 1,160,000. The principal mountain ranges are the Coast, Island and Rockies. The chief rivers are the Columbia, Fraser and Skeena.

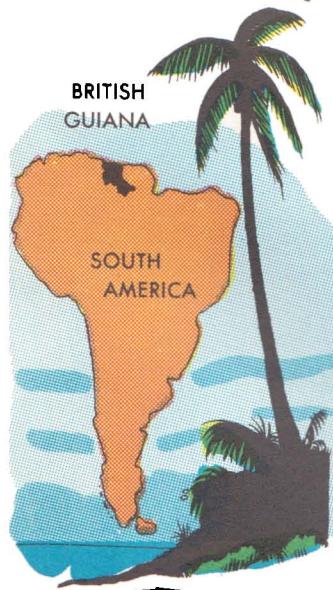


BETWEEN THE MOUNTAIN RANGES ARE FINE FARMS AND GRAZING LANDS ON WHICH ARE GROWN FRUITS, WHEAT, AND CEREAL GRAINS. THE RAISING OF LIVESTOCK, AND DAIRY AND POULTRY FARMING CONTRIBUTE TO THE VALUE OF THE COMMONWEALTH. FISHING, LOGGING, AND WHALING ARE VERY IMPORTANT INDUSTRIES OF BRITISH COLUMBIA. HOWEVER, ITS GREATEST WEALTH IS DERIVED FROM ITS MINERAL RESOURCES. COPPER, COAL, GOLD, SILVER, LEAD AND ZINC ARE MINED IN COMMERCIAL QUANTITIES. THE CAPITAL OF THIS PROVINCE IS VICTORIA LOCATED ON VANCOUVER ISLAND.



BRITISH GUIANA . . .

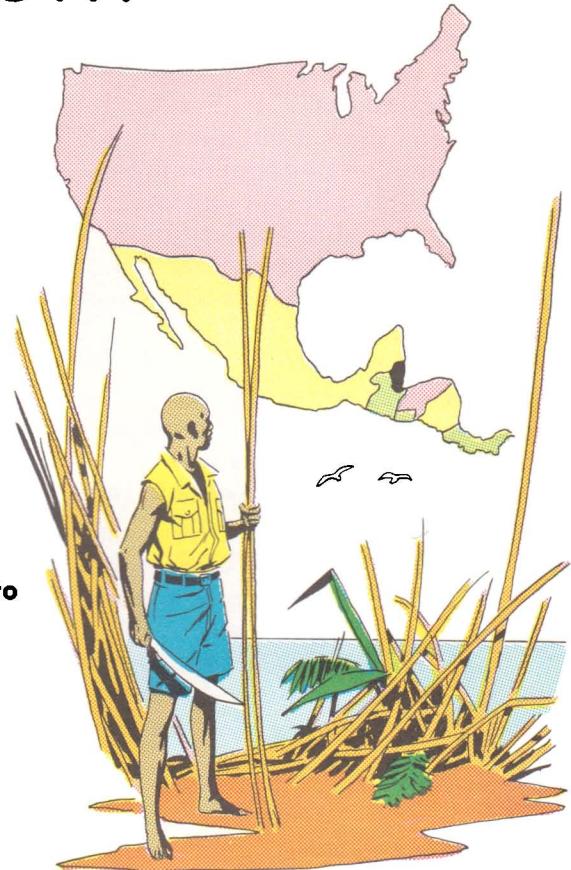
BRITISH GUIANA is located in the northern part of South America. It is bounded on the east by Dutch Guiana, on the west by Venezuela and Brazil, on the north by the Atlantic Ocean, and on the south by Brazil.



THE COASTAL SECTION IS MUD BANKS AND SHALLOWS AND ONE FOOT BELOW SEA LEVEL WHEN DRAINED. AGRICULTURE IS CONFINED TO THIS REGION, AS IT IS WELL SUITED FOR GROWING SUGAR CANE. INLAND, THE HIGHEST MOUNTAIN IS BORAIMA, REACHING 8,600 FEET. THE MOST VALUABLE MINERAL MINED IS GOLD. HOWEVER, DIAMONDS ARE ALSO FOUND HERE

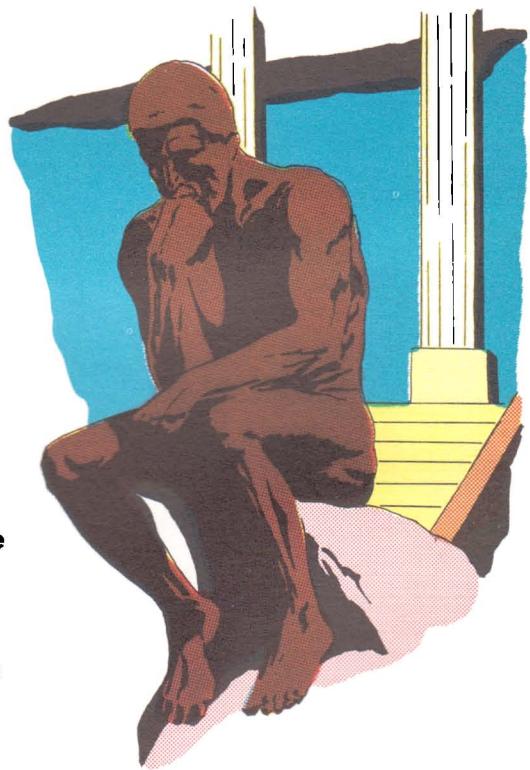
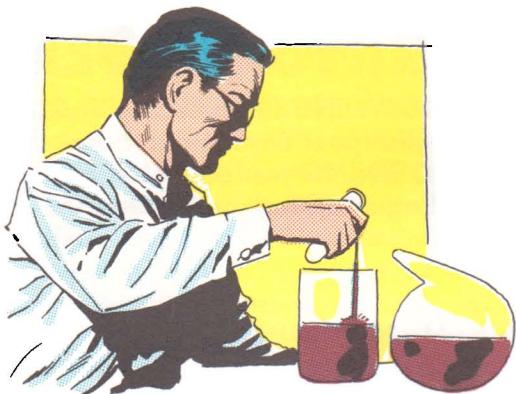
BRITISH HONDURAS . . .

BRITISH HONDURAS is located in Central America. It has a low and swampy coast, but becomes higher, almost mountainous, in the interior. These mountains and the wide valleys between them are full of timber, sugar cane, coffee, tobacco, bananas, and coco-nuts. The capital is Belize. The population of BRITISH HONDURAS is approximately 73,000.



BROMINE . . .

BROMINE is a non-metallic element with the symbol, Br. Its chemical properties are similar to those of chlorine and iodine. At ordinary temperatures it is a dark reddish liquid with a suffocating odor and is extremely poisonous. BROMINE is found in very small quantities in sea water, ashes of marine plants and in animals. It is used medicinally as a sedative in the form of potassium bromide, and is useful in photography in the form of silver bromide.

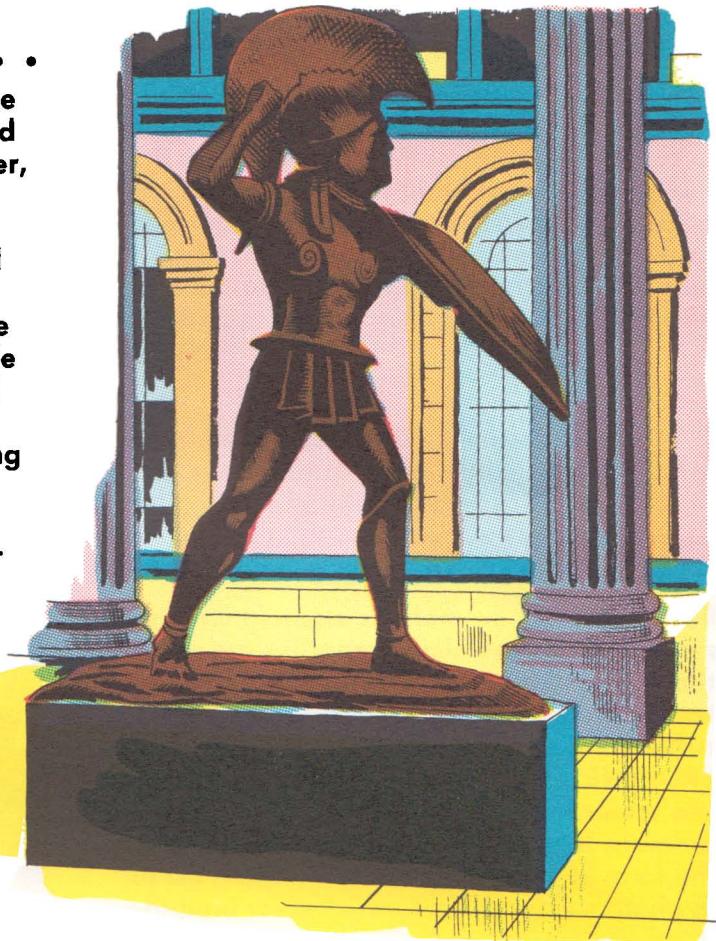


BRONZE . . .

