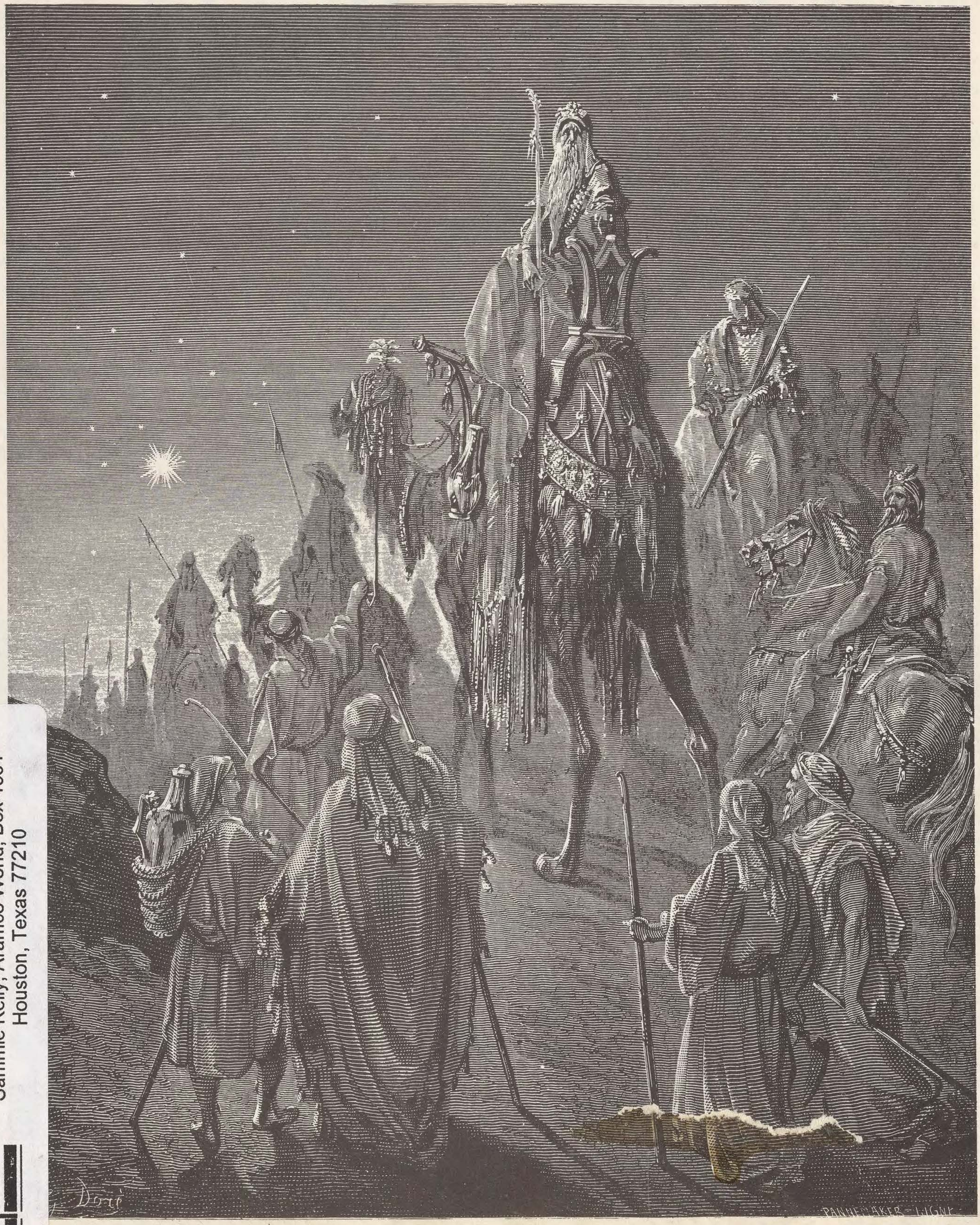
ARAMCO WORLD

December 1960



Journey to Bethlehem

Aramco World

DECEMBER 1960 VOLUME 11 NO. 10

FRONT COVER: A feeling of suppressed excitement and portent lights the faces of the Wise Men and their retinue as the awe-inspiring star guides them on the road to Bethlehem, in this nineteenth-century engraving by Paul Gustave Doré.

PICTURE CREDITS: Front cover—The Bettmann Archive. Pages 3, 4, 5—Aramco photos by B. H. Moody. Page 10 hummingbird—Monkmeyer Press Photo Service; barracuda—New York Aquarium; refueling airplane—U. S. Air Force; passenger airplane—Trans World Airlines, Inc. Page 11 dirigible and glider—Culver Pictures, Inc.; propeller—United Press International; boy—A. Devaney, Inc. Page 12—Australian News and Information Bureau. Page 13—Pix, Inc. Pages 14, 15—The New-York Historical Society. Pages 16 (left), 17—A. Devaney, Inc. Page 18 (top)—National Bureau of Standards. Page 18 (bottom)—Monkmeyer Press Photo Service. Page 19 (top)—French Embassy Press and Information Division. Page 19 (bottom)—Aramco photo by V. K. Antony. Pages 20, 21 (top)—Aramco photos by T. F. Walters. Page 21 (bottom)—Aramco photo by Russel Lee. Page 23—H. Armstrong Roberts.

A publication of the Arabian American Oil Company—A Corporation—505 Park Avenue, New York 22, N.Y.
T. C. Barger, President; J. H. McDonald, Vice President and Secretary; E. G. Voss, Treasurer
Issued by the Public Relations Department, T. O. Phillips, Manager

A distance of 10,000 miles separates Saudi Arabia and the United States, the birthplaces of teenagers Muhammad 'Abd al-'Aziz al-'Isa and Thomas I. Fulton. It would be no surprise to anyone if the two boys had little in common, other than the fact that both are students. They are, after all, representatives of different environments, different educational systems, and certainly different traditions. In fact, it might very well be expected that almost everything about the boys would be different.

Yet a visitor who asked both Muhammad and Tom the same questions probably would come to the conclusion that boys are the same anywhere in the world — a world that is not really so big when teenagers have outlooks so similar.

When Muhammad speaks, it is apparent that here is a serious-minded boy, mature beyond his 16 years. And it's not affectation when he says soberly:

"I hope to be able to serve my country to the limit of my education and ability."

That's what he wants to do when he grows up. More specifically he says, "I hope I can be in the foreign service of our Government. I want to travel and know about other countries."

Boys in the Middle East tend to grow up earlier than they generally do in the West, so Muhammad has been thinking and dreaming about his future for a long time.

"I read quite a bit. For the last three or four years, I have been reading about different parts of the world. In the diplomatic service, I could spend some time in these places."

A secondary interest is chemistry, which he began studying last year. He wants to learn more about this, too.

But being an airplane pilot is not one of Muhammad's dreams.

"Flying an airplane is a beautiful thing," he says, "and a pilot can serve his country, too. But, I'm not interested."

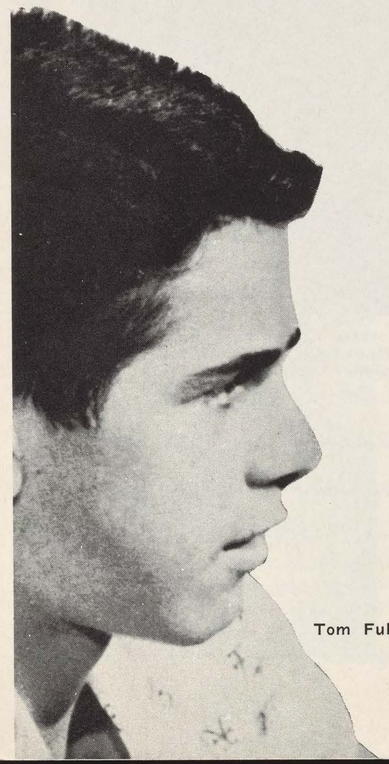
How about space travel? Does he think that man will be able to reach the moon? This brings a broad smile:

"Yes, I believe so — but I don't want to be the first!"

Naturally, Muhammad intends to go to college. That's why he's working in a printing shop during his summer vacation — to help earn the money, because:

"College is a *must*. Most of my friends want to go to college, but not all will do so. But, the secondary schools now have very good courses in crafts, and shops where boys can learn by doing. Many boys hope to become skilled craftsmen."

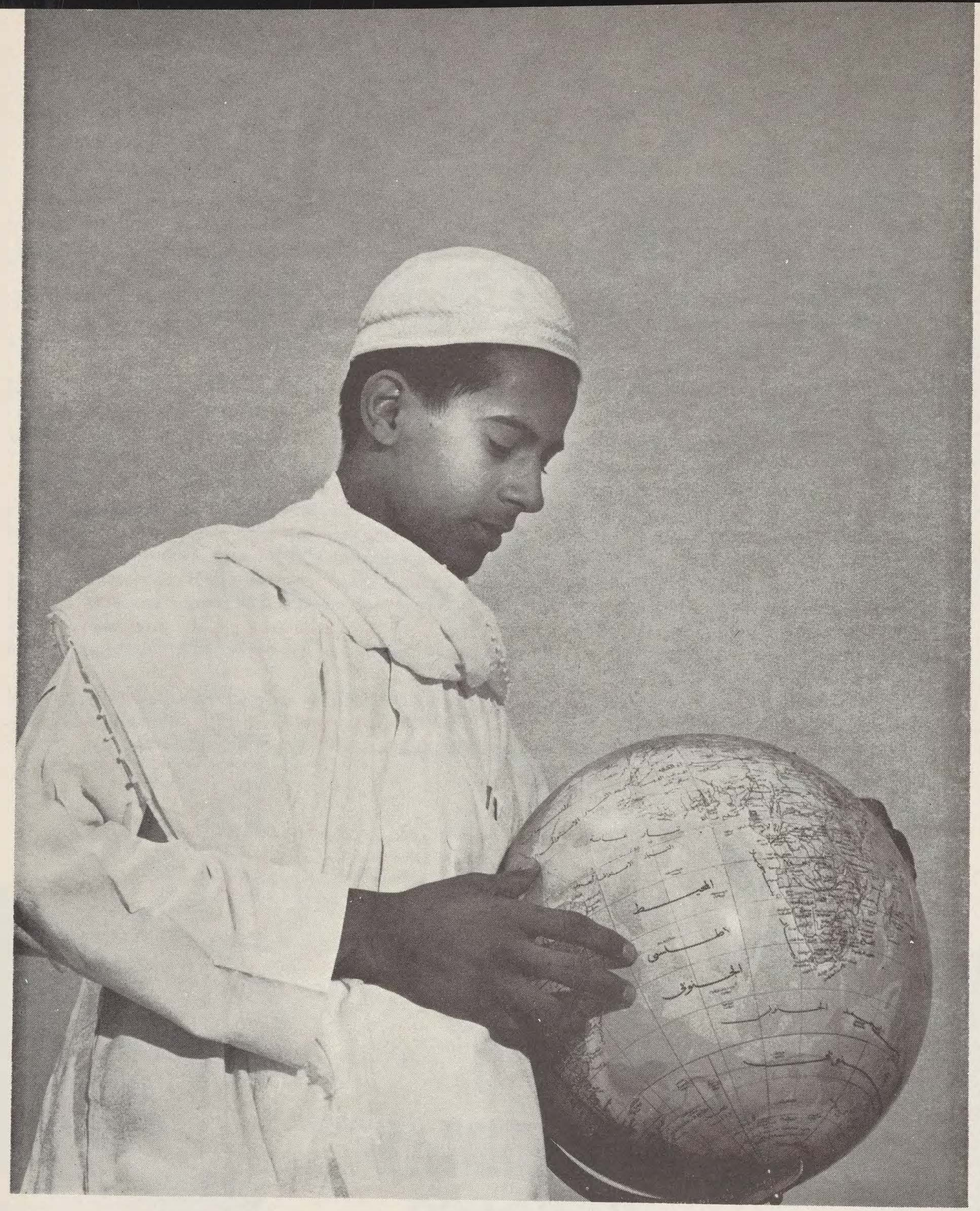
Muhammad doesn't go in much for competitive sports at school, but he keeps himself in trim physically with regular setting-up exercises, weight-lifting and the like. As hob-



Tom Fulton

TOM AND MUHAMMAD EXPRESS THEIR VIEWS

Muhammad A. al-'Isa



It's a globe of the world, not a crystal ball, that holds a clue to Muhammad's future, for he hopes to serve his country in diplomatic work.

