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## TALK ABOUT THE WEATHER

The modern weatherman, despite his myriad scientific aids, faces a formidable foe — the amateur forecaster. These second-guessers may rely on anything from the cry of a bird (the Thompson Indians of British Columbia insist that "When a loon calls loud and often, it will soon rain") to the position of a planet, and they may be right about tomorrow's rain. But the method, rather than the prediction, often leaves something to be desired.

Rural residents may instruct you to find a cricket and count the number of times the insect chirps in 14 seconds. Add 40 and you will have the temperature within one degree. Skeptical? Look for the "wooly bear" caterpillar in autumn. The width of the dark band in the larva's coat is supposed to foretell the severity of the coming season.

The adage "Red sky at night, sailor's delight; red sky in the morning, sailors take warning" holds true for some mariners, yet the landlocked Bedouin Arabs put a reverse twist on this salty saying. They believe that "If there is a rainbow in the sky in the morning (indicating fair weather ahead), carry your cane and travel; if there is a rainbow in the sky in the evening, find a warm cave." It is generally conceded, however, that fair skies can be expected when, during a rain, "there's enough blue in the sky to make a pair of Dutchman's breeches." And a fairly universal credo is that a halo around the moon means a good chance of snow in winter, rain in summer.

The ground hog legend is perhaps the most popular, if least scientific, weather witticism ever invented. The Pennsylvania Dutch assert that each year, on the second day of the second month, **marmota monax** is supposed to rub his sleepy eyes, roll out of his earthy bed and take a look around. If the sky is murky and his shadow fails to appear, it is a sure sign of spring. If, however, the woodchuck spots his shadow, he takes fright and pops back inside his den for another six-week snooze of winter.

Those who insist bad weather is on the way because their hair is unusually curly have a limited official stamp of approval. Dr. W. J. Humphries, formerly with the United States Weather Bureau, once conceded that as a storm approaches the air becomes more humid, affecting the hair like a damp comb being run through it. It is true, too, that doors and windows are likely to stick and salt to pack.

Weather experts are emphatic about the fact that the moon, a centuries-old forecasting staple, is no more capable of affecting the weather than an Indian rain dance. Meteorologists deny that a new crescent with its horns pointing downward means that it will be wet. And they advise farmers to plant when it is time rather than to rely on the moon.

What was probably the most absurd and, at the same time, astonishingly accurate weather prediction of all time occurred when a young editor, creating copy for an early **Old Farmer's Almanac,** mischievously inserted "rain, hail and snow" for a July date. The joke boomeranged when that day actually afforded all three.

Several interesting, if dubious, hints were published by the conservative Army Signal Corps in 1883:

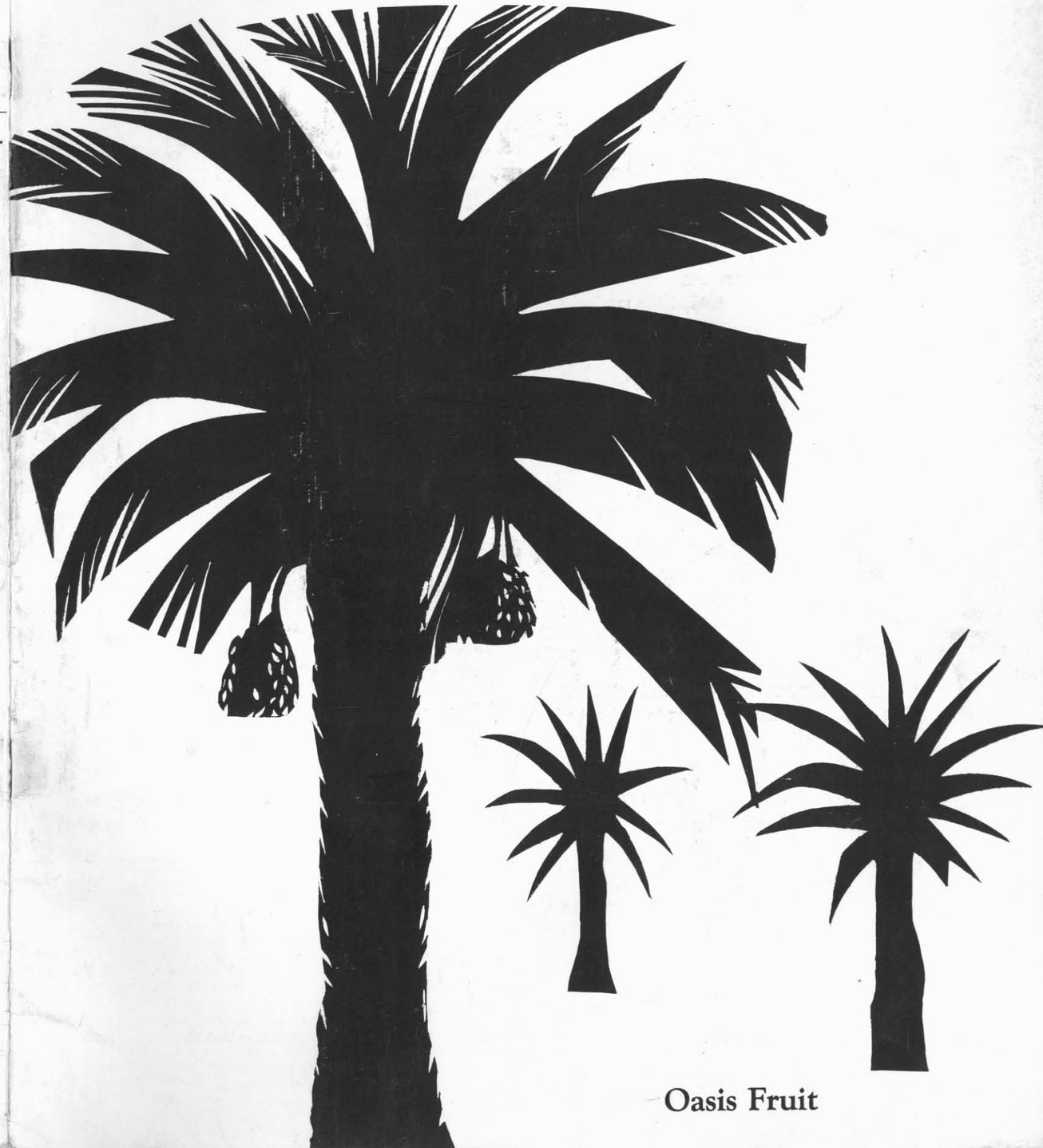
1. The cardinal point to which a cat turns and washes her face after a rain indicates the direction from which the wind will blow.
2. If the bull leads the van in going to pasture, expect rain. If he is careless and allows the cows to precede him, the weather will be uncertain.
3. When flying squirrels sing in winter, it is a sign that snow is nearly at an end.
4. Expect stormy weather when ants travel in lines, fair weather when they scatter.
5. Ringing in the ears at night indicates a change of wind.

Most of us have our pet sure-fire predictions: When a picnic is planned . . . expect a torrent. If you carry an umbrella . . . figure on a sunny day. When the car has just been washed . . . rain is a sure thing. Should your corns ache . . . time for the chiropodist.

These prognostications are at least as questionable, or as reliable, as the ground hog myth. But there was a time when farmers took a quick survey of the countryside, then handed out a fairly accurate weather prediction. Nowadays, with the excellence of government studies, most farmers postpone their weather words until they have heard the daily forecast!

# Aramco World

MARCH 1962



Oasis Fruit

# Aramco World

MARCH

1962

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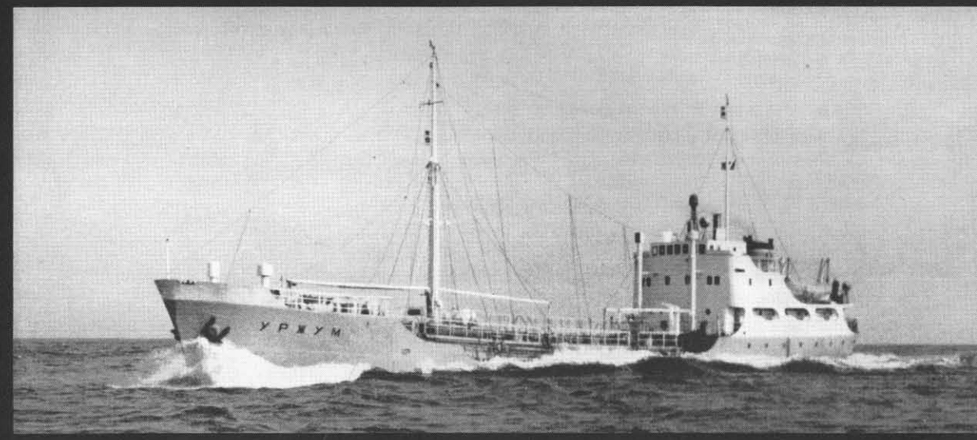
# THE THREAT OF SOVIET OIL

*Russia is building her might with the sale of her oil*

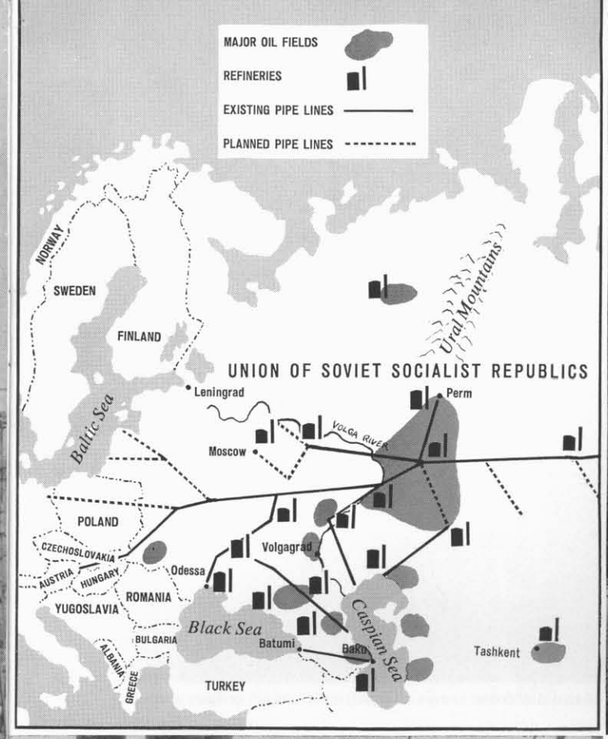


Russian tanker cargo of 200,000 barrels of oil sells for about $380,000 in the West, $600,000 in a satellite port.