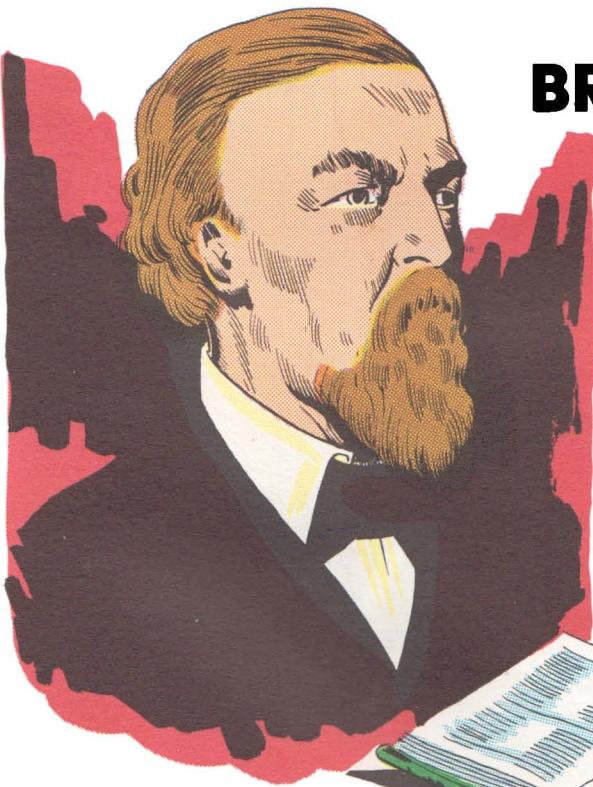
BRONZE is an alloy of copper and tin to which other metallic substances, principally zinc, may be added. It is used in making casts of all kinds, medals, statues, and other works of art, bells, gongs, etc. BRONZE is reddish brown in color and takes on a high luster when polished. Varying the proportions of copper, tin, and zinc changes the hardness and elasticity of the alloy.

BRONZE AGE . . .

This was the last great age before the Iron Age. It was found that tin mixed with copper makes BRONZE, a harder, tougher metal than copper. No definite dates can be given for the BRONZE AGE as it began and ended very slowly and lasted different lengths of time in various parts of the world. It played a very important role in the development of art. The metal is so flexible that much time was spent by ancient artisans in decorating nearly everything they made with BRONZE. As BRONZE rusts slowly, archaeologists have been able to remove corrosion and restore the original beauty of thousands of pieces of ancient art.

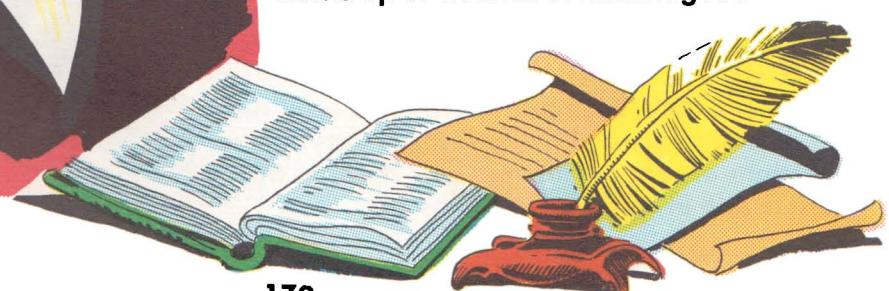


BROWNING, ROBERT



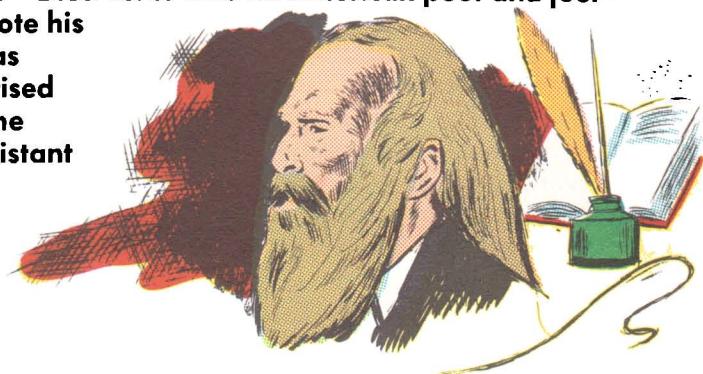
ROBERT BROWNING (Born 1812—Died 1889) was an English poet born in Camberwell, Surrey. BROWNING was educated at University College, London, and married Elizabeth Barrett in 1846. He lived mostly in Italy where he studied its early history and its people. His first poem "Pauline," was published in 1833.

Some of his better-known works include "Pied Piper of Hamelin" and "How they Brought the Good News from Ghent to Aix." It is generally conceded that his masterpiece is "The Ring and the Book," a long poem made up of a series of monologues.



BRYANT, WILLIAM CULLEN . . .

WILLIAM CULLEN BRYANT (Born 1794—Died 1878) was an American poet and journalist. When only 18 years old, he wrote his famous poem, "Thanatopsis." He was admitted to the bar in 1815 and practised law until 1825 when he established the "New York Review." He became assistant editor of the "Evening Post" in 1826.

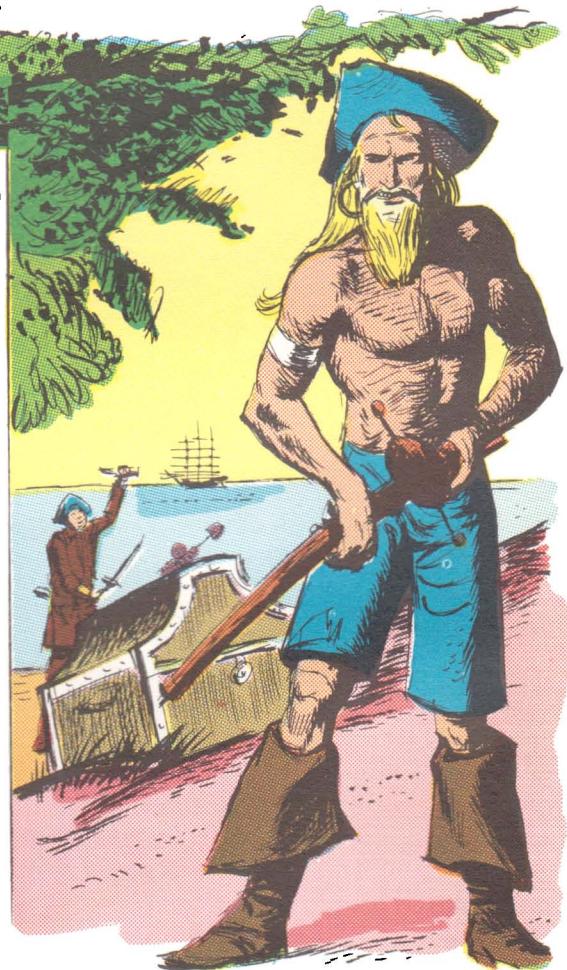


BUCCANEERS . . .