TOM AND MUHAMMAD EXPRESS THEIR VIEWS

bies he likes reading, stamp collecting, and corresponding with friends and acquaintances in other Arab countries. Mostly he writes to friends who have moved away and former teachers, but, with a smile, admits that several young ladies are also on his pen-pal list.

Muhammad has some very definite ideas about whether or not he will marry early or wait until his financial picture looks bright.

"I don't want to get married until I have finished college, have a job, and feel that I'm on my way," he says. But he has no delusions about getting a "big" job right out of college.

"Isn't starting at the bottom taken for granted?" Muhammad asks.

Tom Fulton is two years younger than Muhammad 'Abd al-'Aziz al-'Isa, and, unlike Muhammad, has spent most of his life outside of his own country. But the fact that Tom has spent all but three of his 14 years away from the United States, much of it traveling, doesn't bother him, especially when he considers a possible career.

"I think it will be the Navy," he says. "I like to travel."

Outside of his yearning for more travel, Tom is like most 14-year-old American boys: his ideas of a career haven't quite jelled yet.

"I'm pretty good at math and science," he admits, "and I guess that's why I've thought of engineering, as well as the Navy." His scientific leanings haven't given him a desire to become an astronaut, however. "No thanks!" is his reaction to that possibility.

Right now, Tom's getting reacquainted with his own country, which he left just after his third birthday. The Aramco school system for employees' children goes only through the ninth grade, so this fall, Tom entered Menlo School at Menlo Park, in his home state of California. He was born in Oakland, but this turned out to be just a place where he was *from*. His father, Frank K. Fulton, decided to accept an assignment in Saudi Arabia. Now, he's Aramco's coordinator of budgeting and planning.

In the intervening years – like most Aramco families – the Fultons, have utilized the every-other-year "long leave" for travel, and Tom has gone along ever since he became old enough: through much of Europe – Italy, Switzerland, France, Germany, Spain; and into the Far East – India, Thailand, Japan, Hawaii.

"I like to see strange new sights, learn the customs of different countries, and try different kinds of food. In the Navy, I'd have the chance to do more of this."

If the Navy turns out to be his choice, Tom hopes that he'll be able to get into the United States Naval Academy at Annapolis. Otherwise, it will be college: the University of California, where his brother, Richard, now a junior, is majoring in engineering.

"Competition," says Tom, "is so stiff these days that you can't get very far without college."

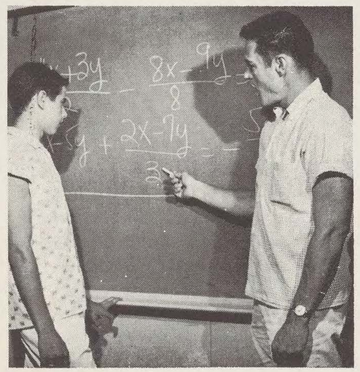
In addition to his school work, Tom's special likes are baseball, football, basketball, swimming, and teenage social life. In between, he's a stamp collector.

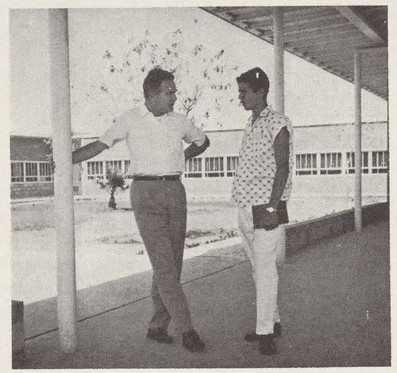
Like Muhammad, Tom has definite views on marriage.

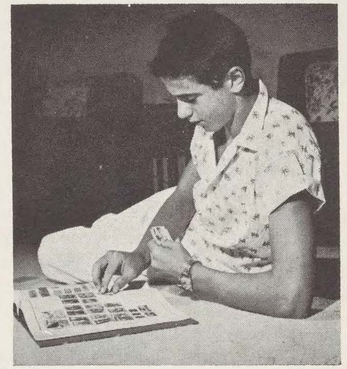
"I'd like to get married when I get out of college and get a job. Not before."

Of course, if he chooses the Navy as a career, Tom knows that he must be willing to spend years as a junior officer before moving up in rank.

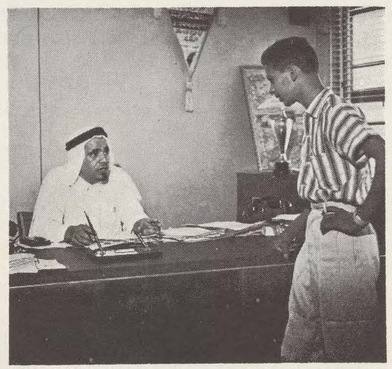
"How else do you do it?" he asks. ■

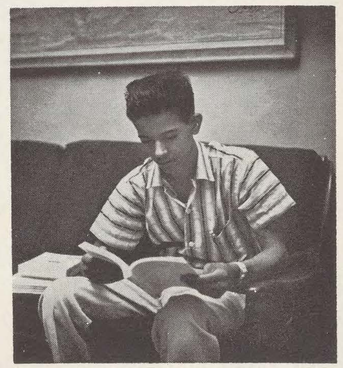






Despite the distance that separates their countries and the differences in their backgrounds, Tom (above) and Muhammad (below) belong to the very same young-man world of study, hobbies, part-time jobs and exciting plans for the future.





THE WORLD, YEAR 1

What was the world really like as it passed from B.C. to A.D.?

THE Three Wise Men who followed the guiding star to Bethlehem almost 2,000 years ago traveled in a world which a Roman geographer of the day described as "washed on all sides by the sea and like an island." It was a globe about which nobody knew very much. The Roman and Chinese were the two great civilizations of the day. But there were thriving cultures in India, Japan, the Americas, northern Europe, Asia Minor, Africa and Australia. Going back, then, into the often misty history of that era, how were the world's citizens living day by day?

Jesus was born into the Roman Empire, which, according to historian Edward Gibbon, "comprised the fairest part of the habitable world." It extended north and east to the English Channel, the Rhine River and the Black Sea, and south and west to the African coast and Gibraltar. Julius Caesar had created it, and now it was held together by Augustus Caesar, a frail yet tenacious man who suffered from chronic indigestion and wore a sealskin to protect himself from lightning. The *Pax Romana,* a period of peace which would last almost two centuries more, had begun. Trade was brisk, money was plentiful, the roads and sea lanes were safe again — and forced labor did the chores.

If all roads led to Rome, all canals led to Alexandria, including one which linked the Mediterranean and Red Sea. It was not again matched until de Lesseps dug through the Suez peninsula in 1869. Alexandria, with its wealth, beauty and learning, rivaled the Eternal City itself. The harbor was lined with huge royal palaces and mansions, each with its private dock, formal gardens and magnificent groves of fruit trees. Gaily-colored awnings and pavilions dotted the shore, and the 400-foot Pharos Lighthouse, one of the Seven Wonders of the Ancient World, guided the heavily laden merchant ships into port. Alexandria's legendary Royal Library contained half a million papyrus scrolls — about one for each of the city's inhabitants — and drew scholars from all parts of the empire.

In Rome the seeds of decay were sprouting. While Augustus decorated the city with marble, brutal circus spectacles and bizarre chariot races amused a blasé populace. Cheating, bribery and debauchery were commonplace, and overindulgence was the rule, especially at the banquet table.

Imperial Rome was modern. New buildings went up swiftly, often one on top of another, and sometimes collapsed after a short time. Most houses had their own running water and faucets, and many had enclosed lavatories as well. Throughout the city thousands of public fountains with elaborate, sculptured nozzles provided drinking water and flushed the narrow streets, on which Roman children flew kites, skipped rope and played blindman's buff.

In the provinces local customs were tempered by Roman civilization. The tall, muscular Gauls still wore breeches and bright tunics and gold ornaments, but they fought in disciplined Roman legions; and Greece had actually outflanked her Roman conqueror with Greek art and learning. In the British Isles, the still sovereign Celtic tribes lived as their ancestors had — working the land, fighting each other and worshipping the Druid deities.

East of the Rhine the northern European "barbarians" prayed to the goddess, Nerthus. Each spring her image was placed in a canopied ox-cart and wheeled around the fields amidst general feasting and merriment. After the festivities, the image and cart were washed down by attendants who were then killed and thrown into marshes for having laid eyes on the sacred image. These same tribes cultivated barley and flax, worked with metals, wove cloth, made pottery and glass, and had a system of writing. In a few centuries their decendants would sack Rome.

On the eastern and southern fringes of the empire lay the oriental opulence of Parthia (present-day Iraq and Iran) and the curious kingdom of Kush in Africa's Sudan. Parthians curled their hair, worshipped the sun and the moon "and never went on foot when they could ride." You could watch a boxing match in Babylon, by then a second-rate city, or a Greek play in Ctesiphon, the Parthian capital.

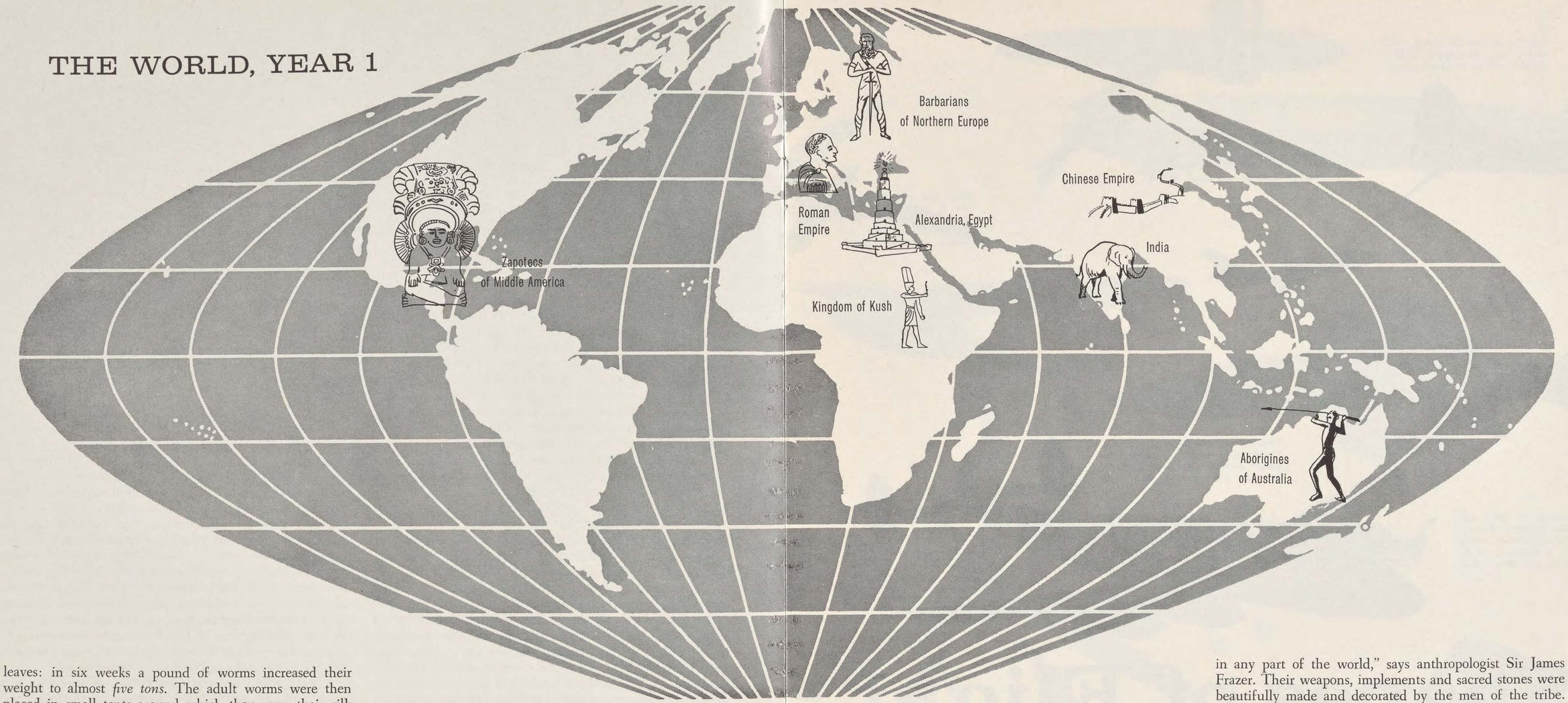
The capital of Kush, Meroe, was more than 1,000 miles south of Alexandria. "Meroe and its civilization," says one authority, "remains a mystery." We do know, however, that at the time of Jesus, Meroe was prosperous and cosmopolitan, with strong Egyptian, Indian and Roman influences. Its ruins include temples as grand as any in Egypt, great images of the four-armed, three-headed lion god, Apedemak, and a fine bronze head of Augustus.

