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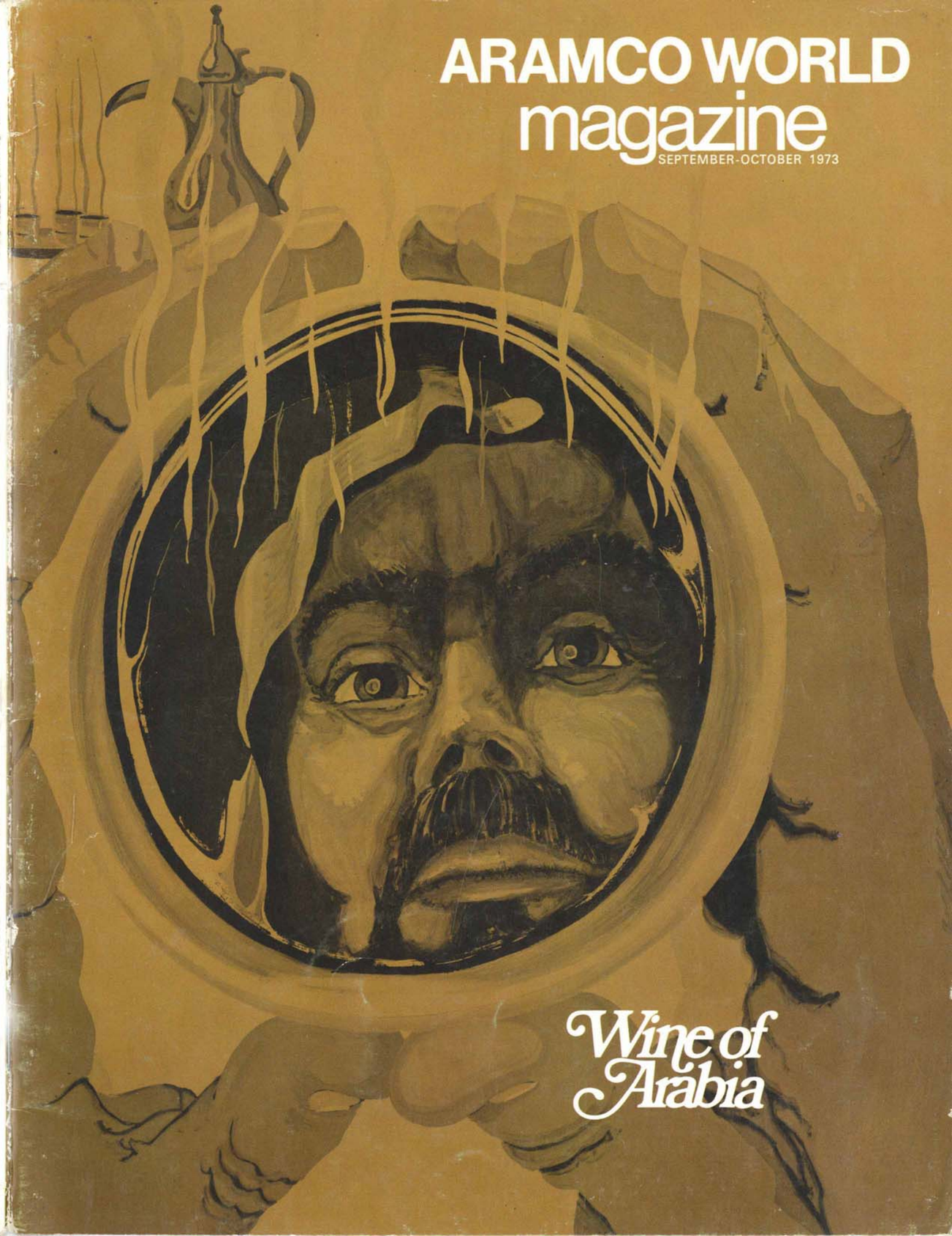
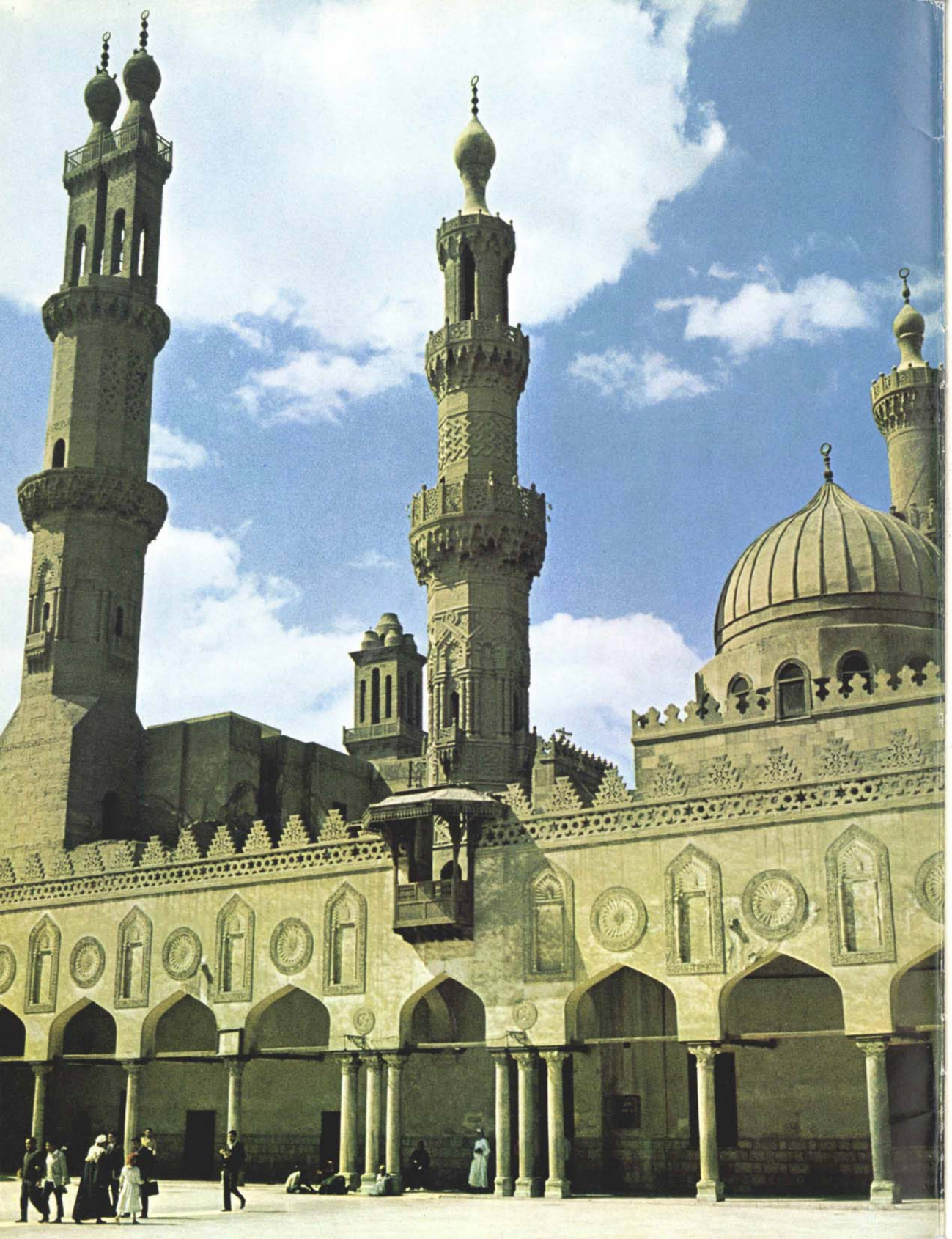
SEPTEMBER-OCTOBER 1973



Wine of Arabia



ARAMCO WORLD magazine

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Cover: The smell of roasting coffee is ubiquitous today in the Middle East, but it was barely 500 years ago when the Arabs discovered the secret of brewing it. Coffee house patrons, as depicted in Ed Davis's cover sketch, meditated at great length on the implications. Articles on pages 2 and 5.

←"Al-Azhar must not be cut off from people," says the university's rector. "Students belong in the mosque." They have been there for 1,000 years. See page 24.

The old shaikh watched the goats nibbling on the berries. They were certainly behaving in a most unusual way...

It is impossible to imagine the Islamic world without the ubiquitous smell of roasting coffee. Commercial transactions would be unthinkable unless sweetened by a demitasse of syrupy coffee. The smell of roasting coffee and the clink of the pestle as the beans are ground are the sounds and smells of the desert at night. Coffee is a drink that induces reflection and heightens perceptions at the same time. In a part of the world where most of the population lives by its wits, coffee is absolutely vital. Yet it is a relatively recent addition to the diet of the people of the Middle East, and an even more recent commodity in the West.

The early history of coffee is obscure, the first mention of the drink dating from the beginning of the 16th century. Even the origin of the word itself is debated—in classical Arabic, *qahwa* originally referred to a kind of dark red wine. Our English word "coffee" ultimately derives from *qahwa* by way of the Turkish *kahve*. But there is also the curious fact that the coffee plant is indigenous to only one part of the world—the highlands of Ethiopia, notably the area around the town of Kaffa. And the name of the town Kaffa sounds very like "coffee."

Whatever the true etymology may be, there is little doubt that the coffee plant itself was introduced into Yemen from Ethiopia. The first book written in the West about the origin of the marvelous beverage recounts a delightful legend of how the magical properties of the coffee plant were first discovered. A mystic named Shaikh ash-Shadhili, originally from Yemen, was traveling in Ethiopia. High on the slopes of a mountain, he noticed that the goats were dancing about and displaying an altogether unaccustomed vitality. Growing curious, he watched them carefully and noticed that they were eating a nondescript berry with which he was unfamiliar. He found the berries very bitter to the taste, so he boiled them and consumed the liquid. Thus was the first cup of coffee born, and it must have tasted pretty awful. But it certainly made our shaikh feel better. His mind felt wonderfully clear and wide-awake.

There was nothing for it but to take seedlings back to Yemen, where he introduced his new drink to his disciples, who unfortunately had the habit of nodding off when he was lecturing. It was a great success, especially after some unknown genius experimented with the beans and found that if they were roasted, the ensuing beverage was much more palatable. Coffee quickly caught on, the way Pepsi-Cola has in modern times.

The new drink, however, soon ran into a great deal of opposition from conservative groups. Although it was originally taken as a kind of medicine (it was regarded as having effective laxative qualities), improvements in its preparation led to improvements in the taste. Its growing popularity caused some concern in theologi-

Wine of Arabia~1

WRITTEN BY PAUL LUNDE
ILLUSTRATED BY ED DAVIS

cal circles. How to classify the beverage? There was no doubt that it was a stimulant and its name, *qahwa*, originally referred to a type of wine. It was true that it did not seem to have an intoxicating effect, but to be on the safe side, the Turkish governor of Mecca, under pressure from conservative elements, forbade the sale of coffee in the year 1511. A number of vendors were punished and soon a great controversy was raging over whether coffee was beneficial or detrimental to the human body. (See following story.) Opinion among the learned was at first evenly divided, but as more and more people indulged in the new vice without ill effects, it was gradually accepted. A century or more later, the same controversies were to take place among Western doctors. In Marseilles, for instance, in the 17th century, the leading medical man of the day pronounced that any man who drank excessive amounts of coffee "would be unable to perform his marital obligations." Overnight all the cafés in Marseilles were abandoned.

The use of coffee spread from Mecca to Cairo, where it was pronounced *haram* (prohibited) in 1532. But as it became more and more popular, the theologians of al-Azhar pronounced a series of *fatwas* or decrees permitting its use. From Cairo it spread to Syria, Persia and Turkey. In 1554, during the reign of the great Ottoman sultan, Suleiman the Magnificent, a man from Aleppo opened the first coffee house in Istanbul. Although coffee houses had been popular in Cairo and Aleppo, in Istanbul they became the rage. They attracted the intellectuals: poets, writers, professors, scholars, and civil servants. The new institution was jokingly called the *mekteb-i irfan*, the "school of knowledge."

The religious authorities became worried about the coffee houses—they felt, probably rightly, that they were keeping people away from the mosques. Coffee was prohibited once more, but one suspects that political considerations were more important than the disapproval of the pious. For the coffee houses provided ideal meeting places for revolutionaries—of whom there were many. But coffee could not be legislated away, and soon the Ottoman government found it more sensible instead to levy a luxury tax on all establishments selling coffee. The tax amounted to two gold pieces a day, a substantial source of revenue to the state. The cafés in Istanbul must have been doing a landslide business if they could afford to pay such a heavy tax and still show a profit.

The first mention of the new beverage by a Western writer occurs in a book of travels by a doctor from Augsburg, Leonhardt Rauwolf. Rauwolf traveled widely in the Middle East, getting as far as Persia, and upon his return to Swabia in 1582 he published an account of his journey. Since this is the first mention by a European of coffee, it is worth quoting in full: "Among other good things, they (the Muslims) have a drink which they like very much and which they call *chaube* (sic). It is black as ink and very useful in treating various ills, in particular those of the stomach. They are accustomed to drink it in the morning, even in public, without fear of being seen. They drink it in small deep earthenware or porcelain cups, as hot as they can stand. They carry the cup to their lips frequently, but only take tiny sips, passing the cup on to the person sitting next to them. They make this beverage with water and the fruit which they call *bunnu*, which resembles in size and color laurel berries and which is enclosed by two husks. This drink is very widespread. That is why one sees in the bazaar a great number of merchants who sell the drink or the berries." (*Bunna*, the

name of the berry, still means coffee in Ethiopia and North Africa.)

Although the existence of coffee was thus known in the West, at least to the learned, as early as 1582, it was a hundred years before coffee was introduced there. We owe the pleasant vice to one man: Franz Georg Kolshitzky.

In 1683, the Ottoman army was camped

outside the walls of Vienna. The city had been under siege for some time, and the vast Turkish army had effectively cut the Viennese off from food supplies and reinforcements. The inhabitants of the city were hungry and an epidemic of dysentery had so weakened resistance that there was talk of surrender. At this crucial point, Kolshitzky, a Pole who had lived for many years among the Turks, where he had served as an interpreter, volunteered to try to get a message through Turkish lines to the Duke of Lorraine, the head of the allied army.

On August 13, Kolshitzky and a servant disguised themselves as Turks and walked through the Turkish camp. It was raining heavily, but Kolshitzky sang loudly in Turkish to avert suspicion. A Turkish noble, hearing the noise, came out of his tent, and questioned the two. Evidently satisfied with their answers, he offered them a cup of coffee and let them go, warning them not to fall into the hands of the Christian barbarians. After an adventurous journey through the Austrian countryside, they reached the Duke of Lorraine two days later. Kolshitzky told the Duke of the plight of the Viennese and the Duke promised to come to their aid.