These were English and French seafarers who in 1625 united for defense against the Spaniards but finally became little better than pirates. They caused heavy losses in the Spanish shipping trade. Their chief leaders were Montbars, Peter the Great of Dieppe, L'Olannas, de Busco, Van Horn and Henry Morgan. Their last great exploit was the capture of Cartagena in 1697. When England and Spain made peace, and England began to fight France, the BUCCANEERS had to choose sides. Growing national navies made piracy more hazardous, and so the survivors of buccaneering deserted that trade and left only scenes of destruction as a mark of their reign of terror.

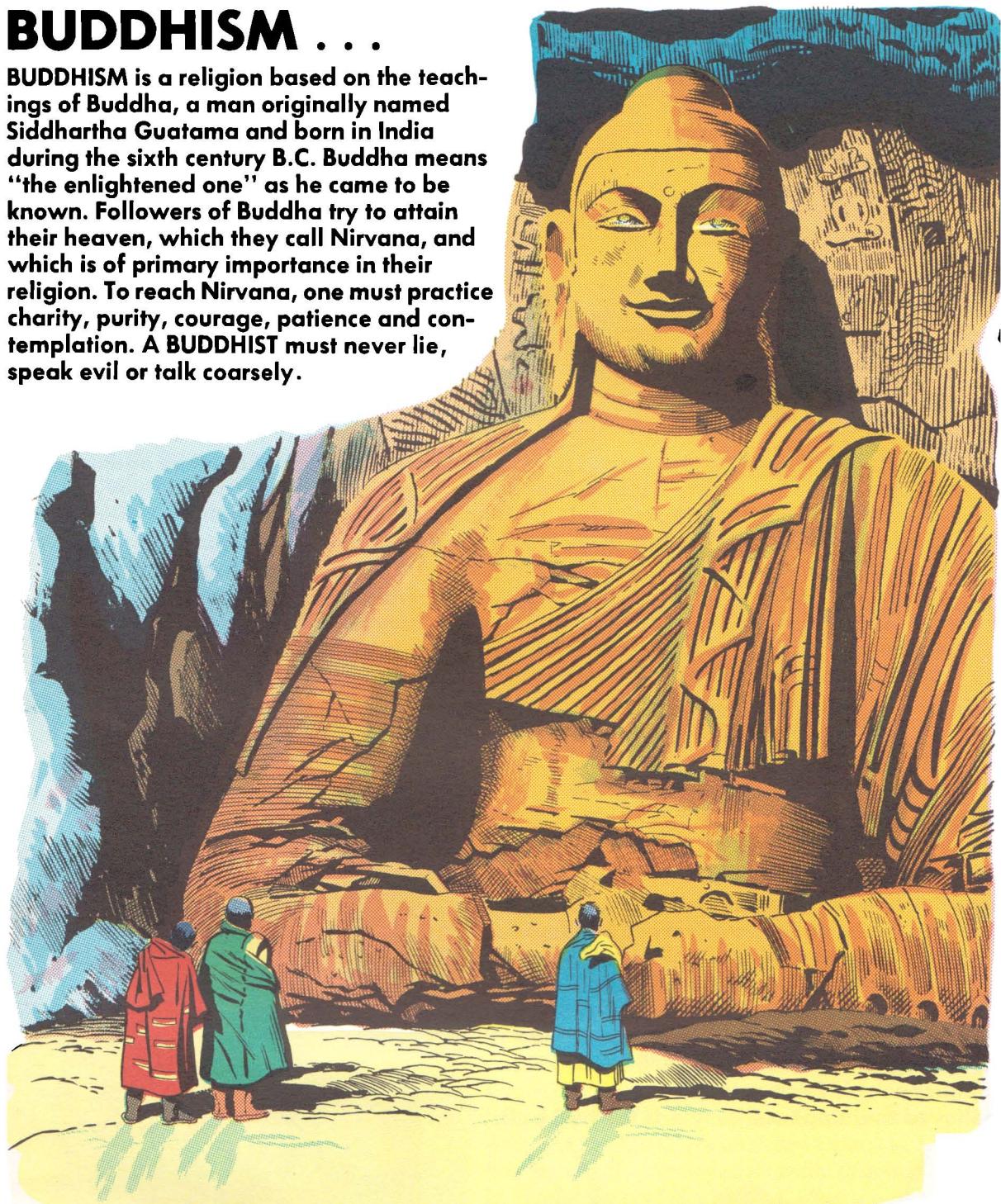
BUCHANAN, JAMES

JAMES BUCHANAN (Born 1791—Died 1868) was the 15th President of the United States. He was elected in 1857 and served one four-year term. He entered the White House during a critical period of our nation's history. Slavery was the burning question, and the states' threats of secession were close to becoming a reality. BUCHANAN, in his attempts to solve this very serious problem, believed that appeasement was the best policy.



BUDDHISM . . .

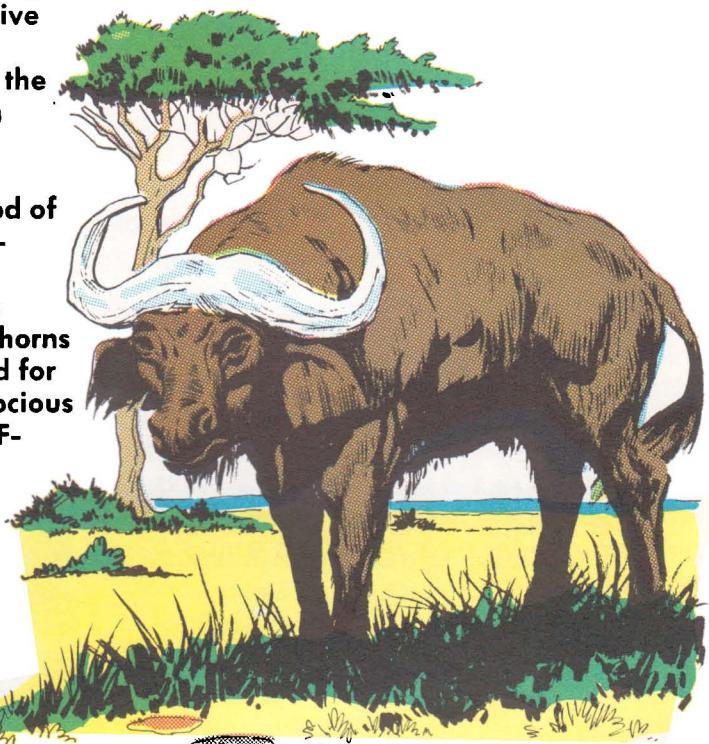
BUDDHISM is a religion based on the teachings of Buddha, a man originally named Siddhartha Guatama and born in India during the sixth century B.C. Buddha means "the enlightened one" as he came to be known. Followers of Buddha try to attain their heaven, which they call Nirvana, and which is of primary importance in their religion. To reach Nirvana, one must practice charity, purity, courage, patience and contemplation. A BUDDHIST must never lie, speak evil or talk coarsely.



MANY BUDDHIST IDEALS ARE EMBODIED IN THE CHRISTIAN FAITH, AND THEIR CARDINAL PRINCIPLES ARE VERY SIMILAR TO THE TEN COMMANDMENTS. ACCORDING TO THE TEACHINGS OF THE FAITH, WHEN A PERSON DIES, HIS SOUL WILL PASS TO ANOTHER BODY, SO A FISH OR A DOG CAN BECOME HUMAN. THE RELIGIOUS LAWS OF THIS FAITH WERE WRITTEN TWO CENTURIES BEFORE CHRIST, AND ARE FOUNDED ON THE WRITINGS OF THREE SEPARATE COUNCILS. BUDDHA HIMSELF DID NOT WRITE ANY OF THE LAWS. SOME BUDDHISTS NOW PRACTICE IDOLATRY. IT HAS NO PLACE IN THE PURE IDEALISM OF BUDDHA. THERE ARE APPROXIMATELY 165,000 BUDDHISTS IN NORTH AMERICA AND ABOUT 150,000,000 FOLLOWERS OF THIS RELIGION THROUGHOUT THE WORLD.

BUFFALO . . .

