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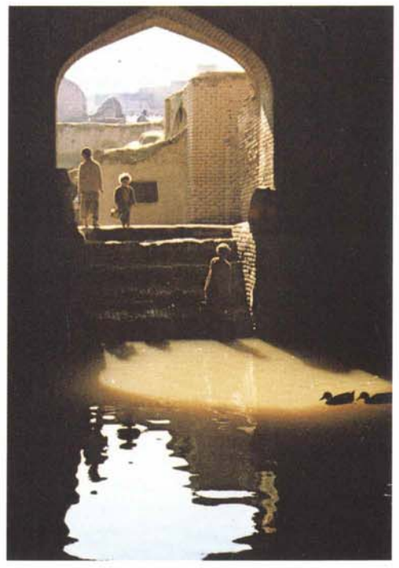
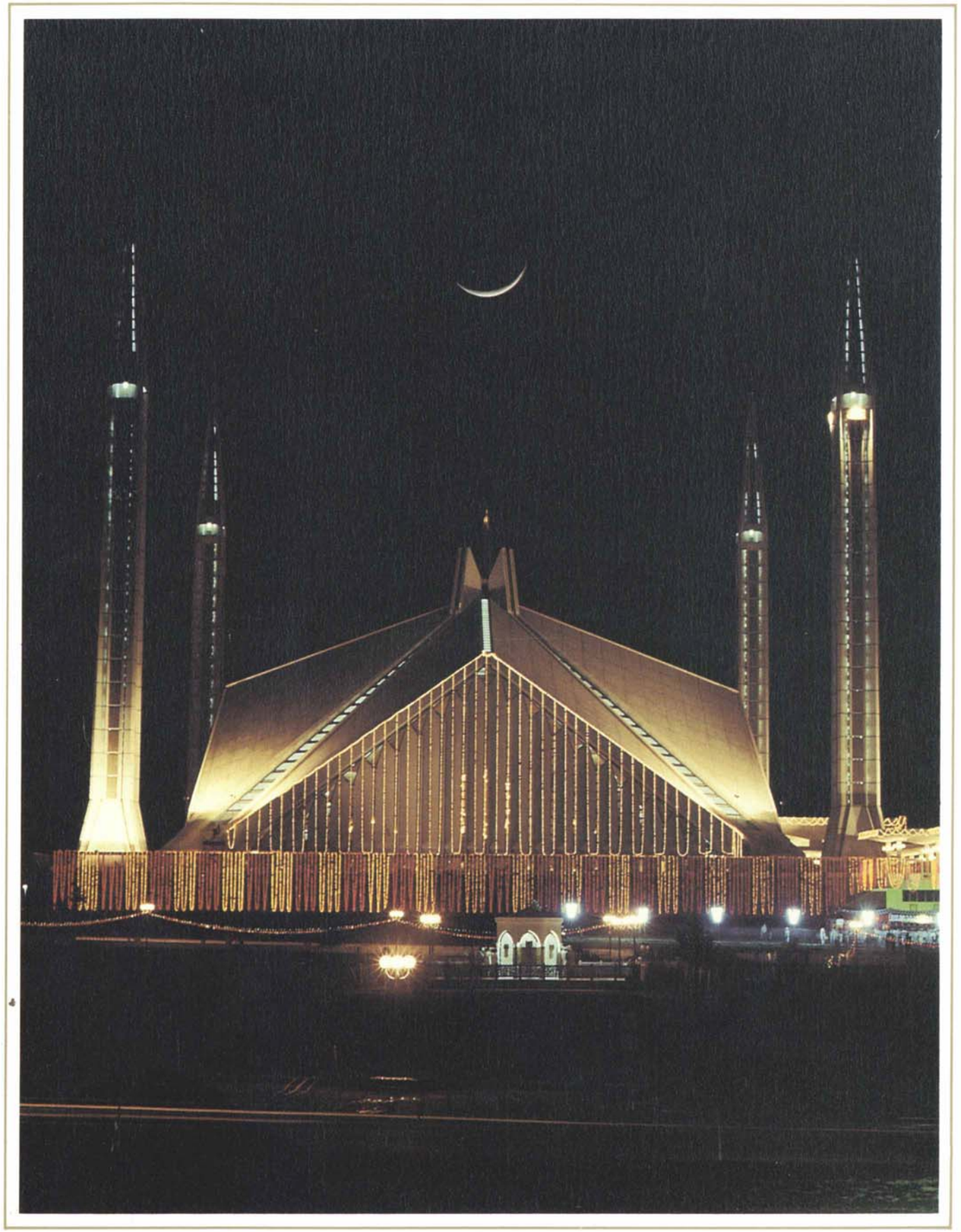
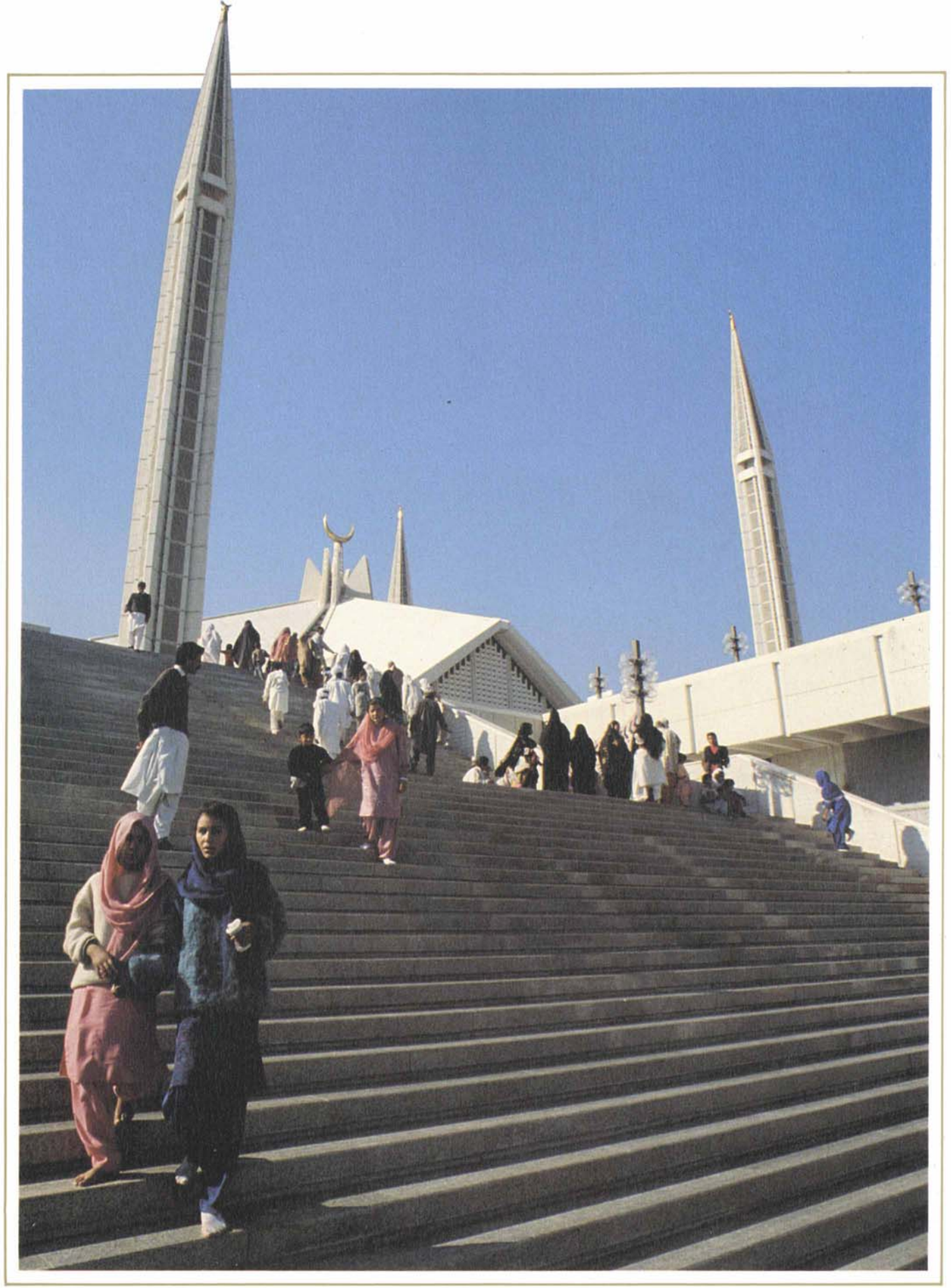




Aramco World (ISSN 1044-1891) is published bimonthly by Aramco Services Company, 9009 West Loop South, Houston, Texas 77096. Volume 43, Number 1. Second-class postage paid at Houston, Texas and at additional offices.

POSTMASTER: send address changes to *Aramco World*, Box 3725, Escondido, CA 92033



Published by
Aramco Services Company,
9009 West Loop South,
Houston, Texas 77096

ISSN 1044-1891

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DESIGN AND PRODUCTION
Keenan Design Associates Ltd.

PRINTED IN THE USA
Judd's, Incorporated
Shenandoah Division

Aramco World is distributed without charge to a limited number of readers with an interest in Saudi Aramco, the oil industry, or the history, culture, geography and economy of the Middle East.

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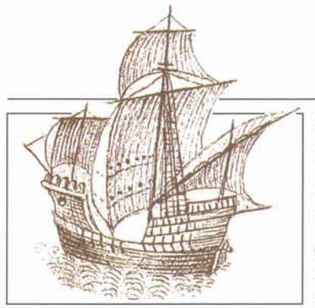
Cover: Details of brass astrolabes crafted by American Muslim calligrapher Mohamed Zakariya. Their design requires extensive geometrical calculations and precise engraving with special tools. Medieval astrolabes like these calculated the positions of stars, assisting early navigators. Photograph: Robert Azzi. Back cover: Sebastiano del Piombo's portrait of Christopher Columbus, 1519. Photograph: Metropolitan Museum of Art, New York.

◀ Worshipers on the steps of Islamabad's Faysal Mosque. Photograph: Nik Wheeler.

ARAMCO WORLD

VOL. 43 NO. 1 PUBLISHED BI-MONTHLY JANUARY-FEBRUARY 1992

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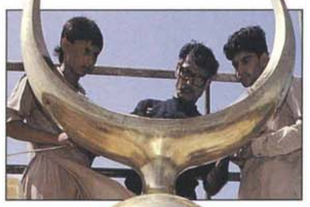
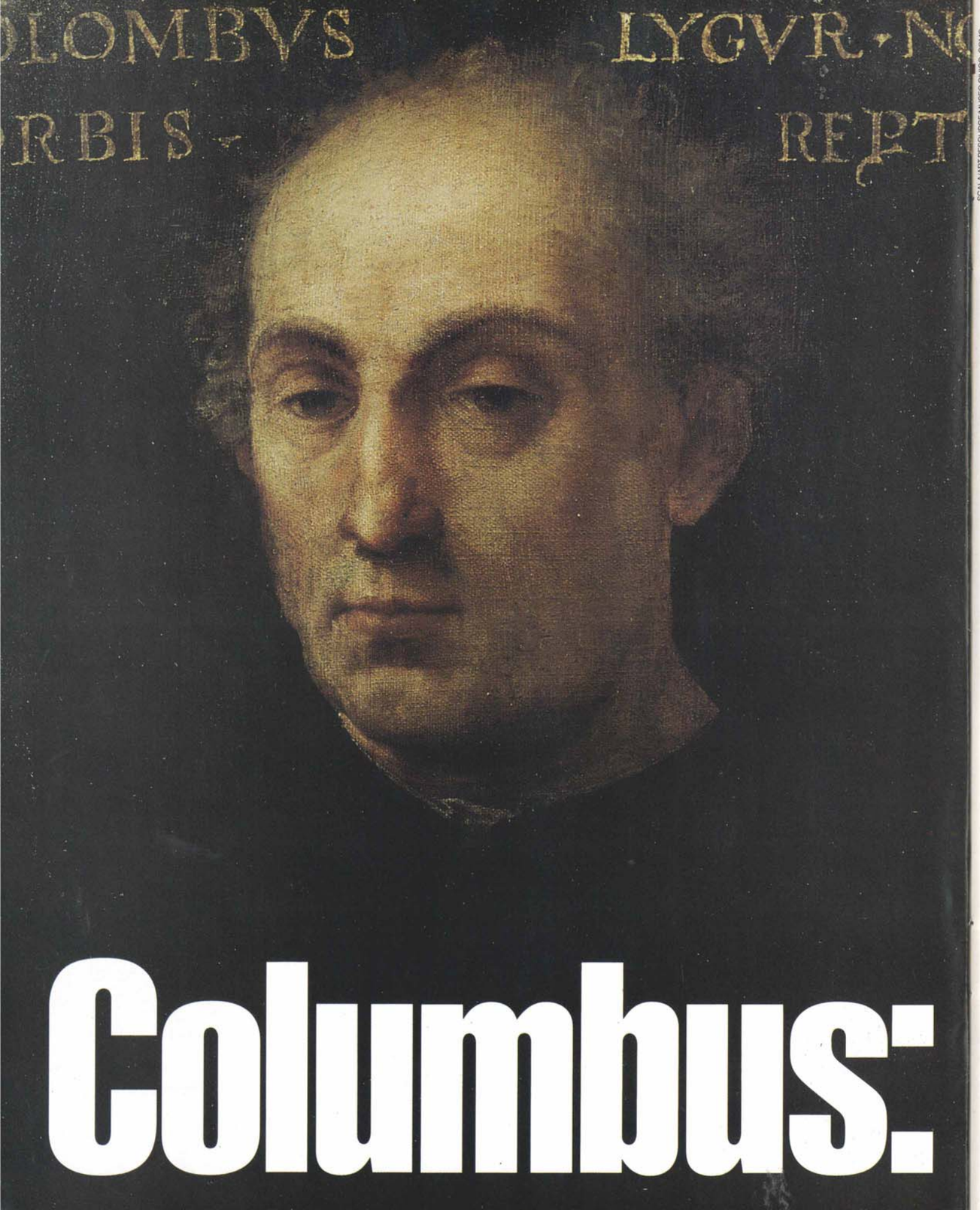



McGRANE


SIMARSKI

Is it possible that the first words spoken by Christopher Columbus on stepping ashore in the New World were the Arabic greeting *"As-salam alaykum"*?