Some 8,000 miles to the west of Meroe and almost on the same latitude lies the Middle America region (Mexico and Central America). Here on arid land were scattered the fabled cities of the Zapotec Indians. Monte Albán, their principal city, was begun about 500 B.C. and by the year 1 A.D. had reached a state of grandeur. With huge stone blocks and without the aid of carts or oxen or even metal tools, the Zapotecs made Monte Albán into a city of observatories, pyramids, and lavish public buildings. At Monte Albán and other Zapotec cities artisans created jewelry of finely-polished stones and gold and silver. Their calendar was unexcelled for accuracy anywhere until 15 centuries *after* the birth of Jesus. But, for all of this, the Zapotecs (or any of the early American civilizations) did not have a simple plow. It is one of the anomalies of history.

In Asia the Great Wall enabled the Chinese to slacken their war efforts and concentrate on art and commerce. Skilled craftsmen fashioned exquisite miniature animals, some of them almost abstract, in bronze, stone and clay. Delicate jade figurines of fine ladies were entombed with departed husbands in elaborate ceremonies, where formerly the ladies themselves would have been buried.

It was China's Imperial Age. Public office was open to anyone who passed the stiff competitive examinations, and scholars grew long fingernails to indicate their exemption from physical toil. Confucius, whose advice had been generally ignored 500 years earlier, was now revered by all and his sayings were engraved in stone. The Imperial Library at Lo-yang was filled with silk scrolls of poetry and philosophy, science and the classics.

Paper was still unknown in China but the weaving of silk already was a 2,000-year-old craft. This and the breeding of the silkworm were China's major industries. The worms prospered phenomenally on a diet of fresh-cut mulberry



leaves: in six weeks a pound of worms increased their weight to almost *five tons*. The adult worms were then placed in small tents around which they spun their silk cocoons. Then the tents were dipped in hot water to loosen the silk, which was treated and woven into rich garments, brocades and tapestries that were sold in distant parts of the continent. The breeders and weavers themselves wore cotton.

Indian silk was also famous, as were Indian spices and perfumes, ivory and precious stones. Trade with Rome alone ran into millions of dollars, and it was India that supplied the cheetahs, tigers and elephants used in the Roman Circuses. Nevertheless, some contemporary western writers described the Indians as people who had no mouths, or only one Cyclopean eye, or who slept in their ears – a good trick if you can do it.

When Jesus was born, Hinduism and Buddhism, which both began in India, were several centuries old. So was chess, an Indian invention which probably began as a dice game. A number of universities flourished throughout the land. Those in Ajanta, Ujjain and Taxila, for instance, were noted for art, astronomy and medicine respectively. Indian medicine was, in fact, the most advanced of that time. Hindu physicians performed almost every major operation, including hernia, amputation of limbs, and delicate cataract removal. They even successfully grafted skin.

Unlike China, India was not unified under one ruler and had not been for 200 years. During that time conquering Scythians (from what is today Russia), Persians, Greeks and Syrians had swept down into northwest India bringing their diverse cultures with them. Here the architecture showed Persian influences and sculpture was in the Greek tradition, while further south delicate, precise Buddhist art prevailed. Buddhism itself, however, was strong throughout India and was moving across the Himalayas into China, from where it eventually penetrated to Japan in the sixth century.

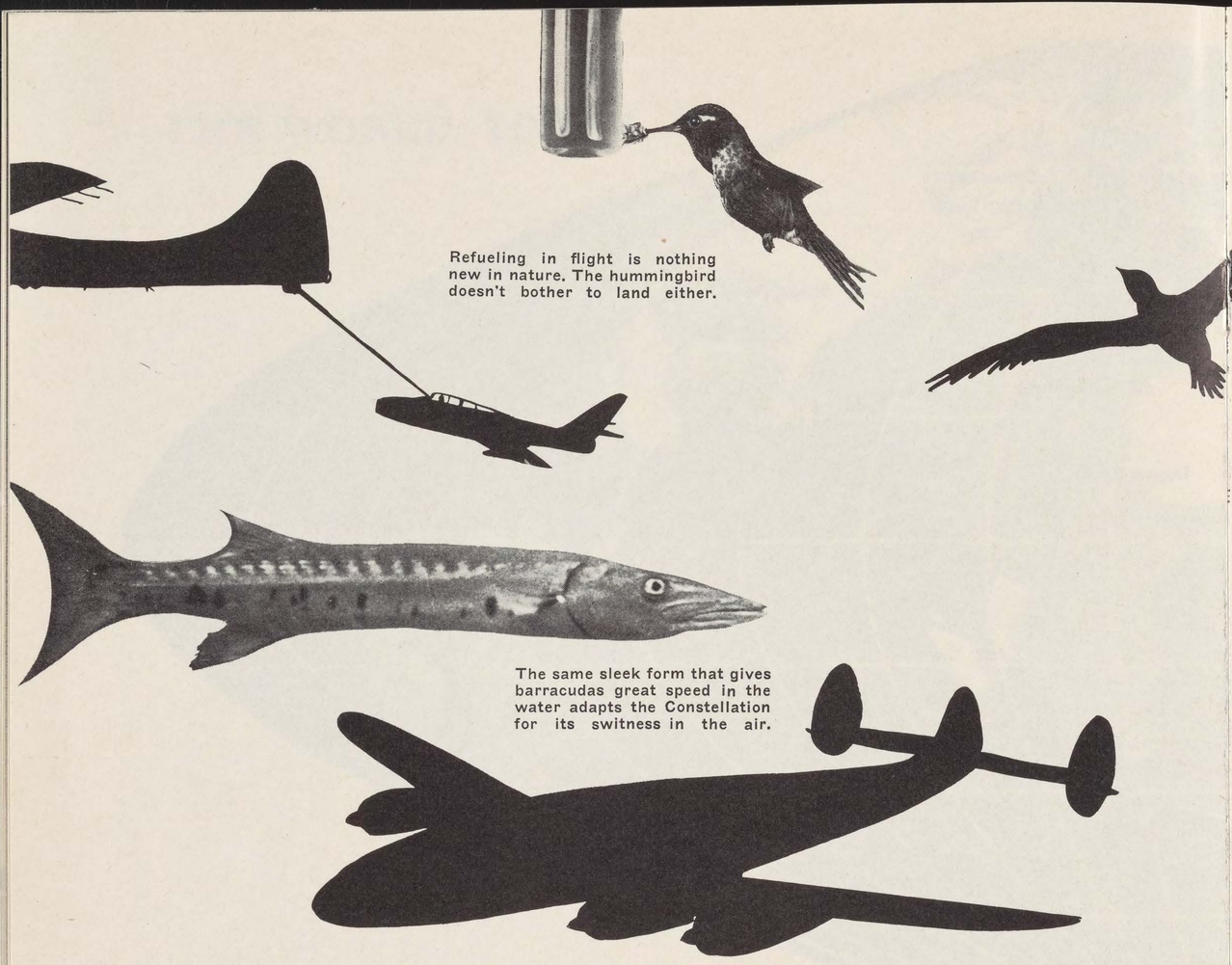
Separated from the Asian mainland by the sea, Japanese civilization developed in isolation until the fourth century after Jesus, when Chinese and Korean invaders brought their cultures to the islands. The history of Japan before this time is blurred by legend. Probably the ancient Japanese worshipped their ancestors in a form of primitive Shintoism and already accepted the divinity of the Mikado with all its social implications. They may have been familiar with metals but certainly not with writing, and they seem to have lived in wooden houses built on tall piles, with peaked straw roofs. Beyond this, little is known for certain.

Another primitive culture, isolated by water, had developed in Australia. Here the aborigines, whose customs are as ancient as the pyramids, roamed naked over the arid plains, hunting the kangaroo with spears, clubs and boomerangs. Metal was unknown to them; indeed, theirs is one of the few Stone Age cultures to survive into modern times.

Although the material life of these semi-nomadic people was simple, their social life was extremely complex. The customs regulating relationships between men and women were "far more complicated and strict than any recorded in any part of the world," says anthropologist Sir James Frazer. Their weapons, implements and sacred stones were beautifully made and decorated by the men of the tribe. Women were not allowed to handle or even to see sacred objects.

The tribes were ruled by an oligarchy of old and influential men who met in council on important matters. This was as close to democracy as any people came in those days, for Athens had long since fallen and even the Roman "republic" was a memory.

A look back almost two millenia reveals that, just as today, the world exhibited a great variety of customs. The Chinese carved miniature animals to adorn their graves and the Romans fought real ones for amusement; the Stone Age Australians built temporary shelters of branches and brush, while the Stone Age Zapotecs built a large stadium whose ruins still stand; the artisans of Meroe carved huge images of Apedemak, but in most of India representations of Buddha were forbidden as sacreligious. East and west, north and south, in the New World and the Old, this is what the world was like when Jesus was born in Bethlehem. ■



Refueling in flight is nothing new in nature. The hummingbird doesn't bother to land either.

The same sleek form that gives barracudas great speed in the water adapts the Constellation for its switness in the air.

Shapes of Flight

EVER since man first began to fly he has wrapped himself in changing shapes. Balloons began as paper bags, or cloth bags, turned upside down and filled with warm air. Being lighter than air, they rose — like *bubbles*. Some of them looked exactly like *sausages*, and the great dirigibles looked like nothing so much as airborne *cigars*.

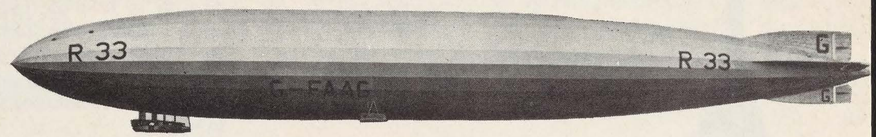
Airplanes grew out of experimental *bird-shapes* and eventually became *kites* and then *fish*. And in the course of all this, they passed through one brief experimental period in which they had as many as four wings and looked strangely like Venetian blind slats! Helicopters have always resembled spinning maple seedpods.

But suddenly, today, the shapes of flight are changing. The graceful fish-shape, which became so pronounced in the Constellations, is yielding to new forms. Some of the swept-wing jets look remarkably like the fast-flying, powerful insects that dart about our fields and woods on hot days. And a small needle-nosed fighter plane, throttled back and moving slowly up to its mothership for refueling in mid-air, bears a marked resemblance to a hummingbird pausing in its high-speed flight to hover close to a flower.

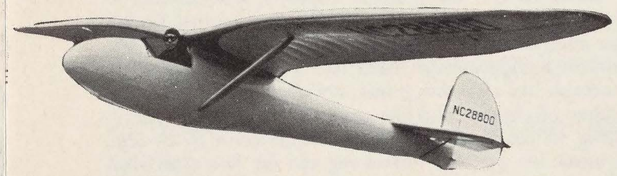
Man's next ship of flight will invoke still other interesting shapes. For space travel, tremendous power has been applied to one of the simplest of all forms, to one of the most primitive weapons: the spear. And it becomes more and more obvious that the ancient *discus* shape will figure heavily for future vertical lift machines.

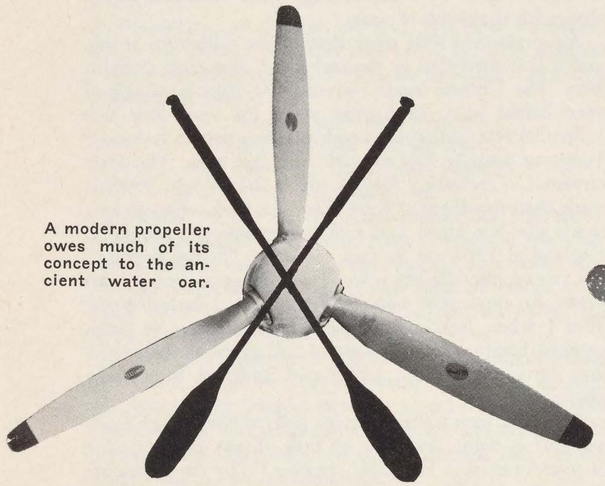
For awhile, even the *boat* shape figured prominently in flight. Two decades ago, it served to help launch the age of long-distance trans-oceanic flight. A thrilling sight along our seacoasts was the thunderous departure of the great Clipper planes — virtually flying boats — whose hulls lifted

The great dirigibles of the 1930's suggested gas - filled cigars perched in the clouds.