The true BUFFALO, or water BUFFALO, is a huge animal, seven to eight feet long and five to six feet high with a massive horned head. BUFFALOES are found along rivers and in marshy places in the warm parts of Asia. They have been domesticated for pulling cultivators through the mud in rice fields. The BUFFALO produces an important food of India, BUFFALO milk, which is sometimes made into "ghee," an almost liquid-type butter. The African Cape BUFFALO is smaller and has shorter horns than the water BUFFALO. It is hunted for its valuable hide and is the most ferocious of all BUFFALOES. The American BUFFALO is not a true BUFFALO but a bison. It was a valuable source of food, clothing and shelter to the Indians, but was hunted so relentlessly by both whites and Indians that it is now found only in government-protected areas such as national parks, forests and game preserves.

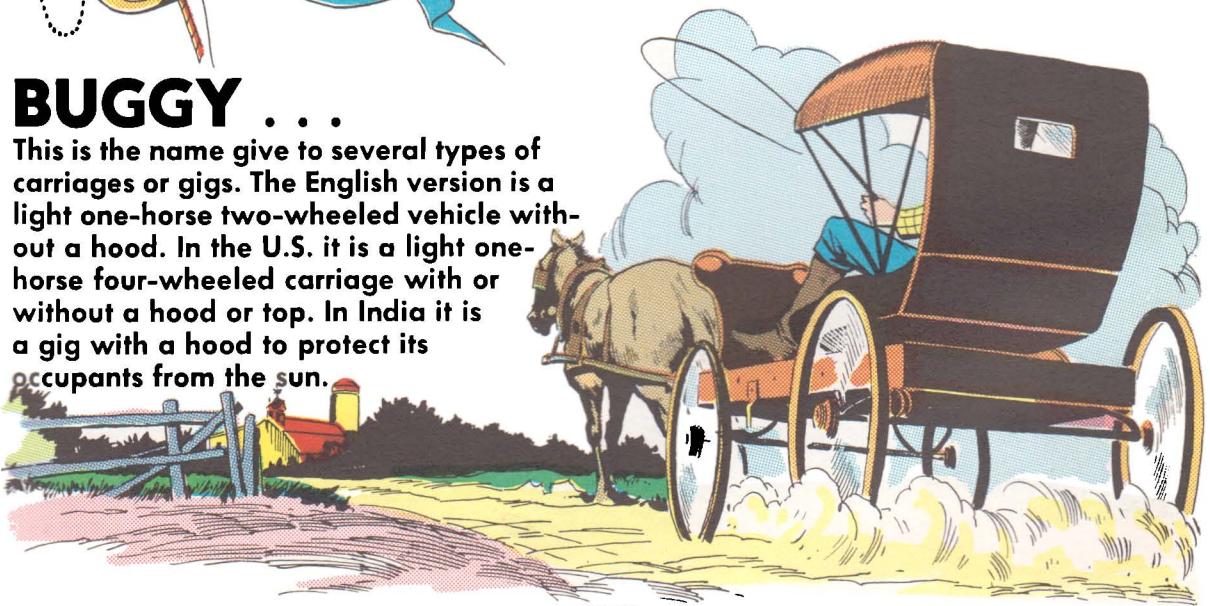


BUGLE . . .

The BUGLE is a musical brass wind-instrument of the horn type, sometimes having valves or keys. It is used in the armies of various nations for summoning soldiers to their various duties. Reveille, assembly and taps are well-known BUGLE calls.

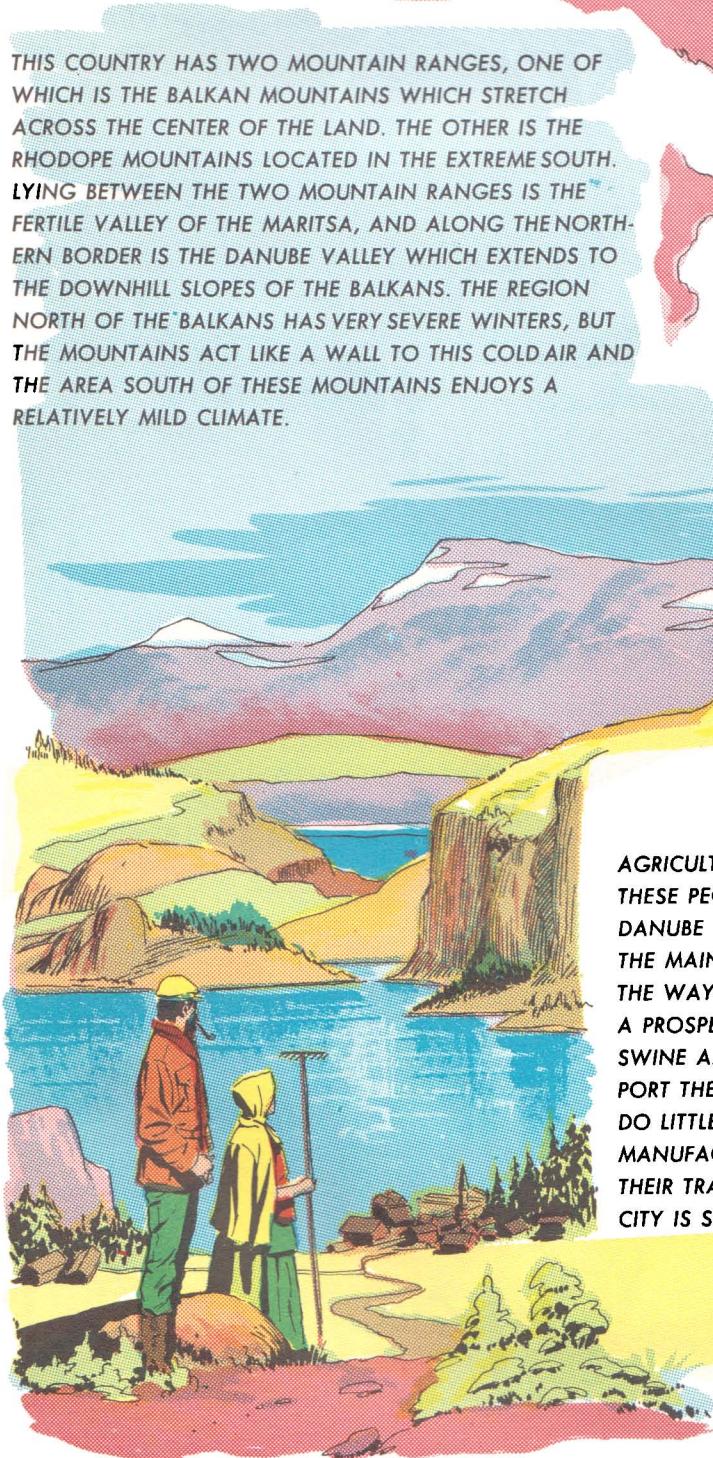
BUGGY . . .

This is the name given to several types of carriages or gigs. The English version is a light one-horse two-wheeled vehicle without a hood. In the U.S. it is a light one-horse four-wheeled carriage with or without a hood or top. In India it is a gig with a hood to protect its occupants from the sun.



BULGARIA . . .

BULGARIA is a communist-dominated republic in the Balkan region of Europe. It has a population of over 7,000,000 and an area of 42,796 square miles.