NATIONAL GALLERY OF ART, WASHINGTON D.C.



SCALA/ART RESOURCE; MUSEO CIVICO, COMO

Columbus: What If?

A far-fetched idea? Consider...

WRITTEN BY
AILEEN VINCENT-BARWOOD

PHOTOGRAPHED BY
TOR EIGELAND

Previous spread: Columbus's first landing, as imagined by American artist Frederick Kemmelmeyer in 1800/1805. At left, a portrait of the admiral by an unknown artist. Above, a Spanish caravel from the 1587 Juan Martinez atlas in the Biblioteca Nacional, Madrid.

Arabic had been the scientific language of most of humankind from the eighth to the 12th century. It is probably for this reason that Columbus, in his own words, considered Arabic to be "the mother of all languages," and why, on his first voyage to the New World, he took with him Luis de Torres, an Arabic-speaking Spaniard, as his interpreter.

Columbus fully expected to land in India, where he knew that the Arabs had preceded him. He also knew that, for the past five centuries, Arabs had explored, and written of, the far reaches of the known world. They had been around the perimeter of Africa and sailed as far as India. They had ventured overland beyond Constantinople, past Asia Minor, across Egypt and Syria – then the western marches of the unknown Orient – and into the heart of the Asian continent. They had mapped the terrain, traced the course of rivers, timed the monsoons, scaled mountains, charted shoals and reached China, and, as a result, had spread Islam and the Arabic language in all these regions (See *Aramco World*, November-December 1991).

It was on the 33rd day of his voyage, October 12, 1492, that Columbus made his landfall. At that point, he probably stood on the shores of a Bahamian island named Guanahani – which he immediately renamed San Salvador and claimed for "their sovereign majesties, the king and queen of Spain."

Probably the first of his surprises that day was his discovery that the "Indians," as he called the islanders he greeted, did not speak Arabic.

Still, he remained undaunted and wrote in his log for Friday, October 12, that he was certain he had only to sail on through these outer islands of India to reach the riches of Cipangu (Japan) and China, a journey of only a further 1000 miles. Here, he was convinced, he would greet the Great Khan, an emperor of vast wealth who spoke Arabic and ruled over lands of gold, silver and gems, silks, spices and valuable medicines.

One may wonder how Columbus, a 41-year-old professional mapmaker, avid reader, researcher and seasoned mariner, a man who had spent the greater part of his adult life planning his great venture to the west, could have been so far off in his calculations.

One explanation may be that, as well as a master mariner, he was also a clever politician. As a Christian whose expedition was funded by two Christian monarchs, King Ferdinand II of Aragon and Queen Isabella I of Castile, Columbus's miscalculations may well have been due not to a lack of navigational information – of which there was a great deal available – but to a calculated decision to use "acceptable" sources of scientific knowledge and to exclude or ignore other, more "foreign" sources.

During the seven centuries of Arab dominion over Spain and Portugal, from AD 711 to 1492, there had developed a culture of Muslim arts and sciences which had a deep and permanent effect on the life, arts and sciences of Europe. The roots of this culture went as far back as Europe's Dark Ages, which can be defined as lasting roughly from AD 476 to 1000, during which the Arab world was the incubator of Western civilization. The Arabs not only preserved, refined, updated and translated into Arabic the rich heritage of classical Greek knowledge, but they also added original and significant new contributions (See *Aramco World*, May-June 1982).

Once Europe began its explorations of the world of knowledge, it turned not to Greek or Roman sources, most of which were lost or inaccessible, but to Arabic scientific writings. Recognizing this, Europeans in the 12th century embarked on a massive program of translation of these sources, founding a college of translators in Toledo, Spain, from which most of the Arab works on mathematics and astronomy were first made available to Europe's scholars.

During that period and even earlier – in fact, dating back to the days of the Roman Empire (27 BC to AD 284) – people had discussed the idea of sailing west to find the riches of the Golden East. Yet no one had ever tried it.

By the seventh century, however, the Arabs were thoroughly familiar with the *eastward* approaches to the Orient. For over 300 years they had explored much of the known world. From Delhi and Agra in the east, through Tehran, Baghdad and Damascus, to Cairo, Tripoli, Tunis and Cordoba in the west, Arab scientists and explorers had expanded the knowledge of the known world and pushed back the horizons of the unknown.

Ultimately, this knowledge – along with philosophy, logic, mathematics, natural history and much else – was to be found written down in the great libraries that were the flowers of Spain's brilliant Muslim-Christian-Jewish culture, and in libraries elsewhere in Europe. Arab geographical encyclopedias, dictionaries, maps and charts, as well as books on mathematics, astronomy and navigation, and treatises

on vastly improved navigational instruments, reposed there in Muslim Spain and in the Middle East.

So, too, did the theory of "the new world beyond the Sea of Darkness," the idea of an uncharted continent that lay to the west of the known world. There seems to be little doubt that it was the Arabs who first made the maps that led Columbus to the New World.

Growing up in a major seaport, Columbus could not have escaped hearing about Arab exploits and Arab seafaring skills at an early age. The son of Domenico Colombo, a prosperous weaver, Cristoforo Colombo was born in 1451 and grew up in Genoa. A great cosmopolitan merchant center in the mid-1400's, Genoa had colonies in Egypt, Syria, Cyprus, Constantinople, and on the shores of the Black Sea and the Sea of Azov.

From these far-flung colonies, Genoese merchants, colonists, diplomats and missionaries ventured forth into Anatolia, Georgia, the Caspian Sea, Persia and India. In the mid-15th century, the Levantine coast was an open door to the East, ideally situated for trading with the ports of the Black Sea and Asia Minor. Indeed, 200 years earlier, when recording his wondrous tales of his journeys to the Far East, the Venetian traveler Marco Polo wrote of meeting Genoese and Venetian merchants on the Great China Road. From some of Columbus's letters, we know that he was profoundly affected by Marco Polo's account of his travels.

The prosperous Colombo family lived in a house near the Porta Sant' Andrea, and by his own account, we know that by the time he was 10 years old, the young Columbus loved the bustle of the port. He would linger on the docks and watch the seamen going back and forth from the giant sailing ships crowding the harbor, ships that had arrived across shining seas from far-off and exotic places like Chios and Constantinople, Egypt and Tunis and Syria. He and his friends liked to play games among the bales and crates of silk and cotton, the kegs of oil and wine and spices.

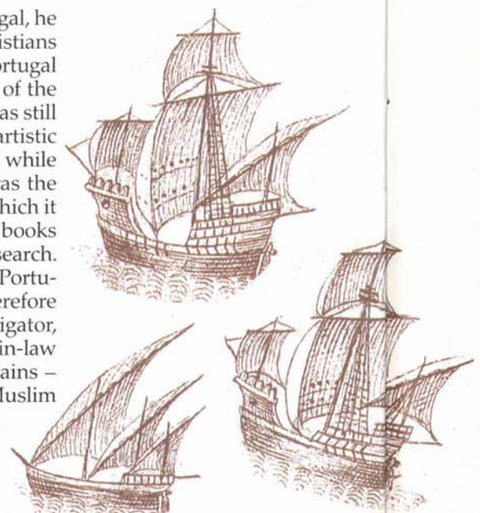
Entranced, he would sit down with the sailors, a small blue-eyed, red-haired lad, and listen raptly to their tales of the magical lands to the east. It is hard to imagine that the boy Columbus would not have been stirred by the daring exploits of these sailors, many of them from the Levant – or by the tales he heard later when, as a seagoing lad of 14, sailing out of Genoa, he listened to the shipboard tales of the venturesome Arab traders who roamed the eastern Mediterranean.

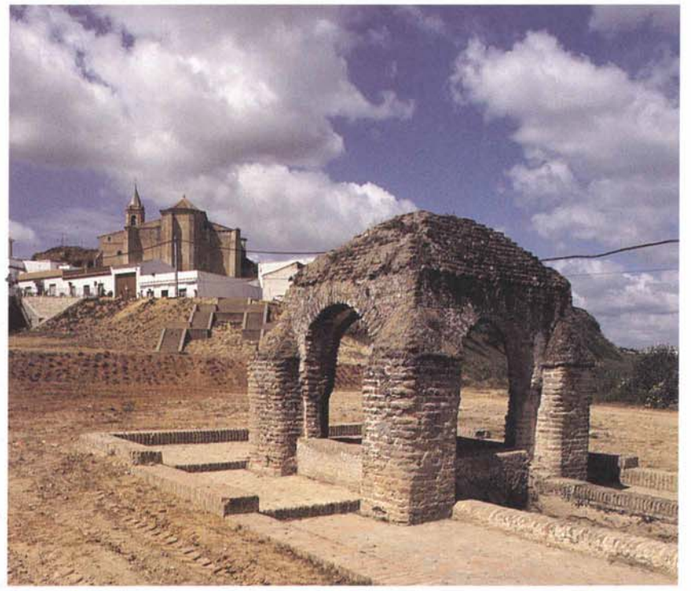
He was unlettered and unread in those days. Not until years later did he teach himself to read, and then it was not in his native Italian, but in Castilian Spanish.

SCALA/ART RESOURCE/MUSEO NAVALE DI PEGLI, GENOA

An old view of Genoa's harbor, where Columbus as a boy first encountered Arab sailors. At right, the fountain in Palos de la Frontera, Spain, where Columbus drew water for his ships in 1492. Below, the admiral's three caravels, from Joaquin Guichot's navigation chart in the Biblioteca Colombina, Seville.

By the time Columbus arrived in Portugal, he was somewhere in his mid-20's. The Christians had reconquered much of Spain and Portugal from the Muslims. Nonetheless, because of the Muslim heritage, the Iberian Peninsula was still Europe's center of intellectual and artistic endeavor. Lisbon, where Columbus lived while planning his voyage into the Atlantic, was the capital of Portugal and a learned city in which it would have been easy for him to get the books and materials he needed to pursue his research. Since his youth, he had learned Spanish, Portuguese, Latin and other languages. It therefore seems likely that Columbus – sailor, navigator, professional cartographer and later son-in-law of one of Henry the Navigator's sea captains – would have drawn on this wealth of Muslim geographical knowledge.





Indeed, Columbus wrote in a letter in 1501 that during his many voyages to all parts of the world, he had met learned men of various races and sects and had "endeavored to see all books of cosmography, history, and philosophy and of other sciences." It is therefore unlikely he would have overlooked the more than four centuries of Muslim science and exploration available to him so close at hand.

According to one of his biographers, the American Samuel Eliot Morison, author of *Admiral of the Ocean Sea*, Columbus did some "heavy combing through ancient and medieval authorities on geography" before setting out on his voyage "in order to gather information and ammunition for his next bout with the experts." If this is so, he could hardly have missed such translated works as al-Biruni's *History of India* and Yaqut's *Mu'jam al-Buldan*. It would seem also that he would have delved eagerly into Ibn Battuta's 13th-century *Rihlah* (Journey), in which that greatest of early travelers writes about his 120,000-kilometer (75,000-mile) trip from North Africa to China and back.

From several of his other biographers, most notably the Spanish priest Fray Bartolomé de las Casas, it is also known that Columbus was an avid reader of books on geography and cosmography. Four of the books he owned have been preserved: a 1485 Latin translation of the *Book of Ser Marco Polo*, an Italian translation of Pliny's *Natural History* printed in 1489, Pierre d'Ailly's *Imago Mundi* and minor treatises, and a 1477 edition of the *Historia Rerum Ubique Gestarum* by Pope Pius II.

Columbus also admitted relying heavily on information he gleaned from the school of navigation founded by Prince Henry of Portugal, often known as Henry the Navigator. Around 30 years before Columbus's first voyage, some of the prince's caravels had sailed west, to the outer edge of the Azores and perhaps as far as present-day Newfoundland. Concluding that there were other lands to explore beyond what Ptolemy had described in his second-century *Guide to Geography*, and eager to retain and organize the geographical information in the possession of sailors and navigators – many of them from the Levant – the prince established the school at Sagres, in southern Portugal, to act as a sort of clearing house for present and future knowledge of the sea. It may have been from this source that Columbus discovered that when, years earlier, Vasco da Gama had sailed along Africa's east coast, he was guided by an Arab pilot, Ahmad ibn Majid, who used an Arab map then unknown to European sailors.