FOR SEVERAL YEARS the export of oil from the Union of Soviet Socialist Republics and the Soviet bloc into free world markets has been a source of growing concern to many American oil men. They have watched closely as the volume of Soviet oil sales has steadily increased in Germany, Italy, Finland, Sweden, France, the Middle East and elsewhere. What troubles them is not the mere fact of Soviet competition, for that is a normal business risk. Their real concern is the system of state-controlled pricing and barter that Russia uses to penetrate free world oil markets.

More recently, Soviet oil has become the subject of news reports, magazine articles and speeches. Russian oil exports have been discussed on the floor of Congress, and Soviet trade agreements are being analyzed in government circles in Europe, Japan and the Middle East. Unfortunately, the subject of Soviet oil and its role in world trade is difficult to understand. The average person, already bewildered by

Oil rigs at Baku Field, U.S.S.R.: Russia now rivals Venezuela for second place in world oil output. Crude oil exports to free world are expected to reach 750,000 barrels a day by 1965, a million by 1970.




Regulating production electronically at a Russian oil field. Some of Russia's most modern industrial technology is being purchased in Europe and paid for with the sale of Soviet oil.

## THE THREAT OF SOVIET OIL

the pace of space flight progress and the mounting complexities of world problems, hasn't the time to study the economic and political subtleties of Soviet export policy.

However, oil men who have kept a vigilant eye on the growth of Soviet oil exports point out certain underlying factors that provide an avenue to a general understanding of the subject. In the first place, the U.S.S.R. is now involved in a seven-year program of economic expansion which will end in 1965. The plan calls for significant increases in her oil producing, transportation and refining capacities. Although official figures are not available, oil economists believe that the U.S.S.R. already rivals Venezuela for second place in world oil production. The United States is the leading oil producing nation.

Russia has set herself some very difficult goals in industrial production to be achieved by 1965. She is buying a vast array of technology from the West—complete factories, processing plants, automated assembly systems—in order to meet her goals. She must generate credit to buy freely in Western markets and in Japan. There is little time for her to develop the complex control systems (automation) that are the heart of much modern industrial production.

Also, she needs to buy thousands of miles of medium and large-diameter pipe for the long oil and gas pipelines she plans to add to her present system.

How is Russia to finance such tremendous purchases abroad? To a large degree, with oil. It is one commodity she can export without unduly affecting her domestic requirements. It readily lends itself to the Soviet policy of using exports as instruments of economic and political policy.

In her oil export program, the Soviet Union has come up against the fact that other oil exporting nations have built up a relatively stable competitive share of free world markets. Undaunted, the Soviet Union has devised a flexible system for entering these markets. The system is based on cut-rate prices and barter agreements, especially in countries where foreign exchange problems exist.

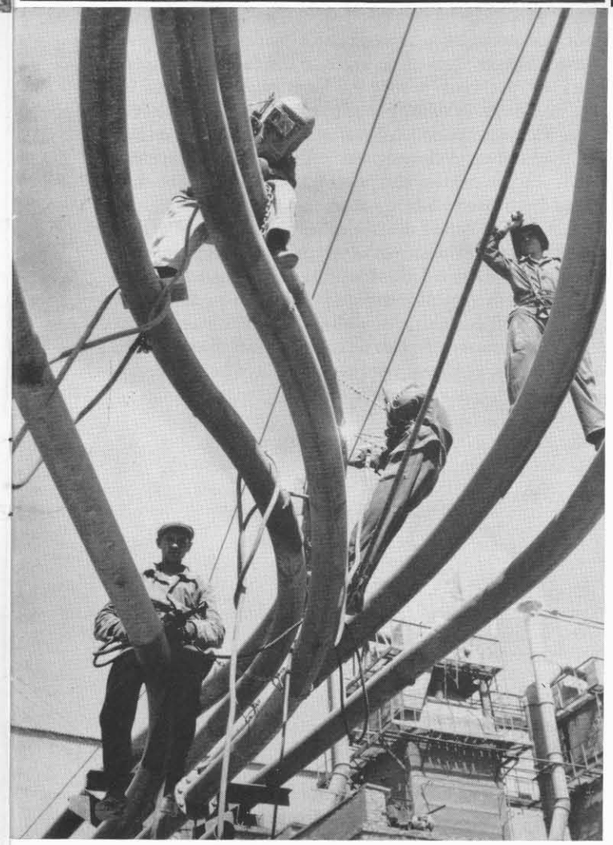
On the face of it, this seems like a fairly familiar trick—get a foot in the door and then slowly bring the prices up to normal. But for the past half-dozen years Soviet oil prices have undercut, sometimes severely, those of the free economies. Oil experts feel that Russia is unlikely to close the price gap for some time. And by then she may have a firm grip on a large share of world oil markets.

In order to understand Soviet oil pricing it is necessary to take a first-hand look at the Soviet pricing system at home. Such a look was taken by a delegation of United States petroleum experts who toured U.S.S.R. oil facilities.

They found that in the Soviet economic scheme the word *cost* is likely to mean something quite different from what it does in the West. Wages are set by the state, and prices are set by the state. Thus costs are whatever the state wants to say they are.

The key figure in Soviet oil pricing may well be the oil field and refinery worker. His role was examined about a year ago by the touring U.S. oil men. At Syzran, one of the older Soviet refinery towns, the average refinery worker was paid about 1,200 *rubles* a month. The value of this wage can best be shown by comparing it to the prices a worker pays for necessities. An overcoat costs about 1,000





Welding flowlines at Moscow refinery. Wages paid to refinery worker and price of Soviet oil are controlled by the state.

rubles. Food for an average family of four costs from 1,500 to 1,800 rubles a month.

Just before a commodity is placed on the market, "turnover taxes" are added. G. T. Piercy, a member of the U.S. oil delegation, has observed: "The level of the tax depends upon whether they want to promote or depress consumption. This philosophy of pricing has its advantages when penetration of world markets is the goal."

The flexibility and *control* in such a system gives the Soviet Union an extremely free hand in undercutting oil prices in free world markets. It also permits the Soviet Union to maintain several categories of prices. The free world customer pays one price and the Soviet satellite country pays another, and much higher, price.

For example, a tanker cargo or 200,000 barrels of oil will be sold in the West for about $380,000. If sold in a satellite port, the cargo would bring Russia about $600,000.

The cost of a barrel of crude oil imported into Italy offers a look at Soviet oil pricing in a single Western market. The Italian Government has published a list showing the cost of a barrel of crude oil landed in Italy from various producing countries during 1960. Following are some of the prices covering crude oils of roughly comparable quality:

| | |
|---|---|
| *Iraq* | $2.46 |
| *Iran* | 2.37 |
| *Qatar* | 2.31 |
| *Saudi Arabia* | 2.29 |
| *Venezuela* | 2.24 |
| *Kuwait* | 2.19 |
| *Russia* | 1.68 |


Girl oil field workers at Baku Field discuss standings of the different crews competing in an oil output contest.

## THE THREAT OF SOVIET OIL

There is another factor involved that escapes the eye of someone who is not expert in the world marketing of oil. Let us say that a country enters into a trade agreement to purchase Soviet oil because of the low price. Time passes and the importing country cuts itself off from its past sources of oil. It develops a pattern of dependency upon the Soviet Union for an important energy raw material. Someone has called the entire Soviet petroleum industry "one of the largest integrated oil companies in the world, with an absolutely protected internal market, with no firmly established investments outside the Soviet bloc . . . and with the complete support of the Soviet economy and Government."

If this gigantic "oil company" should decide to cut down on exports, or shift its exports to new areas, or take some similar arbitrary action, the country which has come to depend upon Soviet oil might find itself suddenly hunting for a new supplier for all, or part, of its demand. In times of surplus oil and shipping, the country may find other suppliers to fill its needs. But in times of crisis or shortages of oil and shipping, other suppliers could not be expected to fill the gap left by the withdrawal of Soviet oil. In such circumstances, they naturally will put their major efforts into meeting commitments to their regular customers.

Russian foreign commerce is not what it seems to be: there is often some political sleight-of-hand behind Soviet exports. Soviet spokesmen say that all the U.S.S.R. seeks to do is to regain her historical position in world oil markets. In the early years of the century Russia was an important exporter of oil. After World War I she further developed her world markets. In the period from 1930 through 1933 her share of oil imports into Western countries was 19 per cent. In 1932, her peak year, she exported 120,000 barrels of oil a day.

Then she began to withdraw from export competition. Under Stalin the Soviet Union and its satellites sought economic self-sufficiency. Since Stalin's death in 1953, however, Soviet bloc exports of all kinds to the free world have increased 14 per cent per year. This annual growth is almost three times as fast as total free world exports have grown in the same period. Oil is by far the largest single item in this increased Soviet trade. In 1959 oil accounted for almost 20 per cent of the value of total exports to the free world from the U.S.S.R.

In the World War II era the Soviet Union was a *net importer* of oil. Her initial withdrawal from world markets was for reasons that had their roots in Stalinist economic policy reinforced by political policy. Her return to world markets has been based upon similar considerations which have led to the current Soviet seven-year plan of economic expansion. Thus, world oil requirements have been treated by the Soviet Union as a target of opportunity in an economic program. The Soviet goal, therefore, has not truly been one of regaining its old "historical position" as Russian leaders claim, but rather of putting a new edge on an old sword.

The main goals of Soviet expansion in free world oil markets appear to be these:

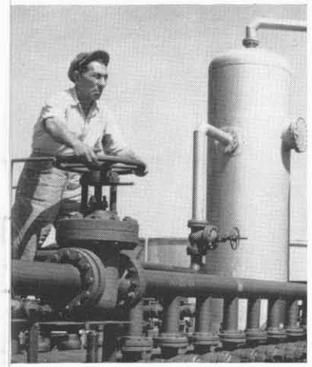
To acquire foreign credit, mainly in the West.