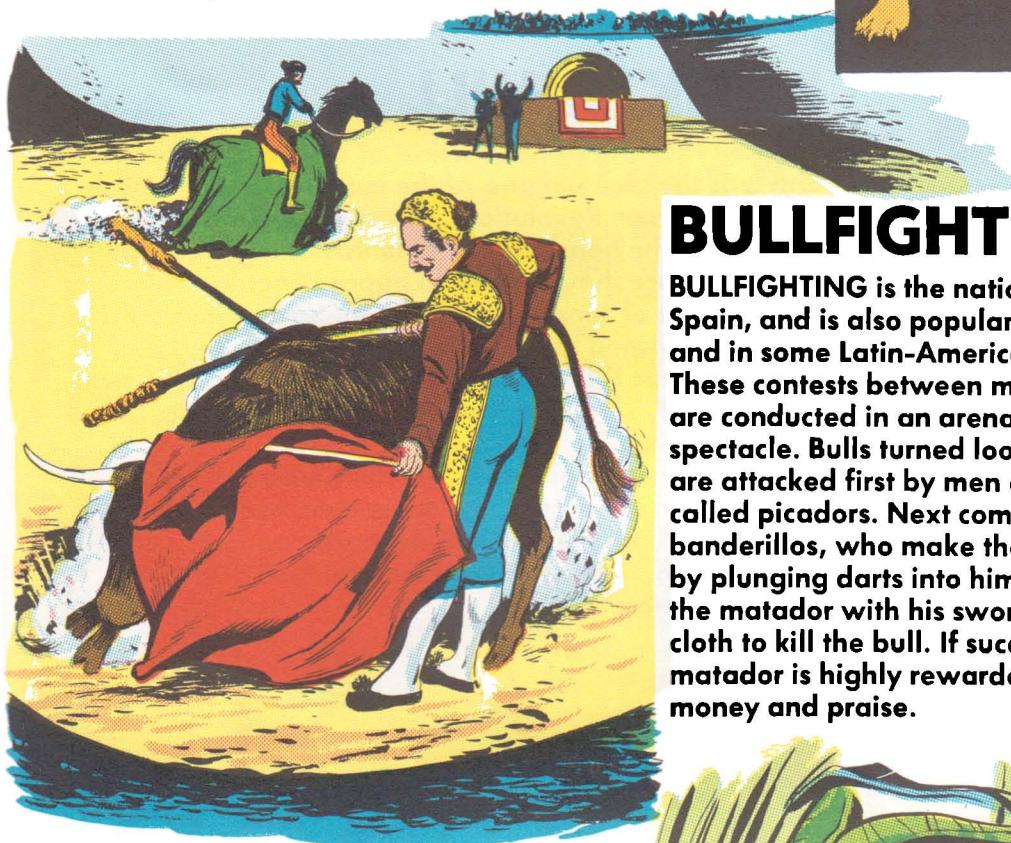
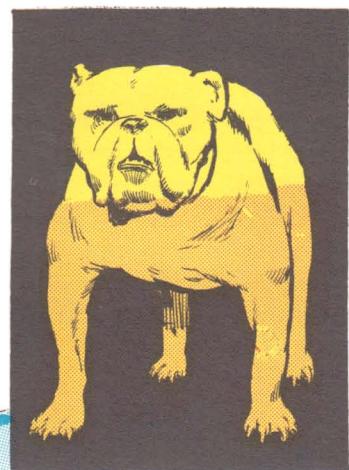
THIS COUNTRY HAS TWO MOUNTAIN RANGES, ONE OF WHICH IS THE BALKAN MOUNTAINS WHICH STRETCH ACROSS THE CENTER OF THE LAND. THE OTHER IS THE RHODEPO MOUNTAINS LOCATED IN THE EXTREME SOUTH. LYING BETWEEN THE TWO MOUNTAIN RANGES IS THE FERTILE VALLEY OF THE MARITSA, AND ALONG THE NORTHERN BORDER IS THE DANUBE VALLEY WHICH EXTENDS TO THE DOWNHILL SLOPES OF THE BALKANS. THE REGION NORTH OF THE BALKANS HAS VERY SEVERE WINTERS, BUT THE MOUNTAINS ACT LIKE A WALL TO THIS COLD AIR AND THE AREA SOUTH OF THESE MOUNTAINS ENJOYS A RELATIVELY MILD CLIMATE.



AGRICULTURE IS THE PRINCIPAL OCCUPATION OF THESE PEOPLE. THE BEST SOILS ARE FOUND IN THE DANUBE AND MARITSA VALLEYS. CEREAL GRAINS ARE THE MAIN CROPS WITH WHEAT AND CORN LEADING THE WAY. THE GROWING OF ROSES IS THE BASIS FOR A PROSPEROUS PERFUME TRADE. CATTLE, HORSES AND SWINE ARE BRED IN SUFFICIENT QUANTITIES TO EXPORT THE SKINS AND LIVE ANIMALS. THE BULGARIANS DO LITTLE MANUFACTURING AND IMPORT VARIOUS MANUFACTURED GOODS. THE GREATEST AMOUNT OF THEIR TRADE IS WITH CENTRAL EUROPE. THE CAPITAL CITY IS SOFIA.

BULLDOG . . .

The BULLDOG is a variety of dog with a short, broad muzzle and a projection of its lower jaw, which causes the lower front teeth to protrude beyond the upper. Its neck is short and robust; its body long and stout; its legs short and thick. It is a ferocious looking animal with a well-earned reputation as a fighter. The BULLDOG is often used as a watchdog, and was formerly used in the barbarous sport of bull-baiting. The bull terrier, originally a cross between the BULLDOG and the terrier, is smaller than the BULLDOG, lively, docile, and very courageous.



BULLFROG . . .

The BULLFROG is a large species of frog found in North America. It is eight to 12 inches long, and has dusky-brown color mixed with yellowish-green, and spotted with black. These frogs live in stagnant water and utter low croaking sounds like the lowing of cattle, hence the name BULLFROG. BULLFROGS appear early in the spring and lay their eggs during June and July. After about four days, the tadpoles hatch, and become full-grown the following year.

Frogs' legs are considered a delicacy by many, and for this reason BULLFROGS are raised commercially in some sections.

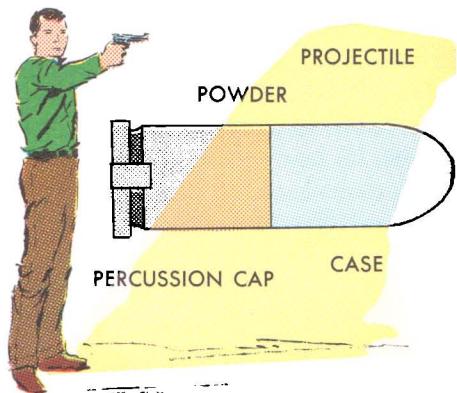
BULLFIGHTING

BULLFIGHTING is the national sport of Spain, and is also popular in Mexico and in some Latin-American countries. These contests between men and bulls are conducted in an arena, as a public spectacle. Bulls turned loose one by one are attacked first by men on horseback, called picadors. Next come the banderilleros, who make the bull angry by plunging darts into him. Then comes the matador with his sword and red cloth to kill the bull. If successful, the matador is highly rewarded with money and praise.



BULLET . . .

A **BULLET** is a projectile which is fired from a rifle or pistol. It is composed of a lead core cased in a harder metal, such as nickel. Among the various types of **BULLETS** are the tracer **BULLET** containing a combustible which ignites and permits it to be seen in flight, and the soft-nose **BULLET**, in which the nose is made of a softer metal than the rest and flattens out on impact.