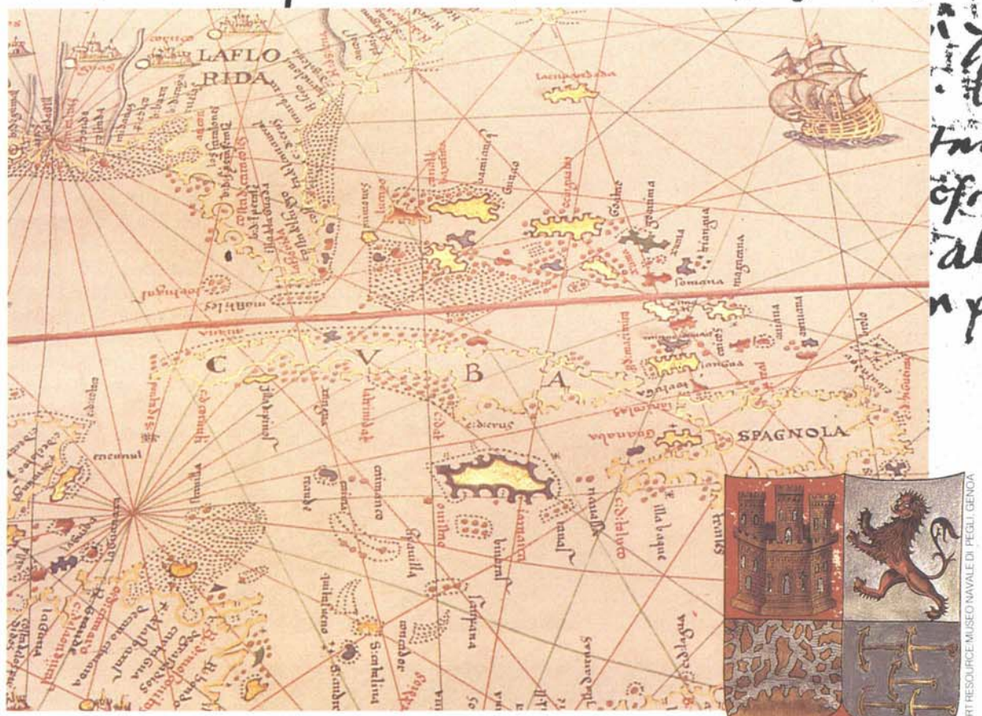
And yet, despite all this available information, Columbus made a major miscalculation of the distance he had to sail to reach the other side of the globe.

That the earth was a sphere was not a new idea, and it was widely accepted by well-educated people in Columbus's time. So was the Greeks' division of the spherical earth into 360 degrees, but where sources differed was on the question of the length of a degree. The correct measurement, we know today, is about 111 kilometers (60 nautical miles) per degree at the equator. In the third century BC, the Libyan-born Greek astronomer Eratosthenes, director of the library at Alexandria, had come up with a remarkably accurate calculation of 110 kilometers (59.5 nautical miles) per degree; in the second century, the great Alexandrian geographer Ptolemy had calculated the degree at 93 kilometers (50 nautical miles). In the ninth century, Muslim astronomer Abu al-'Abbas Ahmad al-Farghani, whose works were translated into Latin during the Middle Ages and who – under the name Alfraganus – was studied widely in Europe, had calculated that a degree measured 122 kilometers (about 66 nautical miles) – not as accurate a result as that of Eratosthenes, but better than Ptolemy's.

Either Columbus erroneously used Roman miles in converting al-Farghani's calculations into modern units of distance – thus coming up with a figure of 45 miles per degree at the equator – or, after first deciding that al-Farghani's figure was right, chose in the end, perhaps for reasons of policy, to follow the revered and irrefutable Ptolemy, whose *Geography*, in its first printed Latin edition, had gained great popularity in 15th-century Europe. In the first case, Columbus would have underestimated the distance he had to sail to reach Asia by a third; in the second, by some 25 percent.

Had Columbus but accepted the ninth-century findings of a consortium of 70 Muslim scholars, working under the aegis of Caliph 'Abd Allah al-Ma'mun, who had gathered them to determine the length of a degree of latitude, he might have avoided many mistakes.

Using wooden rods as measures, the caliph's scholars traveled a north-south road until they saw a change of one degree in the elevation of the pole star. Their measurements resulted in an amazingly accurate figure for the earth's circumference: 41,526 kilometers, or 22,422 nautical miles – the equivalent of 115.35 kilometers per degree. By Columbus's time, a wealth of knowledge gleaned from Arab science and exploration rested in the libraries of Spain and Portugal. Al-Biruni had accurately determined latitude and longitude and – six hundred years before Galileo – had suggested that the earth rotated on its own axis. One hundred years later, in the ninth century, the mathematician al-Khwarizmi had measured the length of a terrestrial degree and Arab navigators were using magnetic needles to plot accurate courses. It was around this time, too, that the Arab astronomers Ibn Yunus and al-Battani – or Albategnius, as he was known in Europe – improved the ancient astrolabe, the quadrant, the sextant and the compass to the point that, for hundreds of years afterward, no long-distance traveler could venture forth without them. By the 12th century, the Hispano-Arab geographer al-Idrisi had completed his voluminous world atlas containing dozens of maps and charts (See *Aramco World*, July-August 1977).



SCALA/ART RESOURCE, MUSEO NAVALE DI PEGLI, GENOA

"They breathed more easily and were happy all," Columbus wrote on October 11. *Niña*'s crew found signs of land, including a drifting carved stick, he recorded in his diary (top), in Madrid's Biblioteca Nacional. Center: the New World in the Juan Martinez atlas.

Columbus's coat of arms, from Book of Privileges granted by Ferdinand and Isabella, above. Right: The admiral's personal, annotated copy of the Marco Polo diary.

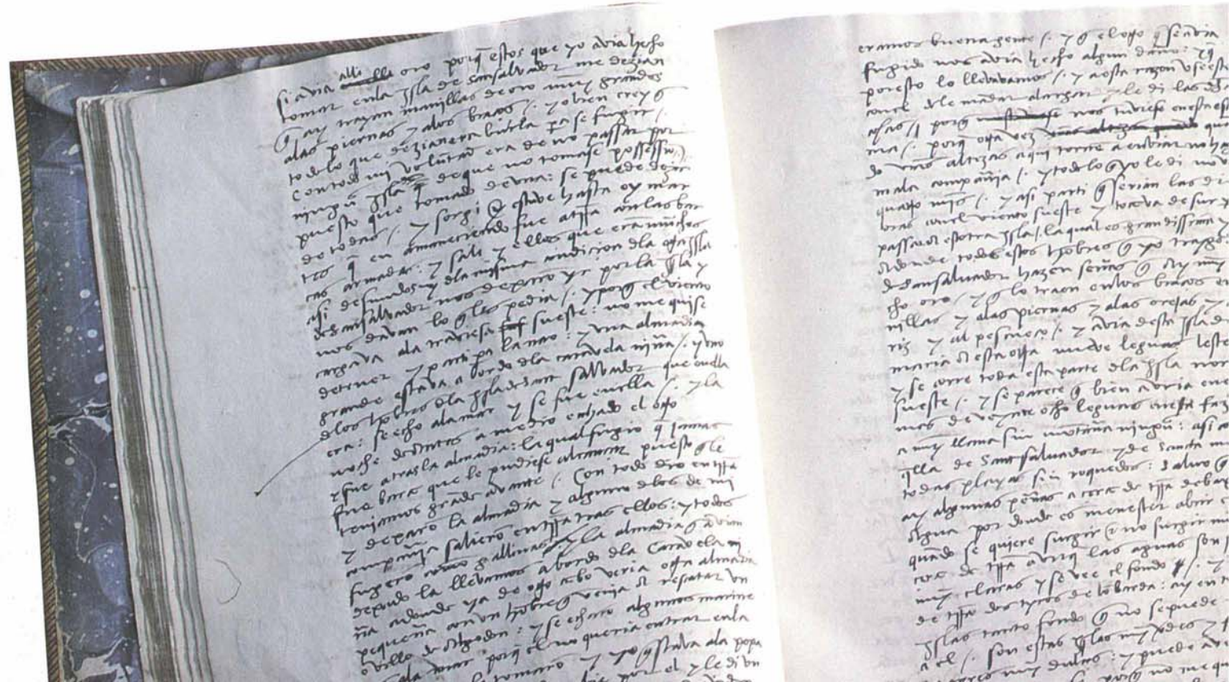
In calculating the distances he had to travel to reach India and the Orient, Columbus chose not to rely on the Arab and Muslim sources. He was, instead, greatly persuaded by the theory of Paolo Toscanelli, a Florentine physician who dabbled in astronomy and mathematics. When he saw Toscanelli's charts stating that Marco Polo's estimate of the length of Asia was correct, and that it was only 3000 miles from Lisbon westward to Japan and 5000 to Hangzhou, China, Columbus accepted the figures he wished most to hear. It was Toscanelli's chart he took with him on his first voyage of discovery.

Columbus also believed that his voyage west from Spain to India, though difficult, would be short. Using maps and information based on the calculations of Ptolemy and Martin Behaim, the German cartographer, he believed he could reach China after no more than a 4000-mile voyage. This notion was confirmed by Pierre d'Ailly's *Imago Mundi*, a book that, according to Columbus's son and biographer Ferdinand, was his father's bedside companion for years. (Columbus's copy, its margins covered with hundreds of hand-written notes, is in the Seville museum.) D'Ailly believed that the western ocean, between Morocco and the eastern coast of Asia, was "of no great width." He followed the system of Marinus of Tyre, a second-century Greek who made Eurasia very wide east to west, and the Atlantic Ocean narrow, and predicted that the latter could be crossed in a few days with a fair wind.

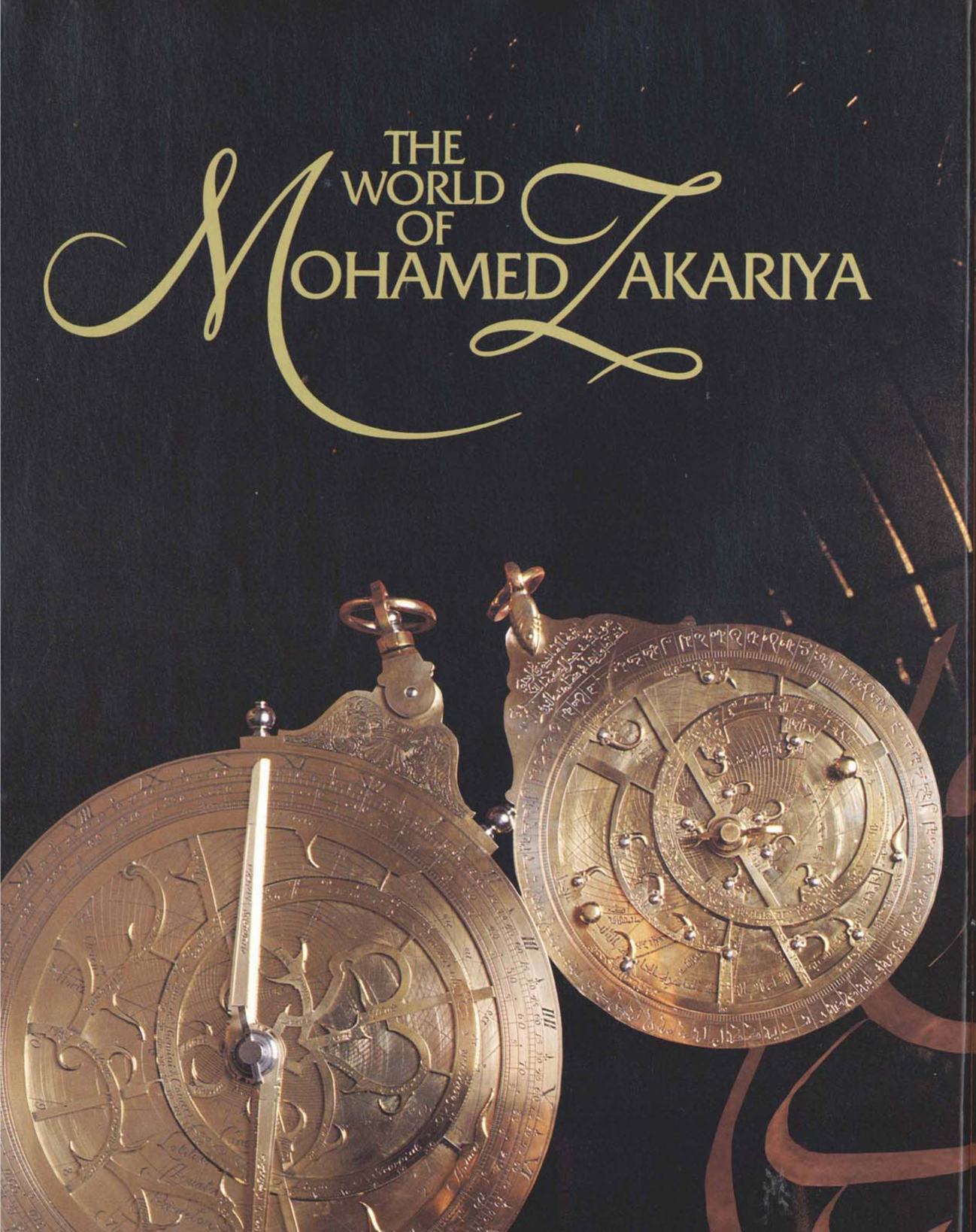
According to Columbus's log – the original of which has been lost, or, as some historians suggest, destroyed – he sailed his tiny fleet of three small ships to the New World by dead reckoning. This means he crossed the vast expanse of Atlantic Ocean between the Canary Islands and the Bahamas using only a mariner's compass and dividers, a quadrant and lead line, an *ampolleta*, or half-hour glass, a ruler, and charts. His charts were sheepskins that showed the coasts of Spain, Portugal and North Africa, the Azores, Madeira and the Canaries. He took his course from his mariner's compass, developed from the magnetic needle used four centuries before by Arab navigators. His quadrant was an early invention of the great Arab astronomer Ibn Yunus of Cairo.