Kolshitzky, passing once more through the Turkish lines, brought the Duke's assurances to the beleaguered citizens of Vienna. In gratitude, the Viennese awarded him 2,000 florins, Viennese citizenship and a letter of franchise allowing him to enter into business in the city.

On the 12th of September the allied army came, routed the Turks, lifted the siege and began to plunder the Turkish camps. Included in the booty were 500 huge sacks filled with a strange and aromatic bean that nobody had ever seen before. An argument broke out among the looters over what it was and everbody decided that the best thing to do was to throw it into the Danube. At this point, who should happen by but the brave Kolshitzky. Horrified at what his new fellow citizens were contemplating, he cried, "If you don't know what to do with it, give it to me!" They did, and soon afterward he opened the first coffee house in Europe.

At first the new drink created a mild sensation, but as this wore off, Kolshitzky found himself in trouble. Nobody really liked the thick bitter coffee prepared in the Turkish manner. His clientele all but disappeared. Rather than give up, Kolshitzky began to experiment. He filtered the grounds that are ordinarily found on the bottom of the cup and added a dollop of milk to the clarified liquid. Then Kolshitzky added the pièce de résistance. He arranged with a baker to have rolls made in the shape of a crescent in order to commemorate the defeat of the Turks, whose standard was a crescent moon. And *voilà!* The croissant —and the continental breakfast—was born.

From Vienna (still famed for its coffee houses), the drinking of coffee spread all over Europe, profoundly changing the social patterns of the West. It is no accident that it was not long after the introduction of coffee into France that the revolution occurred. The coffee house provided the ideal place to meet and plot the overthrow of the government. Instead of dulling the mind with wine and beer, intellectuals could drink a very satisfying concoction that kept them alert and awake—suggesting, perhaps, that the real heroes of what Western history calls the Enlightenment are Franz Georg Kolshitzky, Shaikh ash-Shadhili and a herd of lively Ethiopian goats.

Paul Lunde spent his early years in Saudi Arabia and studied at the University of California in Berkeley and the School of Oriental and African Studies in London. He now studies and writes in Rome.

I am the tawny beloved;
My Being lies in the cup.

Mamay, poet of Damascus,
ca. 1535

Wine of Arabia~2

WRITTEN BY JON MANDAVILLE
ILLUSTRATED BY ED DAVIS

In the tense atmosphere of the conference room an elderly man of some authority stepped to the front. "Your Excellency," he said, in carefully measured tones with a slight bow to a figure sitting apart. After a brief pause, he turned to the gathered assembly. "Esteemed colleagues. It appears to me that there is at least one point upon which the majority of this room is in agreement. The substance under discussion can *not* legally be forbidden simply on the basis of its physical nature. Like trees and grass, it is classified in law to be perfectly neutral. Precedent is clear on this, as my illustrious colleagues have shown. I need cite only ..."

"Excellency!" A small man in the middle and to the back of the room leaped to his feet, outrage written on his face. "Your Excellency!" he shouted. "I warn my colleagues. If we fail to declare the use of this abomination of the devil as a matter for criminal prosecution simply out of some foolish notion of following the precise letter of the law, we are opening the community to disgusting immorality and—I warn you again!—and sedition!"

The year was 1511. The place was Mecca. The substance under discussion was coffee.

The custom of drinking coffee, brewed from the roasted bean, spread north—probably from Ethiopia via Yemen—in the mid-15th century up to the Mediterranean, whence it later made its way to Europe. Directly and first in the path of the growing fashion lay Mecca and Medina, the Holy Cities of Islam where, by 1500, coffee houses complete with music and backgammon had sprung up City watchmen and police shook their heads over increasing late-night disturbances of the peace, the noisy laughter and banging tambourines of parties in the houses, complaints by solid citizens of immoral behavior there.

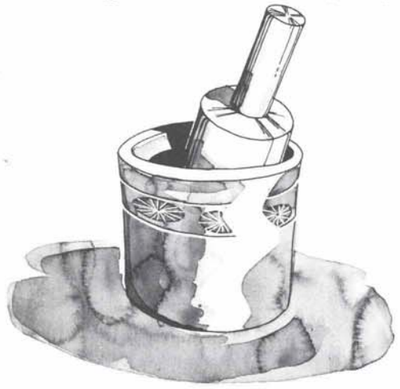
The situation came to a head in 1511, when the Mameluk governor of Mecca, finally unable to ignore the problem, appointed a Commission on Coffee to resolve it once and for all. It was composed of leading judicial and academic figures from Mecca, Cairo and Damascus, and met that year in Mecca for seven days of exhaustive deliberations. During the meetings testimony was taken from government officials, doctors and private citizens.

The formation of such commissions in one fashion or another has been normal procedure in Islamic governments, when particularly difficult questions of law arose affecting the community. Executive authorities felt it only proper (and safe) in these matters to be guided by the opinion of the majority of the learned members of their community. In some matters, taking the principle in its broadest sense there was no formal gathering. Consensus emerged gradually over a number of years, an accumulation of precedent cases unmistakably favoring one position over another. Only then would the government act. More often, in the smaller sense, a ruler might call together the leading judges of his capital city to argue the merits of some minor matter made important by local politics, affecting only his region. But to reach out beyond one's own bailiwick, polling authorities from outside in a formal commission, could be justified only if the question affected other regions as well. It seldom happened. By 1500, after nearly 900 years of work in court by judges and professors, there were few of these questions left to try. But coffee, newly introduced to the Islamic world, was one of them.

On Friday night, the 28th of May, 1511, the military governor of Mecca, Khayr Bey, was walking home from evening prayers. One of his responsibilities was the supervision of the Holy Buildings of the city, among them the Ka'bah, the square edifice in the center of the city which held the sacred Black Stone. Surrounding the Ka'bah stretched a vast expanse of courtyard around which, in the month of the pilgrimage, thousands of devoted pilgrims made their way. He enjoyed walking there nights, the courtyard nearly deserted, the warm yellow lights of lamps flickering here and there in the streets and above, the clear black sky dusted with stars. It was a kind of pinnacle of one's career, the responsibility for the Ka'bah.

This night he lingered a moment on the edge of the clearing, gazing at the darkened building with pride. Then, as he turned to make some inconsequential comment to the captain of the guard, loud laughs came from off to the side. As he looked in that direction he could make out a group of ten or fifteen figures huddled around a glowing brazier. He strode over grimly, followed by the guard, to see what persons dared disturb the peace of *his* sacred area.

As he approached, he saw them passing



around among themselves a cup, which was replenished from a pot on the brazier. Then the man pouring from the pot looked up. It was Sergeant Qurqmaz of the city garrison; around him were all men from his squad.

"What is this you're drinking, Sergeant?" asked Khayr Bey, quiet menace in his voice.

"Sir. Your Honor. This is coffee, Sir. Perfectly harmless, Sir," said the sergeant, standing awkwardly at attention, the pot in his hand.

"Harmless?" exploded Khayr Bey. "Nothing is harmless which makes you forget the elementary rules of conduct becoming a noncommissioned officer. Here you stand, waiting on common soldiers, while they cavort about in full view of the Ka'bah. Captain!" This he threw over his shoulder at the captain of the guard. "March these men back to barracks. Fifty lashes each. Qurqmaz, *after* the bastinado, will be confined to quarters until further notice. Leave one of your men here. I shall need a messenger." As the group marched off into the darkness, Khayr Bey picked up the cup which was left beside the brazier. Gingerly he stirred the muddy dregs with one finger. "So this is the famous coffee," he muttered, then said loudly to the remaining guardsman, "Soldier, come here. I want you to carry out the following immediately..."

That night the four chief justices of Mecca, each representing one of the four major schools of Islamic legal interpretation, were ordered to attend the governor's palace early the next morning. They were to see to it that all justices and senior law professors from Syria and Egypt visiting Mecca at the time also would appear. Together they were to form a commission to study the drink called coffee and recommend the proper course of action to be taken by the government.

By early afternoon the next day some 15 distinguished men, most of them over 50, were sitting in the conference hall of the palace waiting for proceedings to begin. There were several respected members of the Egyptian and Syrian judiciary; at any given time one could find a number from these provinces spending a few months in Mecca to study in its famous libraries or teach. Three or four sitting together received pointed glances from the others; they were already known for their outspoken support of coffee. The room fell silent and all rose as the governor walked in and settled himself a little apart from them. With a rustle they all sat down, and Khayr Bey nodded to the side door.

In walked a servant with a tray, and on it a pitcher and a cup. It was placed on a low table in the center of the room. After the servant disappeared, Khayr Bey addressed the assembly without preamble. "This," he said, gesturing to the tray, "is coffee." He described its growing use in Mecca, the repercussions stemming from it. "I ask your guidance on a simple question: is the use of coffee to be considered legally permissible or forbidden?"

The Commission settled down to business. By unspoken agreement Ibn Zuhayra, the Meccan chief justice representing the Shafi'i school of legal interpretation, presided; the Shafi'iis had the strongest connections with the Mameluk government in those days. Under his guidance, the major side issue was discussed and by evening settled. Passing coffee around—in fact, passing anything around—in gatherings where immoral behavior was displayed, the dancing and singing of scantily clothed women, for example, should be condemned and forbidden as conceivably contributing to that behavior.

By the close of that day's session the basic split in the Commission also appeared, between the strict constructionists and the liberals. Each group supported the condemnation, but for different reasons. The strict constructionists insisted that an exact parallel existed in the Koranic injunction against passing cups of wine around a group. As far as they were concerned, the matter was finished. Coffee, like wine, should be forbidden absolutely. They were in the minority, however. The majority, while conceding the Koranic parallel, at the same time insisted that the intent behind the injunction was the most important factor. Perhaps coffee, like wine when used in such a fashion, did lead to disruptive and immoral social behavior. Then it should be condemned, since clearly that was one of the reasons for condemning wine. But what if, say, a person drank it in the privacy of his house?

"Coffee is one of the catastrophes of our day and age. People drink it assiduously, in sin and publicly. And anyone speaking of its permissibility in private houses hasn't in his heart a grain, an atom of salvation!" So declared heatedly one of the strict constructionists. It was on this point that the Commission returned the next day ... and the next day, and the next and the next.

What was in question now was the effect of coffee on the individual drinker. No one doubted that the second intent behind the prohibition of wine was its muddling effect on the mind, its certain harm to the body. Who was to say that coffee was not the same? The jurists tried, but it rapidly became clear that nothing would come of the discussion. Only two or three hardy souls on the Commission were prepared to admit to drinking coffee, and the mere fact that they admitted it branded them straight away as libertines in the eyes of the conservatives, their testimony corrupt.

At this point Khayr Bey intervened. After the first session, where he had watched at length with growing impatience the wrangling of the distinguished jury over fine legal words, he had cut his attendance to a token daily appearance. On the third day, seeing the Commission deadlocked, he ordered the leading doctors of Mecca to testify on the medical properties of coffee. Doctors being doctors, by the time the worthy medical witnesses had finished the fourth day was done and the confusion greater than ever. The majority condemned coffee, but a minority insisted that it was harmless. The next day several citizens came forward to testify, adding nothing decisive to the hearings. All stated that they felt ill and confused from drinking it, but their excited descriptions left some doubt as to whether it was coffee or imagination at work. There was no point in continuing. The chairman declared the task of the Commission finished.

As in the case of the Presidential "Blue Ribbon" commissions of today, the Meccan Coffee Commission's work resulted in an official report to the governor, a dissenting report from the minority and a spate of popular articles on the subject by enterprising writers and members of the Commission who felt the need to publicly justify their stand. *The Misstep and Error of Those Using Coffee; Suppression of Craving for the Drinking of Coffee; The Removal of Error in Forbidding Coffee; Rebutting the Claim of the Harm in Coffee;* these are only a few of the titles which appeared in the years following.

The official report unanimously (or nearly so) urged the governor to prohibit the use of coffee in public places and in groups. The tenor of the report was against coffee, but it was predictably vague in recommending policy for its use in private dwellings. The governor received the report preceding the Friday sermon one week after the Commission was convened. Before the day was out every coffee house in the city was closed, its owner taken into custody. Every store selling coffee had its supply confiscated. A ban on merchandising coffee was cried about the streets. Prohibition was on.

The report of the Commission was used as a precedent for government action in Egypt and Syria. But after the Mameluk state was taken over by the Ottomans in 1517, the coffee decrees were ignored. Within a few years a famous professor of law in Damascus publicly declared for coffee. The alacrity with which judges in Cairo and other cities followed his lead, the rapidity with which coffee houses appeared there in the streets, shows just how successful the ban had been. Despite it (or because of it), the taste for coffee had spread wondrously, just as far as bootleggers could push it. The anger and pride of a Mameluk governor could not stand against the consensus of society.

In the years that followed, occasional but always short-lived attempts were made to close coffee houses. In 1565, in response to an indignant letter from a judge in Jerusalem, Suleiman the Magnificent banned coffee houses in that sacred region. But in 1584 another sultan allowed a small shopkeeper from Gaza to open one. In the 1630's there was a brief attempt made to close all of them in the Middle East by the reformist sultan, Murad IV—just a few decades before England's Charles II attempted the same thing in his realm thousands of miles away. Both acted for the same reason—coffee houses were seen as centers of political agitation. Neither effort was particularly successful.

Ibn Tulun, an Arab historian of Damascus writing around 1540, apologized to his readers for discussing the question of coffee in his history in great detail. "But everyone has been talking nonsense about it. It's a very complicated affair.

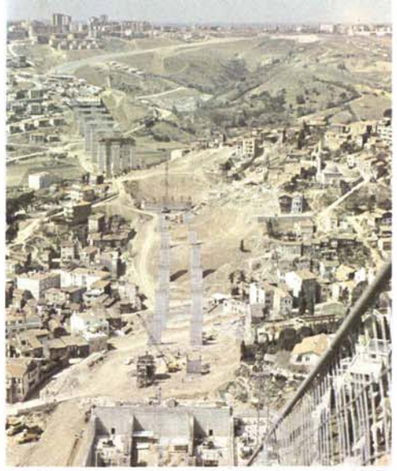
"Alas," he concluded—perhaps prematurely— "there's not even the pleasure of a useful lesson in it."

Jon Mandaville, who also grew up in Saudi Arabia, studied at Dartmouth and at Edinburgh University, earned a Ph.D in Oriental Studies at Princeton and is presently an associate professor of history and Middle East studies at Portland State University in Oregon.