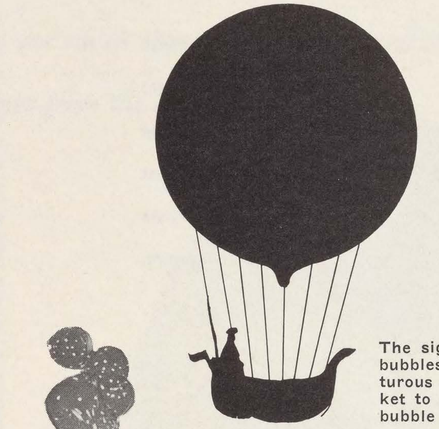


By borrowing the wide, graceful wings of the gull, gliders can ride the air currents and remain aloft for hours.





A modern propeller owes much of its concept to the ancient water oar.

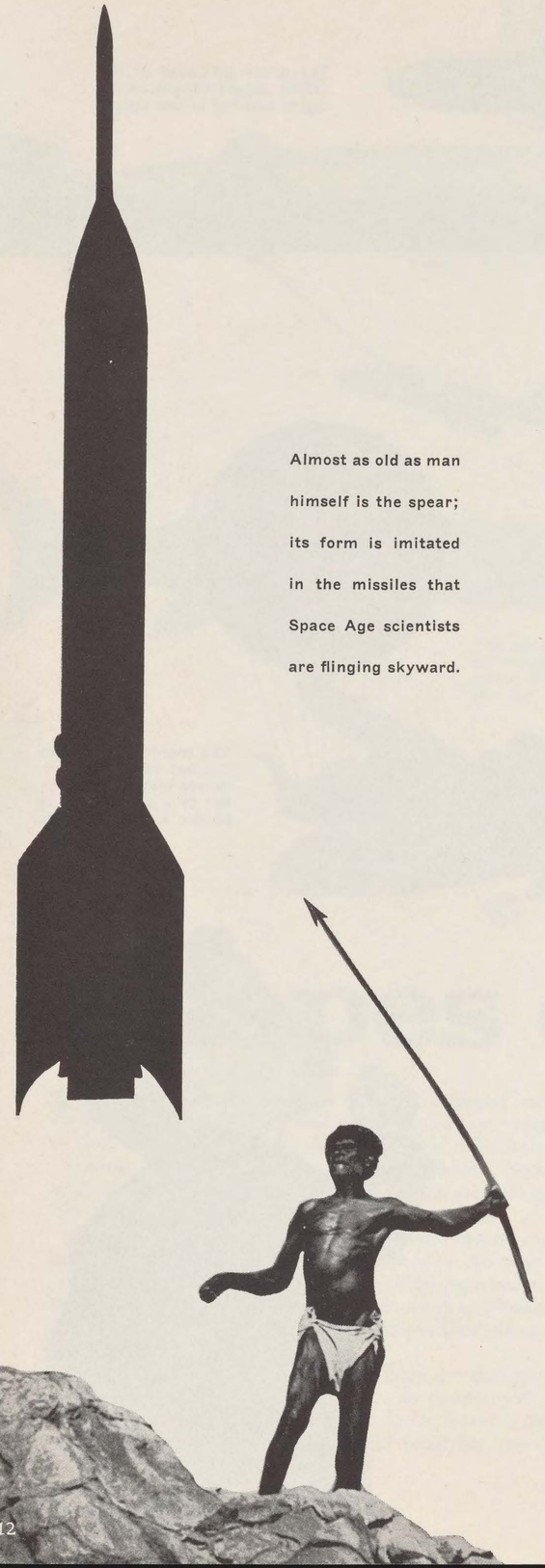


The sight of ascending bubbles tempted adventurous men to tie a basket to a paper or cloth bubble and rise with it.

slowly into the skies and turned, dripping, towards foreign shores. But actually, the concept of a flying boat predated the clipper planes by 300 years. A man named Francesco de Lana planned, in 1650, to attach a boat with sails to a balloon-like rig.

Oddly, man's first trip into the air was made in a ship that looked like a gaudy, blue Easter egg. Benjamin Franklin was in Paris one afternoon in 1783 when he saw the big egg — actually a cloth sack 74 feet tall — rise grandly above the Bois de Boulogne and float away. Two men were waving from a gallery beneath it. The balloon sailed across Paris and landed in a field, safely terminating man's first flight.

In the years that followed, fantastic balloons were built or proposed. Some designers thought airships, being ships, needed sails. There is no record that sails actually were



Almost as old as man himself is the spear; its form is imitated in the missiles that Space Age scientists are flinging skyward.

SHAPES OF FLIGHT

used on balloons, but one balloon that crossed the English channel in 1785 did have a large ship's rudder — a forerunner of the rudders used on today's airliners. This balloon also *had oars so it could be rowed.* The oars didn't work, of course, and so in 1801, someone seriously proposed that eagles be harnessed to balloons as horses are harnessed to wagons.

Oars to propel balloons may seem absurd, yet the fact is that airplane propellers are little more than oar-blades fastened together end to end and spun in a circle. And in his conception of a flying machine, drawn about 1500, Leonardo da Vinci designed pulley-operated oar-like wings.

Before he got into powered airplanes, man learned to fly gliders, and among some of the experimental models the resemblance to bird shapes was striking. In 1889 Otto Lilienthal experimented with one glider that looked remarkably like a bat, but it was only when man began using gliders of simpler bird-like design that he succeeded in flying. Of course, the first man-made devices to fly by aerodynamic lift were the *boomerang* and the *kite.* Australian aborigines have used boomerangs with cambered airfoil shapes for thousands of years.

An airplane is little more than a kite without a string, and it is natural that in the early days men tried to fly in kites. The Chinese made man-carrying kites hundreds of years before Jesus. In Austria, about the same time that Lilienthal was gliding in America, a man named Lawrence Hargrave actually flew beneath four box kites. The early airplanes — including that in which the Wright brothers made their first flight at Kitty Hawk in 1903 — looked very much like box kites. And a 50-horsepower plane built in England in 1910 was, in fact, called the "Bristol Boxkite."

Later on, the kite-like planes began to grow stronger and better. An element of magnificence appeared during World War I when Britain built her Handley Page 44 twin-engined bomber. In the shape of this plane appeared the first signs of the great power and swiftness that marks planes today.

After this, men learned like sea gulls to retract their landing gear in flight, and little by little all the external parts of planes began to be pulled "indoors." The era of streamline shapes had begun.

Today some rather commonplace shapes are entering the world of flight: among them the *chair* and the *automobile.* Recently men have learned to fly small "automobiles," hovering a foot or two above the ground on a cushion of air. And if you were to go to a certain factory in North Carolina today, you could buy a chair that would lift you, if you chose, high into the air. This one-man "armchair" helicopter, driven by a tiny motor, has been as high as 1500 feet.

Man has already used many shapes to achieve and perfect his flight. Looking ahead into the new age that always comes, man can thoughtfully ask himself: after spears, and birds, and fish, and kites, and bubbles — than what? Will man *in his own shape* ever take to the air? ■

MIAMI · CHICAGO · NEBRASKA · OKLAHOMA
OHIO · KANSAS · OSHKOSH · ARKANSAS · MINNESOTA
UTAH · ILLINOIS · MISSOURI · KENTUCKY · MILWAUKEE
IOWA · SEATTLE · ALABAMA · TENNESSEE · CONNECTICUT
TEXAS · OREGON · MICHIGAN · WISCONSIN · MASSACHUSETTS

THE INDIANS SAID IT FIRST

We are using Indian words constantly: half our states, thousands of cities and towns, and countless lakes and waterways got their names from the Red Men

THE red men of America lost their vast green continent, but the heritage of names they left is indelibly stamped into the life and language of America. It is as a nineteenth century poet said:

". . . they all have passed away
That noble race and brave . . . .
But their name is on your waters,
Ye may not wash it out."

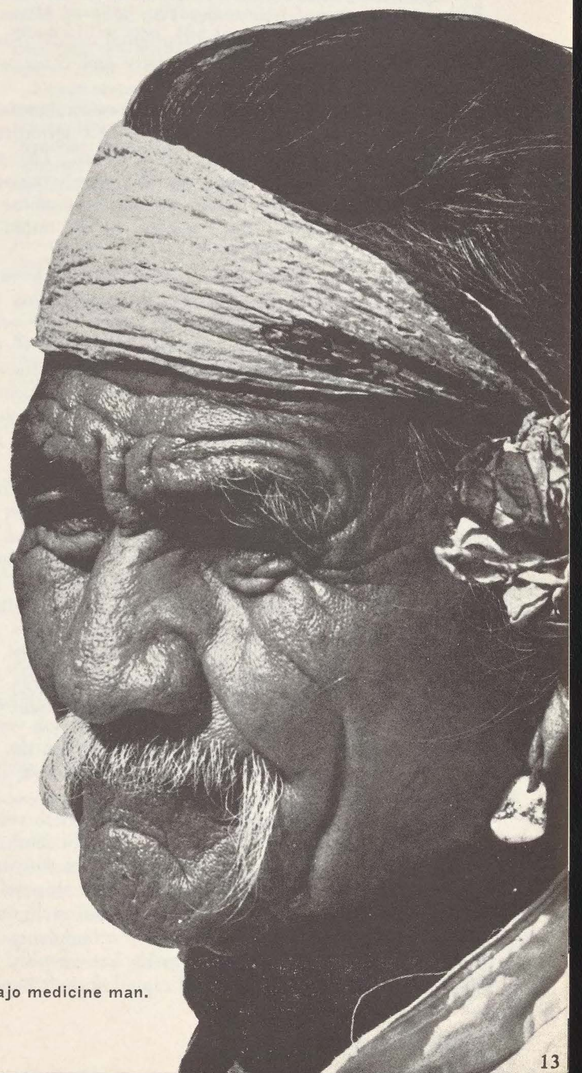
It is still on our waters, our towns, cities and states. From Massachusetts to Seattle, from Chicago to Alabama, we use Indian words constantly; they are so familiar that we never think of their original meanings. Our states, especially, recall the America of many tribes and many languages: twenty-five states bear Indian names.

The story of those names begins more than four centuries ago. When white men came, seeking the Indies, or gold, or freedom, they listened to the strange Indian words and noted some of the place names on maps and reports. (At least they set down what the words sounded like, for the Indians had no written language.)

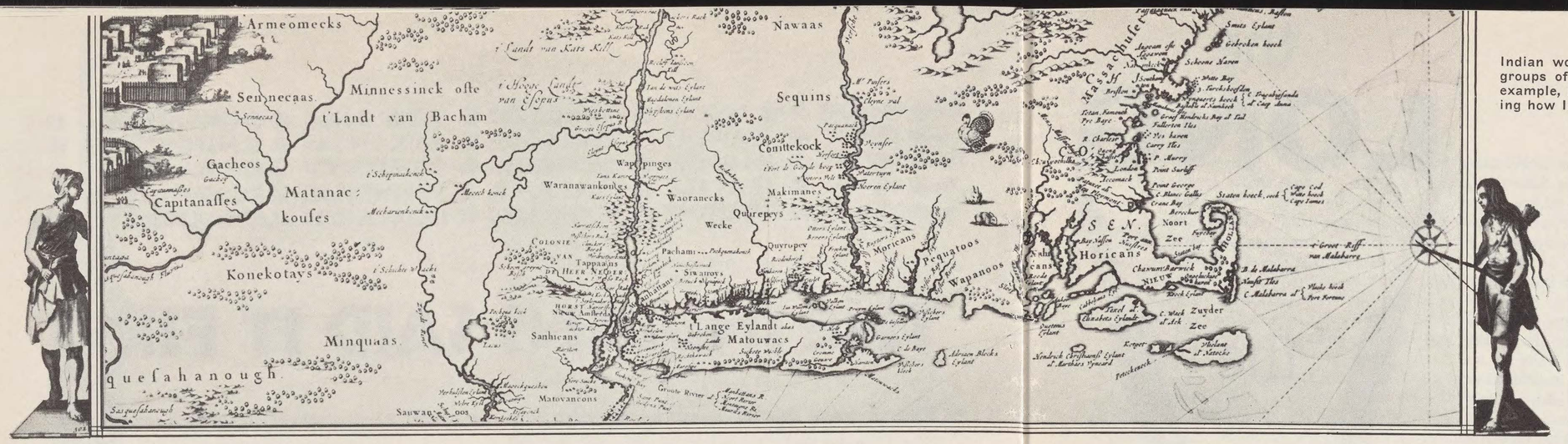
The first explorers and settlers had every intention of naming the land in their own languages — English, French, Spanish, Dutch. And 14 of our states do bear English or American names, two names come from the French and six from the Spanish. It was one way of claiming that the land belonged to them. Besides, they thought Indian names harsh and uncouth.