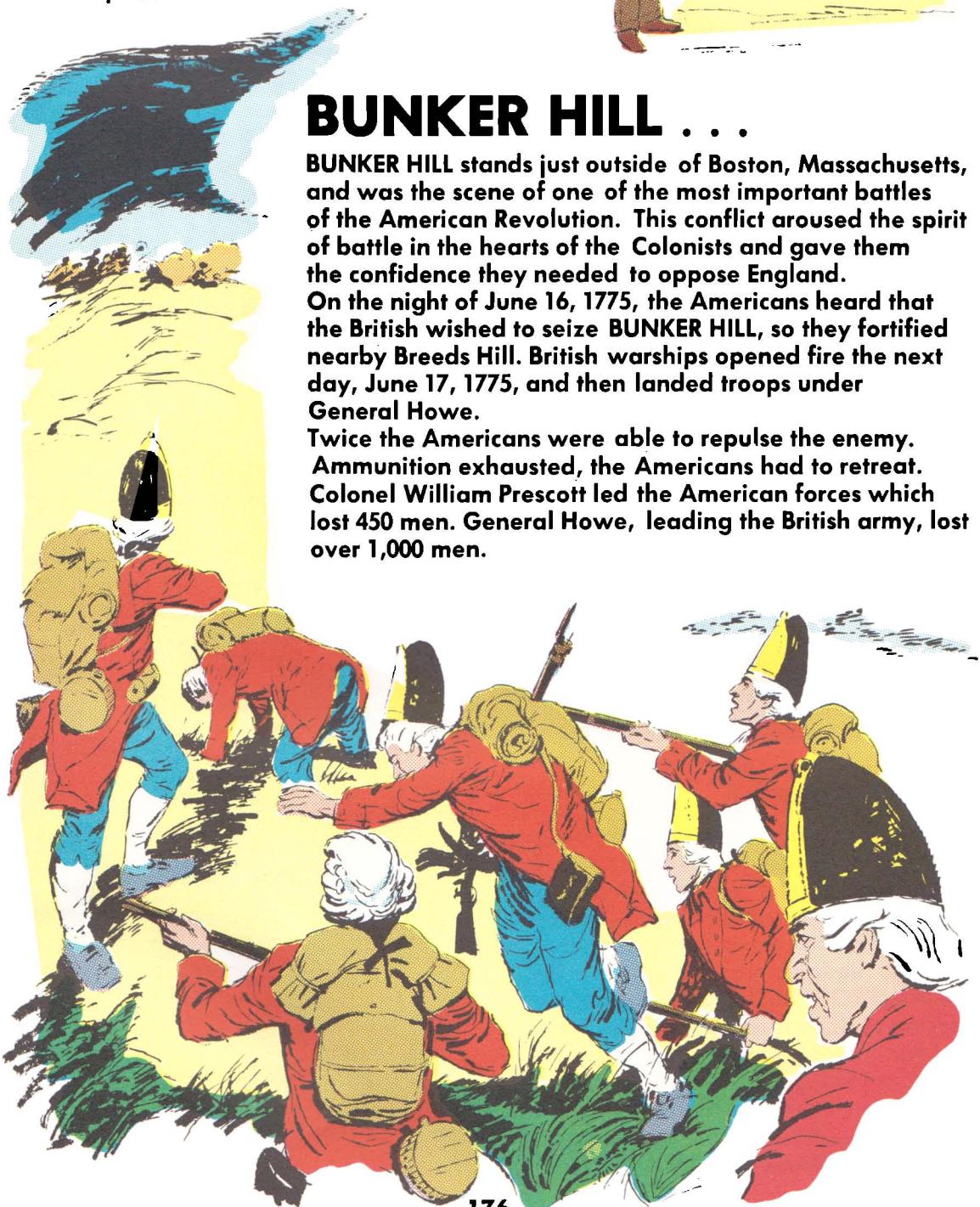


BUNKER HILL . . .

BUNKER HILL stands just outside of Boston, Massachusetts, and was the scene of one of the most important battles of the American Revolution. This conflict aroused the spirit of battle in the hearts of the Colonists and gave them the confidence they needed to oppose England.

On the night of June 16, 1775, the Americans heard that the British wished to seize **BUNKER HILL**, so they fortified nearby Breeds Hill. British warships opened fire the next day, June 17, 1775, and then landed troops under General Howe.

Twice the Americans were able to repulse the enemy. Ammunition exhausted, the Americans had to retreat. Colonel William Prescott led the American forces which lost 450 men. General Howe, leading the British army, lost over 1,000 men.



BUNYAN, JOHN . . .

JOHN BUNYAN (Born 1628—Died 1688) wrote "Pilgrim's Progress." He was a man with deep religious convictions. After the Civil war in England he was imprisoned from 1660 to 1672 for breaking the severe law against dissenters. He wrote a number of novels during his stay and was released only to return again in 1675. When released from prison, he resumed his functions as minister.



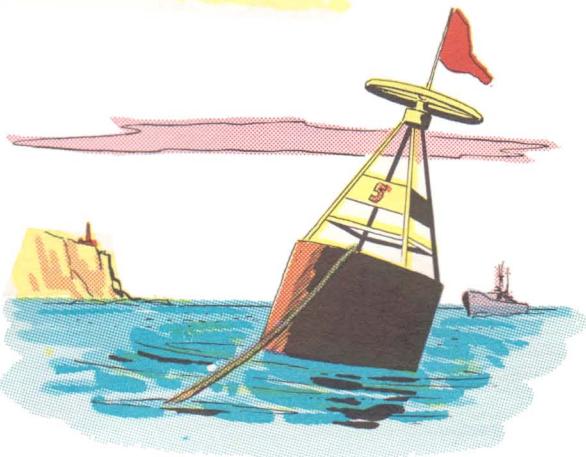
BUNYAN, PAUL . . .

PAUL BUNYAN was a mythical hero of the North woods lumber camps. It is believed that the stories about him are of Canadian origin, though the American lumber men made him the super-lumberjack. The legend is believed to have begun during a Canadian rebellion when a huge and mighty man named PAUL BUNYAN helped spread the enemy as chaff before the wheat. PAUL BUNYAN was given Babe, the great blue ox "whose eyes were 42 axe handles and a plug of tobacco apart" and a logging camp with a cookhouse of fantastic size. The loggers were well-versed in Scandinavian myth and made a modern Thor out of their PAUL BUNYAN.

BUOY . . .

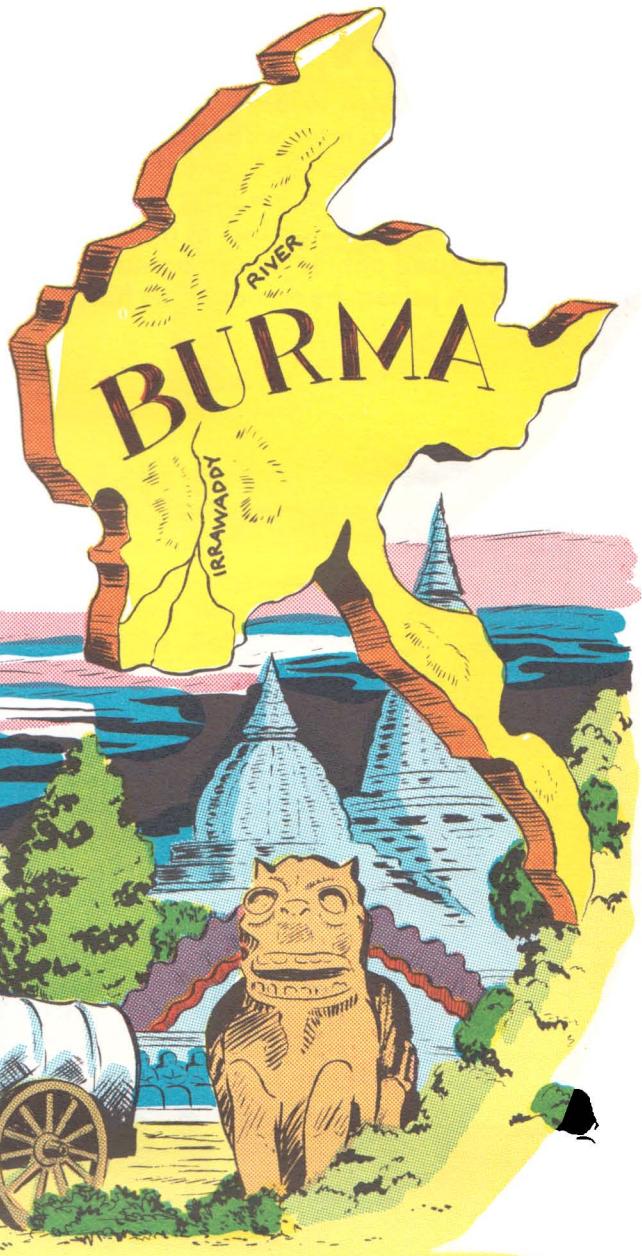
A BUOY is an anchored float which is used to show the navigable limits of a channel and to warn of underwater dangers such as rocks and wrecks or mined waters.

The color, shape or marking of each BUOY indicate its use. If ice is present, shaped wooden poles with anchors, called spar BUOYS are used. A cylindrical iron can is called a can BUOY and a conical shaped can is called a nun BUOY. Some BUOYS have bells, some lamps, and some whistles.