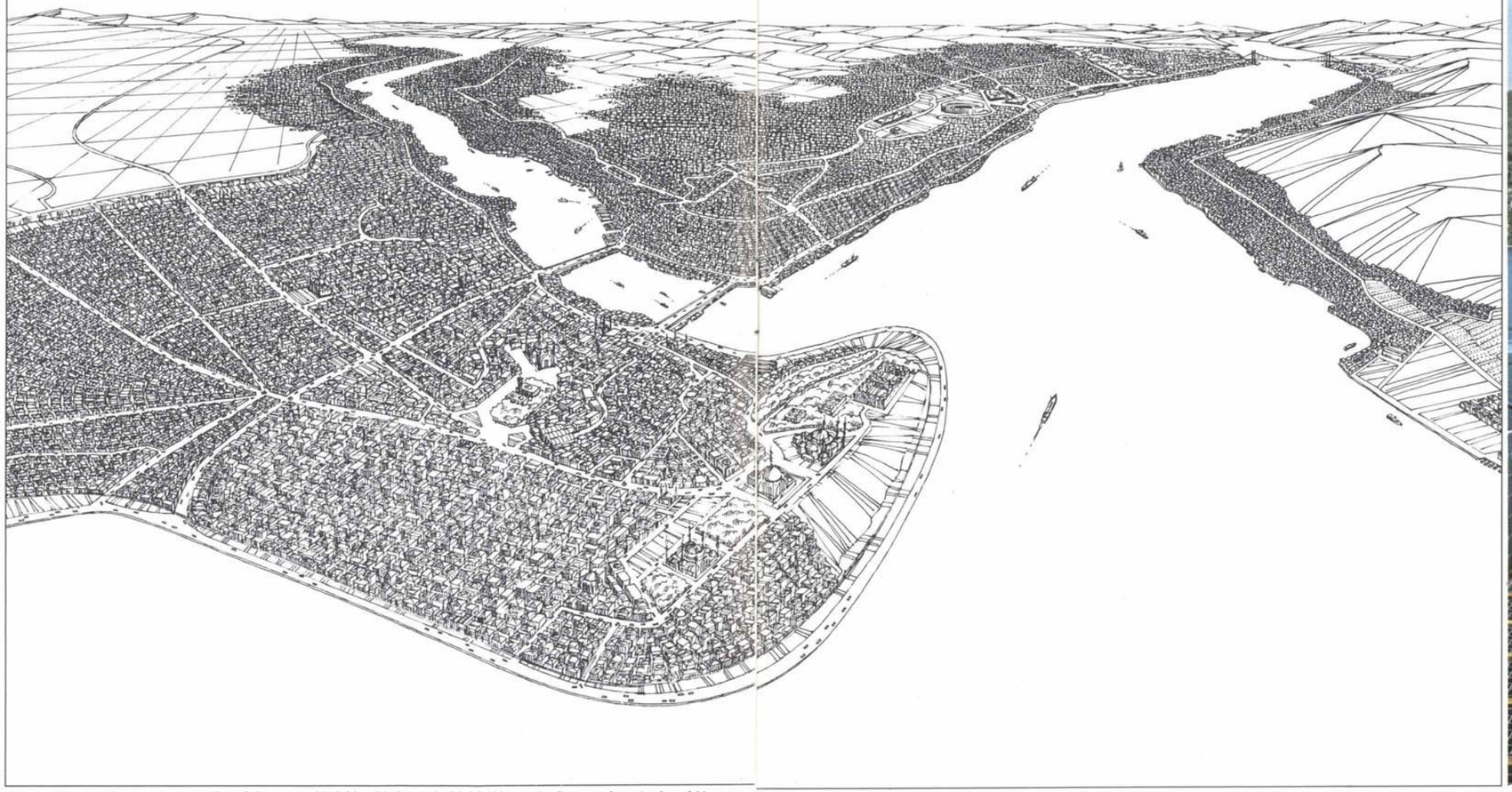
BRIDGE ACROSS THE BOSPORUS

One of the world's longest suspension spans now links the Middle East to Europe.

WRITTEN AND PHOTOGRAPHED BY
ROBERT ARNDT



View of highway approaches on European side (February, 1972).



Above: Artist Don Thompson's conception of the suspension bridge (background, right) looking up the Bosporus from the Sea of Marmara. Asia is on the right. Old Istanbul (foreground) and new, both in Europe, face each other across the Golden Horn, the inlet on the left.

An ocean liner steams beneath the completed catwalks. (March, 1972).

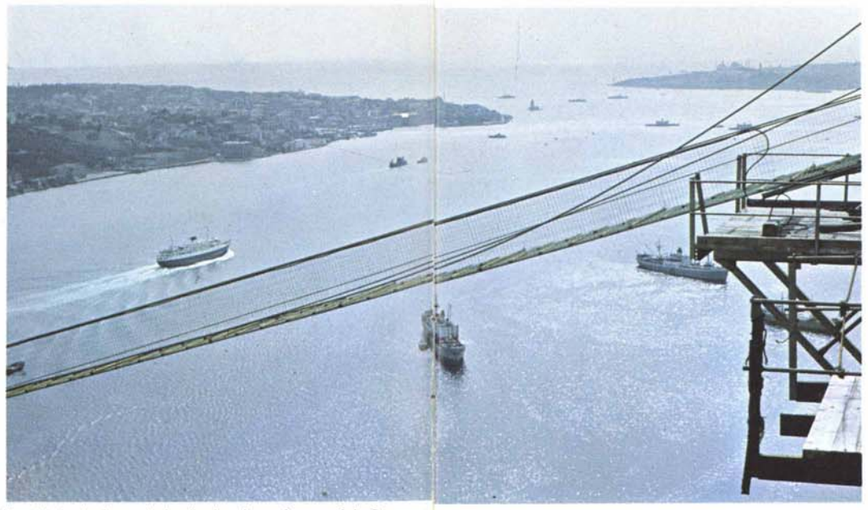
Within sight of the spot where King Darius built his bridge of boats in 512 B.C., leading 700,000 men west to war, another bridge, fulfillment of an age-old dream, now reaches across the Bosporus' waters to unify in peace a city, a country and two continents.

It is no emperor, in this century, who is the builder of the first permanent link between Europe and Asia. It is a consortium of European firms in partnership with the Turkish Government: not war but commerce pencils this graceful 4900-foot arc across Istanbul's landscape. But nonetheless, the Bosporus bridge, Europe's longest single span, probably carries a load of emotion even weightier than the eight million vehicles expected to cross it every year.

The project is hardly a new one. After Darius, every emperor, every sultan, every miscellaneous local potentate probably thought of a bridge across Istanbul's "garland of waters." Leonardo da Vinci, who designed a bridge to cross the Golden Horn in 1502, must have looked at the far greater challenge of the Bosporus with longing and, ultimately, despair. French engineers proposed a masonry-arch bridge during the 18th century, and a different sort of longing from Leonardo's motivated a German bridge proposal in 1905. In the 1930's a European technical congress made plans to try as did, in 1953, the government of Turkey, but like the earlier plans they were not realized.

By 1963, however, two factors had changed. One was that Istanbul, on both banks of the Bosporus, had grown in 10 years as much as the 1953 planners had expected it to grow in the next quarter-century. On the two bridges across the Golden Horn, traffic had reached the saturation point; to cross the city by car could take two hours, or up to six if a ferry crossing of the Bosporus was involved. The other change was that the technology of bridge building had advanced unbelievably; all five large suspension bridges built between 1953 and 1963 had broken some record or inaugurated some advance in the precarious spidery art of hanging mid-air roadways on spun steel strands. Thus, when London's Freeman Fox and Partners, one of the most experienced and innovative firms in the field, was given the job of designing anew the Bosporus bridge, the dream could at last become a reality.

This time the bridge was to be the center section of a ring highway around Istanbul that ran from behind the old city, just outside the Theodosian land walls, almost to the sea of Marmara's Asian shore at Moda. The site chosen for the leap across the strait was not the narrowest crossing, the nearly 2,300 feet from Kandilli to Rumeli Hisar, but lay just short of a mile further south, at a point between Ortakoy on the European side and Beylerbeyi, in Asia, that would preserve the architectural and historic integrity of both parts of Istanbul. There, too, the hills that line the Bosporus on both sides leave a narrow shelf on the water's edge that can accommodate the bridge's main supporting towers, and the shape of the hills themselves makes a unique and economical bridge design possible.



The old city dominates the headland at the confluence of the Bosporus and the Sea of Marmara in this view looking south from the bridge.

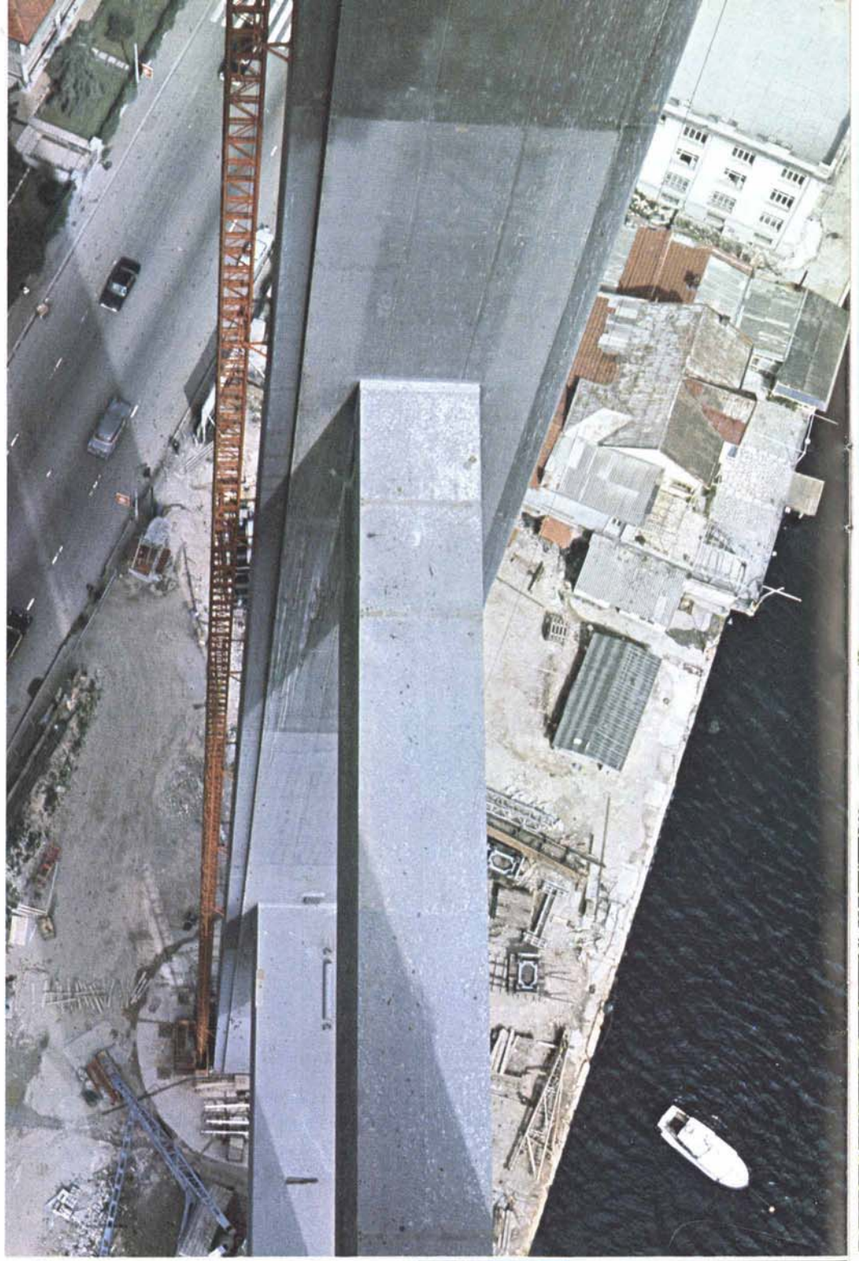
The basic geometry of each of the world's eight great suspension bridges is the same, despite progressive improvement in design and method of construction since New York's George Washington Bridge was completed in 1931. Two high double towers frame the central suspended span; heavy steel main cables run across the river from one concrete and steel anchorage, embedded in the bedrock of the bank, to the peaks of the nearest tower, down and up in a swooping catenary curve to the far tower tops, and down again to the firm support of the opposite anchorage. All along the main cables, which are generally over a foot in diameter, slender hanger cables reach down at short intervals to the roadway, supporting it in mid-air across the distance to be spanned. Thus the downward weight of the roadway, and later of the traffic on it, is transferred by the vertical (or near-vertical) hangers to the main cables. There the pull becomes a horizontal one, tensing the main cables as they stretch from anchor-

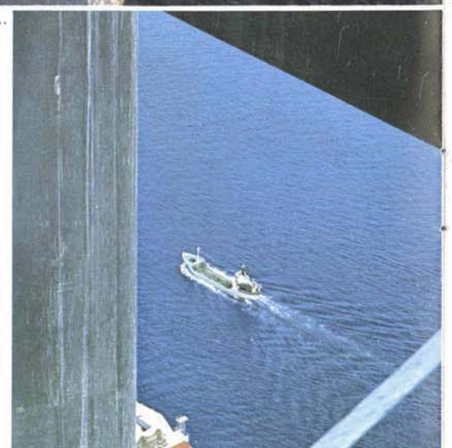
age to anchorage, and tending to tug the towers into the stream from their tops. As long as the anchorages hold the cable ends firm, though, the horizontal tension 'tries' to pull the arching cables straight, driving the towers into the earth the way a bowstring drives an arrow. Thus the force becomes vertical again, and is easily borne by the towers on their concrete footings.

Forces other than the dead weight of roadway and traffic, however, have to be taken into account in the design of a suspension bridge. Wind forces blow the hanging roadway out of place, and since as much as 70 percent of that lateral force is transferred to the towers, they must be able to resist both indirect and direct wind pressure. Special circumstances—an earthquake or a uniquely heavy vehicle—must be allowed for, their effects calculated, and the structure designed to withstand those effects.

The Bosporus bridge fits this general description, of course, but it also has some design features unique in the small worldwide family of these spans. Since the main towers are on land, Freeman Fox was able to support the approach spans—the part of the roadway that leads from the anchorages up to the towers—on slim steel piers rather than by hanging them from the main cables. The total load on the cables was thus reduced by almost a third, and important savings in strength—and thus cost—could be made in the design of the towers and the anchorages. It is this feature, in fact, that brought the bridge so many puzzled second looks as its outlines were growing clear: the main cable backstays are innocent of the lacework of hanger lines that show faintly against the sky in the main span, and they hang in a different, tauter curve, carrying only their own weight.