There is no doubt that Columbus deserves to be celebrated, in this anniversary year, for his courage, perseverance, sailing skills and superb navigational ability. On the other hand, one can only wonder what might have happened that October day in 1492 had he heeded eight centuries of Arab invention and navigational knowledge. Certainly it would have made his navigation easier, his fears fewer, and his landfall more accurate.

Aileen Vincent-Barwood, former Middle East correspondent, newspaper editor and author, free-lances from upstate New York.



THE WORLD OF MOHAMED ZAKARIYA



Mohamed Zakariya is a modern man practicing ancient arts. "In a sense, I am a jack-of-all-trades. I like the stimulation and the variety," he explains, as he methodically stirs a mortar of ink in his pleasantly cluttered studio.

He was preparing his own home-made black ink for his calligraphy, many examples of which hang on the walls of his small studio. Sundials and intricately engraved brass astrolabes, all made by Zakariya, decorate the tops of bookshelves that overflow with titles in Turkish, Arabic and Rumanian.

WRITTEN BY PINEY KESTING
PHOTOGRAPHED BY ROBERT AZZI

Old calligraphy exercises from his tutors in Istanbul lie on a table alongside others completed by Zakariya's own students. Above the table, wooden shelves hold brightly colored rows of specially prepared watercolors with names like cadmium red, rose madder and Chinese vermilion. Glass jars of calligraphy pens, carved from bamboo and reed by Zakariya himself, sit neatly arranged on his desk.

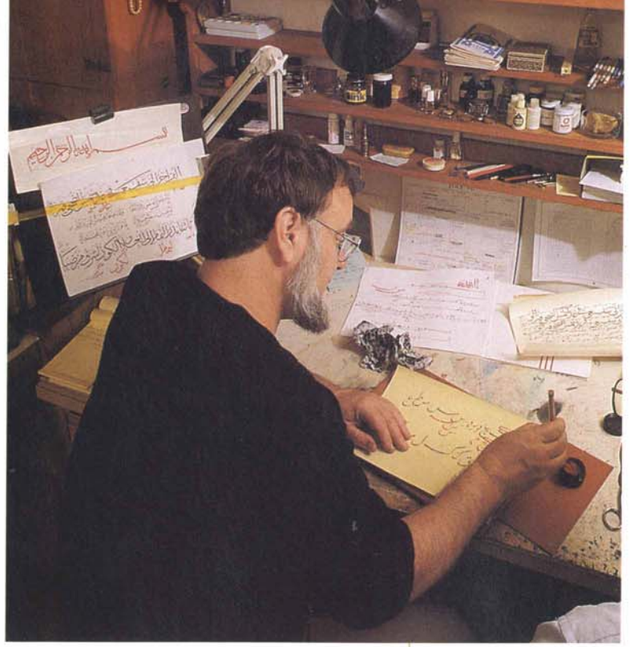
Behind the studio, a workshop full of machinery reveals another side of this jack-of-all-trades: Zakariya is as comfortable – and as skilled – working on his 19th-century lathe, or manufacturing his own engraving tools and compasses, as he is guiding a calligraphy pen across paper.

This world of medieval skills is Mohamed Zakariya's; he entered it through the traditional art of Islamic calligraphy some 30 years ago. Once described by Palestinian-American artist Kamal Boullata as "a medieval artisan led by faith and professional expertise," Zakariya is an internationally renowned American Muslim calligrapher, with a penchant for handcrafting working reproductions of historical Islamic and early European scientific instruments.

Faith was the catalyst for California-born Zakariya's introduction to calligraphy. In the 1960's, while still a teenager, he converted to Islam and began teaching himself Arabic. Zakariya recalls how he discovered, through those early studies, that "calligraphy was an important aspect of both Arabic and Islamic life." (See *Aramco World*, September-October 1989.) During the day, he worked as a machinist in a factory. At night, he pursued his self-taught Arabic and calligraphy studies.

Two trips to Morocco in the early 1960's had introduced him first-hand to a religion that, he says, "attracted me like a magnet." Hardly the average tourist, Zakariya spent most of his time in mosques. During his second visit, while examining a copy of the Qur'an in a small bookstore, he met an Egyptian calligrapher, Abdussalam Ali-Nour, who was to become his first teacher. This was the beginning of an intriguing path that, years later, led him to Istanbul and master calligrapher Hasan Çelebi.

His native curiosity and wanderlust took Zakariya on an extended two-year journey through Europe in the mid-1960's. Living by his wits and working at whatever odd job came his way, he occasionally found himself restoring houses and even performing with a British comedy troupe.



While in London, Zakariya spent every spare moment in the Oriental Reading Room of the British Museum, studying historical calligraphy texts.

The rules have changed now, but in those days, he recalls, "you could put something that was actually made within 100 years of the Prophet's lifetime right in front of you and touch it, smell it. You could hold it up to see how the light came through it. I learned a great deal about [ink and paper] from handling these things."

Zakariya returned to California in 1968. Hired by an antiques dealer in West Hollywood, he restored and built reproductions of antiques. "I learned to be a fabulous maker of oddball stuff, like sundials and astrolabes," Zakariya says. His many creations, from reproductions of Renaissance scientific and musical instruments to illuminated manuscripts and celestial globes, led to what he describes as his "one brush with fame," when he was named Scripps College's artist-in-residence in 1970.

Those early years sharpened Zakariya's skills and revealed his exceptional, and as yet untutored, artistic talent. However, it was not until he moved to Washington, D.C. in 1972 that he decided to pursue the art of calligraphy as "a serious business." In the following eight years, Zakariya built an impressive reputation and notched up several major accomplishments. He completed his first functioning astrolabe – one of his "dream projects" – and published two books, *The Calligraphy of Islam: Reflections on the State of the Art* and *Observations on Islamic Calligraphy*.

The calligrapher and instrument-maker at work in his pleasantly cluttered studio. At right, details of an intricately engraved astrolabe take shape

Professor Walter Denny, an Islamic art historian at the University of Massachusetts in Amherst, reviewed *The Calligraphy of Islam* back in 1980. "This is the first American book I know that has ever been published on calligraphy as art," he recalls. "As far as I can tell, it is the first book published in modern times by an Islamic calligrapher about his work in any language other than Arabic. I was really quite impressed by the book. I had no idea [the author] was an American."

Yet while critics praised his work, by 1980 Zakariya felt that his calligraphy had reached a standstill. "You should be able to see improvement in your work from piece to piece until you are too old to see," Zakariya says, recalling how frustrated he was at that time.

Zakariya at his 19th-century lathe, far left. The rete, the topmost rotating plate of an astrolabe, is essentially a star map; together with the instrument's pointer, or alidade, and edge markings showing degrees of a circle, the circle of the zodiac and a circle of hours, it made the later astrolabes highly versatile multipurpose instruments. At right, Zakariya corrects a student's calligraphy exercise using the traditional red ink.

Then fate intervened. Unbeknownst to him, Dr. Esin Atıl, historian of Islamic art at the Smithsonian Institution's Freer Gallery of Art in Washington, sent samples of Zakariya's calligraphy to the Research Center for Islamic History, Art and Culture in Istanbul.

Well acquainted with Zakariya and his work, Atıl was convinced that he was "one of the best artists. He not only composes in a traditional manner, using a dozen or more types of script; he does his own illumination, which is extraordinary. Mohamed was the person who started [Islamic calligraphy] in this country way before anyone else showed interest in it."

Dr. Ekmeleddin Ihsanoğlu, director of the Research Center, recalls that Zakariya's early works "reflected his skill and enthusiasm. However, it was apparent that they were the product of a calligrapher who had not received proper instruction." He agreed to accept Zakariya at the Center as a student – if Zakariya was willing to forget everything he had previously learned and start again from the beginning. The challenge was eagerly accepted.

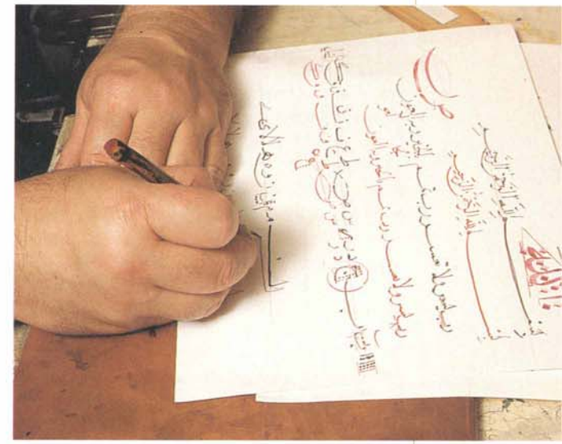
In 1982, Zakariya began a correspondence course with Turkish master calligrapher Hasan Çelebi. "Instruction by correspondence was a very difficult task," Çelebi says. Traditionally, "the teaching of calligraphy requires that teacher and student should be together and should practice visually."

Nonetheless, the lessons, known in Turkish as *meşks*, were sent back and forth between Zakariya's Arlington, Virginia, home and the Research Center in Istanbul. He studied the *thulth* and *naskh* scripts with Çelebi, as well as the *nasta'liq* script with noted calligrapher Ali Alparslan. Zakariya explains that lessons teach one "how to see, rather than how to work." By reviewing and copying the works of great masters, he says, "one side effect of lessons is that you become a real connoisseur of good calligraphy."

Heath Lowry, director of the Institute of Turkish Studies in Washington, occasionally carried Zakariya's lessons to Çelebi when he traveled to Istanbul. "I don't know of any other Western calligrapher who has gone through a formation like his," Lowry notes. As Zakariya's own work developed, Lowry says, "it was inevitable that it would begin pointing him more and more in the direction of Istanbul. The role of the Turks as the last great calligraphers is and continues to be recognized throughout the Islamic world."

Zakariya devoted himself to his studies with his customary scholarly zeal. The lessons began with individual letters of the alphabet. As he improved, he was given two-letter combinations, and finally, years later, whole sentences to work on. Just as a musician practices scales and exercises, so must a calligrapher repeat his writing exercises again and again to acquire the precision and sureness essential to the art of beautiful writing. One seventh-century practitioner wrote that "calligraphy is hidden in the teaching of a master. Its constancy is maintained by much practice and its continuity is contingent on the religion of Islam."

"I could have become a surgeon several times over in the amount of time it took me to become a calligrapher," Zakariya says. With the exception of one month in 1984,



when he was able to travel to Istanbul and study daily with his teachers, his lessons continue to this day through the mail.

In the 1980's, while he continued to labor as a novice under the watchful, albeit long-distance, scrutiny of his teachers, Zakariya's growing mastery of both calligraphy and the moribund art of astrolabe-making attracted widespread attention. He began to exhibit his calligraphy both in the United States and abroad. In 1983, he traveled for the first time to the Arabian Gulf to exhibit his work in Qatar and teach at the Doha Free Art School.

Several years later, in 1986, under the auspices of the United States Information Agency, Zakariya traveled for the second time to the Gulf region. Visiting Saudi Arabia, Bahrain, Qatar, Oman and Abu Dhabi, he both lectured and displayed his calligraphy. In that same year he also won his first calligraphy prize, in a competition sponsored by the Research Center in Istanbul. It was to be the first of many such awards.

In June 1990, a two-year-long, ten-state tour of his work, sponsored by the American-Arab Affairs Council, made its last stop in Minneapolis. Since then, he has designed and produced nine large calligraphy panels, using texts from the Qur'an and from poetry, for the exhibition "Images of Paradise in Islamic Art," which is scheduled to travel to five states by the middle of this year.

During that period, between his lessons and frequent exhibitions, Zakariya was hard at work reviving the ancient art of making astrolabes. Said to be the invention of the Greek astronomer Hipparchos of Nicaea in the second century BC, the astrolabe – an engraved brass plate on which brass discs and pointers rotate – is in effect an analogue computer which simulates the apparent rotation of the stars around the celestial pole. Ptolemy of Alexandria described the instrument's principles in his *Planispherium*, which was translated into Arabic in Baghdad in the ninth century, and Arab astronomers of the following century refined the astrolabe and used it to make extraordinary scientific advances (See *Aramco World*, March-April 1991, May-June 1982).

Called "the mathematical jewel," the astrolabe can be used for navigation and surveying, for telling the exact time of day or night – essential for fixing the times of Muslims' daily prayers – as an accurate calendar for predicting the seasons, and as a calculator to solve many astronomical problems. Such a wealth of knowledge and precision was, and still is, required to build an astrolabe that the skill was often passed from father to son, as in the case of 12th-century artisans Hamad ibn Mahmud al-Isfahani and his son Muhammad.

Over the centuries, Zakariya says, many of the undocumented techniques used to make astrolabes, such as the engraving process, were lost. Searching through old Arabic manuscripts, however, he managed to unearth the basic mathematical and scientific principles for making them.