To buy strategic materials that will form a solid base for a modernized Soviet industrial economy; in other words, to build a stronger Russia.

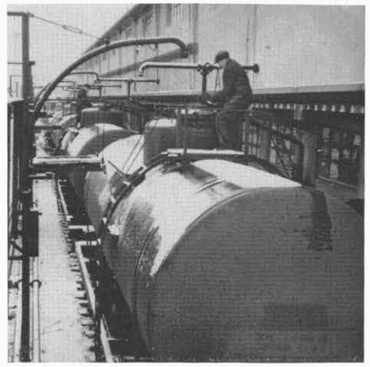
To create dependence upon Russia for basic energy raw materials among nations that are becoming her oil customers.

Every time the Soviet Union sells a tanker of oil in the free world she adds to her foreign credit. And she has been remarkably successful in using this new buying power to acquire advanced technology in Europe. In a recent speech to the U.S. Senate, Senator Hubert Humphrey listed the following major purchases of strategic industrial equipment by the Soviet Union:





Oil from Azerbaizan flows to tanks before foreign shipment.



Trainload of Soviet oil is unloaded into tanks at Polish border city of Zurawicka.

Moscow industrial fair, 1956, exhibited turbodrills driven by the high pressure of the drilling fluid.

From the United Kingdom: an integrated modern tire-making installation and several complete plastics plants.

From France: an automated production line for manufacturing truck parts, a cement factory and two concrete panel plants (for pre-fabricated structural units).

From Germany: two chemical plants, a pulp-and-paper plant and a tubing mill to make pipe for oil pipelines.

From Italy: five complete chemical plants and the requisite processing rights from five major chemical firms.

Senator Humphrey also underscored a hidden advantage the U.S.S.R. enjoys by purchasing technology from the West. Such purchases leave Russian scientists free to devote their time to military and space research.

These purchases have not gone without notice in the free world. On the contrary, they have led to problems that are beginning to undermine the commercial relations of Western nations. Criticism of one nation by another for buying Soviet oil and selling strategic materials to her is growing. Russia alone can profit from such discord.

This hidden economic drama is being played out against a tremendous historical development. The world is moving rapidly toward industrialization. Already oil supplies nearly half of the energy consumption of the world. Thus, by its very nature, oil is fundamental to world industrial progress. It is linked inextricably to the mature ambitions of old nations and the fresh hopes of new ones.

It is to these expanding free world oil markets that the Soviet Union has directed her oil exports. Since 1953 *production* of Russian oil has nearly tripled. In the same period, *exports* to the free world have increased more than ten times, moving from 35,000 barrels a day to nearly 500,000 barrels a day.

What's more, these exports are expected to reach 750,000 barrels a day in 1965. And by the time a major Soviet pipeline system, now under construction, is completed, they may hit the million-barrel-a-day level.

The largest Soviet oil customers in Europe are Italy, Germany, Finland, Sweden and France. In 1959 Italy imported 15 per cent of its demand from the Soviet bloc. In 1960 the figure rose to 19 per cent. In 1960 the Soviet Union supplied 9 per cent of Germany's oil imports. Soviet oil supplies almost 80 per cent of demand in Finland, 14 per cent in Sweden and Austria, 11 per cent in Norway.

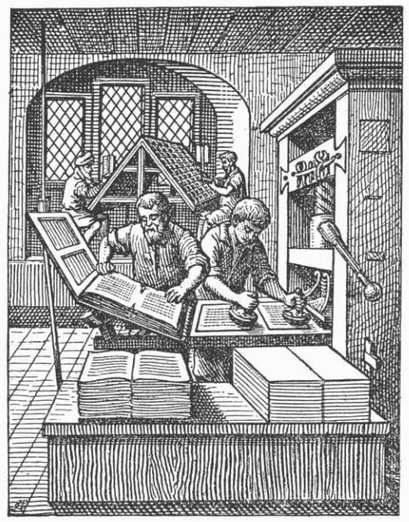
Since the expropriation of the oil industry in Cuba by Fidel Castro, the Soviet Union supplies all of that country's oil imports.

One member of the American delegation that visited Russian oil fields and refineries has said: "One of our national pastimes is underrating the other fellow. To underrate this particular other fellow is to invite disaster." ■

Automobile plant in Gorky. Soviet 7-year plan of economic growth is underwritten by sale of oil to satellites and West.

# BOOKS IN THE MAKING

**Producing a book is a test of craftsmanship every step of the way**



*Old World printing shops depended on skilled handwork to make books.*

"WHEN YOU SELL a man a book you don't sell him just twelve ounces of paper and ink and glue – you sell him a whole new life," Christopher Morley wrote in *Parnassus on Wheels*. Most people are acquainted with books as the portal to strange and wonderful worlds. But what of the book itself – the "twelve ounces of paper and ink and glue"? How are these simple materials transformed into a compact mirror of civilization that man can hold in his hand and mind?

The history of printed books is nearly five hundred years old. But the publishing industry, as it is known today, was spawned a mere three-quarters-of-a-century ago with the birth of the Linotype machine.

It is around this chattering, cumbersome, fascinating piece of machinery that modern publishing has grown. And it is on the keyboard of this mechanical marvel that books are launched on their journey to immortality.

Before it reaches the linotypist's copyholder, however, a manuscript undergoes a delicate process of refinement. As soon as the author heaves a sigh of completion and rips the last sheet from his typewriter, his composition is whisked to the editor's desk. The editor's job is to fit the manuscript to the market, a process that may prompt anguished outcries from the writer as a merciless blue pencil slices away his "best" material. Most writers, though, value the editor's assistance and realize that in the highly competitive book business an editor's knowledge of public taste often provides the extra fillip that gives a book a better chance of successful sales.

The copy editor takes over next. To date, no one has been able to define the limits of his responsibility, but basically his is an effort to ensure correctness in grammar, punctuation and spelling, to maintain consistency and clarity, and to check for factual accuracy. He is not concerned with *what* the author says as much as with *how* he says it.

After the copy editor, the fine hand of the designer is felt. It is he who draws up the specifications for the book's physical appearance. The things that most readers take for granted are his forte – type size and style, page size, number of lines to the page and style of chapter headings. Many a designer's mind has ached with the labors of fitting the appearance of the printed page to the intellectual content of the book. A philosophical treatise, which must be readable yet dignified, requires a vastly different approach than a gaily illustrated children's primer.

Now the manuscript is ready for the insatiable Linotype. The actual typesetting does not take long: an average script of 300 pages can be set in less than a week.

Seated before a keyboard that resembles an overgrown typewriter, the compositor clips one sheet of the manuscript at a time near eye level. His sure fingers fly over the keys, feeding electrical orders into the receptive machine. At intervals, a thin "slug" of hot lead embossed with metal letters drops into a tray at the side of the Linotype. And so the compositor rattles away, turning thoughts on paper into metallic reality.

The atmosphere of every printing shop is pervaded by the distinctive racket of the Linotype machine, a noise that can only be compared to the cacaphony of a creaking, ramshackle trolley clattering its way along metal tracks. But it is a warm, friendly sound – a sound that says that man is once again making the age-old attempt to talk to his fellow.

"Proofs" of the finished job are checked by the printer's reader. Additional sets are sent to author and publisher. Each book is read at least six times during manufacture, but even this care does not prevent minor typographical errors from creeping into virtually all volumes. One New York editor has issued a standing challenge: he will find an error of some kind in any book handed to him. He boasts that he hasn't failed yet, although he was once presented with a copy of a dictionary.

Of all the people connected with the making of books, the proofreader is perhaps the most colorful. He lives in a unique world of esoteric language and polished skill. Possessed of the ability to read with comprehension at an incredibly rapid pace, he can detect, with a mere glance down a sheet of proof, tiny bits of broken type or whole lines transposed out of order. It is his task to see that the metal

type conforms in every detail to the written manuscript.

Sometimes the proofreader must check long passages, or even an entire script, against the original copy. To do this he reads the proofs aloud while another reader follows the manuscript. Every punctuation mark is mentioned along with the actual words. Since he reads quickly and abbreviates wherever possible—"hyph" for hyphen, "pos" for apostrophe, "paren" for parenthesis, "com" for comma—the result resembles the babble of a foreign tongue to unfamiliar ears. The sentence, "After reading Browning's poem ('My Last Duchess'), Jack jumped from the two-foot-high stage.", (transliterated into proofreader's jargon and read at breakneck speed) becomes, *"Quote* After *cap A* reading Browning's *cap B pos s* poem *paren single quote* My Last Duchess *three up end single quote end paren com* Jack *cap J* jumped from the two *hyph* foot *hyph* high stage *period end quote."*

Even more unintelligible to the layman are the symbols used by the proofreader to indicate errors and corrections. Frequent, high-speed usage has refined them into a code, and a heavily corrected proof will look like a page of clever, painstaking doodles.

Because most books are printed in large quantities and the type would wear out or break during a long "run," metal or plastic "plates" are molded from the corrected type. Plates are stronger and stand up better under the pressures of modern, powerful presses.

The pages of a book are not printed individually as they were in earlier times. A number of pages are grouped together on a large sheet and arranged so that folding will bring them into proper order. This arrangement of the pages, called "imposition," is a bewildering art—even the most experienced pressmen have difficulty remembering the correct sequence without a chart.

In a matter of days the sheets have rolled off the presses and have been stacked and left to dry—an overnight process unless the weather is damp. More machinery continues the job of shaping the book: a Rube Goldberg monster folds the sheets, another collates individual copies, a heavy press forces air from between the pages, a special backing is stretched along the spine, the folded sheets are sewn together. A recognizable book has now begun to appear; in fact, it is a book, without its clothes on.

Today's fast and economical method of book manufacture is in sharp contrast to the manner in which volumes were produced a century ago, particularly before the invention of the Linotype machine by Ottmar Mergenthaler in 1886 for Whitelaw Reid, editor of *The New York Tribune*. Then, every character of every word, punctuation mark and space had to be picked up by hand and placed on a compositor's "stick," a process involving months of tedious labor. The steam-driven printing press itself was in a primitive state, and none of the intricate machinery for folding and stitching was beyond the dreaming stage.