But frontiersmen, mountain men, traders and peaceable men, dealing with the Indians, learned the languages and dialects of those they dealt with and used the Indian designations for places. Some of these names endured — spelled in a dozen different ways, perhaps, but keeping much of their original meaning.

Later, in the mid-nineteenth century, a new crop of Indian names sprang up, as new towns and western territories demanded labeling. The deep fear of tomahawk and war



Ha-da-chaz-zi is a Navajo medicine man.



Indian words didn't sound the same to all groups of New England settlers. Here, for example, is a 300-year-old Dutch map, showing how Indian words sounded to the Dutch.

THE INDIANS SAID IT FIRST

whoop had faded. Indian names had come to seem strange and romantic. Longfellow wrote *The Song of Hiawatha,* and Walt Whitman praised the aboriginal names. Namers looked into history or novels or poetry and chose words like Dakota, Idaho, Wyoming.

Only two of the 13 original colonies chose Indian names. Massachusetts had been recorded, before the Pilgrims came, as an Indian town by Captain John Smith. The word meant "at the great hills," the name of a tribe living at the present Blue Hills near Boston. Connecticut chose the name of the broad river which flowed into the sound; the Indian word meant "by the long tidal river."

The rest of our states took Indian names, 14 from rivers or waters. Indians seldom named mountains, but they always named rivers, which were essential in their lives for water, fishing, trapping, and as waterways. Some of their own river names lasted; other rivers were named for nearby Indian tribes by white explorers. As new territories joined the Union, many followed the example of Connecticut and chose to be called by the Indian name of their largest river.

Louis Jolliet and Father Jacques Marquette on their exploratory canoe trip of 1673 discovered several rivers and gave them Indian names. The greatest, Indians had told them, was called something like "messipi," the Algonquian for "great river." The Frenchmen wrote the name as "Mississippi." "The word winds with chutes," Walt Whitman said; "it rolls a stream three thousand miles long."

The Missouri was named for a tribe along its shores. Just what the name means is uncertain, though the "miss" may stand for "big." (The Indian name for the river, Pekitanou, meant "big muddy.") Ohio comes from the French version of two Indian words, the Iroquois for "river" and the Ontario for "fine" or "fair." It was natural to choose these three great rivers as state names.

Kansas, too, was named for its river, the French version of an Indian tribal name. Another tribe farther south, the Quapaws, gave their name to the river (and the state) finally spelled "Arkansas" and pronounced "Arkansaw."

The Illinois River was named for the Illini or Iliniwek, a tribe whose name signified "the men" — implying that they were men indeed and other tribes considerably less. The Tennessee recalled a vanished capital of the Cherokee nation. Nebraska is a river name, too, though we know the river by its French name, the Platte. The state went back to the Sioux word for the river, "Ni-bthaska," meaning "broad shallow water."

Indians who lived on the Gulf of Mexico near the Mississippi called themselves "thicket-clearers," which sounded in the Indian tongue something like "Alibamons" to early French settlers. The French gave that name to a nearby river, and Alabama territory took its title from the river in 1817.

Wisconsin shows how quickly an Indian word could change. The Indians called the river "Mesconsing," the French spelled it "Ouisconsing," and the English made it "Wisconsin." No one is quite sure what the word meant; one authority says it was a Sauk word meaning "holes in the banks of streams, where birds nest."

Minnesota's name belongs in this river list, paired with the Minnesota River, though both names came long after the Indians. When a new territory was about to be created in 1847, Indian names had come into fashion. The chief river was called the St. Peter, so that was no help, but someone did a bit of research and found that the Sioux had called the river something like "Menesota." With this to go on, the territory took the name of Minnesota, and a few years later the St. Peter was officially changed to Minnesota River. The original Indian word could be translated "muddy river," or "cloudy water," but romantics went a step or two farther and announced the interpretation they preferred: "sky-blue water."

Kentucky is the name of both state and river, though in this case, the country was named first. Early frontiersmen heard the Iroquois words "kenta-ke," meaning "meadowland," and "Kentuck" meant the "blue-grass country" before the Revolution.

Oregon belongs with Indian-river names only because Major Robert Rogers of the Rangers claimed that the Indians had told him of a great river by that name in the west. Many other explanations of the name have been made, but it seems likely that it traces back to Rogers' reports.

Michigan took its name from the great lake which the Indians called "Michiguma," or "big water."

Arizona may have been named for Indian waters, too, a Spanish version of the Papago word meaning "little springs." (Near the springs, early Spaniards had found silver.) Others say the name means "desert" or "arid zone" or is an Aztec word for "silver-bearing."

Six states were named for Indian tribes: Texas, Utah, Oklahoma, Iowa, and the Dakotas. Idaho may belong in this group, too, for the word could have come from the tribal name of Comanche Indians, Idihi. Its backers claimed that Idaho meant "gem of the mountains," but it certainly did not. One possibility is that it came from the greeting the Idihi gave each other: "Eee-da-how," which meant something like "The sun is up" or "Good morning."

Another tribal greeting, given in what was to become Texas, was "Techas!" or "Friend!" Other Indians called this tribe the Texans, and the Spanish preserved the name.

Utah comes from the tribe called "Yutta" by the Spanish, "Utes" by Americans, and spelled "Utah" by John Charles Frémont. When it was proposed as a territorial name, several Congressmen objected on the ground that some of the tribe, at least, were dirty and ate grasshoppers. The Mormons, who lived there, objected too, for they wanted to call the land "Deseret." But Utah won the day.

"Oklahoma" is two Choctaw words meaning "red people," the name chosen by a tribal chief in 1866, when the United States Government was pushing the Five Civilized Tribes (Choctaw, Cherokee, Chickasaw, Creek, and Seminole) westward to this land.

Iowa is a tribal name, but like many Indian words, went through numerous changes before it appeared in this simple form.

Dakota was the name of the tribes of the Sioux confederacy and meant "allies." Dakota Territory liked the name so much that when the land was to be split into two states, both wanted to be Dakota. They compromised by becoming North and South Dakota.

Wyoming's Indian name hails from the East, where the Delawares had given it to a Pennsylvania valley. It meant "by the big flats." In 1778, a terrible massacre took place in the valley; a few decades later, a sentimental poem, "Gertrude of Wyoming," told the story. Thanks to the spread of poesy, a number of counties and towns named themselves "Wyoming." When the name was proposed for a new western territory, people objected that it had nothing to do with that part of the country. Yet "Wyoming" was chosen, chiefly because of its romantic sound.

Thus our state Indian names are double records. They tell of pioneers who moved westward, planted, built cities on the land, and of the red men who wandered, warred, and hunted, and dying out, left behind them — their names. ■

Origin of other state names . . . The Spaniards also had a hand in naming our states, though centuries passed before the names became official. Florida ("flowery") was named by Ponce de León as he sailed by in 1513. He thought the name appropriate because the land seemed so lush, and in Spain it was the Easter season, the "feast of flowers." The name "California" also dates back to the sixteenth century and probably derives from a mythical isle in a Spanish romance. New Mexico (Nuevo México) was named by Spaniards who came north from Mexico seeking gold and silver.

Other Spanish state names date back only to the late nineteenth century. Colorado ("red"), Montana ("mountainous"), and Nevada ("snow-covered") were chosen, not for historical reasons, but because people liked the sound of them.

Indiana, "land of Indians," was applied to territory owned mostly by Indians, but the state name really came from the Indiana Company, a land-speculating group in the area. The company went out of business, but the territory liked the name and took it over in 1800.

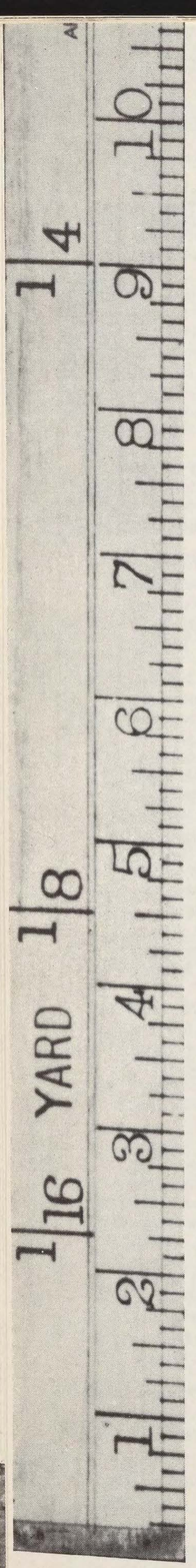
Eleven states chose names to show their loyalty, during colonial times, to English kings, leaders, or places: Virginia for Elizabeth I, the Virgin Queen; the Carolinas for Charles I (from "Carolus," Latin for "Charles"); Maryland for Charles' queen, Henrietta Maria; Georgia for George II; New York for the Duke of York, brother of Charles II; Delaware for Lord de la Ware; Pennsylvania for the father of William Penn; New Hampshire for the English county of Hampshire; and New Jersey for the Isle of Jersey.

Rhode Island finally chose a name based on an account of the navigator Verrazano in 1524. He had compared an island in the area to the Greek Isle of Rhodes. It was an odd name to select, and it may have been to establish the English claim to land the Dutch wanted and earlier had called Roodt Eylandt or "red island."

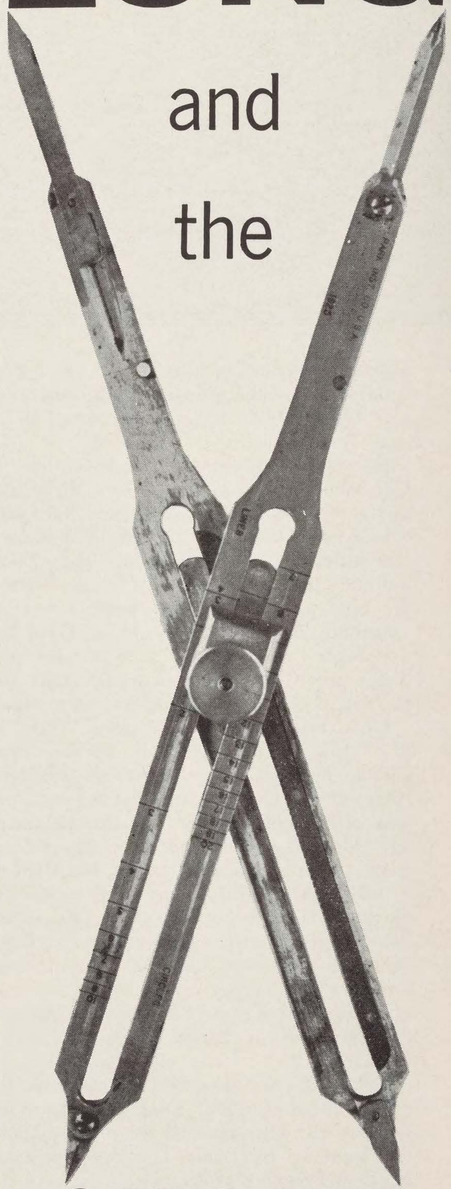
Of later states, Maine probably was given its name because it was the mainland or perhaps for the French province of Meyne. Vermont's name came from the French for "green mountains." "Louisiana" paid tribute to France's Louis XIV and "Washington" to George Washington. The District of Columbia honored Columbus.

Details surrounding the naming of our two newest states are lost in history, but it is known that "Alaska" is an adaptation of "A-la-as-ka," from the Aleuts, a branch of the Eskimo stock who lived in the Aleutian Islands. Hawaii was first called the Sandwich Islands in 1778 by explorer Captain James Cook, who wanted to honor his friend and patron Lord Sandwich. Later, someone decided that all the islands should go by the name of the largest—Hawaii.