"I think I am the only person who makes astrolabes consistently," Zakariya says, and it is little wonder. Depending upon the size and the complexity of its functions, an astrolabe can take from three to six months to complete. With as many as nine parts that move in relation to each other, the design requires extensive geometrical calculations and precision engraving with specially designed tools.

Today one of Zakariya's astrolabes, as well as a celestial sphere from his workshop, are on display in the Aramco Exhibit in Dhahran, Saudi Arabia. Another hangs in the terminal of the King Abdul Aziz International Airport in Jiddah. Both the National Museum in Doha, Qatar, and the Time Museum in Rockford, Illinois, house his elaborate sundials.

Over the past few years, Zakariya has found himself focusing less on his instruments and machine work and more on his calligraphy, "a living and growing culture. It is so interesting and overwhelming that it becomes something you can't do without," he explains. "With me, it has pushed out astrolabes and machine-shop work almost entirely. When I do break the connection and go back to the shop, it's very hard for the first few days. I want to get that pen in my hand again."

From carving his own pens to making his own ink and paper and illuminating his texts, Zakariya has become a traditional Islamic calligrapher in every sense of the word. He is, according to Denny, "a genuine *hattat*" – Turkish for calligrapher. "Mohamed sees himself as being able to work both in the style of the Ottoman and Iraqi 19th-century calligraphers. I am just amazed that he can work in all the major script styles. He can do everything a hattat was always supposed to do."

Zakariya "has been trained precisely and rigorously in ancient forms," according to Vicki Halper, assistant curator of modern art at the Seattle Museum. Halper worked with Zakariya during a 1990 exhibit at the Renwick Gallery in Washington, which featured his work along with that of three other contemporary calligraphers. Zakariya, she explains, "particularly identifies himself with the tradition because he works completely within it. He is not trying to push the boundaries of his craft into contemporary American idiom."

To the contrary: His work honors and revitalizes the past. Zakariya's success as a calligrapher is reflected in his knowledge of the Qur'an and classic Arabic literature, and in his mastery of the many details and ancillary crafts of the art of calligraphy.

Several years ago, this success was recognized when he became the first American to receive an *icazet*, or diploma, from the Research Center in Istanbul. A tradition that dates back to the 15th-century, the icazet is only awarded to those calligraphers capable of duplicating the works of the masters, and who have demonstrated as well that they can write a well-known Qur'anic text or Islamic saying on their own.

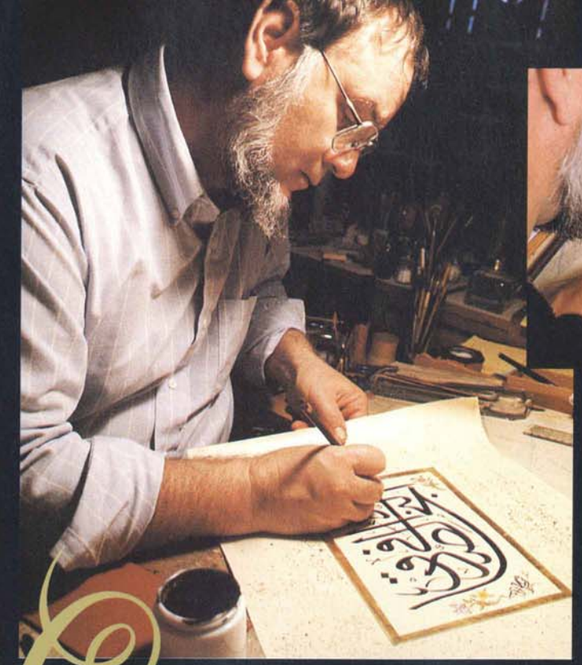
On May 23, 1988, in the historic 19th-century Yıldız Palace overlooking the Bosporus, Hasan Çelebi presented Zakariya with his icazet, conferring upon him the right to sign his own works and to teach students. Underscoring his student's unique talent, Çelebi noted that "even among Turkish calligraphers, there are not many who both write and illuminate their work. Zakariya does. I am proud to know that he is ably representing this branch of Islamic art in the United States." Research Center director Ihsanoğlu added: "It has been a wonderful experience for us to be involved in the making of a great artist who, as far as we know, is the first American calligrapher."

Today, like the jack-of-all-trades he professes to be, Zakariya is consumed with both his work and his hobbies. When he isn't busy writing a book – in Arabic – on calligraphy, retooling his machines for some future project, or preparing his calligraphic works for exhibitions around the country, he can be found reading old Islamic law books – for fun – or teaching himself how to play the baritone horn.

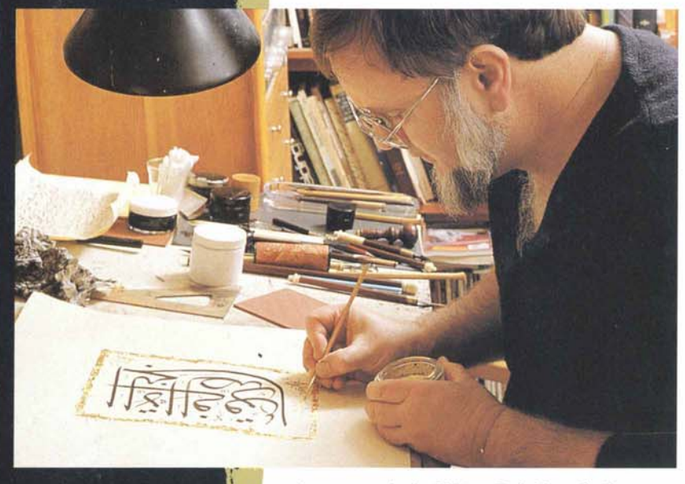
In addition, he remains both a devoted student and a dedicated teacher of calligraphy. "The Turks say that when you are learning calligraphy, it is the happiest period of your life," he says. As his own lessons continue and grow harder, he has taken on six students of his own.

Teaching calligraphy face to face, master to student, he explains, is "the old Islamic method of transferring this knowledge. The axiom is usually, 'If you can't do it, teach it.' But it's exactly the opposite with calligraphy: 'Don't teach it unless you can do it.'" Unquestionably, Mohamed Zakariya does it very well.

Piney Kesting, a graduate of Johns Hopkins University's SAIS, is a Boston-based free-lance writer who specializes in Middle Eastern affairs.



CALLIGRAPHER AT WORK

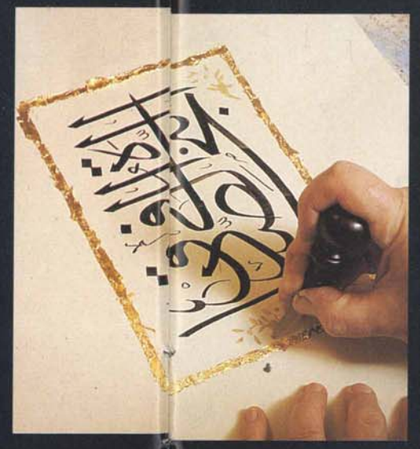


"You don't breathe much when you are doing this," Zakariya comments as he begins to write, his reed pen squeaking on the polished surface of the paper.

As he demonstrates his work, Zakariya explains how many steps are involved before he actually sits down to produce a piece of "beautiful writing." Ink, made from the soot of linseed oil he burns in his back yard, is combined with gum arabic and water and stirred for hours. Each sheet of paper used is individually sealed and smoothed with three coats of varnish, burnished and then aged for at least a year.

And in order to make the calligraphy pen, or *kalem*, Zakariya adds, "You have to learn how to be a wood carver." Woody reeds such as cane or bamboo are preferred, and must be aged for a minimum of four years.

Once the tools, paper and ink are prepared, the next step is choosing the text: preferably a selection from the Qur'an, a quotation from the Prophet Muhammad, a maxim or a poem. Zakariya designs the piece and practices calligraphing the text in order to create a stencil. This stencil, with the outlines of the letters marked with pin-pricks, is called a *kalıb*, or mold. Placing the stencil over the piece of paper chosen for the work, Zakariya lightly dusts it with charcoal powder, transferring the design as a series of dots onto the final surface.



Uttering "*Bismillah*" ("In the name of God"), Zakariya begins the final stage. "You can do wonderful things when the ink and paper are cooperating," he notes, as his pen travels slowly and precisely across the page. Depending on the complexity of the design, several pens are generally used for each work.

Finished with the design, he cleans up some of the edges with a scraping knife. "One of the ideas of calligraphy is to make the work so neat when it is finished that it looks as if it grew that way, like a plant," he says. The writing is then burnished with a smooth agate set in a handle, to bond it to the paper, and decorative borders or gold illumination may be added.

The only classically-trained *hattat* in the United States writes, illuminates and adds a gold border to a demonstration of his skill.

FINDING THE EVIDENCE

Aslıhan Yener did not expect to challenge one of the tenets of academic archeology some nine years ago when she hiked into Turkey's Taurus Mountains in search of Bronze Age mines.

As a graduate student in archeology at Columbia University, Yener was attempting to map the metals trade between Bronze Age Turkey and Iraq by analyzing ores from ancient sites in Anatolia. Traditional teachings claimed that there was no source of tin in Turkey, and that the metal, used with copper to forge bronze tools and artifacts – and thus Bronze Age civilization itself – was imported by Assyrian traders who brought it from the distant Hindu Kush of Afghanistan.

Yet Yener found traces of tin and natural bronze in her first field trips, and she questioned the Assyrians' claim that they were the sole suppliers of tin to Anatolia. She set out in 1983 to uncover a source of tin ore that could support her own theory: that the critical Bronze Age metal had been mined in Turkey, and not exclusively imported.

At the same time, she knew, such a find could change the perception of Turkey's role in history. The prospect pleased the 44-year-old Turkish-born archeologist, since 1988 a research collaborator at the Smithsonian Institution in Washington, D.C. Because Bronze Age Anatolian civilizations left few written records to challenge the Assyrian accounts, "there would be poetic justice in discovering that tin had been mined in Anatolia," she says.

Yener was well prepared for her search. Her solid background of study and research includes degrees from Istanbul's Boğaziçi University and from Columbia, teaching experience at Boğaziçi, and impressive awards that include a Getty grant and a postdoctoral fellowship with the Metropolitan Museum of Art.

In pursuit of information that others in the field did not believe existed, Yener traveled a long road through exhilarating discoveries and harsh disappointments. Skeptics labeled her first find too insignificant to be accepted as proof of her theory. Undaunted, Yener obtained further funding for her project, organized an international team of archeologists and, in 1990, discovered and excavated a substantial Bronze Age mining city, partly underground, high in the Taurus Mountains of Anatolia.

Her most compelling find at the site was tin-mining crucibles, which she feels will persuade even the most skeptical critics of her theory. Bubbles in the crucibles were found to contain tin in high concentrations, showing indisputably that the metal was not only mined at the site, but also processed there.

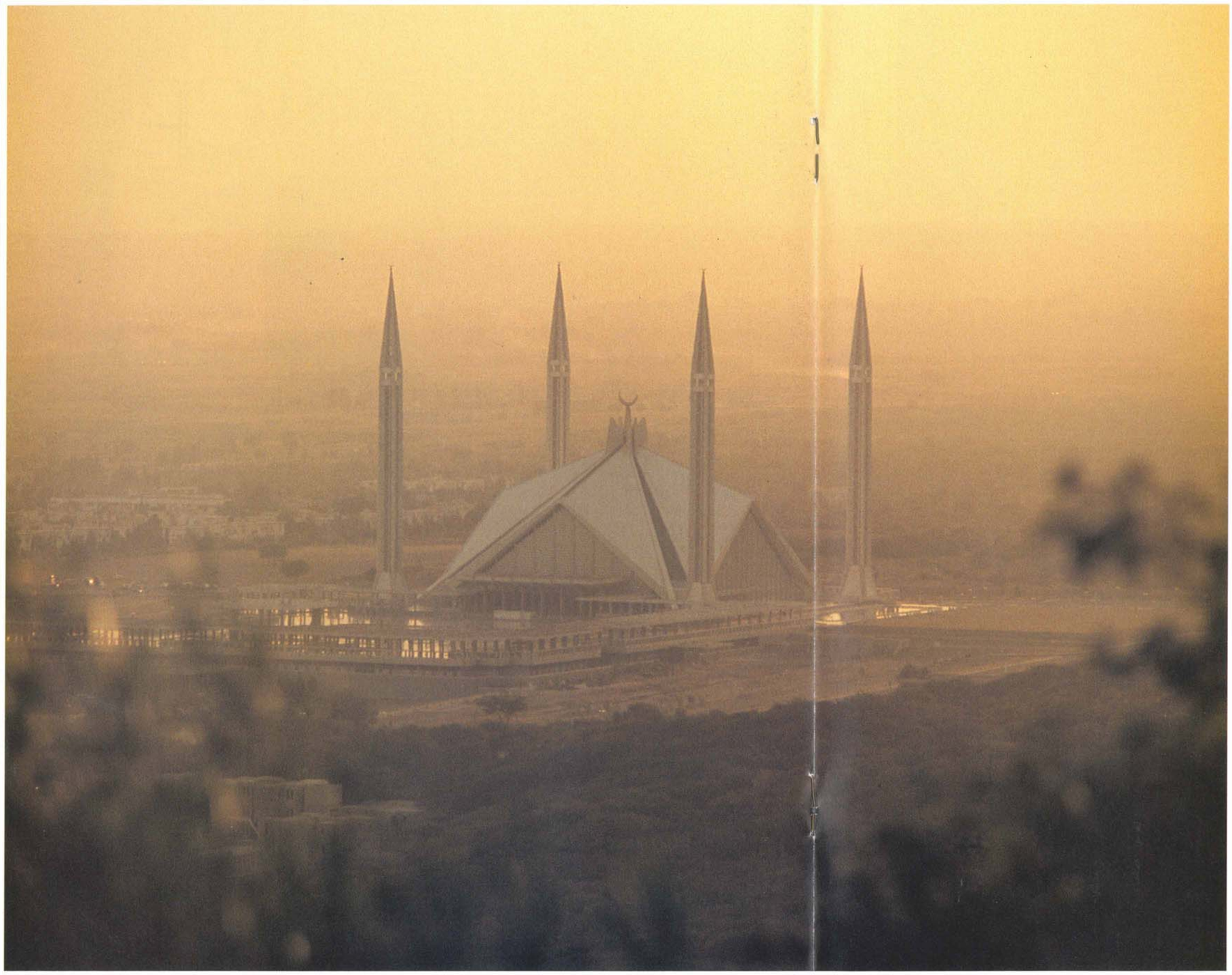
But the find has weightier implications. "In the Bronze Age, tin was very much in importance like oil is to us today," she explains. It follows, she says, that a tin-mining society could have parlayed its supplies into substantial economic influence. "So, this becomes more than just a sterile search for sources."