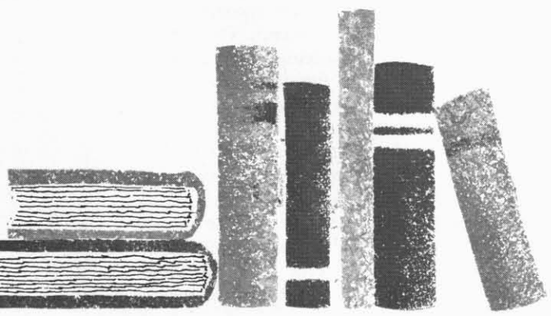
Earlier, before Johann Gutenberg perfected the process of printing from type, books were handwritten. In medieval times the maker of books was a "scribe" or "copyist." The tools of his trade were few and simple: a quill pen, ink, a pair of compasses for the spacing of lines, a ruler and pencil to draw them, a knife for mending pens, an erasing knife for corrections, and pumice or agate for smoothing the scratched surface after erasures.

Although handwritten books utilized a great variety of materials for "paper" over the centuries—papyrus, wood, silk cloth, clay and leather, for example—by the beginning of the Middle Ages parchment of vellum had come into favor. Prepared from the skins of animals, vellum lasted, offered a sharp appearance, and could be erased and used again.

With the application of the hard outside cover, known as the "case," the major difference between modern books and those of a few centuries ago becomes apparent. Today's serviceable cardboard and cloth covers are often commonplace in comparison to the outer garb of early books.

It must be remembered, of course, that those ancestral volumes were never intended to be crowded on bookshelves, presenting only their backs to the world. They were treasures to be handled reverently, laid ornamentally on tables, even enclosed in protective wrappings. The covers, often ablaze with jewels, were adorned with all the resources of the arts. In sixteenth-century France a man's books indicated his rank: noblemen were permitted to display five diamonds on their book covers, ordinary citizens were limited to four.

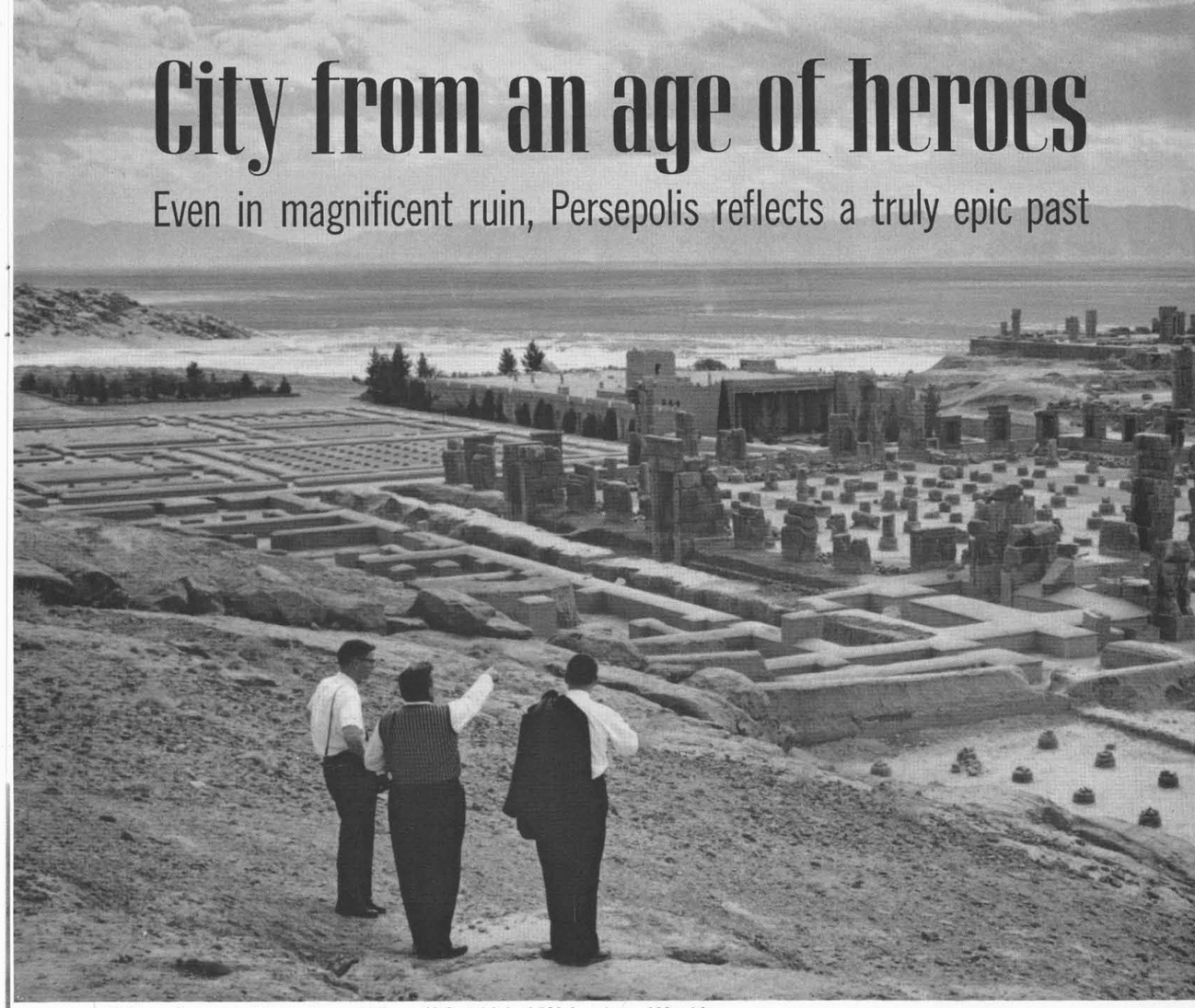
While there may be some measure of loss in the passing of those ornate decorations, modern trends favor the most economical production possible. More than 50 per cent of America's annual half-a-billion book production is of the paperbound variety. This emphasis on thrift points up an eloquent fact: books today, with all their potential for progress, enlightenment and pleasure, have become the easily acquired property of any man who wants to read. ■





# City from an age of heroes

## Even in magnificent ruin, Persepolis reflects a truly epic past



**Palace city was built on stone platform 40 feet high, 1,500 feet long, 900 wide. It was an administrative seat of the Persian Empire from about 520 to 330 B.C.**

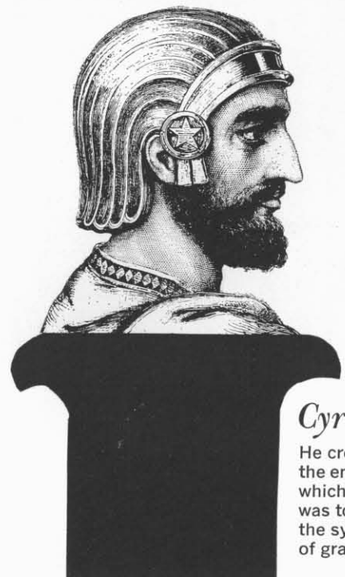
Photography by T. F. Walters

"PERSEPOLIS is captured and burned!"

So cried the swiftest of couriers who sped the news to the centers of civilization. To the world of 2,300 years ago, the message's import was simple yet shattering: the Persian Empire, for 200 years the vastest realm the world had known, was no more.

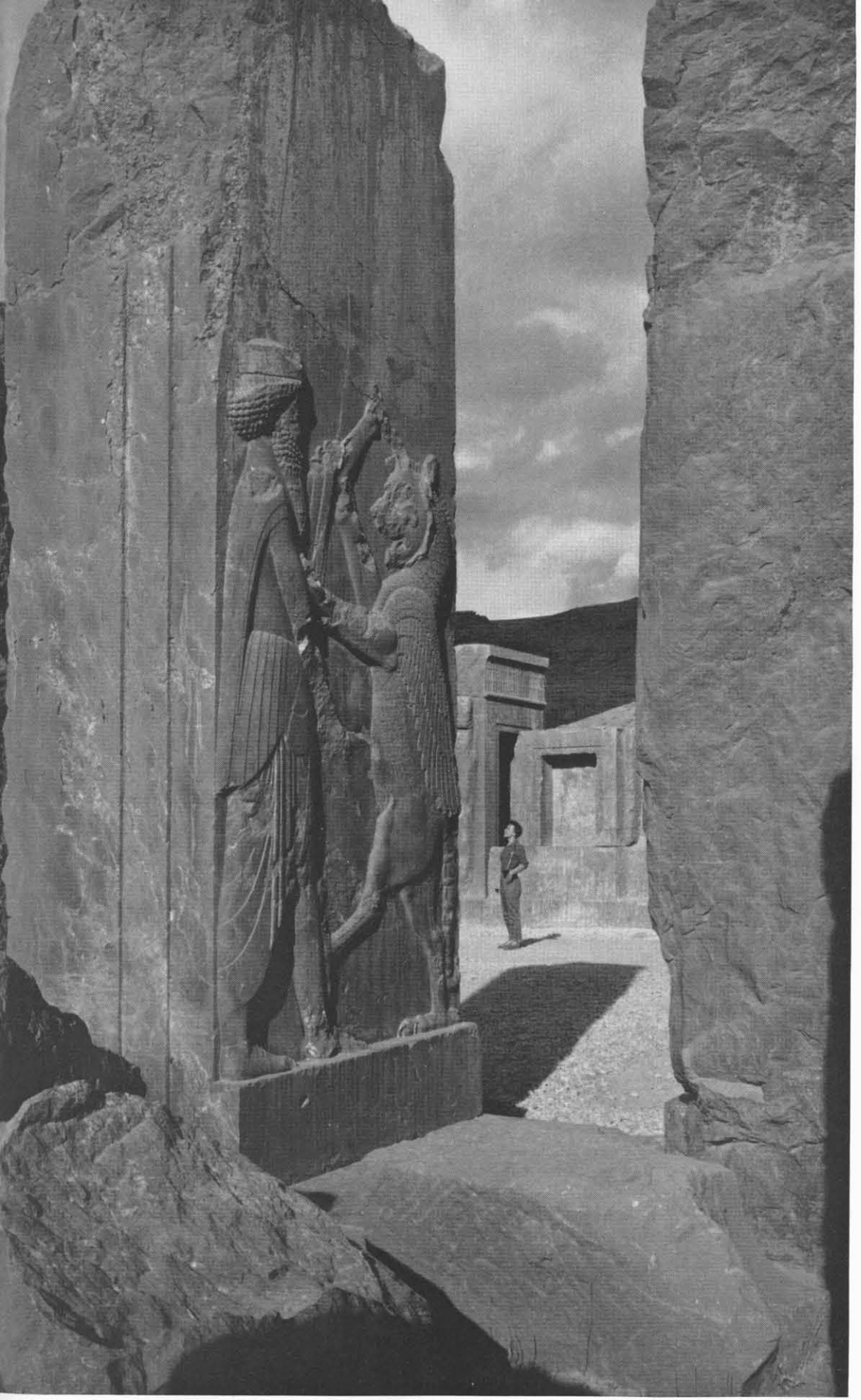
The story of the destruction of Persepolis is the capstone of two centuries of heroic leaders and famous battles familiar to every school child. In their own time, the four kings who spanned those 200 years were called "the Great" by their subjects. History books ever since have agreed. The battles, both land and sea, that led to the fall of Persepolis still intrigue military strategists.