Besides states, Indian influence extended to the naming of thousands of our cities, including four of the largest: Chicago, Milwaukee, Seattle and Miami.



the LONG and the SHORT of it



A San Francisco housewife buys a pound of avocados from her grocer; a Chicago boy drinks four and a half quarts of root beer in a contest; a Dallas athlete jumps over a bar six feet 11 inches from the ground; and a New Yorker waits for his wife at a subway station for 32 minutes. What do these far-flung people have in common? Not much, other than the fact that what each did required some form of measurement.

But let's put it this way: the housewife buys a hatful of avocados; the boy drinks a jug of root beer; the athlete jumps as high as corn grows; and the man waits for his wife for as long as it takes to fume. In the second set of examples, we know *approximately* what they did, but only through the use of *standardized measurements,* as in the first set of examples, can we know *exactly* what they did.

Today we accept standardized measurements as a part of daily life. Indeed, we hardly would know how to get along without them — except by reverting to a kind of crude, approximate measure — hatful, stone's throw, as tall as corn — the measures used by our ancestors. Getting today's systems of measures didn't happen overnight. The story of their development reads like a study of the rise and fall of succeeding civilizations in man's history.

When life was rugged but simple, man's needs were few and he could supply them all. As he advanced from lone hunter to agrarian and builder, and exchanged a solitary existence for the greater comfort and security of community life, he realized he must come to an agreement with his neighbors on a common system of measurement. How can men build a house, or a storage hut, or a temple, unless all the builders use the same basic measurements?

The very earliest measurements were for length. The tools were those most natural — a foot, a palm, a span of the hand. When building alone, man could use his own body. But on community projects, a common standard was required. The leader's measurements were taken and marked off on stick and stone. Crude copies were made from the original and passed out for use. In succeeding civilizations, then, the foot gradually evolved (to approximately 12 inches) through measurements of tribal leaders and kings of nations.

As recently as the twentieth century, however, dispute over the correct measurement for the foot created a controversy in the U.S. courts. A Brooklyn, New York case in 1902 held that some strips of land were untaxable because legally they did not exist! City surveys in Brooklyn at that time recognized four different measurements — the United States foot, the Bushwick foot, the Williamsburg foot and the foot of the 26th Ward — each varying from 12 inches, depending on their European origin. By using two different surveys, each legal but containing shorter "feet," the clever landowner pointed out to the city fathers a rather embarrassing reason why he should not pay his real estate tax.

The "rule of thumb" is no idle idiom. The early inch was the width of a man's thumb. In the fourteenth century, England's Edward II decreed it should be "three barley corns, round and dry, placed end to end lengthwise." He didn't say from which part of the ear the kernels should come, or how much they should be worn down at the end to make them "round," but the directions seemed sufficient for the needs of the day. A king, of course, could make such decrees and expect them to be reasonably followed. But where there was no central authority strong enough to set up standards and enforce their use and uniformity, a standardized system of weights and measures had little chance against the inconsistent arm and foot lengths of tribal chiefs.

Once the idea of basing a measurement on a part of the body gained hold, it was hard to displace. This is the fate of *al-dhira,* the arm. It is a venerable standard, but also a variable one. Found in practically every Middle Eastern country, the *dhira* varies from area to area from about 16 to 22 inches. One reason for this lies in the difference of the concept of the arm. The Syrian measures from the tip of the middle finger to the shoulder; in Saudi Arabia the *dhira* runs from the tip of the middle finger to the elbow. Dry goods merchants with long arms soon learn from experience either to adopt a standardized *dhira* or use the metric system.

It is a fact that most Arab states have adopted for official use the metric system with its logical, understandable progression from weight to weight and measure to measure. But it is not surprising that village markets throughout the Arab world cling to a bewildering variety of measures. From the Atlantic coast of Morocco to the shores of the Persian Gulf, the metric kilo is used side by side with the *uqqa,* for example, an old Arabic weight of Greek origin. With it the *ratl* also survives, and this is among the oldest of weights purely Arabic in origin.

Of course, concepts ingrained for generations can not be easily displaced. Americans, without thinking, measure cloth by the length of a long-vanished Germanic rod, the origin of the yard. And most of us cheerfully continue to use quarts, pounds, inches, yards and acres: the whole complicated patchwork of Latin and Anglo-Saxon measurements that evolved during the Middle Ages.

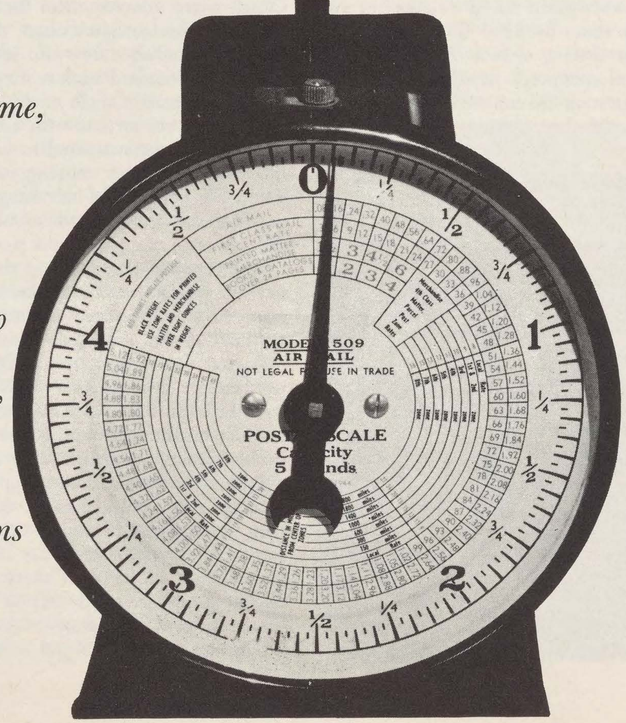
When the Romans conquered Britain, their measurement for the mile came with them. They defined it as 1,000 paces or double steps of a marching Roman soldier. Their pace (*passus*) was approximately five Roman feet. The measurement remained for 1,500 years until Elizabeth, who, in order to make land surveying simpler, changed it to 5,280 feet. The mile could then be divided by eight to equal exactly the common rood or furlong of 660 feet.

To build his towns, man needed linear measurements; to trade with his neighbors he needed weights. Historians believe that the first weight measures were seeds. Records show that the Chinese used millet seed; the Aztecs used cacao. And wild hillsmen of Anam and Laos in today's Indo-China *still* use grains of maize and rice as measurements of weight for gold dust. Wheat seeds were used in Egypt, and that custom survives in the Anglo-Saxon weight of "grains" today. The weight of one grain — the smallest unit of weight in England and America — is believed to

In a relatively short time,

measurements

have progressed from crude approximation to unimaginable precision, capable of dealing with the new dimensions of the Space Age



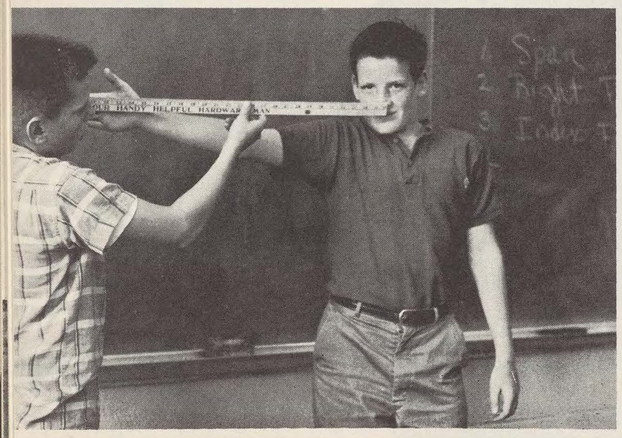
To get a standard measure of length, a German surveying book of 1575 advised lining up 16 men, chosen at random as they "come from church," and then dividing the over-all length by 16 to arrive at an average of short, medium and long feet.

THE LONG AND THE SHORT OF IT

have been originally the weight of one grain of wheat.

Some of the earliest standard measurements were devised in Egypt and the Indus Valley. Only small units of weight were needed at first, for barter was the usual method of trade, and only scarce materials, such as gold and silver, needed to be weighed. Bas reliefs dating from the Fifth Dynasty of Old Kingdom Egypt — about 2500 B.C. — show weights in use by royal goldsmiths, or, more probably, silversmiths, since for two thousand years silver was scarcer than gold. In Ur of Chaldees, that ancient "nation of shopkeepers," occurs the first widespread use of weights in commerce at about the same time. By 1350 B.C., Egypt employed for general use a specific system of weights and measures which wars and commerce transferred to other nations. The first Egyptian standard consisted of 17 weight-measuring units, later modified to eight.

Students use a modern yardstick in measuring distance between the nose and tip of the fingers, a method often employed by early kings to dictate length of the yard.



One of the first of these weights was the Beqqa Standard, used to assay gold from the Nubian mines that supplied the treasuries of the pharoahs and the temples. The passage to Europe of this system is typical of cultural interaction.

From Egypt, the Beqqa Standard passed to the Middle East. Then, in the middle of the eighth century, an ambassador from the court of the famed Arabian Caliph, Harun al Rashid, visited the court of Charlemagne, King of the Franks. He brought with him many rich gifts, including a set of the measures then in use in Baghdad. Charlemagne adopted them for use in his realm. Another visitor to Charlemagne's court, the King of Mercia, one of the early English states, also saw them there and carried the Beqqa Standard back to England.

Through war or trade or diplomacy, then, each nation's own system was infused with new ideas. As arbitrary measurements were constructed in each new region, variations increased. Errors in copying existing standards, planned deceit for commercial advantage, and nationalistic independence all contributed to weights and measures that differed from one part of the world to the next.

Businessmen often learned the hard way that they had best define their units of measure. In 1832, an English claimant was awarded judgment of additional payments on the basis that the word "thousand" in a contract for the sale of rabbits meant, not 1,000, but 100 dozen. Just as the English "hundredweight" is not 100 pounds, but 112 pounds, so in this particular area of England (Suffolk), tradition maintained that a "thousand" contained six score to the hundred. And the buyer was aware of the tradition.

At the turn of the century in Missouri a similar dispute occurred over the purchase of thread. The seller, who was sued for a rebate, proved to the court's satisfaction that it was generally known in the trade that certain kinds of thread were delivered in short 10-ounce "pounds." Since the buyer was charged only at the short-pound rate, the court dismissed his claim.

The weight of an object — the force with which that

body is attracted to the earth — is influenced by natural phenomena as well as trade acceptance. The same corn that weighs a pound on a dry day will weigh more in humid weather. Natural shrinkage and minimal variations in production are accepted by most businesses today in their dealings with each other. A far cry from the medieval prince who carefully weighed out to his goldsmith the gold he wished fashioned into a goblet, and then reweighed the finished product, expecting not one grain of gold to be missing at peril of the goldsmith's life!

By the end of the eighteenth century, the individual weights and measures of all the countries around the globe would have filled several volumes had any metrologist had the energy and time to assemble them all. For instance, in Spain the foot was 11.128 inches. In Denmark it was 12.358 inches. In Japan it was 11.929. In the German states alone, there were 13 different measurements! An accident of history helped bring some order to this chaos of mixed measurements.

The citizens of France during the Revolution attempted sweeping changes in many fields. The 10-day week and the new calendar they proposed found few advocates, but the world was ripe for their new system of weights and measures. When British and French scientists, trying to find a better means of scientific communications, had suggested a new system whose units would all be derived from a single standard, Prince Talleyrand turned a ready ear. A national system of weights and measures, not then existing in France, might be a small means of national unity. He directed the Royal Academy of Sciences to begin at once.

The new standard chosen was a unit of length derived from a dimension of the earth. The new unit was called the meter — 1/10,000,000th part of a quadrant of the earth's meridian. The official measurements were made between Dunkerque, France and Barcelona, Spain, north and south of the 45th parallel. A metal bar made from the measurements became the new standard. Derived units of the meter are the liter (the cube of 1/10th of a meter) and the gram, (a volume of pure water equal to the cube of 1/100th of a meter, and at the temperature of melting ice). The multiples of these quantities are in 10's and are indicated by Greek prefixes (decameter), while the subdivisions are also in 10's and are indicated by Latin prefixes (decimeter).