Yener was not the first archeologist to set out on the trail of tin in Turkey, but she was the first to persist and find it. "I like to finish something thoroughly," she says simply of her single-minded dedication to her goal.

Yener appears characteristically unfazed by those who continue to doubt her findings. "I have a whole army of skeptics who are attempting to debunk the findings, but archeologists are a contentious lot," she says. "When the crucible findings are published, the savage breasts will be soothed."

Lynne Jobe free-lances from Houston, often on technical subjects.

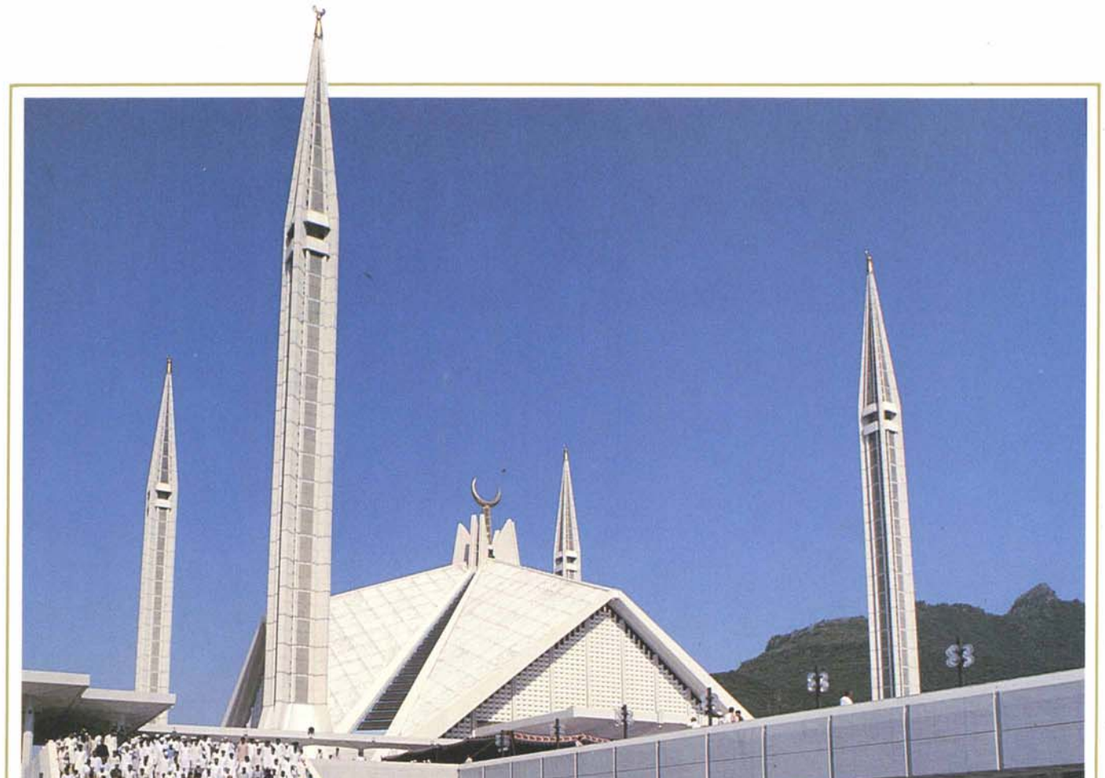
WRITTEN AND PHOTOGRAPHED BY LYNNE LIMPUS JOBE

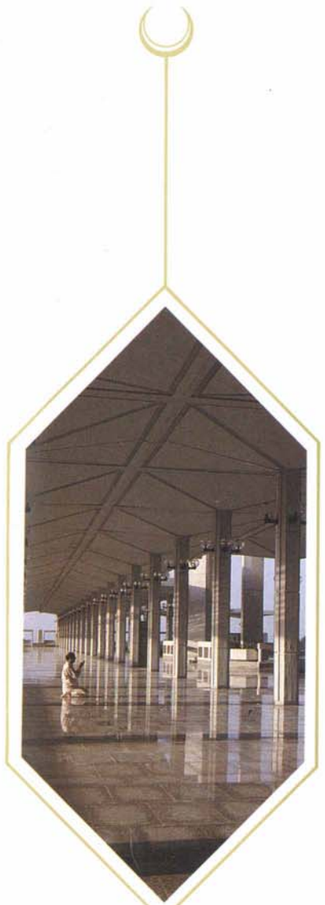


WRITTEN BY LEN McGRANE
PHOTOGRAPHED BY S. M. AMIN

A MOSQUE IN ISLAMABAD

Pakistan's greatest mosque, a national treasure, rises angular against the soft landscape of the northern Punjab.





Muslims of every nationality (left) flood toward the prayer hall, which has room for 10,000 worshipers. On this page, a hallway in the mosque and the dedicatory panels before it.

The taxi accelerates around a curve on a wide, clear highway, a four-lane thoroughfare that runs flat and straight toward a line of low green hills in the distance. The median is planted with flowers. Gentle mounds, grassy and topped with trees, rise along each side of the highway.

Directly ahead – white, massive and serene amid the greenery – is a striking, angular construction that, despite its untypical design, can only be a mosque. It is kilometers away, but no other building is visible and the taxi is hurtling straight toward it, so the Faysal Mosque completely dominates this main approach to Islamabad, the capital city that Pakistan built from scratch in the last three decades. A more tranquil ride into an otherwise bustling federal city would be hard to imagine.

The feeling of peace stays with you as you leave the taxi and stroll through rose beds and across lawns toward the broad entrance of Pakistan's national mosque. A pool and a simple fountain greet you; people mount a long flight of steps toward the platform on which the mosque itself sits. At this point, you become aware of another impression: size. This complex is big.

At ground level, you advance through a commodious passageway to a large courtyard where more than 185 worshipers at a time can perform the ablutions that Islam requires for prayer. Fountains play, the central one frothing 10 meters (32 feet) into the blue sky toward the huge platform of polished Italian granite.

From atop the platform, the impression of size is abundantly confirmed: The prayer hall is colossal. The folded roof slopes effortlessly upward from the platform to a peak 45 meters (148 feet) high, an expanse clad in white Greek marble weighing some 70,000 tons, and surrounded by four minarets soaring to twice the roof's height. This hall looks every bit like the tent it was designed to resemble, but on a mammoth scale.

"It's unique," said Mohammad Khan, the project engineer on the site. "There is no central pillar, no support. The walls are not load-bearing. There were doubts that it would be possible to build."

So how does it stay up? Surprisingly, to the layman, the four minarets play a critical part in this. Resting on massive foundations sunk 12 meters (40 feet) into the ground, these immense towers are fixed to four sets of giant twin girders which rise up from each corner at a startling angle and meet at the top of the prayer hall.

The weight of the roof bears on the girders and the minarets counterbalance the girders, the engineer explained. "In a sense, the minaret is an outside pillar" that holds down the edge of the roof like a Bedouin tent peg, he noted.

Inside the hall, abundant light filters in from all sides onto a blue carpet stretching over 4900 square meters (50,000 square feet). Suspended at the center of this great room is a six-ton chandelier: a sphere of gold-anodized aluminum tubes, almost 10 meters (32 feet) in diameter, studded with 1100 tiny lights and ringed by a gossamer hoop more than 40 meters (131 feet) across that holds a golden mesh and 36 lights.

Ahead stands the white marble *mihrab*, or prayer niche, shaped like a giant open book. The work of Pakistani artist Gulji, the mihrab displays at its center the best of the holy names of God in gold-plated copper and blue lapis lazuli, and on its two open "pages" is inscribed the 55th Surah, or chapter, of the Qur'an, *al-Rahman*, or The Compassionate. The 99 names and attributes of God are carved in relief at the edges, and gilded.

Next to the mihrab is another of Gulji's works in white marble: the *minbar*, or pulpit. Tall and elegant, it features the Qur'an's first Surah, *al-Fatiha*, The Opening, in a circular emblem, again worked in gold-plated copper and lapis lazuli.

Behind the mihrab and minbar, a shallow pool of water runs under the qibla wall, the wall which faces Makkah and indicates the direction of prayer for Muslims. By raising and lowering the water level in the pool, fresh air can be brought into the hall through holes below the wall, for cooling, or kept out. The qibla wall itself is covered in a mosaic of tiles from Turkey, pre-

NIK WHEELER

dominantly blue, with the *Kalimat at-Tawhid*, the Muslim profession of faith, in golden yellow: "There is no God but God, and Muhammad is the prophet of God."

Along the north and south walls a recently completed hand-written copy of the Qur'an in 30 massive volumes is kept in a set of 30 cabinets. And along the back wall, over the entrance, a women's gallery large enough to accommodate 1500 worshipers is screened off with a lattice of Greek marble in traditional Moghul design. A fountain plays over white marble by the doors.

Outside, high above all this elegance, strength and serenity, hang five golden crescent moons – one on each minaret, and one weighing six and a half tons fixed atop the prayer hall, where the supporting girders rise to a delicate meeting point.

Covering the crescents with gold proved more complicated than originally planned.

Engineer Mohammad Khan assured us that gold was electroplated onto all surfaces of the copper crescents in a layer two microns thick. As soon as that was done, lacquer should have been applied to protect the crescents against the weather. But the artist Gulji, not realizing what would happen, postponed the lacquering, and as a result, the crescents weathered, Khan explained. Black spots appeared.

To resolve the problem, Gulji removed the spots, replated those areas at his own expense, and, this time, lacquered the crescents immediately.

Despite all this, Khan said, the gold coating will still eventually succumb to the elements and will have to be replaced, possibly as early as 1997.

The mosque's construction was funded by Saudi Arabia and is a crowning architectural symbol of the longstanding ties between Pakistan and the house of Sa'ud.

As early as the 1920's, leaders in what is now known as Saudi Arabia supported their coreligionists on the Indian subcontinent. That friendship continued when Pakistan became an independent state in 1947. In time, the British-built city of Lyallpur in Punjab was renamed Faisalabad, and in the new capital, Islamabad, the most prominent avenue was also named after Saudi Arabia's late King Faysal ibn 'Abd al-'Aziz Al Sa'ud.

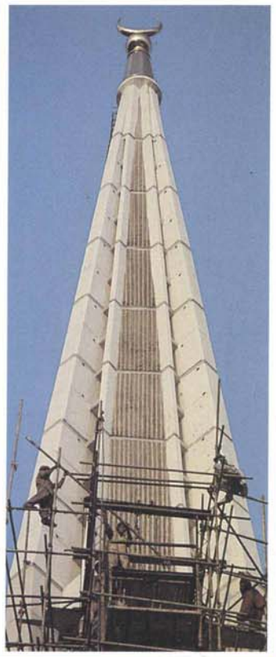
In 1959, Islamabad's master plan had designated some 18 hectares (44 acres) of prime flat land as the site of a national mosque. Six years later, King Faysal toured Pakistan and was shown the new capital city under construction. He inspected the site of the mosque and decided to donate a large sum for construction of the building.

In 1969, an international competition among Muslim architects was held to choose the design for the mosque; the winner was Turkish architect Vedat Dalokay, then barely 40 years old. In 1976, King Faysal's successor, King Khalid ibn 'Abd al-'Aziz, laid the foundation stone of the mosque and donated an additional sum of money for construction of an Islamic Center to be housed at one end of the vast granite platform of the mosque complex.