The roll call of kings rightfully begins with Cyrus the



*Cyrus*

He created the empire for which Persepolis was to become the symbol of grandeur.



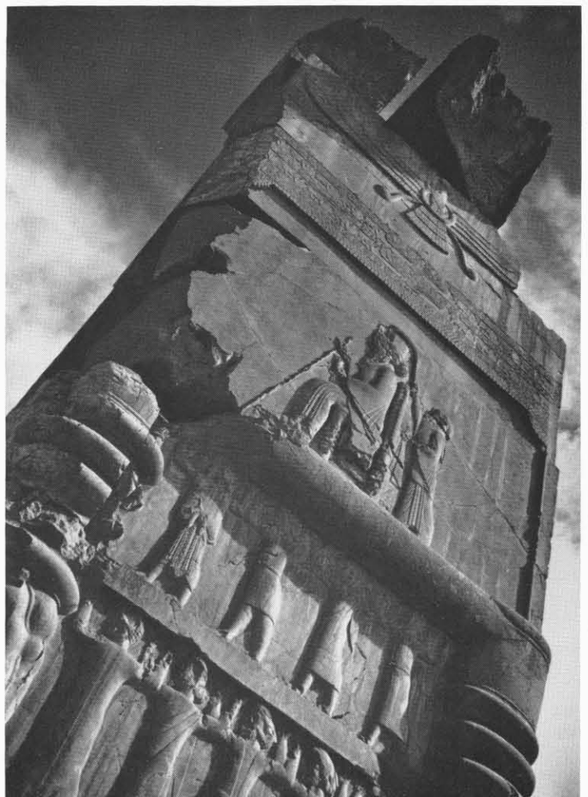
Visitors to residential palace of Darius I entered through massive doorways hewn from blocks of stone that depicted the king battling winged monster.

## *Darius I*

He commissioned the finest artists of his vast realm to create a palace city.



Graceful palace columns were adorned with stately horses' heads like this fallen capital.



Bas relief of enthroned king is borne on raised arms of his subjects.

## *Xerxes I*

He inherited the empire and guided Persepolis to completion.

*Alexander III*

He thrust his legions straight into the heart of Persia — and destroyed Persepolis.

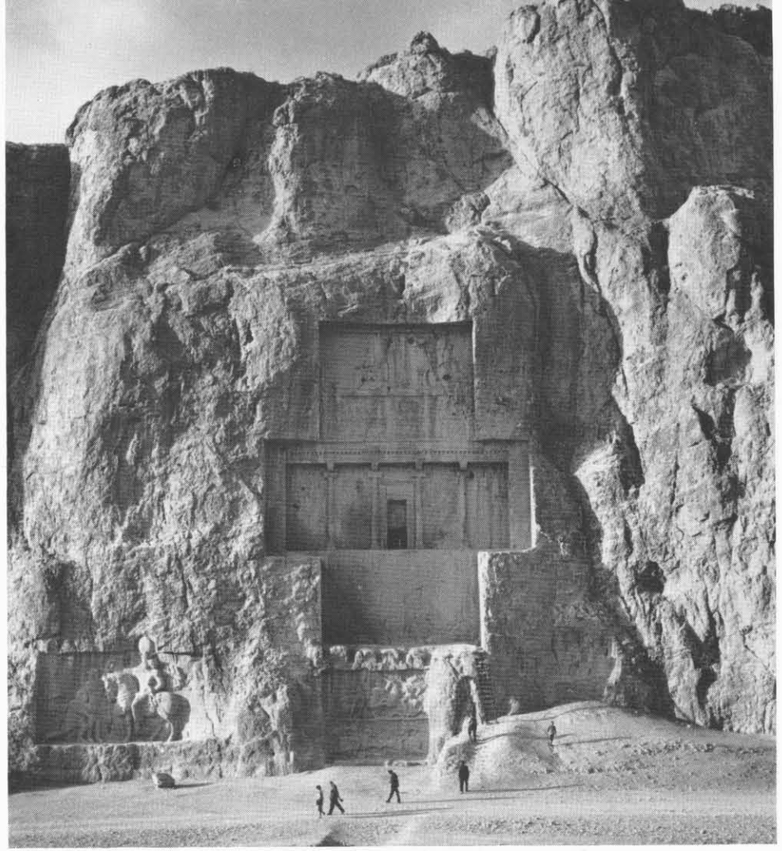
Great, creator of the vast empire. In the fifth century B.C., Cyrus pushed his dominion outward from the borders of Persia, known then as "Parsa." The imperial domain thus created dwarfed older Middle Eastern sovereignties and was wisely ruled by Cyrus.

Cyrus died in 529 B.C. Some of the custodians of his empire were talented leaders; others allowed discord and revolt. Darius I, called "the Great," was Cyrus' son-in-law and cast in the same mold. Persian nobles chose Darius as king in 521, because Darius, like Cyrus, belonged to the Achaemenid house, rulers of Persia since the seventh century B.C.

With Darius' firm hand over the Middle East, order was restored in Babylon, the administration of the Empire was reorganized, taxation overhauled, roads built and a postal system introduced. To serve as a showcase for the power and pride of his reign, Darius commissioned the finest artists of the realm to build a palace city. Near what is now Shiraz, in southwestern Iran, Persepolis began to rise in a mountainous setting that offered safety and privacy.

Darius was not to see his palace city completed. Far to the west, in Greece, a new power challenged the conquests of the Persian kings. By 492 B.C., the struggle for Middle Eastern supremacy was under way. At Marathon two years later, Darius' army was defeated by the Greeks, and a courier named Pheidippides ran 22 miles to Athens to spread word of the victory. While sculptors and laborers were still at work on half-finished Persepolis, Darius died

Thirteen of original 72 columns remain standing in the Apadana or Audience Hall. Structure was over 60 feet tall and probably accommodated up to 10,000 people.



Afternoon shadows accentuate the size of the towering cruciform tomb of Darius I, cut into a sheer cliffside near the city he began.

in the midst of preparations for another expedition against the Greeks.

Xerxes I, Darius' son, accepted his father's ambitions as his own. He continued both the struggle against Greece and the building of Persepolis. In gray marble symmetry, the palace city rose on a stone platform 40 feet high, 1,500 feet long and 900 wide. Every building demonstrated the eclectic Persian taste in architecture, combined and refined with the best of Greek, Assyrian and Egyptian styles.

For a time the war against Greece went well for Xerxes the Great as his legions marched through Thrace, Macedonia and Thessaly. After a setback at Thermopylae, the Persian army captured and burned Athens. But the defeat of his fleet at the classic battle of Salamis, a favorite among naval historians, forced Xerxes to return home, where he was put to death by the captain of his guards.

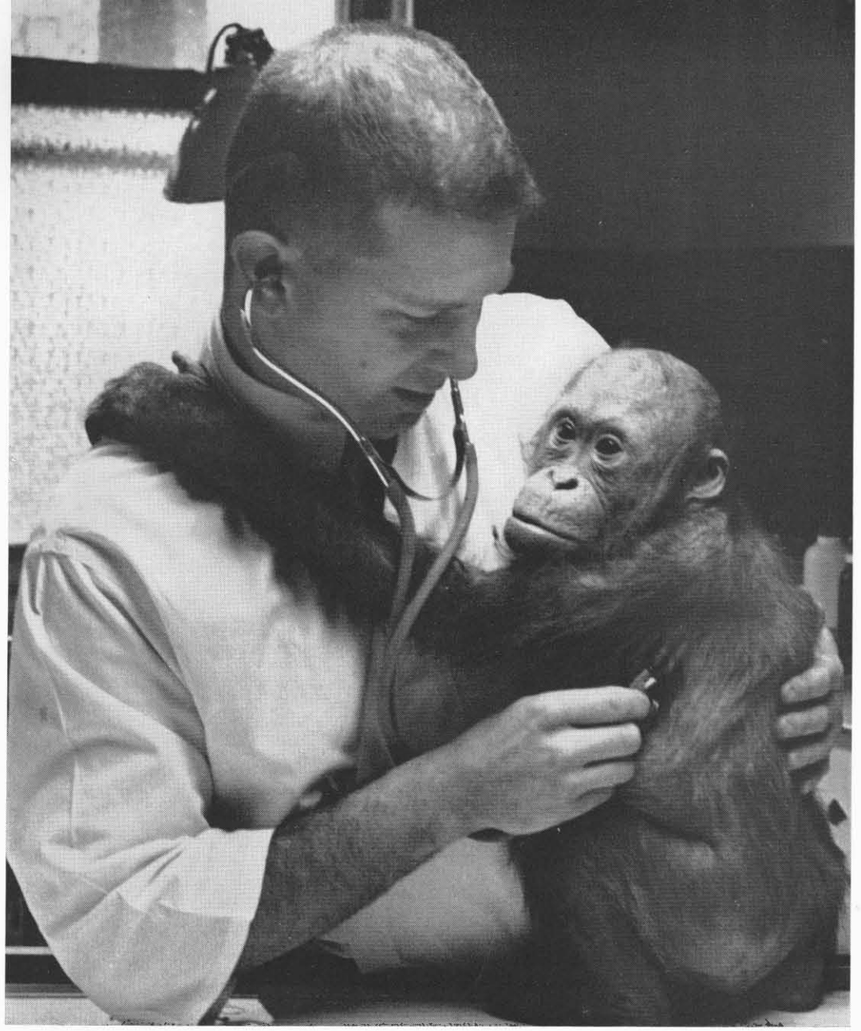
A succession of court intrigues brought Darius III to the king's throne in Persepolis in 336 B.C. He was not destined to be called "the Great." As one historian put it, "Cyrus and Darius created Persia, Xerxes inherited it, his successors destroyed it."