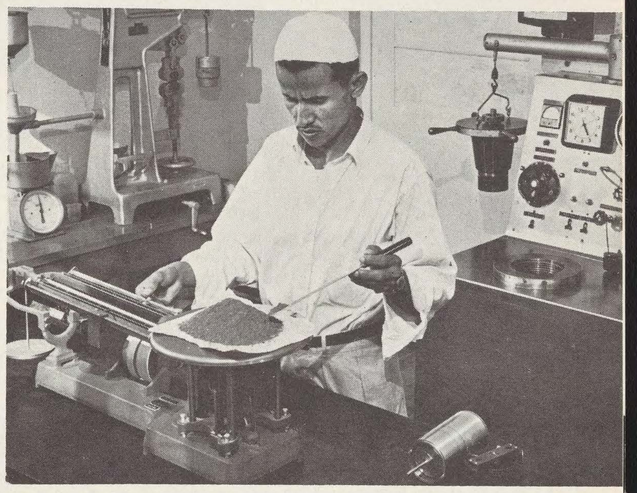
The simplicity of the system appealed to those countries without already firmly established systems. Since neither measuring tools nor the scientists working in the shadow of the guillotine were perfect, the meter — according to our much more precise instruments of today—is not exactly 1/10,000,000th of a quadrant. But the bar's measurements have been accepted and now are legalized in every civilized country of the world. While many countries still use traditional measurements within their own borders, an International Bureau of Weights and Measures was established in 1875 to house the prototypes of the meter against which those of participating countries are measured for use in international trade. The Bureau is located on international territory in Sèvres, near Paris.

With advancing science, the units of weight and measure have extended to unimaginable dimensions. How can anything as small as an atom, for example, be weighed?

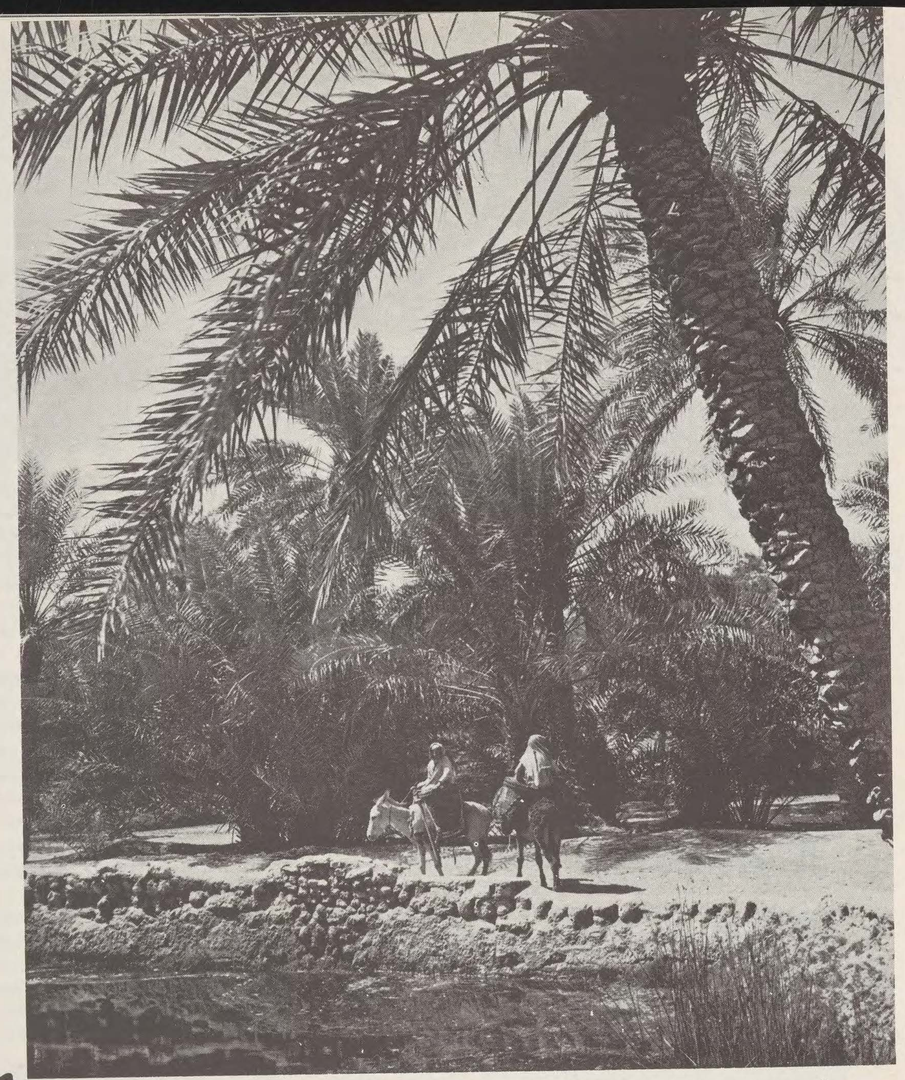
At Sèvres, France, the kilogram's international prototype is guarded by air-tight glass bells.

One method uses the deflection of atomic beams in electric and magnetic fields. By sending an electric discharge through a tube containing rarefied hydrogen or other gas, it is possible to produce a beam of electrically-charged atoms known as ions which are then passed through electric and magnetic fields. The observed deflection of the beam is dependent on three things: the charge, the *mass* and the velocity of the ions in question. And just as a student does in high school algebra — knowing the strength of the electric and magnetic fields, and the value of the charge, he can find the unknown — the *mass* and velocity of the moving atoms. Today's scientific measurements are concerned not only with minute atoms but also with illimitable distances. Vast distances in space, which once were given awkwardly in miles, now are measured in time rather than length. The unit of measure, a light-year, (the distance light travels in one year) is about 5.87 million million miles.

The speed of light was recently used as a measuring tool at Cape Canaveral. Scientists, working over a 4,000-mile-square area, finished the job with an error of less than one-sixteenth of an inch — the width of a toothpick — to a mile. The Space Age calls for much more accurate measurements than a "hatful" or "stone's throw." ■



An Aramco laboratory technician at Abqaiq, Saudi Arabia relies on instruments based on standardized measurements to accurately test a sample of cement for thickening-time.



'Ain

The Arabic word 'ain means natural water source or spring— lifeblood of an oasis

TO many, the word "oasis" summons up an image of a little patch of green in the desert, containing, perhaps, a half dozen palm trees and nourished by a puny spring. That picture is, however, hardly fair.

Take, for example, the oasis of al-Hasa, biggest in the Eastern Province of Saudi Arabia. Al-Hasa's 40,000 square acres can hardly be called a "little patch of green." And instead of a half dozen palm trees, al-Hasa has over 2 million, as well as 50 to 60 artesian springs, some with pools that are actually fair-sized lakes.

In Arabic, the word for spring is *'ain* and the springs, of course, are what make the oasis, for their gift is the most precious in the desert — water. Water to drink; water to keep the date palms growing; water to irrigate the small farms, so vegetables can grow; water for animal pasture land. And, water to supply beauty. All of this water comes from rock layers, 500 to 600 feet down. In some places, like the al-Kharj area, the water rises to within 40 feet of the surface, where it is lifted the rest of the way by modern pumps or in goatskin bags by donkey power. At other spots, especially Qatif and Hofuf oases, natural pressure and

At Hofuf oasis, it is pleasant to rest a moment beside the cooling waters of an 'ain.

ideal elevation conditions bring water to the surface.

Four of al-Hasa's springs are very large, each with a flow estimated at 20,000 or more gallons per minute, and all of al-Hasa's springs together produce more than 150,000 gallons per minute. The lakes that the water forms are like magnets, not only for the oasis dwellers themselves but also for the people who live in the surrounding area. Many come for miles to enjoy the scenery, to picnic, bathe, or just to relax in the shade and visit with friends. At 'Ain-al-Harrah the water reaches the surface through three outlets and forms a lake approximately 400 yards long and 100 yards wide, creating one of the oasis' most popular show places.

Each spring has its own name, not at all surprising when it's remembered that American pioneers in arid areas of the West named every trickle of water they came across. 'Ain umm Sab'ah, another of al-Hasa's oases, means "Mother of Seven," for at one time seven canals carried water from the spring to groves and gardens. Today, only five canals remain, but the name lives on. 'Ain umm Sab'ah is distinguished by the high temperature of its water: 101° at the edge and 103° or 104° at the center of the waterflow.

Most bountiful of the larger springs is al-Haql, with a flow estimated at 22,500 gallons per minute. The channel that carries its water off to the northeast is one of the widest and deepest streams in the oasis. It is provided with the characteristic women's bathhouses at several points along its course.

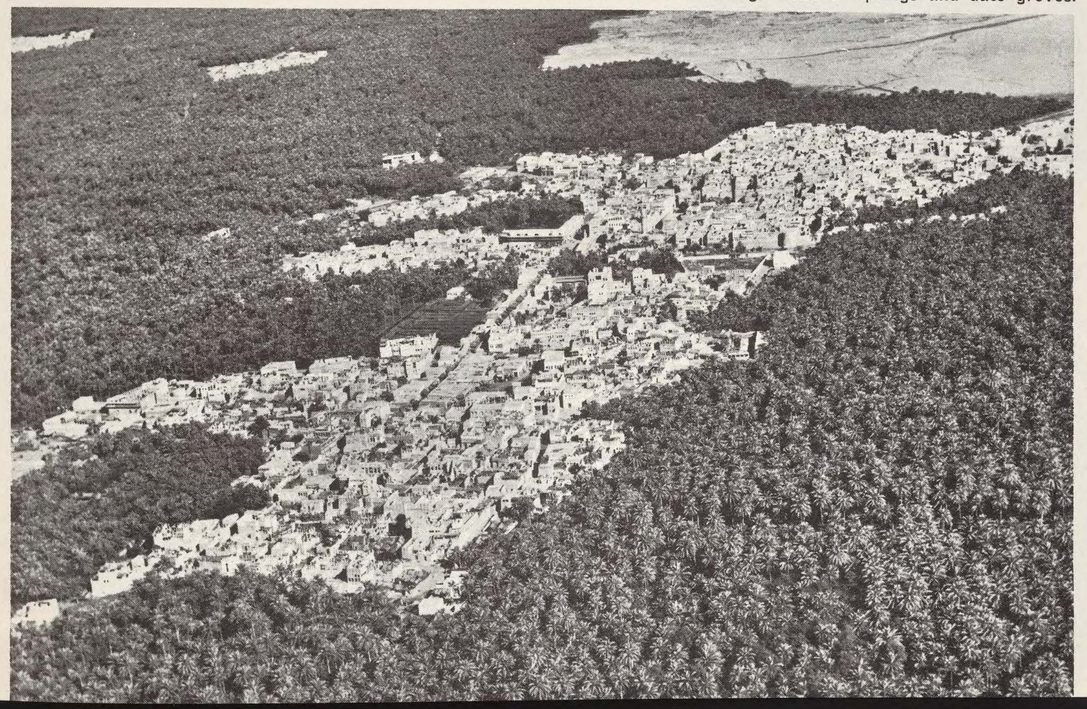
Last of the larger al-Hasa springs is al-Khudud, which supplies about half the water to the Sulaisil Canal, the only canal in the oasis that is sometimes called a river — *Nahr* al-Sulaisil. About 30 feet wide and four feet deep at its beginning, the canal divides itself into several subchannels further on.

Springs provide not only water for crops and flocks but also make good swimming holes for boys who live nearby.

'Ain Najm is one of the more popular of the smaller springs. The word *najm* means "star," and it is told in the legend of the land that the 'ain was created by a falling star. Back in the days of the Turkish occupation, 'Ain Najm's sulphurous water was favored for its curative value. Today, two domes cover the bathing area, and an outdoor *majlis* (reception area) has been erected for the entertainment of guests. High personalities in government and distinguished visitors are usually entertained at Najm when they come to the al-Hasa oasis.

Those visitors leave Saudi Arabia's Eastern Province, not with the idea that an oasis is a "little patch of green," but with an understanding that an oasis can provide thousands of people with a livelihood and recreation. ■

From an airplane the white homes and shops of Qatif, Saudi Arabia nestle in a huge oasis of springs and date groves.



a touch of Ribbon

The narrow fabric with the wide use is as old as Cleopatra and as new as this year's Christmas gifts

FOR thousands of years a simple band of cloth has been closely tied to beauty and femininity: the ribbon, in all its bright and varied forms. Paintings in ancient Egyptian tombs show Cleopatra with a gay, beguiling ribbon across her forehead, accentuating the grace that captivated Caesar and blurred Marc Antony's judgment. And poets without end have praised the sight of woman adorned with shimmering, colored fillets of fabric.