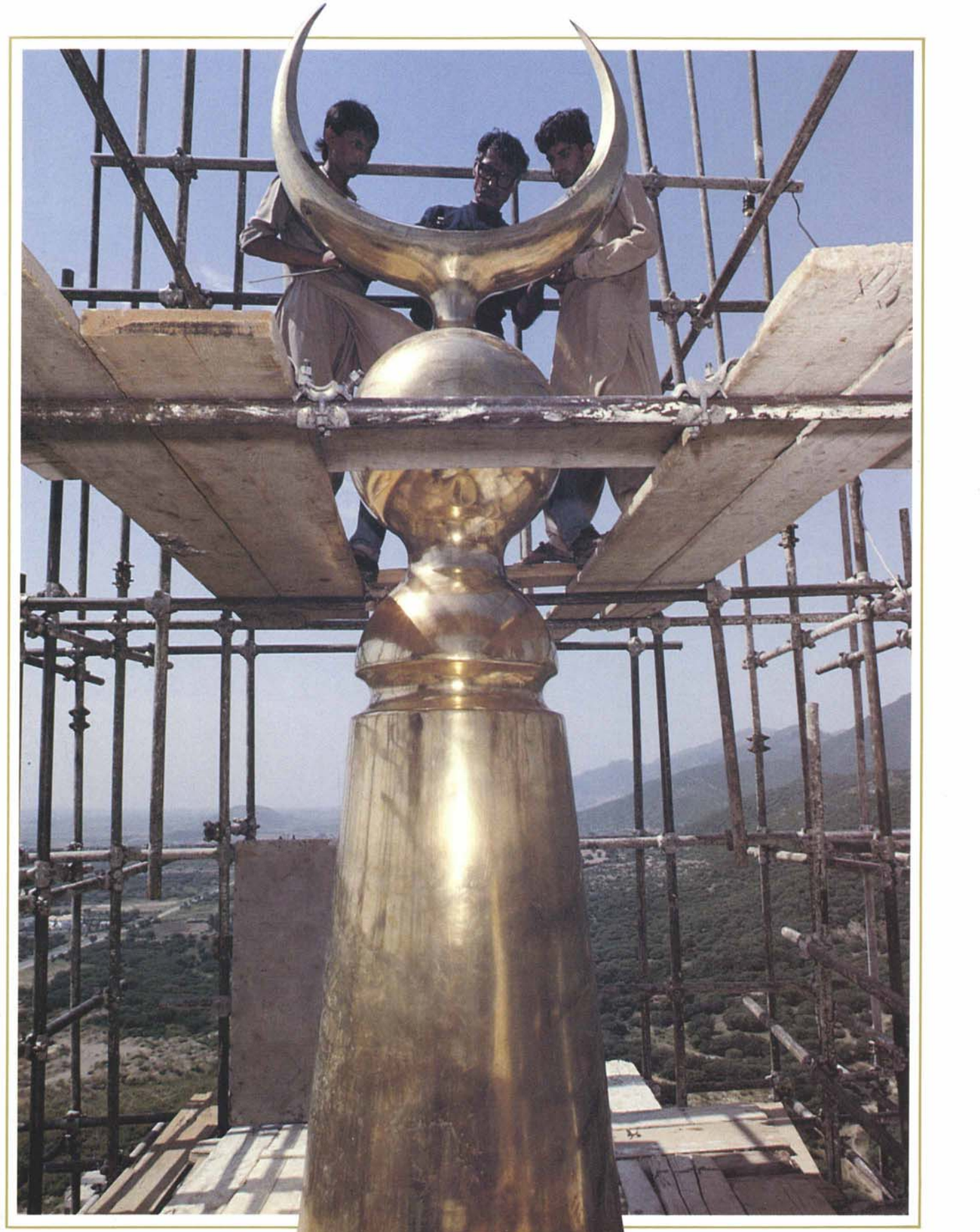
Work on the complex was started in 1978 by National Construction, a Pakistani engineering and construction company with many fine national buildings to its credit. The first regular Friday prayers were held in the mosque a decade later, on June 24, 1988.

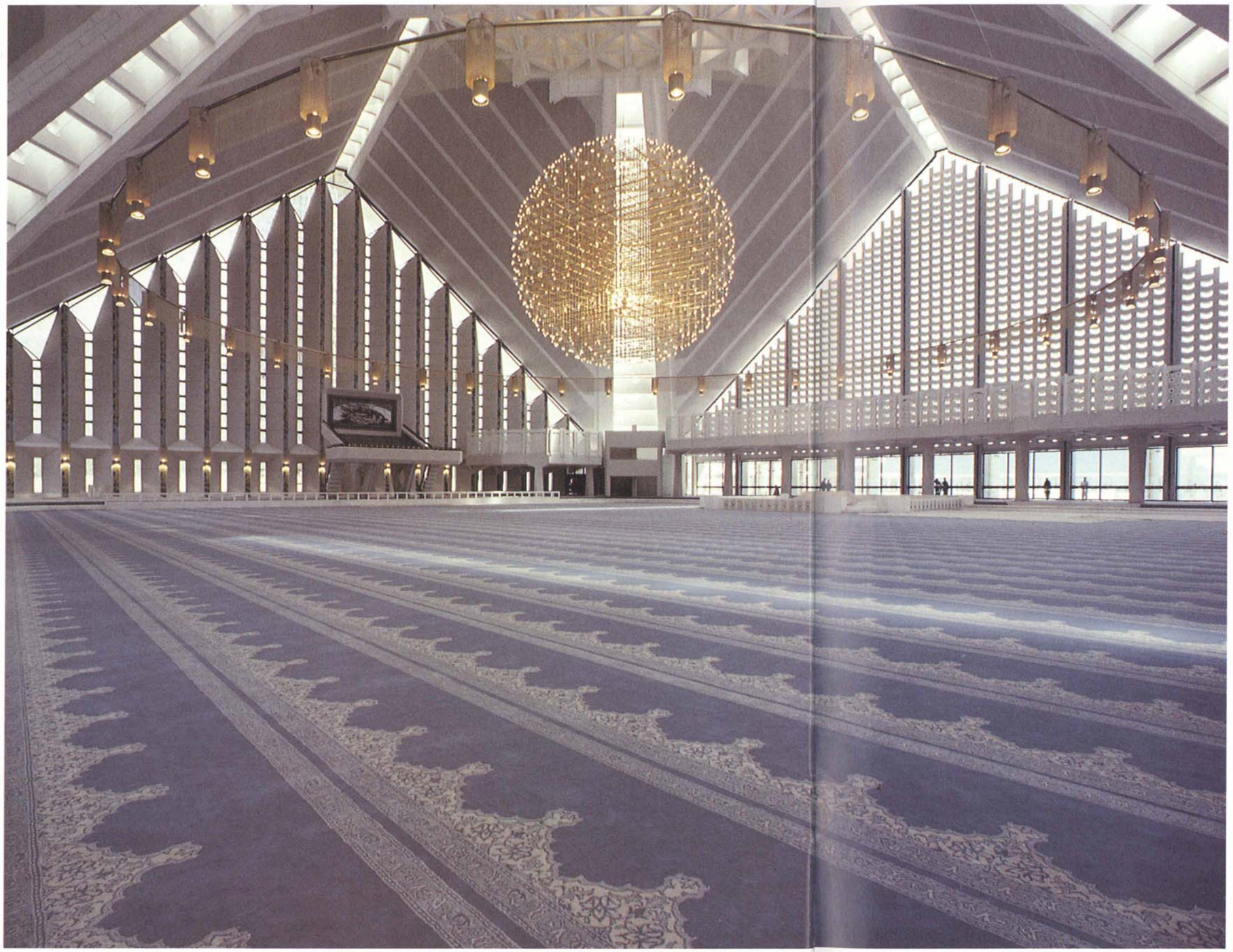
One part of the enormous building project remains to be completed: a centrally air conditioned auditorium set under the northern side of the courtyard. Proposed several years ago by Pakistan's then-president, Mohammad Zia ul-Haq, and given a $10-million start by his government, the auditorium, when finished, will offer a conference venue the equal of any in the world.

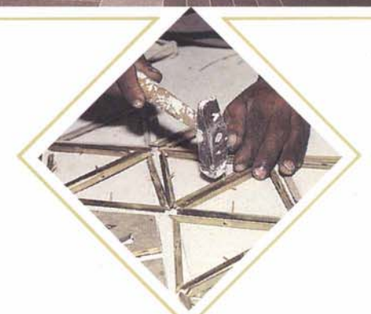
It is now late morning. The crowd of visitors grows. Respectful and yet thrilled at the size and beauty of their national mosque, people from all of Pakistan's different ethnic groups mingle in these great precincts: burly Sindhi men in multi-colored caps, poor village Punjabis in flapping *lungis*, groups of schoolgirls in uniforms, bearded Afghans with baggy trousers hitched well above their ankles, and Pathans from the border tracts. Among them are some foreigners: modest young Americans in jeans, older European ladies in Pakistani national dress, a few Iranians and Africans.



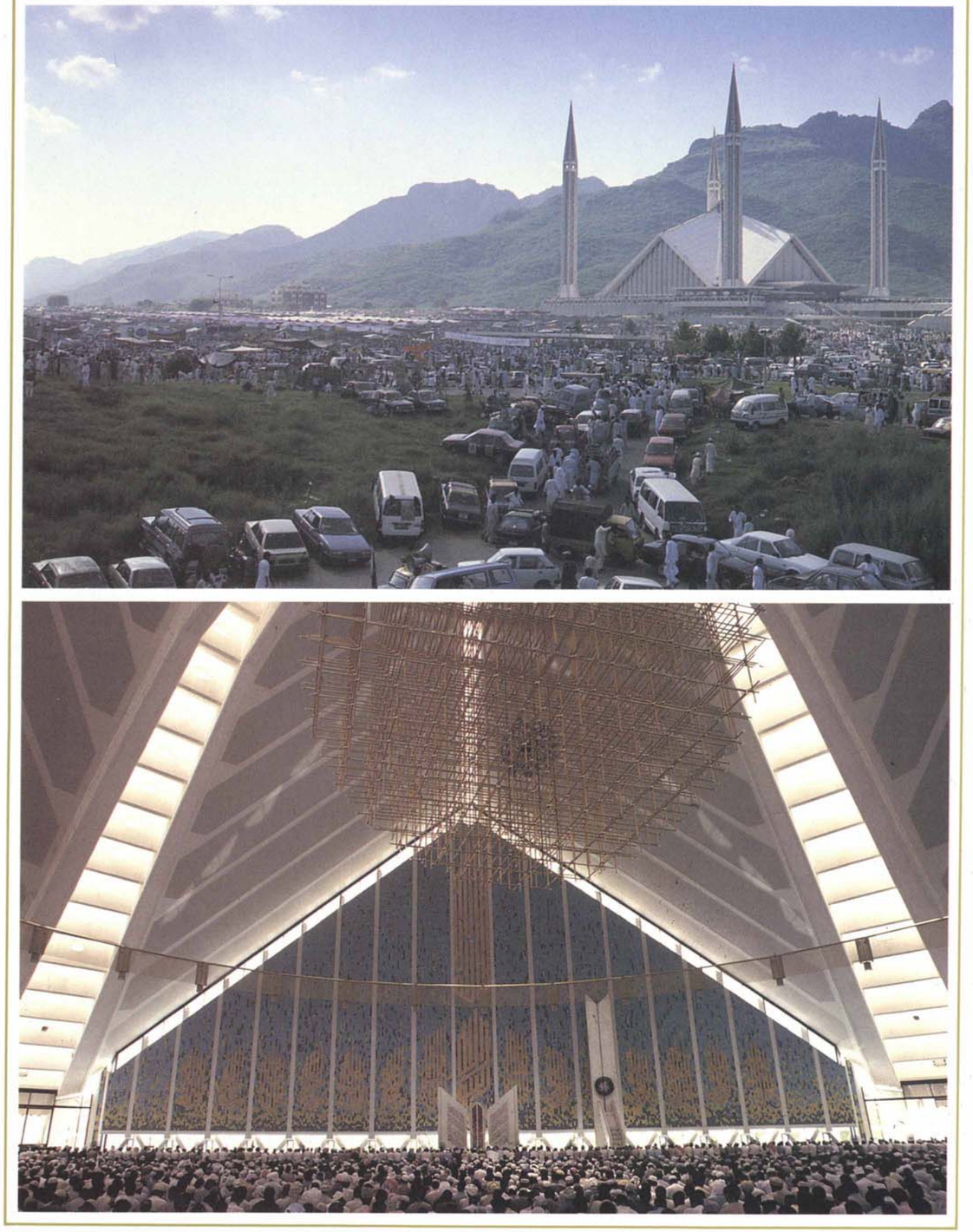
Traditional crescent finials, electroplated with gold and carefully hand-lacquered, top the mosque's four minarets and the central roof-peak.

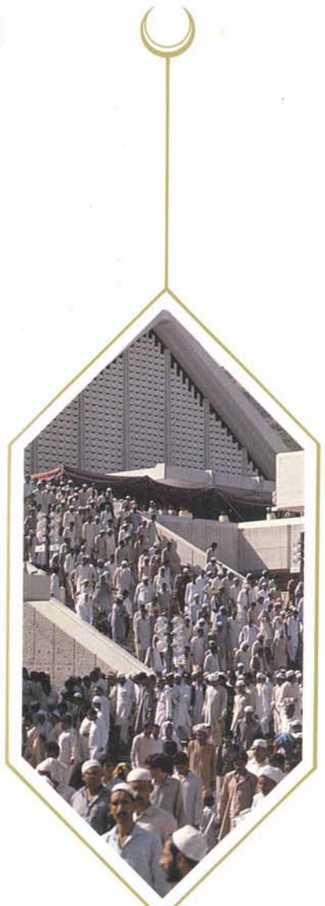






Large window areas and an enormous chandelier flood the prayer hall with light, and tile and marble enrich the ablution fountains (above center). Skilled hands marked and carved marble screens (above top) and assembled slender window cames.