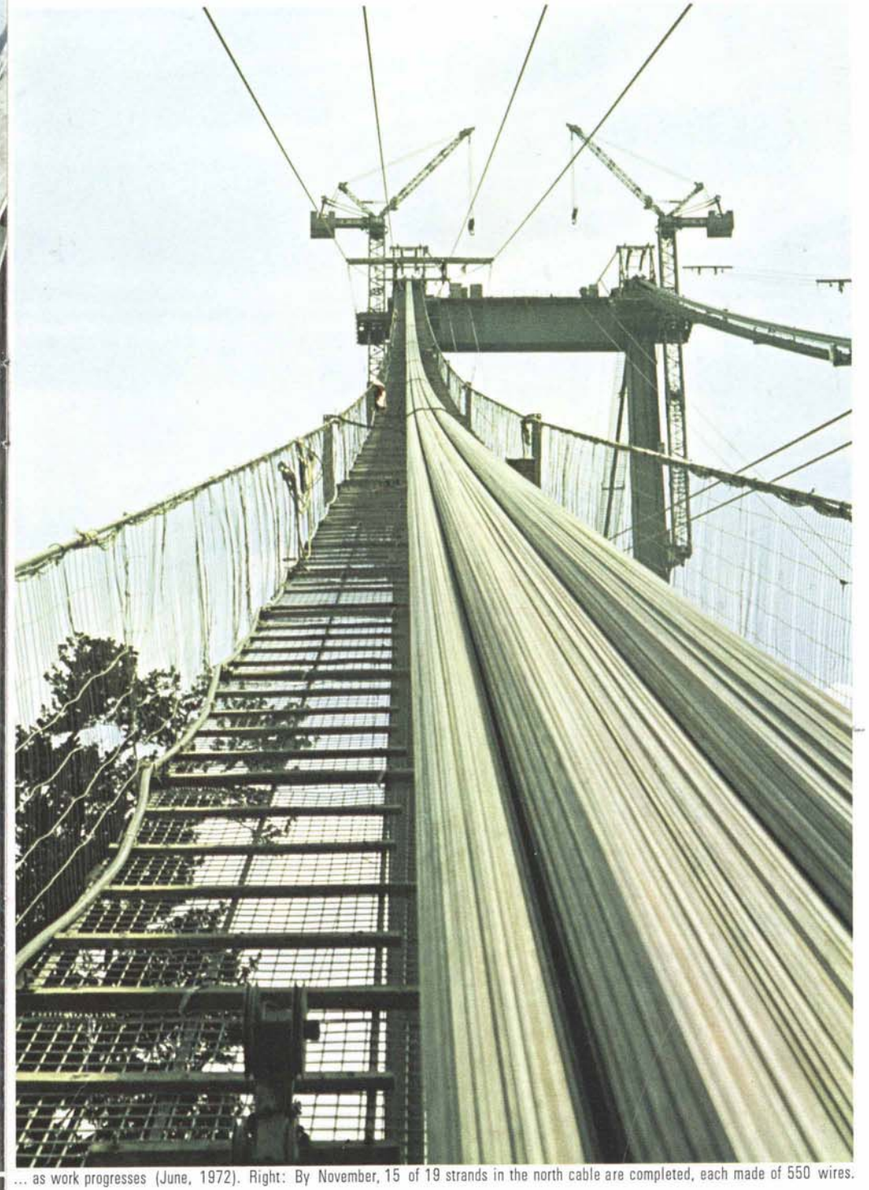
The roadway itself is of a design used only once before in a suspension bridge. All large suspension bridges, up to and including Freeman Fox's Firth of Forth Bridge (completed in 1964), featured a roadway stiffened beneath by a jackstraw tangle of horizontal, vertical and diagonal girders called a truss—a method of achieving the necessary rigidity in a structure that has hardly changed since the Eiffel Tower. By contrast, the roadway of the Bosporus bridge is a unitary construction called a box girder. In this design, traffic will run on the top surface of a large hollow steel box, stiffened internally by lateral and





Above and below: two vertiginous views from the Ortakoy tower ...

longitudinal steel membranes. The box is roughly rectangular in cross-section, with cantilevered 'wings' on both sides to provide space for pedestrian walks, and the construction as a whole is fully 20 percent lighter than a truss-stiffened design. Here again, weight savings in the roadway have a multiplier effect that makes possible major savings in the strength and cost of other components of the bridge: the hangers, main cables, towers and anchorages. The smooth surface of the box girder also



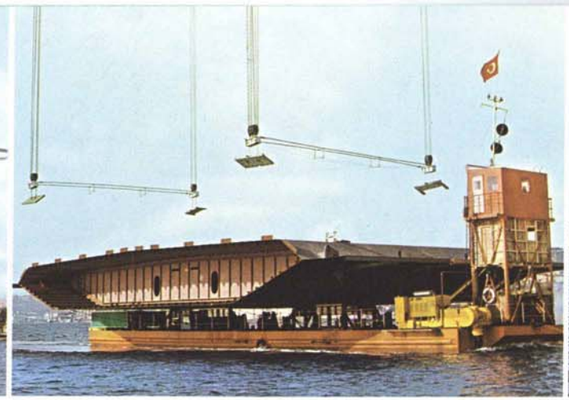
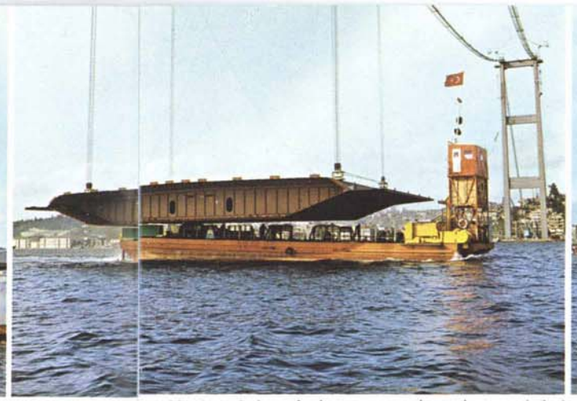
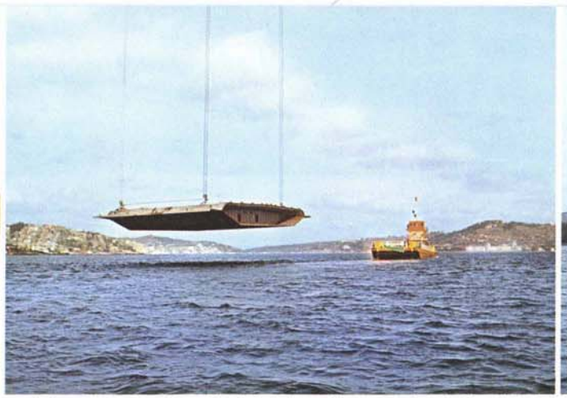
... as work progresses (June, 1972). Right: By November, 15 of 19 strands in the north cable are completed, each made of 550 wires.

reduces the effect of wind on the structure—thus further savings—and makes maintenance a simple annual repaint of some 430,000 square feet of clean surface, rather than the unending job that it is in the wind-trap tangle of a truss-stiffened roadway.

Wind effects cannot be eliminated entirely, of course, especially here in the steep-sided Bosporus, a natural north-south wind funnel. Both the Russian north wind and the hot southern 'lodos' reach 60-mile-an-hour force several times a year, measured at ground level; and the tops of the bridge towers, reaching above the shelter of the surrounding hills at their 540-foot height, are exposed to constant blasts. Though the roadway's cross section is aerodynamically stable, no shape 107 feet wide, 10 high and 3,521 feet long, hung in mid-air, can help being affected by winds: what must be avoided at all costs is the possibility of self-reinforcing oscillations that could build till they shake the bridge apart—the 'Galloping Gertie' effect that makes bridge designers wake up sweating. Wind tunnel tests of the roadway shape have eliminated that possibility for the Bosporus bridge, and Freeman Fox designers then added a further aerodynamic damping factor by drawing the normally vertical hanger cables at distinct angles to the vertical, the better to transmit horizontal forces to the main cables. The zigzag of fine diagonal lines at varying angles between roadway and main cables was another striking visual distinction of the Bosporus bridge as it took its final form.

Indeed, the bridge has been attracting attention since work was begun in April 1970. At that time the German tunnel and foundation experts Hochtief AG began to dig toward bedrock on the Bosporus shores. When they found it—55 to 78 feet down on the western (Ortakoy) side and 16 to 32 feet deep at Beylerbeyi—steel was placed and concrete poured to support the tower legs. At the same time, similar work proceeded at the anchorage sites. Each huge anchorage transfers a total of 30,800 tons of pull to the ground, and consists of a pair of chambers, in which the strands of the main cables splay apart, and a concrete block in which the ends of the strand are fixed. Each of the 19 strands in each main cable (plus four smaller strands that reach only from anchorage to tower top) is looped around a semicircular steel 'cable shoe.' Two huge bolts hold each shoe to a separate steel slab a yard high and almost a foot thick, and that in turn is held by 12 further bolts sunk 40 feet into the concrete block. Each chamber, with its anchor block—two chamber/block units make up each anchorage—is set in a separate trench in the hillside bedrock; the entire anchorage is unified by a concrete back wall. The Ortakoy anchorage, complete with the section of roadway that roofs it, contains 60,000 tons of concrete, and its analogue in Beylerbeyi, only somewhat less.

As the steel framework for the anchor blocks was taking shape at the anchorages, the legs of the bridge towers began to rise. Twenty-three by 17 feet at the base, each leg was assembled from prefabricated steel slabs made in Italy, now set on end and edge-welded together. As the finished height exceeded the reach of ground-level cranes, lifting cranes were attached to the legs themselves, and with each 60-foot


The series above shows the lifting of the first prefabricated road section (December, 1972). The transport barge, with section ORT-1 waits upstream until both hoisting cables are lowered, then moves into position beneath them. As the cranes ease the section upward, the barge backs away, but stands by while the hoisting machinery is rechecked. Three hours later the section approaches its final position.

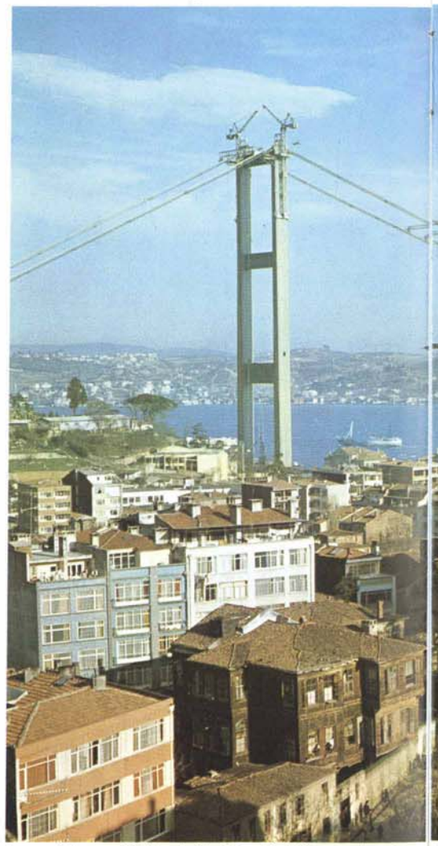
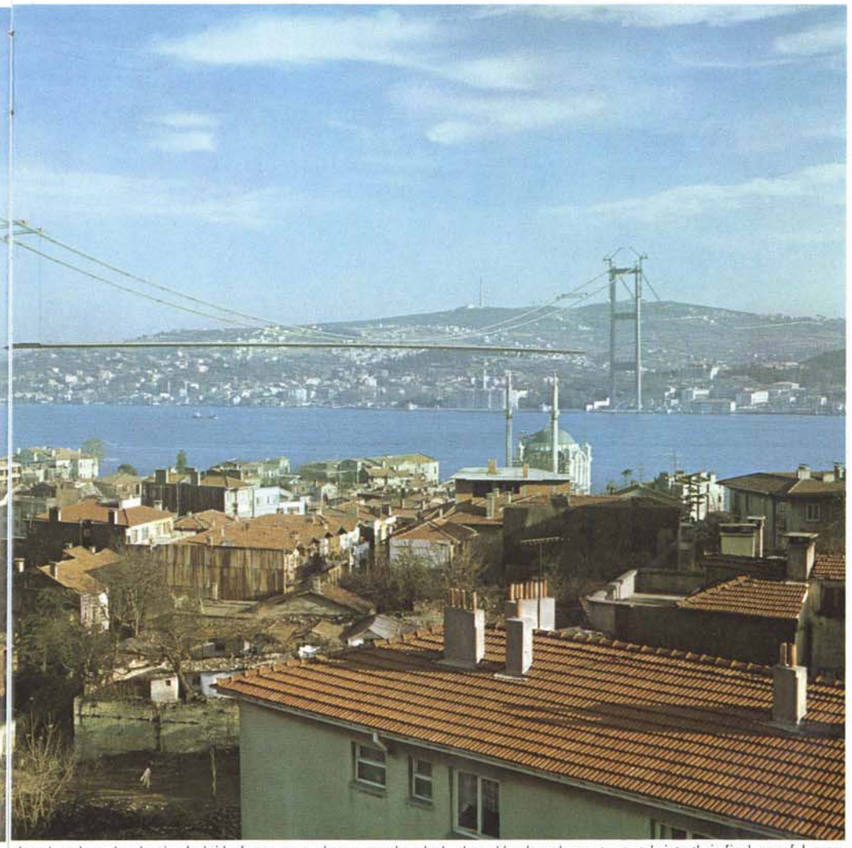
increase in height the crane 'inchwormed' itself higher on the leg it was building. These remote-controlled cranes were themselves as remarkable as the bridge they were helping to construct. Each capable of lifting a 45-ton load and lowering it by fractions of a millimeter to precise position, they were so reliable that workers were not afraid to place their unprotected hands in the narrowing gap between steel slabs.

As the tower legs reached a height of 140 feet above their foundations (150 feet above the ground), a crosspiece, called a portal, was hoisted up to span the 92-foot gap between them and, by joining the legs into one unit, strengthen the entire construction. It is on the top surface of this 32-foot-high crossbeam that the roadway itself now rests, supported on huge expansion bearings. Another, lighter portal joined the legs of each tower at 330 feet and a third at 500, just below the saddles that capped the tower legs and held the main cables as the nock of an arrow holds the bowstring. When the legs had reached half height, single steel cables were strung from the legs to the anchorages over 750 feet away and tensioned to keep the legs from lashing under stress. At full height, another set of cables was added, and both sets were tightened enough actually to pull the huge steel towers off the vertical by some 14 inches at the top. Then the saddles were placed, not squarely on the 23- by 10-foot tower tops, but offset some 25 inches toward the anchorages to bring the total deflection to more than three feet.

This deflection from the vertical was the first of many necessary preliminaries to the most difficult and time-consuming part of the construction: the spinning of the main cables. Each of the huge cables would weigh 2,700 tons, and the pull of that weight on the towers, plus the gradual adjustment of the placement of the saddles, would reestablish the vertical stance the towers must have to be able to carry the roadway and its traffic without toppling. The morning of January 11, 1972, saw the Bosporus closed to shipping as a tiny bright-yellow barge towed an inch-thick steel cable across the strait from tower to tower; three other cables followed that afternoon and the next day, and the first connection between the European and the Asian towers was made. "City Hall's been trying to join the two halves of Istanbul for years," cracked one Turkish engineer. "We've done it in two days!"