The Persian Empire was ripe for plucking. The Greeks, led by Alexander of Macedonia, were on the march eastward. Darius III was no match as statesman or soldier for the youthful Alexander, whom history would know as Alexander the Great. At Granicus, the Greeks lost 115 men, the Persians 20,000. As Alexander pushed deeper into the Persian Empire, Darius marshaled 600,000 warriors, with 600 mules and 300 camels to carry the royal purse. At Issus, 30,000 Greeks methodically destroyed 110,000 Persians when Darius blundered into battle on ground where only a small fraction of his hordes could fight at one time.

In quick succession Alexander overran Babylon, Jerusalem, Egypt and Tyre. Spurning a peace offer from Darius, he thrust his legions straight into the heart of the Persian Empire – Persepolis. No one knows what prompted Alexander to plunder and burn the splendid palace city. Perhaps it was out of revenge for Xerxes' burning of Athens, or perhaps he ordered it, as Plutarch suggests, to satisfy the whim of a court lady named Thaïs. Whatever the reason, the glories of Persepolis were consumed in flame.

Alexander completed the destruction of Persian power at the battle of Arbela. Once again the superbly trained Greek army, numbering 7,000 cavalry and 40,000 infantry, overwhelmed a Persian force 20 times greater than itself. Darius was killed by his own generals, and Alexander reorganized Persia into a province of the Macedonian Empire. But Persepolis was never rebuilt.

Alexander died of fever in Babylon just seven years after he ordered the sacking and burning of the Persian palace city. The curtain had fallen on the 200-year drama launched by Cyrus. With its grandeur reduced to solitary columns and fallen sculpture, its halls empty of tribute-bearing envoys from all the known world, Persepolis sleeps away the ages. But modern visitors who come upon the ruins in the mountains of Iran find that even in disarray the once proud capital still stands as impressive testimony to the majesty of that city from a long-ago age of heroes. ■



# *The most important man to the creature world is*

# the vet

A worried orangutan at a New York City zoo gets a reassuring check-up from his doctor.

THE PATIENT LAY QUIETLY, ready for surgery. A general anesthesia had done its work. In the waiting room a young woman sat anxiously while the minutes ticked away. At last a door opened and a man wearing a surgical gown spoke to her.

"Everything is fine," he said. "I set the broken bone. Your friend will come through in good shape."

This scene, which might have occurred in any American hospital, took place in rather a different setting: the office of a doctor of veterinary medicine. The patient was a parakeet and the Lilliputian operation had been conducted with all the skill of modern medical science. That such delicate surgery would even be attempted is an indication of the dedication and versatility of today's animal doctor.

The modern veterinarian has great need of both these virtues. Our pet population, increasing rapidly, already exceeds 76 million. And American families are not acquiring just cats, canines and canaries. All kinds of creatures are joining the domestic menage.

Household pets now in favor include tropical birds, monkeys, mice, hamsters, skunks (usually deodorized), rabbits and an occasional ocelot. Some people even like snakes. Students at an Eastern college recently brought a ten-foot boa constrictor back to school with them, an action not generally appreciated by their classmates.

The veterinarian may be called upon to treat any of these creatures, as well as run-of-the-kennel dog and cat patients. Intuition, understanding and common sense count as much as education and experience.

One day the veterinarian may be concerned with a parakeet's wing, the next with something considerably larger. Dr. Charles Gandel, veterinarian for New York's Bronx Zoo, is accustomed to dealing with animals that range from the minute to the mammoth. A recent patient of his was a five-ton elephant that had stepped on a broken bottle. Surgery was required, and while the elephant's keeper persuaded the animal to raise its foot, Dr. Gandel did his duty. "Performing in the shadow of an elephant's foot is not my idea of the ideal working environment," says the doctor, "but it's all in a day's work."

Following the surgery, Dr. Gandel resumed his treatment of patients in the zoo's hospital. Among them: a hummingbird whose weight was slightly less than one ounce.



At least a dozen other veterinarians are full time employes of zoos, and a few others work for race tracks and circuses. Most of this nation's 22,000 veterinarians, however, are engaged in private practice where wounded pachyderms are few and far between. The remainder work for the government, serve as officers in the armed forces (800 on active duty) and engage in research, teaching and commercial activities.

In addition to caring for a burgeoning pet population, U. S. veterinarians look after the animals that labor and produce food for man — an estimated 600 million cattle, horses, hogs, sheep, mules and poultry. They help prevent the incidence and spread of illness and advise the farmer or rancher how to get the most out of his animals.

Each year, for example, animal doctors in this country inspect millions of pounds of meat, check more than 34 million dairy animals, administer programs in formal public health and research, supervise and produce biological products and drugs, regulate import-export health requirements, and help run the intrastate and interstate traffic of animals.

Right now U. S. veterinarians are conducting about a thousand research projects on animal diseases. Because of past projects such as these, often carried on in conjunction with medical doctors, most of the animal diseases known to affect man no longer pose a serious threat to the human race.

Animal epidemics that once ravaged livestock and poultry have practically been eliminated in many parts of the world. People who once went hungry are now being fed by animals made healthy and kept healthy by veterinary medicine. Moreover, medicine and surgical techniques used on animals often prove invaluable in the treatment of humans. A drug to prevent a hog from getting an ulcer or a method of detecting a dog's heart condition can be equally effective when used on a man.

Much of the veterinarian's skill is due to modern medical innovations, yet the roots of his profession are deep in antiquity, originating long before the dawn of civilization. In the broadest sense, veterinary medicine began when man first went to the aid of animals in a long-ago, unfriendly world. From this eons-old affinity between man and beast, veterinary medicine evolved.

The first authentic record of veterinary medicine as a profession comes from the reign of the great Babylonian king, Hammurabi, some 4,000 years ago. In a list of statutes that touched on many facets of his kingdom, Hammurabi included laws governing the practice of veterinary medicine.

During the days of Rome's greatness veterinarians became increasingly proficient, with treatment of animals based more on observation and study and less on superstition and ignorance. They learned much while caring for horses of the Roman cavalry and left as a legacy surprisingly accurate tracts on animal medicine.

It was centuries after Rome's decline, however, before veterinary medicine — more or less as it is known today — came into being. The first school for its instruction was founded in Lyons, France in 1761. The Boston Veterinary Institute, organized in 1854, was the first school of its kind in the United States to turn out a graduating class.

During the early 1900's many private schools for the study of veterinary medicine opened, but none lasted. Gradually veterinary medicine became, and has remained, a function of recognized colleges and universities. Today there are 18 colleges of veterinary medicine in the U. S., all four-year institutions that require two years of previous college study for admission.

While the great majority of veterinarians are men, at least 300 women are active in the profession. Many of these female animal doctors fulfill roles as wives and mothers at the same time. Some practice jointly with their husbands. One veterinarian couple has arrived at a division of labor that seems to keep both parties satisfied: the husband handles the livestock, the so-called "large animals," and the wife takes care of poultry, cats, dogs and anything else in the "small animal" category.

Any veterinarian will admit that newly developed drugs, such as tranquilizers, have made his job easier. Now even the most excited animal, once tranquilized, can be treated properly. In the past many animals died or suffered unnecessary anguish because a veterinarian was unable to give them medication. Gargantua, the famed Ringling Brothers and Barnum & Bailey Circus gorilla, might have lived longer, but no animal doctor could get near him.

Since Gargantua's demise (of pneumonia complicated by bad wisdom teeth), zoo veterinarians have developed a new method of giving injections. When they deem it necessary (and who wants to fool around with a dyspeptic tiger or rheumy water buffalo?), they use a special gun that fires a syringe into the hide of a sick animal. A delayed powder charge then drives the syringe plunger down, sending the medication into the animal's system.

When the veterinarian of a few decades ago — usually a rural resident who ministered almost exclusively to farm animals — went on a call, his black bag contained surgical instruments, dressings and a few basic medicines. Today he takes with him a wide variety of supplies — tranquilizers, antibiotics, syringes, examining instruments, splints, sutures and dressings. At the veterinarian's hospital the operating and post-operative rooms contain all the basic equipment required for extensive and complex surgery.

Like most people, veterinarians prefer to do their work during regular hours. But they are ethically bound to answer a serious distress call at any hour. According to one veterinarian, a working day often lasts from "dawn until exhaustion." To render assistance after normal hospital hours, a number of cities have veterinary organizations that provide crisis care at any time of day or night.

A probable record-holder for long-distance traveling is an Oakland, California veterinarian whose specialty is saving simian lives. He occasionally goes to exotic ports of call such as Singapore, Manila and Calcutta where monkey exporters are worried about high losses on shipments to the U. S. Not only does this veterinarian guard cargo, he also doubles his value by serving as the plane's co-pilot.

The typical American veterinarian, to be sure, enjoys a somewhat more prosaic practice than that of the flying monkey expert. But there is no longer any question that man is an animal's best friend. ■

# Oasis Fruit

***The bounteous date palm has been a "tree of life" for the people of the Middle East***

THE ARABS sometimes call the date palm the "king of the oasis." What could be a more deserved title? Anyone familiar with those clusters of green set in oceans of sand knows that the regal tree reigns like a bounteous monarch, offering food and shelter to those who honor him.

From its luxuriant fruit-filled branches down to its sturdy trunk, the palm answers many of the needs of life in the countries where it flourishes. No part of its anatomy is wasted. An ancient Persian hymn enumerates no less than 360 qualities of the palm. Among the Berbers of North Africa a saying that stresses the uniqueness of the palm is often heard: "The culprit who would destroy a flourishing palm would murder 70 holy men."