Today, as in the days of the Pharaohs and the grandeur of Greece, ribbon continues to exert a singular charm. Who can't recall grandmother's bonnet, jaunty with a gay satin trim, or the sight of a little girl, a black velvet bow in sharp contrast to her yellow hair? Ribbon still seems to be everybody's favorite.

Its uses, of course, have multiplied greatly through the years. During the last war, for example, the makers of ribbon turned their loops and bows into parachute shrouds and webbing used to fasten life rafts together. Because of its unusual tensile strength (the ability to withstand a strong pull), ribbon performed superbly in its new role. Now the rockets which soar from Cape Canaveral employ special shrouds of ribbon on the parachutes which conduct fact-bearing nose cones safely back to earth.

World War II was not, however, the first combat in which ribbon had found itself engaged. Knights rode into battle or jousted at tournaments with the colors of their favorite lady streaming from their lances.

During the Christmas season, ribbon is as traditional as St. Nick's hearty laugh or stockings hung before the fireplace. Gifts and candy canes, baskets of fruits and bags of nuts, even normally staid household fixtures, all twinkle and gleam with its special touch. Along with providing an unmistakable touch of femininity, ribbon seems to mean pleasurable giving.

U.S. ribbon makers are well aware of America's delight in dressing up the Yule season, and each summer they start weaving bolt after bolt of brightly colored cloth in preparation for December. One big Chicago firm produced nearly 900,000 miles of ribbon in 1959, enough to wrap around the world thirty-five times and have plenty left for a bow at the equator. It's anticipated that the average Christmas shopper will buy even more gift wrapping material this year, with red forecast as the favorite color.

It might be said that ribbon is a rather constant companion at the three most important events in life: birth (or, at least, the new baby's first day home), marriage and death. Everything about a baby seems to suggest and receive ribbon softness, and toys, booties, little clothes and even furniture are sprightly decked with pink or blue. Weddings and funerals account for the largest use of ribbon. Floral bouquets, sent in sadness or gladness, are tied with ribbon and the bride's gown is traditionally trimmed with it.

The second largest use made of ribbon today is in wrapping gifts, not only at Christmas but at Easter, anniversaries, birthdays and the countless other gift-giving occasions. People, particularly Americans, seem to care almost as much about what a package looks like as about what it contains. The result is that gift-wrapping departments of large stores have become increasingly popular.

Ceremony is something else which seems to demand ribbon. All manner of diplomas and prizes — from Bachelor of Arts sheepskin to Best in Show ribbon — are decorated with a crisp swirl of color, usually blue or red. The giving of a blue ribbon for first prize originated with the English knights. The highest order of knighthood, the Order of the Garter, was represented by a wide sash of blue. A red ribbon for second prize was inspired by the second order of knighthood, the Order of the Bath, represented by a crimson sash.

Knighthood was not passed from father to son, but had to be earned. The Order of the Garter led a long list of honors which could be bestowed upon a deserving subject. From the awarding of orders of knighthood — and the attendant sashes, badges, and medallions — came the idea of the military decoration for valor and the distinctive ribbon which represents it.

The U.S.'s top military award is the Congressional Medal of Honor, given for "courage above and beyond the call of duty." The ribbon drape which holds the medal to its clasp and the ribbon bar are of light blue sprinkled with thirteen stars. Britain's foremost decoration, the Victoria Cross, has a crimson ribbon.

As one of fashion's gayest children, ribbon has had its ups and downs through the years. Since the departure of the flapper dress, trimmed at hip, hem and bodice with flounces of ribbon, ribbon has slipped a trifle as far as its use by designers and dress and millinery manufacturers is concerned. Shorter hair styles and easier permanents have also caused a temporary decline in the popularity of hair bows, but a revival of interest may be just around the corner.

"After all," offers one New York fashion consultant, "a little girl without a ribbon in her hair is like a little boy without gum in his mouth and marbles in his pocket."

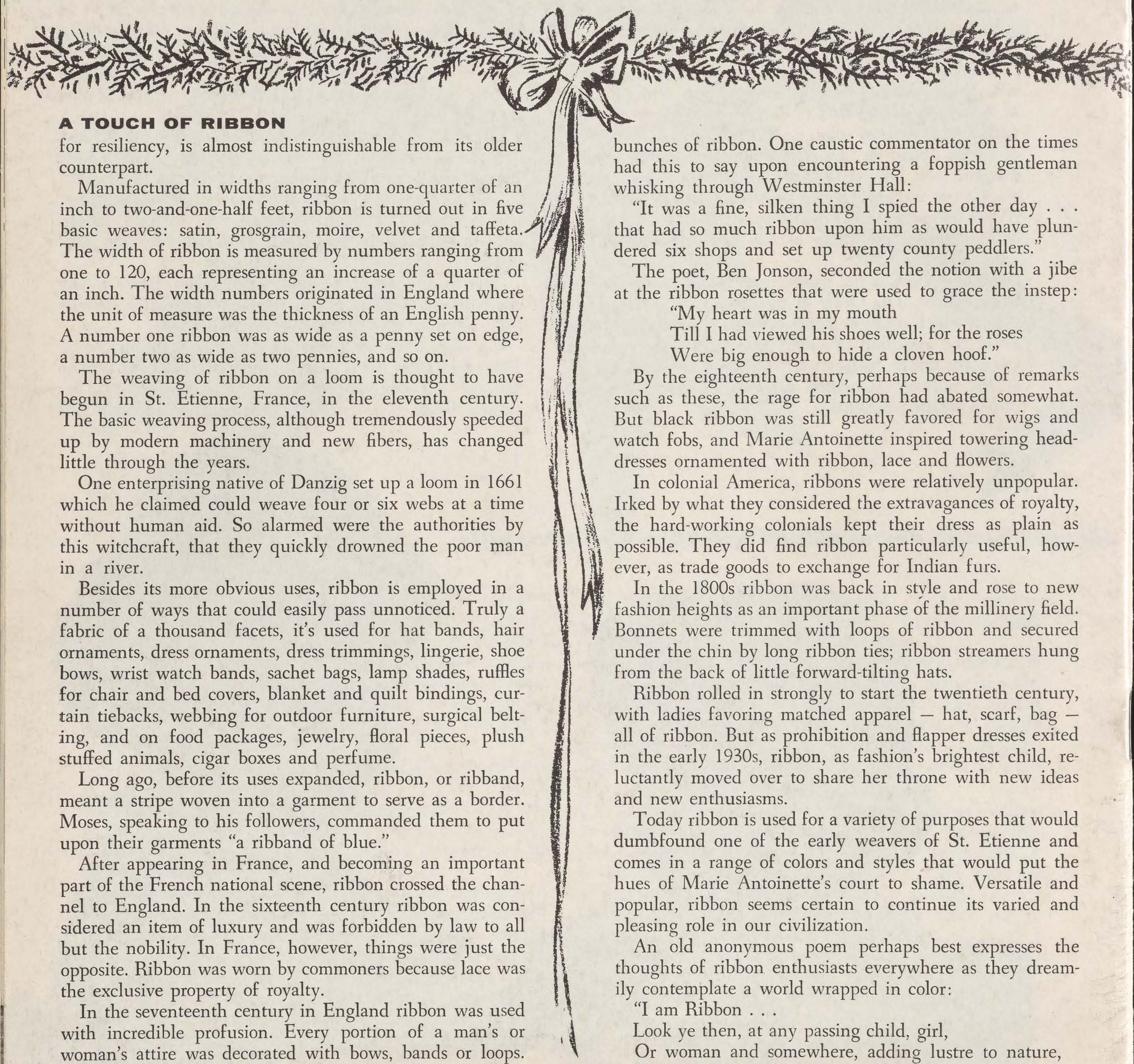
Today's ribbon can be divided into two broad categories: woven ribbon, the more expensive and durable variety, and cut-edge ribbon, used almost exclusively for gift packaging.

The woven ribbon, of silk, rayon, nylon, tinsel or any combination of these fibers, is loomed so that a distinct edge is formed during the weaving process.

Cut-edge ribbon is made by a machine, introduced in 1938, that slices strips from a single large piece of acetate material and simultaneously seals the edges with its hot cutting blade. The cut-edge variety, dyed and stiffened

Aramco World

505 PARK AVENUE, NEW YORK 22, N. Y.



A TOUCH OF RIBBON

for resiliency, is almost indistinguishable from its older counterpart.

Manufactured in widths ranging from one-quarter of an inch to two-and-one-half feet, ribbon is turned out in five basic weaves: satin, grosgrain, moire, velvet and taffeta. The width of ribbon is measured by numbers ranging from one to 120, each representing an increase of a quarter of an inch. The width numbers originated in England where the unit of measure was the thickness of an English penny. A number one ribbon was as wide as a penny set on edge, a number two as wide as two pennies, and so on.

The weaving of ribbon on a loom is thought to have begun in St. Etienne, France, in the eleventh century. The basic weaving process, although tremendously speeded up by modern machinery and new fibers, has changed little through the years.

One enterprising native of Danzig set up a loom in 1661 which he claimed could weave four or six webs at a time without human aid. So alarmed were the authorities by this witchcraft, that they quickly drowned the poor man in a river.

Besides its more obvious uses, ribbon is employed in a number of ways that could easily pass unnoticed. Truly a fabric of a thousand facets, it's used for hat bands, hair ornaments, dress ornaments, dress trimmings, lingerie, shoe bows, wrist watch bands, sachet bags, lamp shades, ruffles for chair and bed covers, blanket and quilt bindings, curtain tiebacks, webbing for outdoor furniture, surgical belting, and on food packages, jewelry, floral pieces, plush stuffed animals, cigar boxes and perfume.

Long ago, before its uses expanded, ribbon, or ribband, meant a stripe woven into a garment to serve as a border. Moses, speaking to his followers, commanded them to put upon their garments "a ribband of blue."

After appearing in France, and becoming an important part of the French national scene, ribbon crossed the channel to England. In the sixteenth century ribbon was considered an item of luxury and was forbidden by law to all but the nobility. In France, however, things were just the opposite. Ribbon was worn by commoners because lace was the exclusive property of royalty.

In the seventeenth century in England ribbon was used with incredible profusion. Every portion of a man's or woman's attire was decorated with bows, bands or loops. Even the masculine walking stick was festooned with bunches of ribbon. One caustic commentator on the times had this to say upon encountering a foppish gentleman whisking through Westminster Hall:

"It was a fine, silken thing I spied the other day . . . that had so much ribbon upon him as would have plundered six shops and set up twenty county peddlers."

The poet, Ben Jonson, seconded the notion with a jibe at the ribbon rosettes that were used to grace the instep:

"My heart was in my mouth
Till I had viewed his shoes well; for the roses
Were big enough to hide a cloven hoof."

By the eighteenth century, perhaps because of remarks such as these, the rage for ribbon had abated somewhat. But black ribbon was still greatly favored for wigs and watch fobs, and Marie Antoinette inspired towering headdresses ornamented with ribbon, lace and flowers.

In colonial America, ribbons were relatively unpopular. Irked by what they considered the extravagances of royalty, the hard-working colonials kept their dress as plain as possible. They did find ribbon particularly useful, however, as trade goods to exchange for Indian furs.

In the 1800s ribbon was back in style and rose to new fashion heights as an important phase of the millinery field. Bonnets were trimmed with loops of ribbon and secured under the chin by long ribbon ties; ribbon streamers hung from the back of little forward-tilting hats.

Ribbon rolled in strongly to start the twentieth century, with ladies favoring matched apparel — hat, scarf, bag — all of ribbon. But as prohibition and flapper dresses exited in the early 1930s, ribbon, as fashion's brightest child, reluctantly moved over to share her throne with new ideas and new enthusiasms.

Today ribbon is used for a variety of purposes that would dumbfound one of the early weavers of St. Etienne and comes in a range of colors and styles that would put the hues of Marie Antoinette's court to shame. Versatile and popular, ribbon seems certain to continue its varied and pleasing role in our civilization.

An old anonymous poem perhaps best expresses the thoughts of ribbon enthusiasts everywhere as they dreamily contemplate a world wrapped in color:

"I am Ribbon . . .
Look ye then, at any passing child, girl,
Or woman and somewhere, adding lustre to nature,
You will see me." ■