After these cables were fastened at the tower tops and the anchorages, they were used as supports to carry further cables across aerially, until finally a dozen spiral steel strands spanned the Bosporus. Sheets of steel mesh were laid on the cables, slid out and fastened, and a pair of catwalks—steel-mesh troughs hanging in loose curves between the two upstream and the two downstream tower legs—took shape. For the first time since Darius, men could walk across the Bosporus.

More cables were then stretched from the base of each tower leg up to the catwalks' lowest point and across to the opposite legs. When these cables, the 'storm system,' were tightened, they formed a mirror image of the catwalks' curve, which they pulled lower and tighter. The gain in safety for the workers was considerable—previously, the midpoint of the catwalks had been lashing in 30-foot arcs as the wind blew—but the main purpose of the storm system was to tighten the catwalks into approximately the catenary curve that the much heavier cables would assume when spinning was completed. (Without this measure, as the cables grew and sagged under their own weight they would rest on and finally rip loose the catwalks.) Then with the most painstakingly precise measurement assuring accuracy, the first two galvanized steel wires of the main cables were stretched from anchorage to tower to tower to the opposite anchorage. Marked with black paint at intervals along their length, they became the respective guide wires for the two sets of nineteen 550-wire strands to be spun. Each five-millimeter wire in each strand of the main cables would lie in a precise, unchanging relationship to each other wire and to the guide wire for that cable, so that each strand of parallel, untwisted wires—and ultimately the whole main cable—would have the minimum of bulk and the maximum of strength.

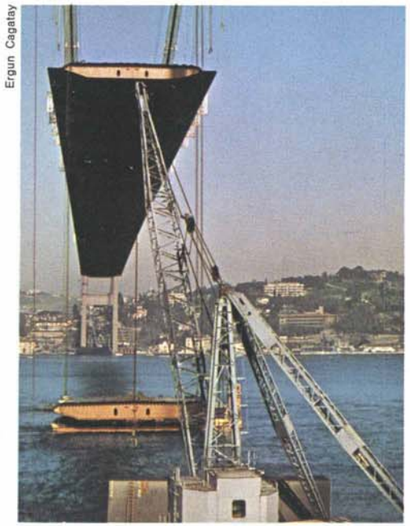



By now (February, 1973), only 38 of the 60 148-ton road sections have been hung, but despite the bridge's strange nowhere-to-nowhere look, the cables have begun to stretch into their final graceful curve.

The actual spinning of the more than 11,000 wires of each main cable took over three months to complete, a job that was simple in its essentials but—at least at first—agonizing in the details of its execution. Properly speaking, the word 'spinning' is a misnomer, since none of the wires or strands is twisted in any way. Rather, the wires are laid down in successive passes, from one anchorage to the other, of a large steel wheel which travels like a cable car on an overhead system of moving wires. As a strand was begun, the end of the five-millimeter wire was temporarily fixed to the cable shoe at the back of the Ortakoy anchorage chamber, and a bight of the wire was laid around the rim of the wheel. As the wheel traveled from the Ortakoy anchorage toward Beylerbeyi, it drew wire from huge drums through counterweight towers that maintained the proper tension. As it moved, the wheel laid down a 'still' wire from its lower edge, which workers along the line carefully laid and levered into the proper position in the strand, reaching high to grasp the wire as the wheel rolled by overhead. The 'live' moving wire, feeding out from the anchorage over the top edge of the wheel, was laid into pulleys alongside the strand and allowed to run out freely to the traveling wheel. When the wheel arrived at the Beylerbeyi anchorage, the semicircle of wire on its rim was removed and looped around the proper cable shoe there. The empty wheel returned to the European side while its twin, working on another strand, ran loaded in the opposite direction; as it returned, workers lifted the now-static 'live' wire from its pulleys and eased it into place in the strand next to the 'still' wire laid down in the same pass. Arriving back at the Ortakoy anchorage, the empty wheel was reloaded with another bight of the same length of wire, and traveled out again. The end of the wire, after the last pass, was joined by a hydraulically clamped steel sleeve to the end left free at the cable shoe when the strand was begun, and the entire strand thus became a continuous loop; all 550 wires in it—actually one wire crossing back and forth 550 times—carefully clamped fast and adjusted for tension and position at each passage of the wheel over a tower top.

The first of the 38 main span strands to be spun took well over a week to complete, thanks to constant 'mis-lays' and backtracking; within a month, though, as the workers' experience and confidence increased, a full strand took only three days from start to finish, working in two shifts. When a strand was completed, spinning shifted to the other cable for three days, and the newly completed strand was 'tuned'—jacked back and forth across the tower-top saddles by infinitesimal amounts to bring

Ergun Cagatay



the whole strand to exact position within the cable. So sensitive was this work and so precise the measurements that though each wire of the strand had already been separately adjusted when it was laid, the tuning of the strand was done in two separate sessions to allow any tensions to subside in the interim, and done after midnight, when uneven expansion induced by the sun's heat had had time to subside.

Meanwhile, about a half-mile north of the bridge, on a meadow on the Bosporus' Asian shore, roadway assembly had been going on since the early spring of 1972. Like the tower legs, the roadway had been partly prefabricated in Italy; as the pieces were welded together on the Goksu meadow, 60 sections of roadway took shape. Each section was the full final 109-foot width, with space for six lanes of traffic, two pedestrian walks, a center strip and roadside guard fences—but it was only 59 feet long. As successive sections were assembled, they were shifted on rails to loading positions in accordance with their final place in the bridge, and the welds were x-rayed for flaws. One of the lengths of rail on which the road sections were shifted jutted pier-like into the Bosporus, at a height which allowed a specially constructed barge to slip under the rails. The barge, an unadorned rectangle powered by four separate diesel engines driving independently steerable propellers, was to transport the road sections one by one down the Bosporus to the bridge. About 650 feet upstream it would let go an anchor, and, its propellers fighting the current, drop slowly down to exact position under the suspension cables.

While the barge crew made dry run after dry run, in all weathers, the lifting tackle that would hoist the road sections up to the hanger cables was prepared. Each set of tackle consisted of two rigid steel bridges that were, in effect, extensions of the climbing cranes that had built the tower legs, re-rigged to allow them to lift the 148-ton sections. One pair of bridges operated on the Ortakoy side of the midpoint of the cables, the other pair on the Beylerbeyi side; at 8 o'clock in the morning of December 7, 1972, the Ortakoy pair lowered its falls to the roadway section numbered ORT-1. Locking pins were hammered home to attach the falls to lift points welded to the structure of the section, and, extremely slowly, the crane began to take the strain. Ten minutes after lifting began, daylight showed between the road section and the supports it had been resting on, and the barge began to back out from under. Four hours later the roadway section was lifted to its final position just west of the midpoint of the cables and the hangers that would hold it there for the lifetime of the bridge were permanently attached.

To the spectators who, for 14 hours a day during the final stages of construction had camped out on the Ortakoy hillside, it looked as if a serious error had been made: section ORT-1 now hung from the main cables fully 130 feet too high. No such worries affected Freeman Fox engineers or the Turkish workers —largely German-trained—whose muscle and sweat were actually building the bridge. They knew that as further road sections were added, the main cables, huge though they were, would gradually give until, with the full 9000-ton weight of the roadway in place, the predicted 210-foot clearance above the Bosporus current would remain—room with a little to spare to allow passage to the aircraft carrier *Enterprise* and the liner *Queen Elizabeth II*, the tallest ships afloat.

In the course of the new year's first months, the roadway sections were hung in sequence from the midpoint toward both towers: the second section in place was BEY-1, the third ORT-2, and so on. Finally, on March 26, 1973, the last section, flag-decked and wet with champagne, was lifted and hung, and attention shifted to the approach viaducts that would carry the highway from its jumping-off place at the anchorages to the towers where the suspended roadway began.

The viaducts were somewhat behind schedule, thanks to a March storm that swept several great steel beams into the Marmara, but after frogmen and cranes fished them out, a second pair of cable-straddling cranes installed the 30-ton spans atop their slender steel piers. When these girders met the steel work of the towers at the end of April 1973, the main structure of the Bosporus bridge was complete.

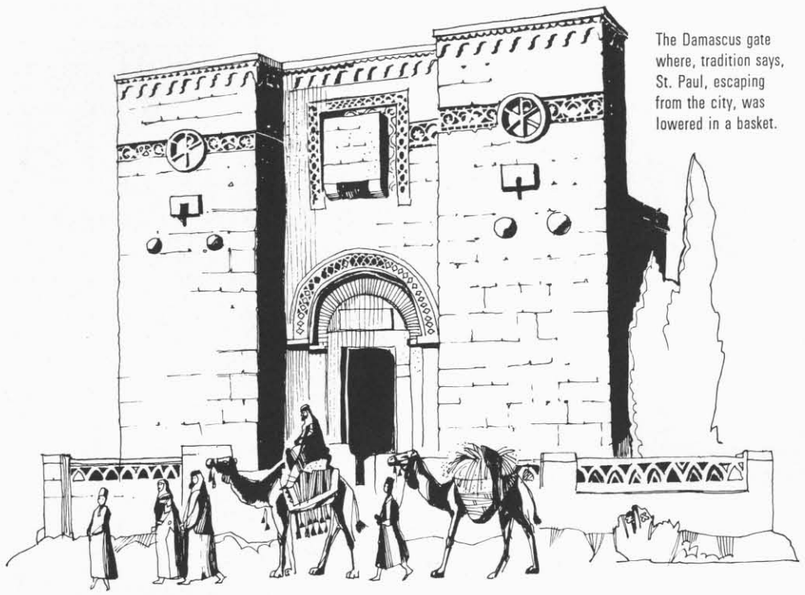
There was, however, no shortage of work ahead. The roadway deck had yet to be asphalted. The main cables had to be wrapped and painted. French-built, 20-person elevators to carry pedestrians up through the tower legs to walkways 187 feet above the ground were still missing. Approaches had still to be constructed and paved. As a result officials of Turkey's General Highways Administration were, this summer, still undecided whether they could officially open the bridge during the October celebrations marking the Turkish Republic's 50th anniversary.

Ceremonies, however, will add little to what has been achieved here in the past three and a half years. Despite inertia, politically motivated threats of violence, harsh weather and the immense difficulty of the task, there looms now over the Bosporus a bridge too high for understanding, too long for perspective; a structure 10 stories high that strides across the skyline; a presence that commands without dominating, that broods over and joins two continents, lightly spanning the ancient strait and the dreams of 30 centuries.

Robert Arndt, who emigrated to America from Turkey as a child, is a photographer and free-lance writer living in Istanbul.

Ergun Cagatay

Above left: Seen from the Beylerbeyi tower base (February, 1973), preparations are underway to lift road section BEY-21. From the Asian shore (above, right), viaduct girders reach toward the tower as a ferry passes beneath the nearly completed span in which only section BEY-29 remains to close the final gap in the roadway.

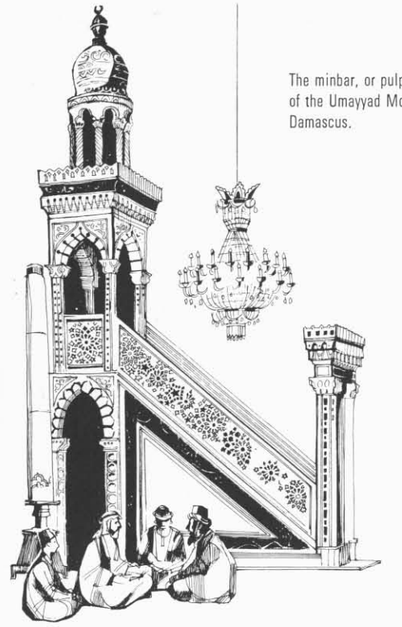


The Damascus gate where, tradition says, St. Paul, escaping from the city, was lowered in a basket.

If Paradise be on earth, Damascus must be it; if it is in heaven, Damascus can parallel and match it. Ibn-Jubayr

THE IMPERIAL CAPITAL

WRITTEN BY PHILIP K. HITTI
ILLUSTRATED BY PENNY WILLIAMS



The minbar, or pulpit, of the Umayyad Mosque, Damascus.

A detail from an Umayyad Mosque mosaic depicting paradise.

Philip K. Hitti, who retired in 1954 from Princeton University, where he was Professor of Semitic Literature and Chairman of the Department of Oriental Languages, is the author of numerous books on the Arabs and Islam, including the classic History of the Arabs, *now in its 10th edition (Aramco World, July-August 1971).*

"The Imperial Capital" is an abridged chapter of Dr. Hitti's Capital Cities of Arab Islam, *published this year by the University of Minnesota. It is, explains Dr. Hitti, "an attempt to view the highlights of Arab history through the windows of the cities where those events were enacted ... The six cities treated were more than capitals; they left their indelible imprint not only on the subsequent history of the Arabs and Moslems but on the development of civilization at large."*

Chapters deal with Mecca, the religious capital; Medina, the caliphal capital; Damascus, the imperial capital; Baghdad, the intellectual capital; Cairo, the dissident capital and Cordova, the European capital.

* * *

Damascus is the gift of the Barada. The river gushes forth almost full grown immediately below Anti-Lebanon's watershed, rushes 23 miles down the slope, fans out into six main streams to irrigate a desert area and convert it into "one of the three earthly paradises." The 16 by 10 miles of gardens and orchards thus created, and named Ghutah, set the city like a pearl in an emerald girdle of green—a sight especially appreciated by peoples of barren lands. From the time of Naaman, the Syrian general of the mid-ninth pre-Christian century, to the present day, Damascenes have not ceased in poetry and prose to sing the beauty of their river and the fertility of their city. It is the favorite theme of their poets since Umayyad days. In fact, considering the length of service and the measure of usefulness, few cities have as much reason to be thankful to their rivers as Damascus has.

The Hebrews called the Barada (which in Arabic suggests the idea of ice-cold) Abana (stony). Classical writers had a more appropriate epithet for it, Chryshorrhoas (gold-pouring). The other Damascus river mentioned in 2 Kings 5:12, Pharpar, is now called al-A'waj. The A'waj, a confluence of several streams, rises in Mount Hermon, pursues a tortuous course (whence its Arabic name) and irrigates the plains southeast of the city.

But Damascus is more than an agricultural post. It is a desert port. Situated at the east end of a west-to-east trade route, it is itself a center of route radiation northward to its only rival in Syria—Aleppo—and thence to Asia Minor, southward to Palestine and on to the Hijaz, and eastward through an almost lifeless 500-mile desert to Baghdad, and through Baghdad to Mesopotamia and Persia. This makes of the oasis a trade and industry post. On the local scene Damascus provides a market of exchange for the Bedouins of the Syrian Desert.