One of the 170-odd varieties of the palm tree, the date palm is classified botanically as *phoenix dactylifera* ("the finger-bearing phoenix"). It grows from Morocco in the west across the lower-altitude expanses of the Arab world up to the foothills of the Himalayas. It is also found in pockets elsewhere in the world, notably in the American Southwest where date culture was first introduced by Spanish missionaries and where early in the 1900's offshoots imported from Algeria and Iraq were planted for commercial purposes. (The coconut palm is confined to the coasts of tropical Africa, to India and to the islands of the South Seas and Caribbean.)

Probably the oldest known cultivated tree, the date palm has always seen yeoman service, especially in the Arab Middle East where it is believed to have originated. The fruit is a staple food. It can be eaten raw, cooked, baked into cakes or pressed into a delicious syrup that the Saudi Arabs relish. Rich in carbohydrates, dates possess little fat. They contain about 40 calories an ounce. The longevity of many Bedouins of the desert lands has been attributed, at least in part, to the nutritional benefits of the date, which ranks so importantly in their diet.

Its use as a food source accounts for only one asset of the date palm. The trunk makes excellent house-building timber; the midribs of the larger leaves go into furniture and into crates – for shipping dates! The leaflets of the tree are woven into baskets and floor mats; the fibrous portions of the trunk supply rope; the larger fronds are braided into fences, erected to break the advance of sand dunes. Even the stones of the date do not go unused. Crushed, they are fed to livestock as fodder.

Palms are difficult to grow. The ideal environment for them is, as the Arabs put it, "with their feet in water and their heads in the fires of the heavens." That is, they require maximum moisture and heat. And a good portion of the Arab world fills those two requisites, especially Iraq, the largest date-growing country, and the Kingdom of Saudi Arabia, which has two classic examples of palm-rich oases in the oil-producing Eastern Province. One is the gigantic Qatif Oasis alongside the Persian Gulf between Dhahran, the town where the Arabian American Oil Company has its headquarters, and Ras Tanura, site of the Aramco refinery. The other, the al-Hasa Oasis, which has at its center the timeless city of Hofuf, lies south of Abqaiq, heart of the oil field area.

Last year one of the most modern date-packing plants in the Middle East was opened at Hofuf after Aramco had encouraged a leading merchant-grower in the area to launch the project. The latest equipment in the Middle East and the United States was studied before designs for the plant were drawn. Employing about 50 persons, the new plant

Some mature trees are 80 feet tall; date pickers climb trunks and place large clusters in baskets woven from palm fronds.

A Qatif Oasis farmer, in Saudi Arabia's Eastern Province, samples his dates before loading them onto a truck for delivery to market.

expects to package some 2,000,000 pounds of dates a year. Of the total output, Aramco purchases up to 120,000 pounds a year.

Many of the date orchards in al-Hasa and Qatif are centuries old, and many of the 2,000,000 palms there have been yielding fruit for 80 years. Some of the trees have reached the ripe age of 200. (In areas where they are sparse, two families often hold half-interest in a tree.)

The date palms in Saudi Arabia's Eastern Province begin to bear fruit at 5 to 6 years and attain their richest bearing maturity at 15. In the spring, the gardeners pollinate the trees; harvesting takes place in the fall. It is not at all rare for trees in the two oases to grow as tall as 60 or 80 feet.

American agricultural experts, brought into Saudi Arabia by Aramco at the request of the Government, recently demonstrated to Saudi Arabs that by such methods as thinning out the groves, using better fertilizers and cultivating with machinery, they would be able to increase their yield per tree, which currently averages about 60 pounds per season.

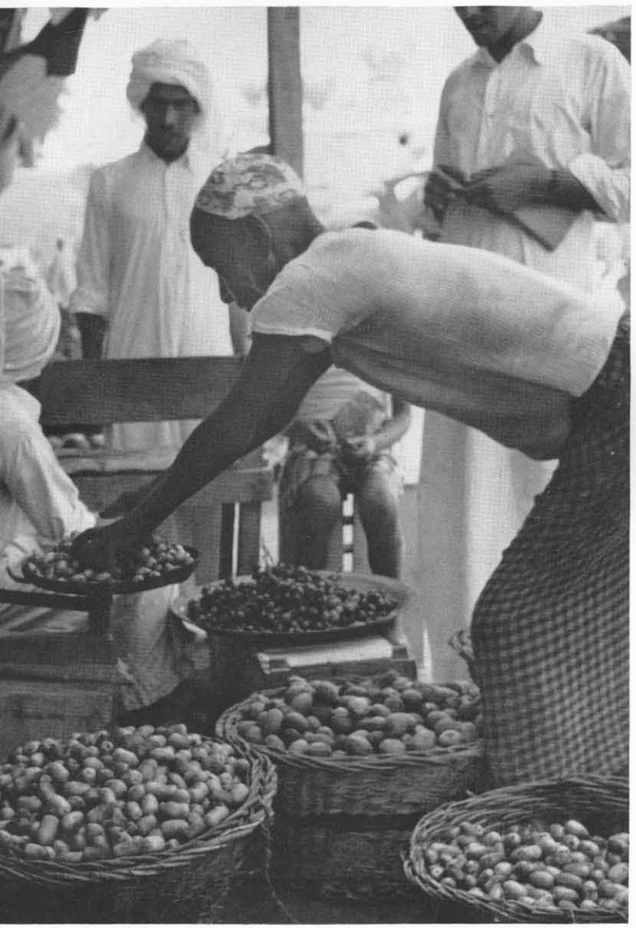
The richness of the Arabic language becomes nowhere more evident than in the abundant nomenclature of date culture. Al-Hasa farmers have about 40 words to describe the varieties of date trees in their oasis. They range from the *adhbi* type to the yellow *zunbur asfar*. The date tree's stages of development provide another five words, from *habumbu,* the infancy, to *tamr,* blossoming maturity. The generic term for the date in this area is *nakhl.* (The golf course at Abqaiq is called *'Ain Nakhl,* the Arabic version of Palm Springs!)

If the date plays a tremendously important role in the contemporary life of Arabia, it was even more so in the days before large-scale international trade. References to the tree and its fruit abound in ancient writings of the Middle East. Hammurabi, the great law-giver of Babylon, specified how far apart palms should be planted. He also ruled that "a palm is worth double the price of the ground it occupies." In the *Odyssey* we read of Ulysses likening Nausicaa to a palm he once saw on the altar of Apollo in the temple of Delos.

No tree rivals the prominence of the palm in the art of the ancient Middle East. The massive columns crowned with foliage in the temples along the Nile are nothing more than palm trees in stone. In their bas reliefs commemorating victories over their enemies, the Assyrians often insinuated the fate of the vanquished. Soldiers hacking down date trees meant that the conquered people, cut off from their livelihoods, faced certain starvation.

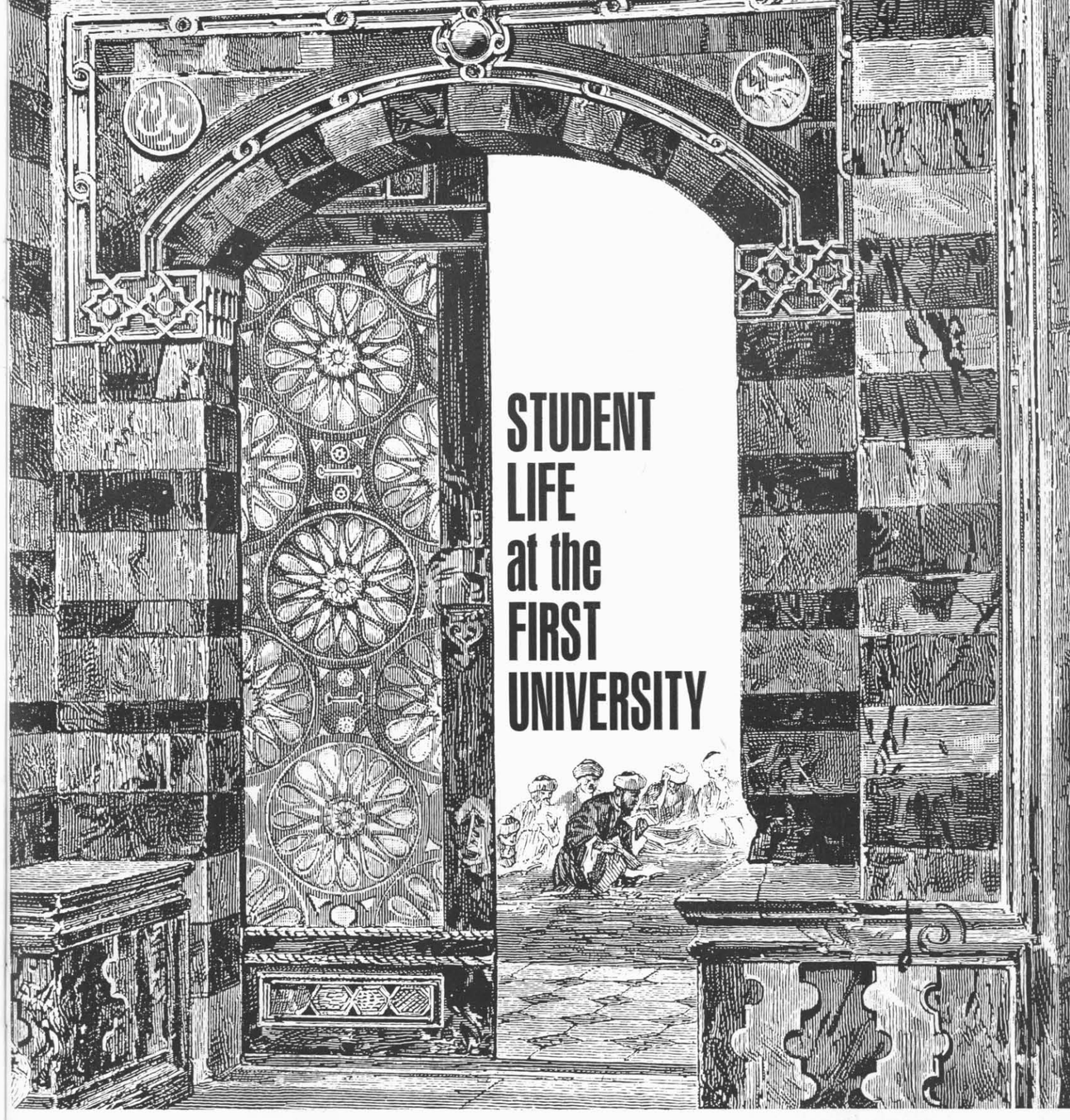
The religious words of the Middle East mention the palm again and again. Solomon once sang: "How beautiful art thou, how comely, my dearest in delights. Thy stature is like the palm tree." In recounting Jesus' triumphal entry into the Holy City through the Golden Gate, Saint John wrote: "When they heard that Jesus was coming to Jerusalem, they took branches of palm trees and went forth to meet him." Once a symbol of victory, the palm branch later came to stand for martyrdom, as witnessed in the wall drawings in the Catacombs of Rome.