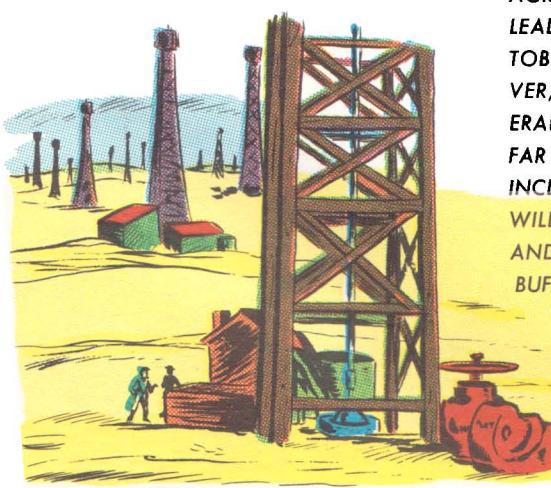


BURMA . . .

BURMA was a partially self-governing unit of the British Commonwealth, but became an independent nation January 4, 1948. In the plains between the mountain ranges lie the four great rivers of BURMA, the Irrawaddy, the Chindwin, the Sittang, and the Salween, which have all the great seaports of the country at their mouths—Rangoon, Bussein, Moulmein, and Akyab. The Irrawaddy is of great value, as it is navigable for approximately 900 miles and irrigates about three-fourths of the country. The rainfall in the mountains reaches as high as 190 inches per year.

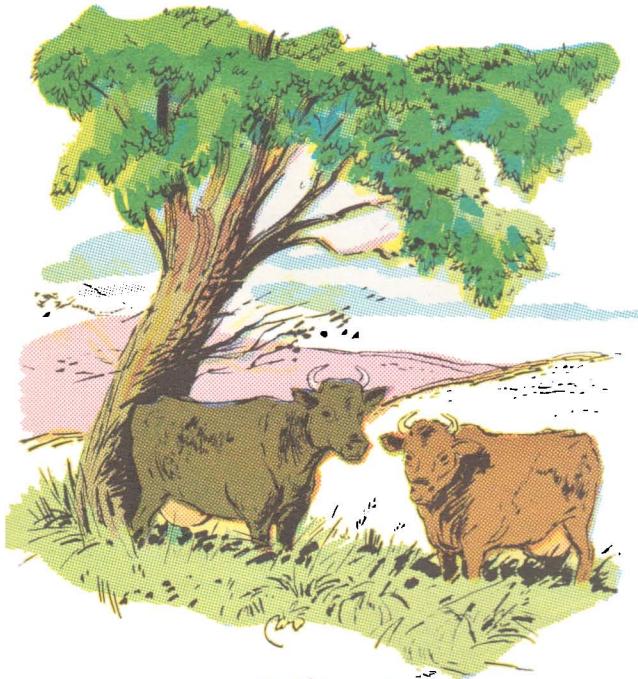


AGRICULTURE IS THE CHIEF OCCUPATION OF BURMA WITH RICE LEADING IN IMPORTANCE, BUT ALSO PRODUCED ARE MILLET, TOBACCO, SUGAR-CANE, OIL SEEDS AND COTTON. GOLD, SILVER, PRECIOUS STONES, IRON, LEAD, AND TIN ARE THE MINERALS MINED THERE, BUT THE MOST IMPORTANT MINERAL BY FAR IS OIL. THE FORESTS PRODUCE TIMBER OF MANY SORTS, INCLUDING TEAK, WHICH IS MAINLY EXPORTED. AMONG THE WILD ANIMALS ARE THE ELEPHANT, TIGER AND RHINOCEROS, AND AMONG THE DOMESTICATED ANIMALS ARE THE OX, BUFFALO, HORSE, AND ELEPHANT.



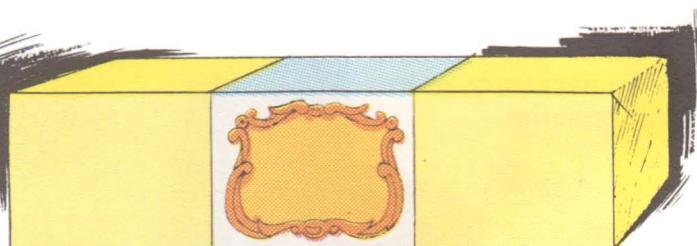
BUTTER . . .

BUTTER is a golden yellow substance made from milk and cream. It is one of the most prized of all foods because of its wonderful taste. BUTTER is a healthful food, as it contains many essential vitamins. Until about a hundred years ago BUTTER was made only on farms or in people's homes, but now most BUTTER is made in sanitary creameries. These creameries are kept extremely clean and cool, so the BUTTER will be of the best quality.



IN MAKING BUTTER, THE MILK IS FIRST WHIRLED ROUND AND ROUND TO EXTRACT THE CREAM. THE CREAM IS THEN ALLOWED TO STAND FOR A WHILE TO GIVE IT A UNIQUE FLAVOR. AFTER THE CREAM HAS BEEN STANDING, IT IS CHURNED TO SEPARATE THE BUTTER. IT IS THEN WASHED. SALT IS SOMETIMES ADDED. THEN IT IS STIRRED TO MAKE IT SMOOTH.

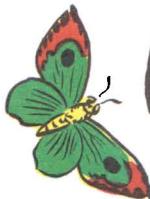
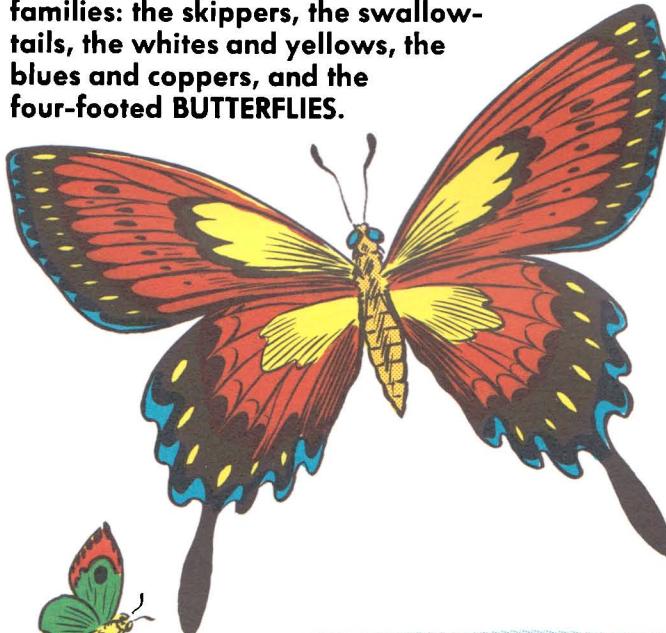
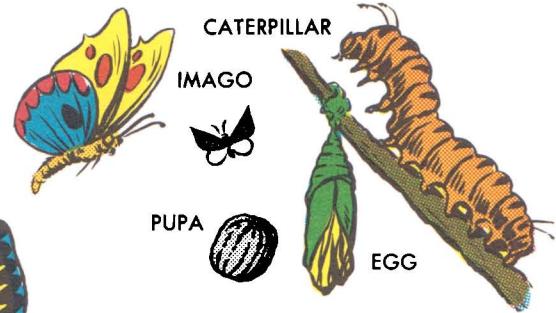
THE NATURAL COLOR OF BUTTER DEPENDS ON WHAT THE COWS HAVE EATEN. WHEN THE COWS ARE WELL KEPT AND WELL FED ON LOTS OF FRESH GRASS, THEIR MILK MAKES RICH YELLOW BUTTER.



BUTTER IS USUALLY PACKAGED IN POUND "PRINTS" THAT ARE OFTEN DIVIDED INTO TWO PARTS OR FOUR PARTS. FROM THE CREAMERY THESE ARE DELIVERED TO THE STORES IN CLEAN REFRIGERATED TRUCKS. THE STORE-KEEPERS KEEP THE BUTTER IN REFRIGERATED SHELVES SO THAT WHEN YOU TAKE THE BUTTER HOME IT IS AS FRESH AND FLAVORSOME AS THE BUTTER THAT WAS MADE ON FARMS IN THE OLD DAYS.