Its people call it Dimashq, a term that presumably goes back to a prehistoric non-Semitic origin. Recent excavations indicate an urban settlement of the fourth millennium B.C. on the site. In 1595 B.C. a Hittite monarch penetrated in Syria south to Damashunas, which sounds suspiciously like Damascus. But its first clear stepping on the threshold of written history comes a century and a half later when the Egyptian Thutmose III conducted several campaigns against Syria and listed Timashu or Damasku among the conquered towns. This gives it a life-span justifying its claim of being the longest continuously inhabited city known—a record of about 3,500 years with no known lapse to a village status.

Damascus made its debut on the royalty stage toward the end of the second millennium B.C. It then became the capital of an Aramaean kingdom that in its heyday extended from the Euphrates, through eastern Syria and Transjordan, to the Dead Sea ... and which rose to power contemporaneously with the Hebrew kingdom and contiguously to it. The two soon became foes involved in intermittent warfare. This, unfortunately for both, synchronized with the rise of a more formidable power to the north, Assyria ... With one hand Damascus had to ward off Assyrian aggression, and with the other Hebrew advances. King David reached and for a time occupied and garrisoned Damascus (2 Sam. 8:5; I Chron. 18:5-6), but the division of his monarchy in 922 worked to the Aramaean advantage ... For a time the kingdom of Israel became nominally a Damascus vassal, ... but in 733 B.C. Tiglath-pileser III moved against Damascus (Dimashqa in cuneiform inscriptions) and King Rezin, after a battle, took to flight and, in the words of the Assyrian bulletin, "like a mouse he entered the gate of his city," where he was finally slain (2 Kings 6:9). The city's inhabitants were deported (cf. Is. 17:1), the trees of its orchards—its pride through the ages—were cut down, "not one escaped." Its 16 provinces with their 591 cities were, again to borrow the words of the Assyrian invader, destroyed "like mounds left by a flood." Assyria was determined that no more should a power challenge her right to supremacy in the Fertile Crescent.

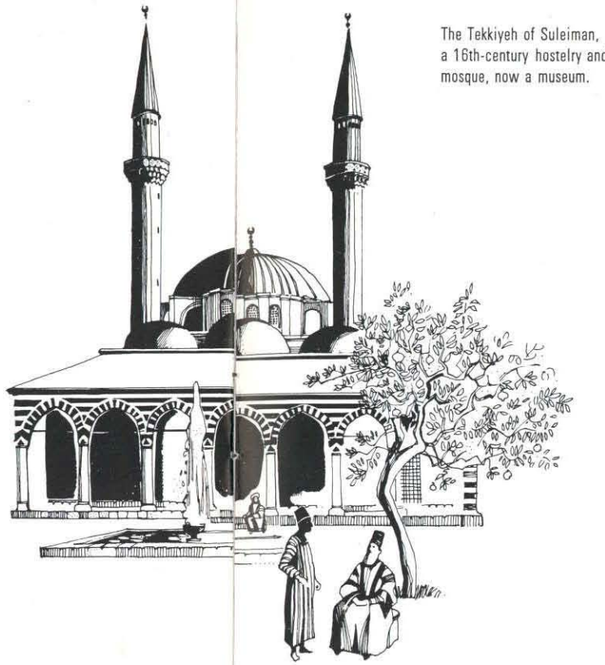
The Aramaean kingdom of Damascus passed away, but the Aramaean heritage passed on. In the course of the two centuries of Damascus' ascendancy, Aramaean merchants came near monopolizing the hinterland trade as their Phoenician rivals had monopolized the maritime trade. What turned out to be its most enduring export, however, was language. By 500 B.C. Aramaic had established itself as the language of commerce, culture and government from the Mediterranean to the Tigris. More than that it replaced the vernaculars. Christ's mother tongue was Aramaic. Hebrew was reserved for synagogue and school use. In its Syriac dialect, Aramaic still figures in the liturgies of Eastern Churches, including the Maronite of Lebanon. Jews carried Aramaic with them to Arabia, Egypt, Persia, and other lands of the Diaspora. Darius I (522-486) made it the interprovincial language of his empire. Aramaic remained the lingua franca of the entire area until the conquest of Alexander the Great. With the spread of language went the alphabet. Borrowed from their Phoenician neighbors, this ingenious system of writing was transmitted by Aramaeans to the Hebrews, the Arabians, the Persians, the Hindus, and other peoples of the East ...

The conquest of Syria in 333 B.C. by Alexander the Great marked the opening of a new era for the entire region—an era of Greco-Roman dominion and cultural infiltration that was not to end until the rise of Islam a thousand years later.

On the occupation of Syria by the Romans in 64 B.C., Damascus was bypassed in favor of Antioch ... and other neighbors of Damascus: Beirut (Beyrytus) and Baalbak (Ba'labakk, Heliopolis), the "city of the sun." Roman rule over Damascus was briefly interrupted by the North Arabian Nabataeans, based in Petra, who held the city at the time of Paul's conversion. The "street called Straight" (Acts 9:11) bears today the name of Midhat Pasha, a 19th-century Ottoman governor, and the place on the city wall near the east gate from which the apostle took to flight is still pointed out to curious tourists. In A.D. 395, when the Eastern Roman Empire (Byzantine) achieved its final separation from the West, Damascus was made capital of a minor district embracing Homs (Emesa), Baalbak, and Tadmur (Palmyra). For its full rejuvenation it had to wait until the rise of Islam.

Mu'awiyah's choice of Damascus in 661

Syrian mosque lamp—14th century.



The Tekkiyeh of Suleiman, a 16th-century hostelry and mosque, now a museum.

A stucco window grill from the 12th-century Hospital of Nur-al-Din.

as the capital of his caliphate was perhaps the most pregnant fact in its entire history. It started the city on its way to becoming, for 89 years (661-750), mistress of the Moslem realm and key city in world affairs. Its distance from the sea and its location in the shadow of a double mountain wall were—in the absence of an Arab fleet—an advantage. The mountain did, however, shut off the cooling vapor-laden westerlies, leaving the city an average of 10 inches of rain and giving it a summer heat exceeding 100°F.; but the mountain compensated by originating Barada and al-A'waj and reducing humidity . . .

Mu'awiyah's name became as inextricably associated with Damascus as Muhammad's with Mecca and 'Umar's with Medina. He was the father of its dynasty—the Umayyad; the founder of its tradition; and the architect of its imperial institutions. Mu'awiyah the caliph built on his experience as governor, and his experience had the Byzantine model to follow. Under him Islam began to breathe more of the Mediterranean and less of the desert.

The Damascus caliph's starting point was, predictably, the military. Hitherto, the unit in warfare as in peace was the tribe, each under its own shaykh. Soon after the occupation of Syria, Mu'awiyah realized the archaic character of the system and started updating it in the manner of the Byzantine army. The new units consisted of trained, disciplined men of varied tribes, receiving higher and more regular pay and accepting orders from professional officers.

But in other areas he made no changes at all. He kept the Syrian Christian members of the family of St. John, whose father had in 635 secretly opened the city gates to the Arabian besiegers, in charge of the treasury. Greek was maintained as the language of the books. In the eastern half of the empire, Persian was not disturbed. What else could a new ruler—lacking the personnel and tradition—do? For administrative purposes the old provincial divisions in both the Byzantine and the Persian realms were, with some modifications, maintained... The pre-Arabian currency throughout the caliphate was kept with no change. Some time had to pass before Arab coinage was struck.

For years the Damascus court was to an extent dominated by Christians. Mu'awiyah included in his harem a daughter of a South Arabian Christianized tribe domiciled in the Syrian Desert . . . And his poet laureate, al-Akhtal, was likewise a Christian. Al-Akhtal would enter the caliphal palace with the cross dangling from his neck. Almost all the caliph's subjects in the Fertile Crescent and in Egypt were, it should be recalled, still Christians. The religious barrier in those days did not loom high, and the caliph's tolerant policy made it look lower. Chroniclers report debates in the caliphal court on the relative merits of the two religions. Among the writings of St. John (d. 740) were two dialogues between a Christian and a "Saracen" intended as a manual for Christians' guidance in their arguments with Moslems. For his tolerance Mu'awiyah was repaid in undivided loyalty by his Christian subjects.

The caliph displayed no less ability in handling tribal affairs. The following words attributed to him sum up his philosophy of rule: "I apply not my lash where my tongue suffices, nor my sword where my whip is enough. And if there be one hair binding me to my fellow men I let it not break. If they pull I loosen, and if they loosen I pull." The honorific title of "one of the four Arab geniuses" bestowed on him by posterity was indeed well deserved.

With the realm relatively pacified though not consolidated, the Damascus caliph felt in a position to renew the holy war interrupted by the civil disturbances. Therewith the second wave of conquest began. The eastern sector Mu'awiyah entrusted to his lieutenants . . . while he concerned himself primarily with the West, where enemy number one lurked. His aim was no less than the capture of Constantinople, haughty headquarters of Greek Orthodoxy and an impregnable land and sea base . . . But Islam had to yield the highly coveted prize to late recruits, the Turks, and wait almost eight centuries to see the crescent and star replace the cross over Santa Sophia.

The glory that was Damascus covered the regimes of the fifth caliph 'Abd-al-Malik (685-705) and his son al-Walid (705-715). This was the time in which the definite subjugation of Transoxiana (in Russia) was accomplished, the reconquest and pacification of North Africa achieved, and conquest of Spain undertaken. It was also the time in which the Arabicization of the state administration was effected and the earliest monumental structures erected. Never before and never after did the Syrian capital reach such a peak of power and glory.

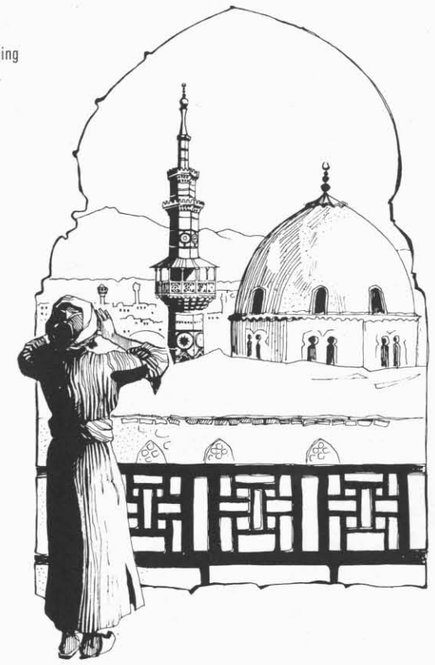
'Abd-al-Malik started his career under unpromising conditions . . . but after he had restored Hijaz to the Umayyad fold, his general, al-Hajjaj ibn Yusuf proceeded to do likewise with the rest of Arabia and with Iraq, a hot bed of Shi'ism. The former schoolteacher of Ta'if became in Iraq the mailed fist of the Umayyad caliphate. No measure was too ruthless for him to take against secessionists and deviationists, no head too high to reach, no neck too stiff to wring . . . The second civil war therewith came to an end. Iraq was pacified. The stage was set for a third wave of conquest, following those of 'Umar and Mu'awiyah.

It was al-Hajjaj as viceroy and his lieutenants and successors who brought about the final reduction of what had been in the east overrun in Mu'awiyah's time. It was in reality a reconquest followed by expansion through Turkestan, Baluchistan, and Punjab . . . The acquisition of Turkestan gave Islam the religion a permanent lodging in central Asia, and Islam the state the control of the so-called silk route, an international highway linking the Far to the Near East . . . India, into which Islam expanded later, offered the conquerors contact with a developed religion, Buddhism, and access to fabulous mineral resources and warm hospitality for their faith. Today Islam claims the allegiance of about 57,000,000 in India proper, and in Pakistan, independent since 1956, about 96,000,000. From Turkestan and Hindustan—to use India's Arabic name—the new religion penetrated by peaceful methods to Indonesia, which today claims about 100,000,000 Moslems, comparable to the number of all Arab Moslems.

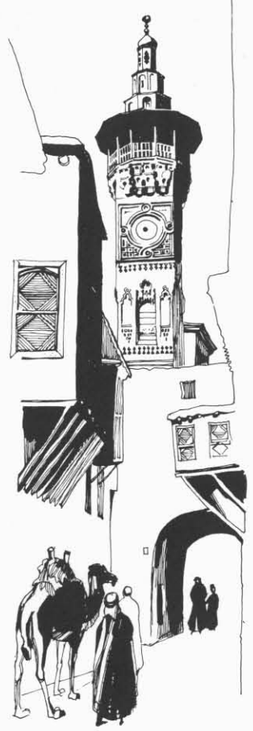
The last decade of the seventh century marked the attainment of maturity by the Moslem state. It was time to nationalize its institutions and Arabicize its administration. The step was conditioned by the availability of Arab manpower, and necessitated by the pressing need for increasing the common denominator for a heterogeneous society. Accordingly Christian officials in the chancellery, exchequer, and courts were replaced by Arabic-speaking, Arabic-writing officials. In Persia, then ruled from Basrah and Kufah, Persian was replaced likewise by Arabic. In Egypt Arabic again was substituted for the native language, Coptic.

But 'Abd-al-Malik's most conspicuous monument lay in another field, that of building. When the two Holy Cities of the Hijaz were still in an anti-caliph's hands, the caliph commenced building a mosque that would divert pilgrimage to Jerusalem, outshine its Holy Sepulcher, and provide Believers with a place of worship worthy of their new position as masters of a world. Result: The Dome of the Rock, a gem of architecture still unsurpassed in grandeur and majesty anywhere in Arab lands.

Muezzin calling prayer at Umayyad Mosque, facing the al-Gharbiya Minaret.



The Minaret of Hisham, from the Mamluke period.



Al-Walid continued in the building tradition of his father. He renovated the Haram (Sacred Enclosure) of Medina, enlarged and beautified that of Mecca, and erected schools, hospitals, and other public buildings in Damascus. In the first year of his reign, in 705, he began in his capital the erection of a mosque now called Umayyad Mosque ... The minarets of the new mosque, the first of their kind, were modeled after the church tower and in turn served as a model for muezzin's towers from Syria to Spain ... Considered the fourth sacred sanctuary after those of Mecca, Medina and Jerusalem, this mosque is the most enduring monument of this caliph. The Palestinian geographer al-Maqdisi visited the city about 985, when it was ruled from Egypt, and left us a vivid description of the decoration:

"The walls of the mosque, to a height of two men, are faced with multicolored marble, and from there to the ceiling with mosaics bearing representations of trees and towns and displaying inscriptions, all the ultimate in beauty, elegance and artistry. Hardly a known tree or town does not figure on the walls. The column capitals are covered with gold; portico arches are ornamented with mosaics ... The mihrab and its surroundings are covered with carnelian and turquoise stones of the largest possible size. To the left of it is another mihrab, reserved for the use of the sultan who, at a cost—I was told—of 500 dinars, renovated it."