For the Islamic peoples, the palm's prominence is evidenced in an admonition of the Prophet Muhammad—"Honor the palm [as you would] your father's sister." ■



Not all Saudi Arabian dates are packed for export. In village suqs sweet, fresh dates go on the scale for home consumption.





# STUDENT LIFE at the FIRST UNIVERSITY

A look back almost a thousand years into the life and times of student Ali Hussain

MILES TO THE EAST, through the haze that joined a cloudless sky to the sandy expanses of Egypt, the white minarets of Cairo appeared. To Ali Hussain, a tall, dark-eyed youth, the sight was both exciting and disturbing. His arrival meant journey's end of a grueling 2,000-mile trek from Marrakech in western North Africa. Even in the company of a caravan, such a trip in the year 1100 held few pleasures. Relieved to have the miles behind him, Ali Hussain rode on, fretting over the strange life and experiences that awaited him as a new student at al-Azhar university. He asked himself the same questions that freshmen of all ages ask. What was the school like? Would he find

friends? Were the teachers stern, the studies demanding?

With his bundle of clothing tied to his donkey and his purse jingling with coins his father had pressed into his hand when he left home, Ali Hussain entered Cairo. He knew the name of the professor to whom he should present himself as candidate for matriculation. And he recalled his father's well-intentioned advice about avoiding the numerous snares of the big city.

What a spectacle the metropolis presented to an 18-year-old lad from the hinterlands! Ali Hussain gazed about, bewildered and fascinated by the crowds and the houses and the scurrying traffic on the streets. Cairo, splendid capital of the Fatimid Empire, boasted a population of half a million. Its private homes numbered more than 20,000, many of them reaching five stories, some even higher. The public buildings were numerous, and the palace of Caliph al-Musta'li was magnificent beyond belief.

Ali Hussain's father had explained to him that two factors made Cairo great – its wealth and its culture, and both were gifts of geographical position. At the center of the trade routes running east to Damascus and Constantinople, west along the African coast to Spain, and south to Nubia and Ethiopia, Cairo became the emporium into which wealth flowed endlessly. With gold came the cultural influences of Baghdad and Cordova, from the old Greek science of Mesopotamia to the new literature of Spanish Islam.

News, as well as gold, poured into the city. Merchants in the commercial center talked anxiously of the serious drought in Ethiopia, and Ali Hussain heard soldier and citizen alike discussing the import of the Crusader assault on Jerusalem the previous year. It was just four years since Pope Urban II, seated on a throne in a broad meadow, had issued a passionate appeal that sent 1,200 knights and 12,000 soldiers off on the First Crusade.

Like any Muslim city, medieval Cairo was studded with ornate mosques. One of the most impressive was al-Azhar. Founded in 970, al-Azhar became an educational foundation 18 years later when Caliph al-'Aziz added learned studies to pious teachings by providing for the intellectual training of 35 students.

The first university in the world proved to be one of the most durable experiments in the history of education. Al-Azhar prospered so astonishingly that by the time Ali Hussain arrived in 1100, more than 5,000 students were being instructed by hundreds of professors. As the fame of the university spread, officials and merchants of various nations vied with one another to improve living quarters, beautify the mosque and enlarge the vast library.

The young student, aided by directions from passers-by, found his way to the institution that would be his home. The main gate of al-Azhar led into a broad courtyard in which rose minarets and columns of bleached stone. The air was sweet with the flowers of many lands, and the enclosing walls housed cloisters filled with students in eager discussion. Dozens of doorways gave access to a labyrinth of corridors and rooms, each lighted with oil lamps hung from the ceiling. Ali Hussain noted that many of his classmates had also made long journeys – from great cities like Damascus and Baghdad, from Moorish Spain and the Mediterranean coast, from the ancient cities of Persia and the Arabian Peninsula.

Just now the courtyard was a beehive of students and professors getting acquainted and deciding on courses for the coming year. Al-Azhar offered studies in Islamic law and Arabic language and literature, as well as instruction in medicine, music, logic, mathematics and astronomy.

Ali Hussain found his professor, identified himself, and an hour's discussion settled the fact that the young student wished to specialize in language and literature and eventually to return to his native city to teach in the elementary schools. At the end of the discussion, his professor repeated a warm welcome to al-Azhar and advised him to begin his career of learning by moving into his *riwaq,* or dormitory.

The Arab boy's path now took him upstairs and along echoing corridors until he reached the large room known as the "North African Riwaq," next to the "Damascus Riwaq" and opposite the "Iberian Riwaq." The housing of students by nations was an innovation at al-Azhar. Adopted by Islamic foundations from Cordova to Bokhara, rediscovered by those of the West, the idea has become popular among universities everywhere.

Then, as now, undergraduate friendships were quickly formed. A few minutes after entering the North African dorm, Ali Hussain had a half-dozen companions eager to learn about distant Marrakech and the adventurous journey to Cairo. They told him that their dorm, built in 988, had already served generations of scholars.

Ali Hussain stowed his belongings in a small, carved box and placed it on top of others against the wall. When his sleeping pallet was unrolled, he was ready for his student's life to begin. Al-Azhar provided no frills: the all-purpose floor would serve as table, desk, chair and bed.

His small supply of gold coins was his to spend on personal needs, for the university charged no fees. Bed, board and tuition were free, paid for from scholarships and bequests from wealthy merchants and government officials. Nor was there any expense for textbooks, since everything necessary could be borrowed from the 100,000-volume library.

On his first day of classes, Ali Hussain joined a circle of students gathered in one of the cloisters. Each wore an *imamah* (turban) and *kakoulah* (long gown). The professor sat on a low, wide stool placed at the foot of a pillar, lecturing on the principles of grammar and pausing occasionally to read illustrative material. His pupils, seated around him on mats, listened quietly or took notes. The lecture would be short, followed by a period of informal discussion during which students might ask questions.

When Ali Hussain glanced around, he saw similar groups scattered around the courtyard. The intimate professor-pupil relationship at al-Azhar, analogue of the seminar system in the West, helped to raise the repute of Islamic scholars to the high level they enjoyed throughout the civilized world. They graduated hundreds of influential personalities who had known them as mentors and who remembered them with respect and admiration.

Supervised by a scholar called a *mushrif,* faculty members, like those they taught, came from all parts of the Arabic world. Places at al-Azhar were filled by university graduates and were avidly sought by learned men from the Pyrenees to the Oxus. Al-Azhar was to Islam what the Sorbonne or Oxford was to Europe – the institution where a professor could make his reputation as nowhere else.

The similarity did not end there. Paris specialized in theological studies, contrasting with Cambridge for science and Bologna for law. Al-Azhar excelled in theology, vying with Baghdad for science, Cordova for philosophy.

Ali Hussain's basic textbooks were the Koran and a heavy volume of Islamic jurisprudence. The professor to whom he was attached expounded literary principles from Muslim scriptures, explaining exactly how the laws and precepts of the Prophet were cast into appropriate rhetorical form so that they might appear more forceful to the listener or reader. Later Ali Hussain learned from other experts how to draw from the same source the principles of law, ethics and revealed theology. Even poetry and medicine were discussed within the framework of religious philosophy.

Everyone at al-Azhar said the daily prayers and kept the yearly fasts. But apart from formal studies and religious observances, the students enjoyed considerable freedom. Ali Hussain and his companions spent their time conversing, joking, singing and idling in the time-honored tradition of undergraduates everywhere. Sometimes they complained to each other about the amount of study required, and, like all students, they questioned the necessity of committing seemingly endless dates and names to memory. On days that were free of classes and study, they strolled through al-Azhar, poking into its odd corners, remarking on its antiquity, analyzing its merits and shortcomings. On other days they organized expeditions to downtown Cairo.

As time passed, newcomers like Ali Hussain would become old hands. He in turn would give sage tips to incoming undergraduates. His studies would become more and more difficult as he specialized further in the light of his abilities and plans for the future. For Ali Hussain and his friends, the time would come when the last courses were finished. In those days, the curriculum lasted no prescribed number of years. Students were given a license to teach by the professors under whom they had studied, at the teacher's discretion. The license was prized, for it certified that the pupil had studied with diligence and proficiency.

The last week would be a flurry of packing, sentimental farewells and final respects to professors. Ali Hussain would then begin the long trip back home where he would become an esteemed teacher, one who had studied at al-Azhar.

Behind him he would leave another generation of undergraduates hard at work. University life at al-Azhar would go on across the centuries. There would be interruptions at times. In 1302 a severe earthquake would level part of the mosque, and in 1789 Napoleon's bombardment of the school would turn the central halls into stables for cavalry. But the interruptions would be only temporary.

In time, al-Azhar would expand beyond the walls of the old mosque. Old structures would be torn down or reconstructed, new facilities built. Great teachers would continue to come to al-Azhar as they had in the past. Ibn Khaldun, for example, would earn part of his reputation as the greatest Arab historian as a teacher at al-Azhar in the 1300's.

Education at al-Azhar still goes on today, and students like Ali Hussain of Marrakech still come from all parts of the Islamic world to study there. The mosque-college is moving toward its thousandth birthday in 1970 – a venerable patriarch among universities. ■

Present administration building of 1,000-year-old al-Azhar serves 5,000 regular students and 35,000 in outlying branches.