BUTTERFLY . . .

The BUTTERFLY, the most beautiful member of the insect world, begins its life as a caterpillar. BUTTERFLIES can be divided into five groups or families: the skippers, the swallow-tails, the whites and yellows, the blues and coppers, and the four-footed BUTTERFLIES.

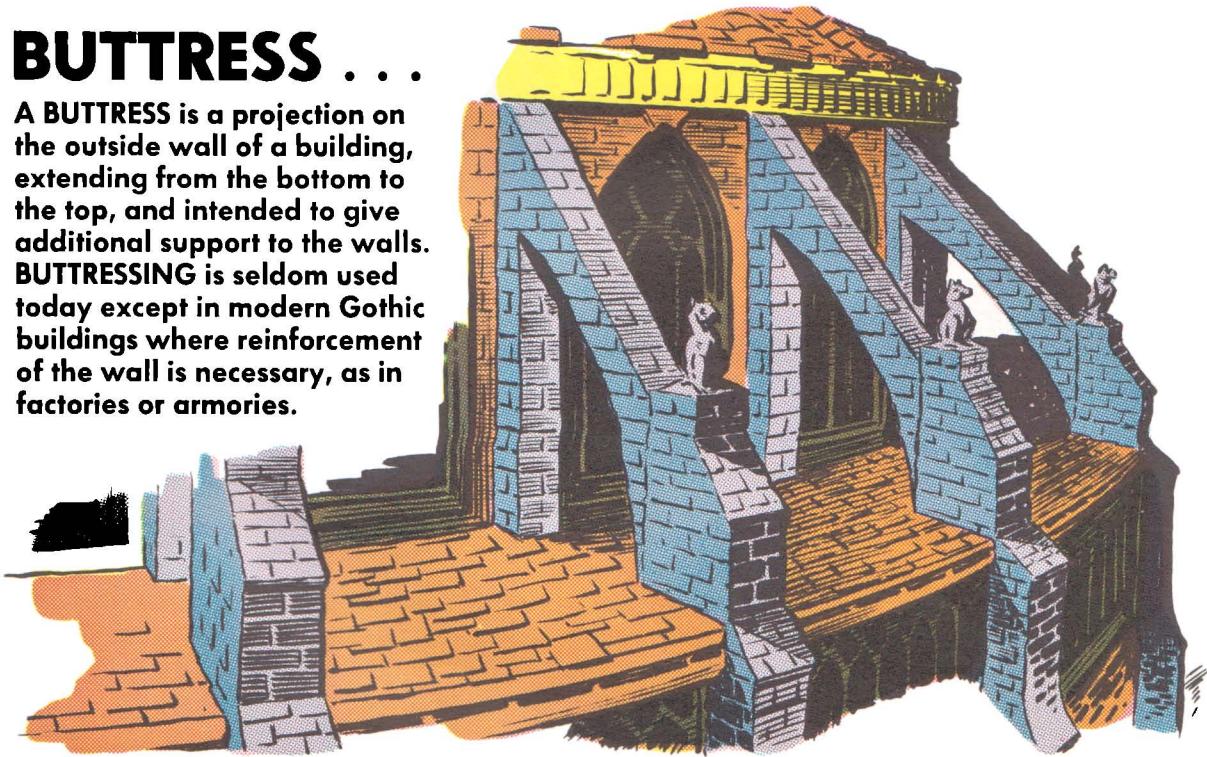


AFTER A FEW WEEKS, THE COMPLETED BUTTERFLY EMERGES, LAYS ITS EGGS AND BEGINS THE CYCLE ANEW.

THE BUTTERFLY LIVES IN FOUR DIFFERENT FORMS: THE EGG; THE LARVAE, OR CATERPILLAR, THE PUPA, OR CHRYSALIS; AND THE IMAGO, OR FULLY DEVELOPED INSECT. THE CATERPILLAR EMERGES FROM THE EGG IN SEVERAL WEEKS. DURING THIS STAGE, WHICH LASTS FROM FOUR TO 10 MONTHS, THE INSECT EATS AND GROWS AND THEN CHANGES INTO A PUPA, ENCLOSED IN A HARD SMOOTH SHELL. CATERPILLARS OF MOTHS SPIN COCOONS; THOSE OF BUTTERFLIES DO NOT.

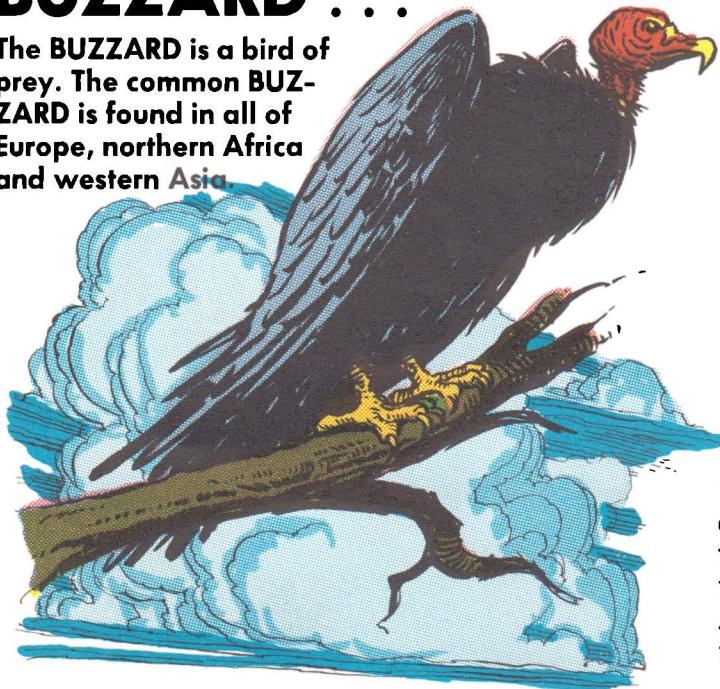
BUTTRESS . . .

A BUTTRESS is a projection on the outside wall of a building, extending from the bottom to the top, and intended to give additional support to the walls. BUTTRESSING is seldom used today except in modern Gothic buildings where reinforcement of the wall is necessary, as in factories or armories.



BUZZARD . . .

The BUZZARD is a bird of prey. The common BUZZARD is found in all of Europe, northern Africa and western Asia.



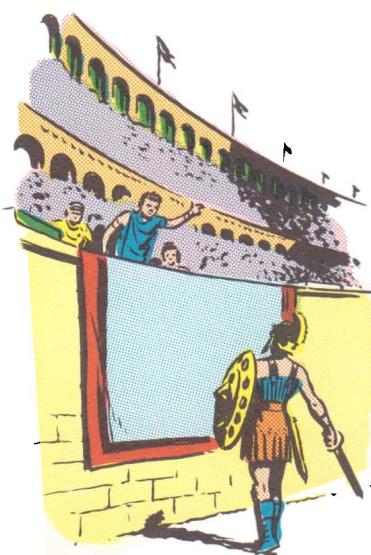
THE BUZZARD EATS FROGS, MICE, MOLES, AND DEAD ANIMALS.



OTHER TYPES OF BUZZARDS INCLUDE THE ROUGH-LEGGED BUZZARD, NATIVE TO BRITAIN, THE RED-TAILED HAWK, AND THE HONEY-BUZZARD, NATIVE TO THE UNITED STATES.

BYZANTINE EMPIRE . . .

The BYZANTINE EMPIRE was the successor to the Roman state that ruled the world from the Italian peninsula. Its name comes from the capital, Byzantium or Constantinople. It was founded in the 4th century when the Emperor Constantine gained control of the declining Roman Empire.



INTERNAL TROUBLES AND WARS ROCKED THE EMPIRE. ITS DOWNFALL CAME WITH THE CONQUEST OF CONSTANTINOPLE IN 1453. THIS EMPIRE, WHICH LASTED FOR OVER 1,000 YEARS, WAS OF IMMENSE SERVICE TO THE WORLD IN MAINTAINING A REGULAR SYSTEM OF GOVERNMENT, LAW, AND POLICY IN THE MIDST OF SURROUNDING BARBARISM.



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