In the military field, al-Walid's reign has as much to take pride in as in the building field. For it was then that Islam conquered and held the first European country. In North Africa as in central Asia, so loose was the first Umayyad hold on the conquered territory that it had to be reconquered before it could be pacified, integrated, and used as a stepping-stone for further conquests. That was what 'Uqbah's two successors under 'Abd-al-Malik and his successor, undertook. They pushed the frontier to the Atlantic, opening the way to the invasion of Europe ... Under al-Walid's successors the Pyrenees were crossed, and raids into France reached in 732 the neighborhood of Tours. In no other time, ancient or medieval, did a realm assume such dimensions—from the Chinese border to the Atlantic.

But the pole on which Damascus climbed to the summit turned out to be a slippery one. Between the zenith and the nadir (both terms of Arabic etymology) there was room for no more than one generation. Of the eight caliphs in the period (715-750), two only were worthy of the heritage generated by Mu'awiyah and enriched by 'Abd-al-Malik and al-Walid. The remaining six, three of whom were sons of slave mothers, were incompetent, some dissolute if not degenerate.

Other elements of weakness were inherent in the structure of the caliphal system, based on the assumption that the realm could be held together under the Arab scepter, with religion serving as the binding force ... By an irony of which history seems to be fond, the greater the success the empire achieved the deeper it dug its grave. The more Persians, Turks, Hindus, Berbers, and Spaniards were added the more disproportionate the numbers of Arabs and non-Arabs became, and the weaker the structure.

More specific factors came at last into play. Decline in the central authority made potential foes activists. Shi'ites, who had never acquiesced in the established order and considered all Umayyads impious usurpers, came out with their candidate, a descendant of 'Ali. Pietists, shocked by the worldliness of Umayyad caliphs, charged them all with deviation from puritanical Islam. Socially and economically discontented, the neo-Moslems — particularly newly converted Persians and Iraqis— were ready to join any rebellious leader. Thus all necessary ingredients were there,

A bas-relief in the 13th-century tomb-mosque of Tagritiya.

with only one lacking: a catalyst.

The catalyst before long appeared in the person of Abu-al-'Abbas, a descendant of al-'Abbas, Muhammad's uncle. Abu-al-'Abbas had good credentials, descending from a clan closer of kin to the Prophet and earlier in conversion to Islam. The new claimant made Iraq his headquarters and had his agent start the uprising in Persia. In October 749, public homage was paid him as caliph in the Kufah mosque. Three months later his troops met a Syrian army at the Great Zab, an affluent of the Tigris, and dealt it a crushing blow. The commander in chief Marwan (744-750) entered the battle as the 14th Umayyad caliph; he left it as the last of the line.

In sharp contrast to the treatment accorded the family of his predecessor, Abu-al-'Abbas embarked on a policy of extermination against the fallen house. His generals pursued its members throughout the land ... and only one prince escaped, ... a 19-year-old descendant of the 10th caliph. It was this 'Abd-al-Rahman who dramatically escaped from his 'Abbasid pursuers and, in disguise, trudged across Palestine, Egypt, and North Africa, landing five years later, in 755, in Spain. There singlehandedly the refugee succeeded, after trials and tribulations, in establishing himself at Cordova as the master of the peninsula and the founder of a new dynasty. Dead in Damascus, the Umayyad dynasty was born in Cordova.

The blackout that enveloped Damascus was total and prolonged. The torch passed on to Baghdad, where it shone brilliantly at times and flickered faintly at others, but never penetrating the Syrian border. Damascus' two predecessors, Mecca and Medina, inherited Prophetic charisma and an annual pilgrimage to sustain them indefinitely. The Syrian capital inherited neither grace.

Only once did Damascus come near seizing the opportunity to restore some of its past glory. In 1154 Nur-al-Din, originally a Turk from Mosul and already a master of Aleppo, wrested Damascus from the hands of other Turks (Saljuqs) and made it his seat for attack on the Crusaders' kingdom of Jerusalem. For the first time since Umayyad days, Damascus began to function as a capital, albeit of a tiny state. The city entered upon a brief period of renaissance. Nur enriched it with new buildings, religious and educational, that are still among its showplaces. One building he started houses today the prestigious Arab Academy. On Nur's death in 1174, his former vassal and now hero of the anti-Crusades, Salah-al-Din (Saladin), occupied Damascus and made it a joint capital with Cairo of his Syro-Egyptian realm. The partition of the kingdom on Salah-al-Din's death (1193) among his brothers, sons and nephews extinguished all hope Damascus might have cherished of recapturing its past position.

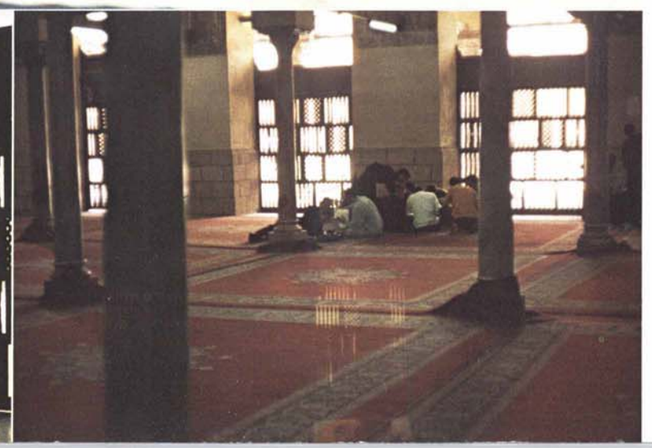
In 1250 the Mamluks fell heirs to the dynasty founded by Salah-al-Din and in 1517 passed it on to the Ottoman Turks. Toward the end of the century, when international trade began to assume new dimensions, Aleppo beat Damascus to becoming the new commercial center of the area. By the 17th century Venetians, French, English, and Dutch had established in it consulates and trade offices. Imports from Europe, such as cloth, metals, chemicals, and glass, arrived via Alexandria or Tripoli (Lebanon) to be exported from Aleppo to Asia Minor, Kurdistan, and Persia. In the meantime the English East India Company had virtually monopolized the spice trade of India, besides tapping the silk resources of China, and was making full use of the Aleppine market on its land trade route. At the termination of the French mandate in 1943 Damascus for the first time in 1200 years had its first full chance of becoming the capital of an independent state.

AL-AZHAR: A Millennial

In Egypt, the world's oldest university continues to teach—and to evolve—as it has for 1000 years.

WRITTEN BY MICHAEL E. JANSEN
PHOTOGRAPHED BY JOHN FEENEY

The thousand-year anniversary of al-Azhar is a movable feast: it can be celebrated once, several times or over a period of years. Its mosque was completed one thousand and one years ago and formally dedicated just one thousand years ago, in Ramadan 973 — according to our solar calendar. In 975 the first students of Muslim canon law gathered round the columns in the mosque's sanctuary and al-Azhar became a university, now the world's oldest. Al-Azhar itself calculated its millennium according to the Muslim lunar calendar and prepared its celebrations for 1942, but the war intervened and the festivities were transferred from one calendar to the other, from the moon to the sun, which, indeed, is more in keeping with the name al-Azhar, "The Resplendent."



In the sunlit courtyard of the great mosque and in its dim, carpeted interior, students debate, meditate and listen to lecturers. Other students study at the modern campus in a Cairo suburb.

In Cairo, in the shade of the cloister at al-Azhar, a handful of canvas-slippered tourists cluster round a guide and blink incomprehensibly at the edge of the bright courtyard. Do they know where they are? No, it seems not. Al-Azhar? Isn't that a mosque or something? Ah, a university. Can we go in? Oh, isn't this charming! And so old, so very old . . .

For one thousand and one years the lives of the people of old Cairo have revolved round al-Azhar. Five times a day they are called to prayer from the minaret of the mosque. In the evening they go to sleep after the last call to prayer and early in the morning are awakened, to begin a new day or to doze off again comforted by the voice of the muezzin crying, "God is Great," knowing that "all is well." At noon the joyous shout "Allah-hu-Akhbar" soars up into the diamond-blue sky and then glides down round the minaret and the gray-golden walls, down the wide streets of the bazaars, up the narrow alleyways and into the gloom of the tentmakers' souk. A leather-aproned man sighs and firmly pokes his needle through the edge of a vast canvas which is spread about him. A few men in the shops set aside their work and lay out their prayer rugs and mats. Some turn at once and go to the mosque, slipping off their shoes or sandals as they step through the gate. Rough porters in rags, students and clerks in jackets and trousers, artisans in stained caftans become quietly respectful as they cross the sunny courtyard to the sanctuary. Two little girls in short blue skirts and beige school tunics, their hair braided painfully tight, scamper in stockinged feet across the bright flagstones. A man sleeping on a mat in the sun sits up to watch.

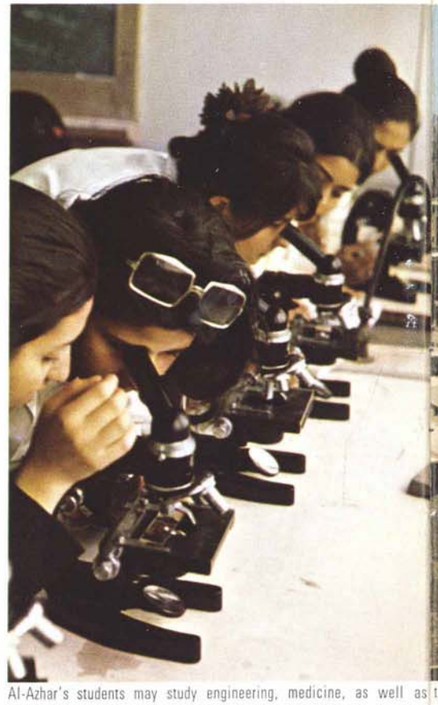
Inside the sanctuary, professors in gray kaftans and red felt caps wound with a broad white linen band conclude their lectures. Each teacher sits with his back to a pillar and his students at his feet, cross-legged on great red carpets. There is a quiet hum of voices. One by one the classes rise and the students, shoes and books in hand, drift out of the cool dimness into the golden courtyard. For one thousand years but two, students have clustered round these pillars to learn Islamic theology and law and Arabic grammar and literature at this, the oldest university in the world.

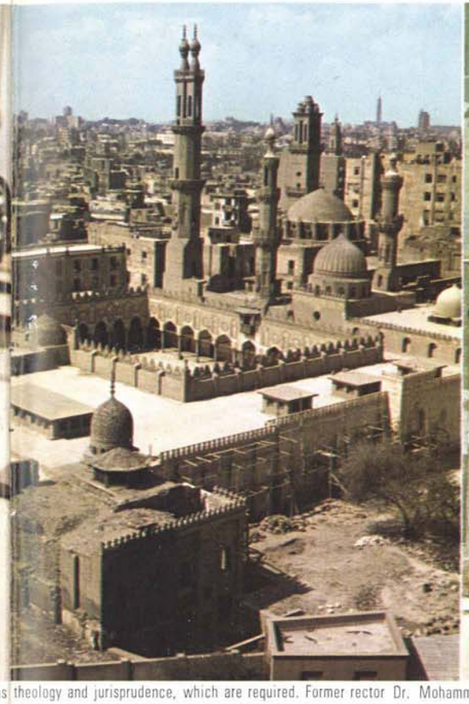
A small girl, about seven or eight, shyly proffers paper cones of sunflower seeds. She is a small representative of the sellers of food and sweetmeats who have, for 10 centuries, hawked their wares to the inhabitants of the courtyard and loggias of al-Azhar. The mosque has provided a home for the poor of Cairo, a place where travelers could stay, and lodging for its students, who also received a daily bread ration until 1929, when it became an annual stipend. One of the first additions to the original sanctuary and walled courtyard was a kitchen for the poor, which gave the name "The Soup Gate" to one of the entrances to the mosque compound.

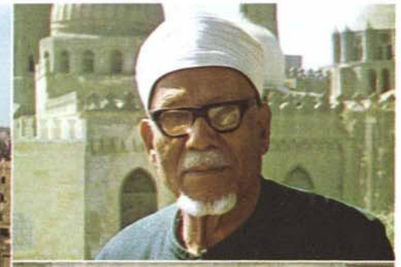
The influence of al-Azhar, of course, extends far beyond the streets of Cairo. For most of the 600,000,000 people of the Muslim world al-Azhar is comparable, if one were to speak in British terms, to the Synod of Canterbury, Oxford University, the Houses of Parliament, Westminster Abbey and Piccadilly Circus, all rolled into one. For al-Azhar is a nodal center of a worldwide faith, with its own synod of shaikhs, an ancient and distinguished seat of learning, an institution studying and defining secular law, a focus of Egyptian national feeling and the center of a throbbing commercial area. And more than all this—it is a Holy Place.

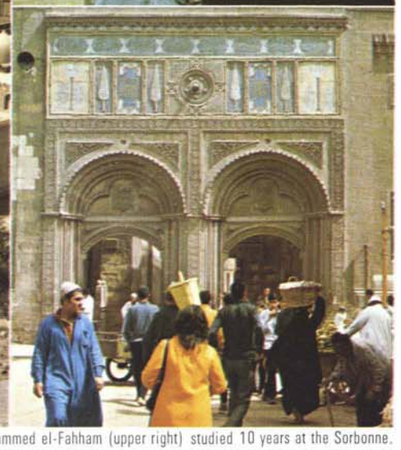
If Mecca is the heart of Islam, then al-Azhar is its head. Just across the street, in the rose-colored stone building, the rector, whose title is Shaikh al-Azhar, and his council of Muslim jurists and theologians hand down both religious and secular decisions which not only concern the Muslim world as a whole, but also influence the daily lives of nearly every believer wherever he might be. For example, the shaikhs of al-Azhar broke Koranic tradition and in a momentous decision authorized the translation of the Koran into Chinese, English, Turkish and all the other languages Muslims speak. It was at al-Azhar that the decision permitting Muslims to drink coffee was taken. Thus, the writ of al-Azhar, influencing the public and private lives of Muslims, runs from Indonesia in the east to Morocco in the west, south into Africa, north into the Soviet Union and west into the United States and Canada.

The tourists cross the golden courtyard to the sanctuary. The guide dutifully shows them the ancient prayer niche and tells them about the history of al-Azhar. But he neglects its holiness.









Al-Azhar's students may study engineering, medicine, as well as theology and jurisprudence, which are required. Former rector Dr. Mohammed el-Fahham (upper right) studied 10 years at the Sorbonne.

The Arabs call the peculiar quality of grace al-Azhar possesses *baraka*. Perhaps al-Azhar's original measure of *baraka* came from its being the first place of worship built in the new city of Cairo by the North African conquerors of Egypt. A second measure of its *baraka* may be the association of the name "al-Azhar" with the Prophet Muhammad's daughter Fatima, who was called "al-Zahra," "she of the shining countenance." Al-Azhar's original and accumulated *baraka* has preserved the mosque from destruction by fire, earthquake and artillery bombardment as well as from gradual decline that overtook many other collegiate mosques in the Arab world. And, it is this *baraka* that has kept the people of Cairo faithful to al-Azhar for one thousand and one years.

At times of natural calamity, of earthquake and plague, and of man-made disaster, fire and political upheaval, the inhabitants of Old Cairo have sought refuge within the massive walls of the mosque. Though minarets and columns were toppled by earthquakes in the 11th and 14th centuries, the golden walls stood firm and damage was always made good again.

For 980 years Egypt was ruled by foreigners: by North Africans and Mameluke Turks, by Napoleon Bonaparte, by the family of the Kurd Saladin, by the dynasty founded by the Albanian Muhammad Ali, and finally by the British. And for all of those 1,000 years but 20 the shaikhs of al-Azhar, themselves Egyptians, mediated between the foreign rulers and the Egyptian people. For nearly 10 centuries al-Azhar was the only Egyptian national institution where Egyptians could rise to positions of dignity and power and from which they could make their influence felt. Al-Azhar was often the center of popular agitation against oppressive rule. It also provided a safe sanctuary for political plotters who were usually given safe conduct from the mosque into exile. The only ruler of Egypt who burst through the sanctity of al-Azhar, who hanged Azharite conspirators and bombarded and desecrated the mosque, was Napoleon Bonaparte. At first he anxiously courted the shaikhs of al-Azhar, finally declaring that he was even ready to become a Muslim to win their support. But when leaders from al-Azhar sparked an uprising that killed two of Bonaparte's generals and 300 French soldiers, Napoleon turned his artillery on the mosque and sent in his troops. On June 1, 1801, al-Azhar closed its door on an Egypt occupied by the French and exactly a year and a day later, June 2, 1802, reopened for the Friday service, the Ottoman Grand Vizier in attendance, thus reestablishing the Caliph's sovereignty over Egypt.

In the sanctuary the tourists find one or two professors still holding their students. Are these shaikhs spellbinding or just long-winded?

They could be either, since al-Azhar has known decline as intimately as glory. One authority gathered about his chair a circle of students stretching round 17 columns. In the 11th century, al-Azhar was a world center in astronomy, physics and optics. An Azharite, known in Europe as Alhazen, first formulated the correct theory of optics, and Ibn Khaldun, the father of modern social sciences, taught at al-Azhar in the 14th century. But with the gradual decline of the Arab and later the Ottoman Empires, science slipped backwards and all education became provincial and introverted.

At the end of the 19th century, Shaikh Muhammad Abduh, an Azharite himself, tried to restore al-Azhar as the center of progressive Muslim thought and up-to-date scientific teaching. But until the Egyptian Revolution in 1952, reforms came slowly. Then, on a new campus built in a suburb of Cairo, faculties of Commerce, Agriculture, Engineering and Architecture, Medicine and Education were added to the faculties of Theology, Jurisprudence and Arabic. The Institute for Foreign Languages and the Women's College were also inaugurated. Al-Azhar, which had 35 students in its first classes, now enrolls 40,000 students from 60 nations. And yet, al-Azhar remains al-Azhar after all: during his or her first year an Azharite must study the Muslim humanities—Islamic law, theology and Arabic. Shaikh Hassan al-Baqouri, a former rector, who implemented many of the reforms, calls the university's "reorganization" a return to its "original religious and scientific task." But this should not mean an end to the old Azhar, he warns: "There was no teaching in the mosque for five years, from 1959 to 1964: the mosque was reserved for worship. But I put the students back where they belong. Al-Azhar is a place for people and for life. If it is cut off from the life of the people, al-Azhar will die." And, to this end al-Azhar is helping to tackle one of the greatest and most controversial problems now confronting mankind by accepting a grant from UNICEF for studies in population control.

The strangers have had their tour of the historic site. Moreover, it is time for the noon prayer. Leaving the sanctuary, they thread their way among the devout Cairenes in the courtyard. A student artist has stationed himself in a corner and begun work on a sketch of the famous double minaret. The tourists return their canvas slippers to the gatekeepers. "Thank you . . . thank you," each says in turn. "Go in peace," is the reply. And, they are shepherded out into the clamoring street. Round the corner is a new, freshly built golden stone wall, an abrupt contrast to the gray-golden expanse of the old walls. "Oh," someone remarks to the guide, "they are rebuilding." "Yes," he answers, "Al-Azhar is always rebuilding. That is its secret."

Michael Elin Jansen lives in a mountain village near Beirut and has written several books and many articles on Middle East affairs.

I.C.: A Centennial

In Lebanon, an American-sponsored school moves hopefully into its second century of service.

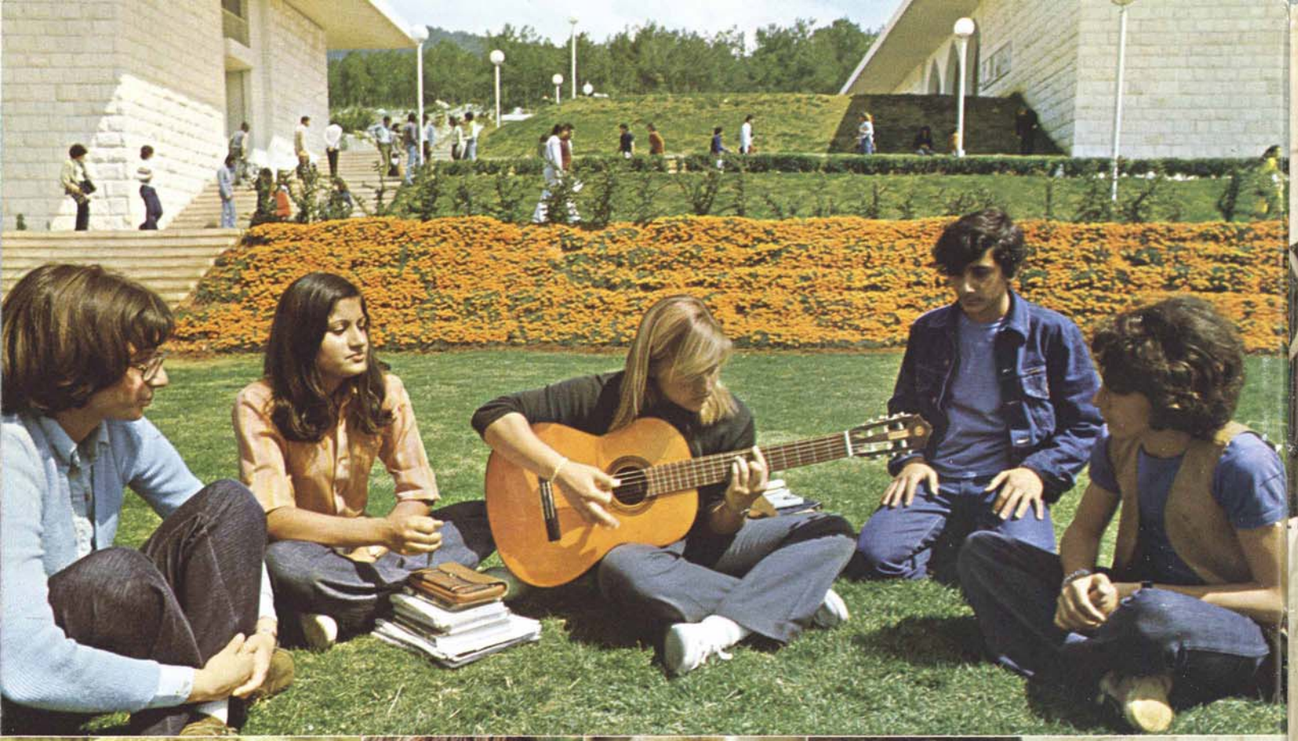
WRITTEN BY JOHN FISTERE
PHOTOGRAPHED
BY WASEEM TCHORBACHI

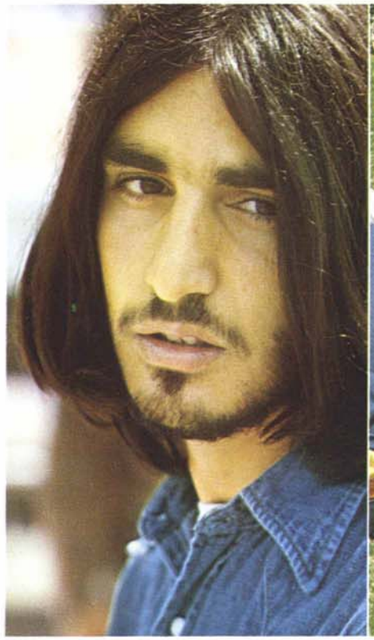
One hundred and one years ago, a group of 21 boys gathered in a small room of the Syrian Protestant College in Beirut to listen to their teacher, David Stuart Dodge, read out their first lesson. They had come on foot and on horseback from the city and surrounding villages to enroll in "Prep," the preparatory section of what later became the American University of Beirut, A.U.B. (*Aramco World*, November-December, 1969).

At appropriate ceremonies a century later, other pupils and teachers, along with an impressive gathering of administrators and distinguished alumni, looked back in astonishment at what has happened in the interim: the expansion of that tiny class to 2,126 pupils representing 40 countries and 18 religious sects, to a three-language, 44-subject curriculum, a 130-man teaching staff, a new name—International College—and a 170-acre, $6-million campus designed by world-famous architect Edward Durell Stone and constructed in green foothills high above the Mediterranean.

For I.C.'s old grads, the new campus, a long-time dream of Thomas C. Schuller,

Students commute by bus to International College's handsome new campus in green hills south of Beirut.





The college's diverse student body of over 2,000 represents 40 countries and 18 religious sects. Nearly half study on the new Mechref campus, including about 200 boarders.

I.C.'s plainspoken president, may seem a startling change from the old, cramped grounds in Beirut. But it is really only the climax of a series of readjustments by which I.C. grew, and grew up. In so doing it slipped out of the sometimes stifling embrace of its parent school—and next-door neighbor—A.U.B.

I.C.'s original role had been to prepare students properly for higher education in the Syrian Protestant College. Since the emphasis at S.P.C. in its early days was on medicine, proper preparation meant a kind of high-school pre-med course in which teachers taught such subjects as "anatomy and English," "surgery and arithmetic," and placed considerable stress on behavior and prayer. (One early annual report says the school abandoned the practice of having students offer prayers before each meal when they began praying not to have beans and rice stew for lunch.)

As the school grew in size, it also grew in educational stature. By the turn of the century it was generally regarded as the leading university preparatory school in the Ottoman Empire. It was not until 1936, however, that International College in its present form came into existence. The year before, in 1935, a boys' mission school in what was then Smyrna, Turkey, closed down because of increasingly strict government restrictions. A.U.B.'s president, Bayard Dodge (*Aramco World*, July-August, 1972) invited that school to bring its name, International College, and its resources to Beirut, by then capital of Lebanon, to join with the university's "Prep" section. The following year the combined institutions opened as International College, with strengthened elementary and secondary schools, and classes taught in French, Arabic and English. Its first principal was Archie S. Crawford, still serving today as an I.C. vice-president. After Crawford came Leslie Leavitt, who retired in 1960, and Schuller, the current president.

Since 1936, International College has certainly earned a solid place in the Arab academic community. More than 90 percent of its graduates go on to a university and its graduates staff the administration and faculties of schools throughout the Arab world.

I.C. has also begun to affect Lebanon in indirect, informal ways. A Social Service Club of 35 members offers towns near the new campus an informal and unpaid tutoring service. Pupils, newly aware of poverty enclaves in the remote southern third of Lebanon, have taken up collections of food and clothing. At Christmas last year students in Land Rovers visited isolated villages, gave out gifts and put on a pantomime show developed on campus. The school has also sought to make its student body more representative of the country as a whole by means of a $50,000 scholarship and loan program which last year helped nearly 250 less fortunate students.

Other changes being slowly introduced by I.C. include the concept of school counselling on future careers, and student employment—this last almost unheard of among upper middle classes in the Middle East and attributed by some to the pupils' desire to break away from complete dependence on parental largess.

Its American sponsorship has always meant that such aspects of education as athletics and extra-curricular activities have received more attention than at most area schools. But recently I.C. has also begun to experiment with concepts that are still seen as radical departures from the entrenched French-influenced norm. I.C., for example, has introduced the non-graded classroom, possibly for the first time in the Middle East. It has also set up the Educational Resources Center, an experimental project which I.C. envisions as a wellspring for the continuing education of its own and other teachers throughout the Arab world.

According to its advocates, the E.R.C. will be a "library of theory and experience for the teacher as student, learning his lessons from the student as teacher." The center already has a body of research papers, reports, books, monographs, syllabuses, M.A. and Ph.D. theses, slide films and documentaries on what and how to teach children. And a cast of teachers and students will act out the lessons for visiting teachers.

The facilities of the Educational Resources Center will be available year-round as well as in summer seminars on the I.C. campus, and faculty members will be sent through-

A friendly, casual atmosphere pervades the campus despite the somewhat formal layout of the buildings on the hillside above the Mediterranean.

out the area as teachers-in-residence. The E.R.C. hopes to be able to help a school plan its curriculum, but its primary function will be to extend to teachers of other schools the same opportunities for learning that it offers its own faculty.

Growth, however, imposed physical strains on I.C. By the 1950's, soaring enrollment was cramping the facilities of the shady, quiet Beirut campus shared with A.U.B., and I.C.'s solution was to buy a magnificent hilltop site near the village of Mechref about 10 miles south of the city. There, in 1966, the school broke ground for the first of eight buildings now completed.

The architect chosen was the distinguished Mr. Stone, among whose buildings are the U.S. Embassy in New Delhi and the John F. Kennedy Center for Performing Arts in Washington, D.C. Basing his theme on the graceful arcade of a traditional house in Lebanon's mountains, Stone produced plans for a campus that so far includes six classroom buildings, a dormitory and a student center. The names of the buildings constitute an honor roll of distinguished men whose common but not least distinction was service to I.C.: principals Alexander MacLachlan (of Smyrna) and Leslie Leavitt; teachers William H. Hall, Khalid Tabet, Alexander Wuthier and Barclay Acheson (of the *Reader's Digest* family); A.U.B.'s vice-president Constantine Zurayk; and I.C.'s board chairman Daniel Bliss, grandson of A.U.B.'s founder (*Aramco World*, March-April, 1966).

Planned for immediate construction are an athletic center and an administration building and for 1980, a library, an auditorium, an infirmary and another dormitory. Besides the 90 children in the new nongraded school, Mechref now houses almost 1,000 students, including 200 boarders, in the four upper classes. In three years' time, the entire school will have been transferred from the city to the Mechref hilltop, from which it will have a long clear view of the Mediterranean—and the future of education in the Arab world.

John Fistere, formerly an editor with Time-Life, *has worked in public relations in Beirut since 1955 and is co-author, with his wife, of* Jordan, The Holy Land.