'*Id* crowds jam the mosque's spacious grounds and worshipers fill the prayer hall for evening prayers. At right, the book-shaped *mihrab* displays the 99 attributes of God.

A foreign convert prays in a side portico off the main hall. Muslims and non-Muslims seem glad to be in this friendly place of peace.

It is a place, also, of learning: In the long tradition of incorporating institutions of higher learning in mosque complexes, the Faysal Mosque houses Pakistan's prestigious International Islamic University. In fact, the university is the custodian and administrator of the mosque.

Combining several earlier Islamic academic institutions and adding new ones of its own, the International Islamic University took its present form in 1985. Students and staff use the suite of rooms, offices and halls at the eastern end of the complex. But some 285 hectares (about 704 acres) of land some 12 kilometers (seven miles) southwest of the mosque have been granted to the university, and construction of its own separate campus could start as early as April of this year.

University enrollment is currently limited to around 2000 students, but they come from more than 40 countries – many from Africa and the Middle East, some from China and the former Soviet republics.

Shari'ah law, theology, Arabic and Islamic economics are taught in the four university faculties. In addition, four other autonomous parts of the university are engaged in training, research and publishing on a wider, less academic level.

One is the Shari'ah Academy, which runs four-month, in-service courses for the judges and lawyers who administer Islamic law in Pakistan. Another is the eminently practical Da'wa Academy, an institution for the propagation of the faith. Besides organizing seminars for editors, writers and college teachers, and other outreach activities, this academy has published 135 books in a dozen languages.

In addition, the university has established links with Muslims in the territories of the former Soviet Union, and provides scholarships and imam training, publishing assistance and teaching in Arabic. It also cooperates with the International Center of Arabic Studies at the University of Beijing, in China, where nine books have been translated and 10 more are in progress.

Inside the prayer hall, it is time for midday prayers. The muezzin (prayer caller) and *qari'* (Qur'an reciter) Khorshid Ali climbs a short, steep flight of steps to a platform backed by a giant piece of calligraphy executed by Pakistani artist Saadiquain. His call echoes through the prayer hall and carries across the courtyards. Huge doors swing open in the glassed eastern wall of the hall, and a swirl of people surges into the calmness to pray.

On the great *'ids*, or holidays, of Islam, the hall is packed to its 10,000-person capacity. A further 90,000 can pray on the platform outside the hall, and 200,000 more on the lawns around the building, making this the country's largest mosque.

Today 80 men are lined up in a single row the width of the hall behind Khorshid Ali. Six latecomers hurry into the hall and quickly form a second row. The age-old prayers begin. The heart of this great mosque is at peace.

Len McGrane is a New Zealand freelance journalist who writes on Muslim affairs. He lives with his family in northern Pakistan.

THROUGH NORTH AFRICAN EYES

WRITTEN BY LYNN TEO SIMARSKI

A new indigenous cinema full of beauty and vitality is emerging in North Africa, placing Algeria, Tunisia and Morocco on the cutting edge of film in the Arab world.

◆The pioneer filmmakers of the Maghrib, as this region is known, are aiming to express, above all, the social realities of their nations – in contrast to the past, when the region served only as an exotic locale for Western films that ignored local culture. Many of the new wave of directors believe that their highly original films, with their universal themes, can also speak compellingly to audiences abroad.

Until now, the films of the Maghrib – as with Arab cinema generally – have been largely relegated to what film critic Hala Salmane calls "the festival ghetto" in the United States, unable to penetrate the mainstream of America's Hollywood-dominated industry. In any case, over the past year or so, American viewers have been treated to glimpses of the new cinema at the Arab Film Festival in Seattle (July, 1990), the Algerian Cinema Festival in Boston, Los Angeles and New York (Spring, 1991), and Filmfest D.C. in Washington (May, 1991). A number of directors, producers and critics who gathered in Washington during the festival describe the Maghribi films as a break with the melodrama and musical genres of Egyptian cinema that have dominated Arab screens in this century. The first modern film studios in the Arab world were set up in Egypt in 1935, soon turning Cairo into what Miriam Rosen, Paris film critic and curator of Filmfest D.C.'s Maghrib series, calls "Hollywood on the Nile." Egyptian cinema became a "dream factory," Rosen says. Its fare of farce, melodrama and bellydance enabled viewers to forget reality. Commercial cinema in India and other developing nations followed a pattern similar to Egypt's, according to film critic Roy Armes. "Created for a mass audience and apparently fulfilling no more than an entertainment function, these films are the cause of great unease on the part of Third World critics and filmmakers, even – and perhaps especially – those concerned to define and promote a 'national' cinema," he observes.

"For us, Egyptian cinema plays the same role that Hollywood does for the independent filmmakers of New York," says Ferid Boughedir, well-known Tunisian film critic and director. (See page 34.) "We are the new wave, starting in the Maghrib and spreading to Syria, Lebanon and Palestine, fighting against escape cinema that has nothing to do with the reality of the Arab world. For us in the Maghrib, it is easier to make good films than it is for young Egyptians: There are no dictates from the industry to tell you what to do."

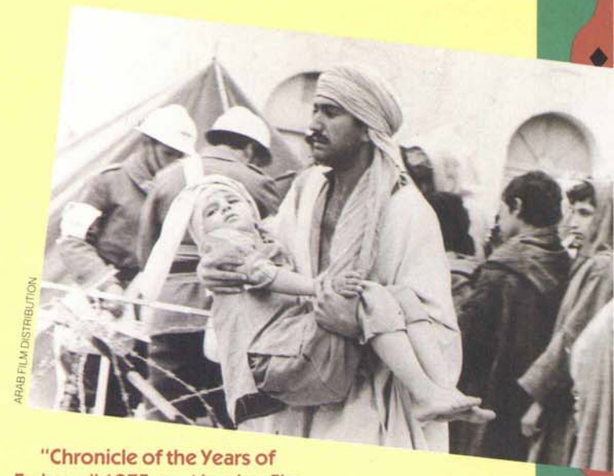
"But our problem," continues Boughedir, "is, for whom are we making the films – for the West or for our home audience? It's very easy to make exotic films for the West, but the real test for us is, does our local audience recognize itself in the film?" Moroccan director Mohamed Abderrahman Tazi adds, "I make films for my particular public, and if they go beyond that, so much the better."

Even in Egyptian cinema, however, some early visionaries sought to abandon fantasy for serious subjects. Director Kemal Selim's "The Will" (1939) is generally recognized as the first Egyptian film to depict social reality, and others followed.

"To be fair," says Boughedir, "there were several very courageous Egyptian filmmakers who were our fathers – such as Yusef Shahine, Henri Barakat and others – who even inside the industry tried to use the stars to make films showing reality at that moment. They gave us in the Maghrib the strength to make a cinema of truth."

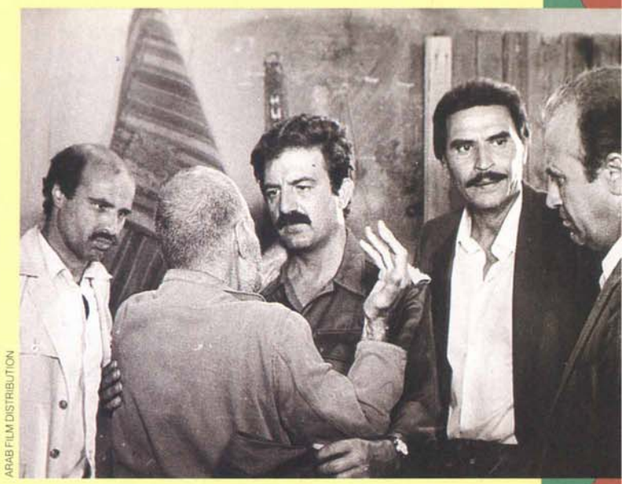
The new North African films break with Egyptian tradition not only thematically but stylistically too. "Egyptian cinema is based on the voice, like radio," says Boughedir. "Sometimes you can close your eyes and continue understanding the action. Maghribi cinema gives priority to the image."

The sampling of Maghribi works by both male and female directors at Washington's Filmfest displayed an astonishing breadth of vision and form, from documentaries to harsh social commentary, from mystical fairy tales to hilarious and sensual features.



ARAB FILM DISTRIBUTION

"Chronicle of the Years of Embers," 1975, an Algerian film directed by Mohamed Lakhdar-Hamina. This pioneering movie was a Cannes award-winner.



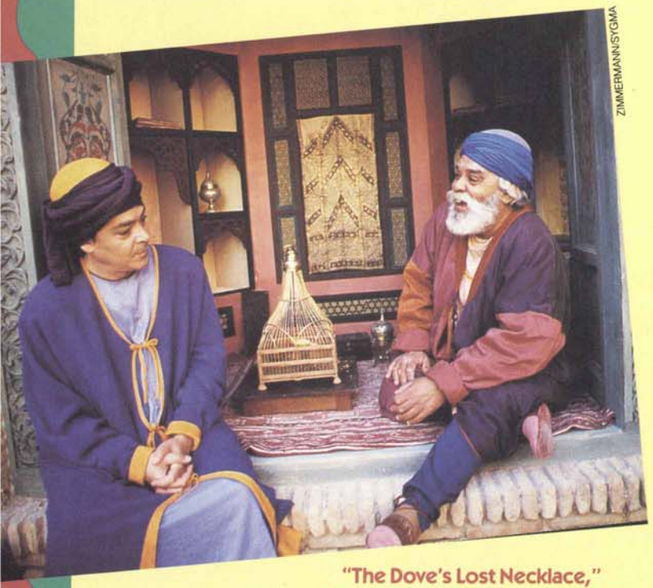
ARAB FILM DISTRIBUTION

A scene from "Le Moulin" ("The Mill"), a celebrated Algerian film produced in the 1980's.

Maghribi production since independence has exceeded that of all the rest of the Arab world except Egypt. Rosen distinguishes at least a dozen singular directors who have arisen in the Maghrib during the past decade. Economic realities, which often force filmmakers to seek their own financing, have much to do with spawning markedly individualistic creations.

"A distinction must be made between the films of the Maghrib by individual artists and the commercial film industries of India, Turkey and Egypt," says Moroccan screenwriter and director Farida Benlyazid. "No producer will put his money into something unprofitable, so artists must seek their own financing. In a sense, this liberates them – they don't have to worry about the market." Rosen agrees: "The main goal of the cinema is not just cheap entertainment; the resources are just too precious."

"We're talking about a craft rather than an industry," says Tazi, the Moroccan director. Explains another director and producer, Tunisian Ahmed Attia, "A film requires the mobilization of a crew and a lot of money, yet North African receipts cover only 25 percent of a low-budget production." Maghribi filmmakers became accustomed to the necessity of sacrificing in order to realize their visions. "A few years ago it was called the young cinema, but look at us! We're not so young anymore," he laughs. "We have families, responsibilities. We have to be realistic and go beyond the stage of a craft to an industry." Attia has attempted to do this himself by seeking a number of small backers for his films instead of one large backer who might usurp his ideas.



ZIMMERMAN/SYGMA

"The Dove's Lost Necklace," 1990, a Tunisian film directed by Nacer Khemir. This movie employs a fairy-tale facade, and is particularly noteworthy for its technical refinement.

The Maghrib has some 800 film theaters in a population of about 60 million, yet directors and critics alike decry the lack of a local market, which is flooded with foreign films. According to Rosen, Algeria imported 140 films in 1987, Tunisia imported 165, and Morocco imported 362 films in 1986. Television has also drained away theater audiences, the directors complain.

Each of the three countries presents a distinctive climate for its filmmakers. In Algeria a state monopoly controls the industry, Tunisia is a mix of public and private, and in Morocco filmmaking is almost exclusively in the private sector.

Of the three, Algerian film is best known in the West, yet "only it has the luxury of existing for its own market," says Neil Hollander, a film distributor who lives in Paris. "The same organization that produces Algerian films also controls the number of Western films shown in Algeria, so there is a kind of coherent balance that does not exist in the other countries."

Algeria already had a modern cinema by the mid-1960's. Algerian cinema was born out of, and served, the war of independence, "which explains its obsession with that war," writes critic Hala Salmane. Centralized control of the industry contributed to creating "cinema *moudjahid*," as it was called, that deals with the Algerian rebellion against the French occupation. The famous Italian-Algerian "Battle of Algiers" is the best-known work of this period. But critics, filmmakers, and audiences eventually rebelled against this monolithic focus, arguing that it "was serving to mask the problems of the day," Salmane observes.

The agrarian changes of 1971 ushered in a new genre of Algerian films that focused on agriculture. Since the late 1970's, these in turn have been supplanted by films dealing with more diverse topics – urban alienation, bureaucratic fumbling and the changing role of women. "They explore with beauty, and at times with controversy, contemporary issues facing Algerian society," says Alia Arasoughly, director of the recent Algerian festival in the United States. Reflecting on what distinguishes Algerian films from the rest of the Maghrib's, Rosen says, "To me Algerian cinema is the harshest – there's an austerity in the vision that I can't separate from the country's history, which is also, in a way, the harshest."

Director Belkacem Hadjaj's "The Drop" (1982/1989), screened at Filmfest D.C., presents an eerie and idiosyncratic look, almost documentarian in detail, at the plight of rural migrants who build housing in which they cannot afford to live. To a jarring score of grinding tractor gears and hammering, the migrants are shown as milked by the malevolent city – symbolically, at the end of the day, even their sweat is collected, drop by drop, in an urn.

Another Filmfest screening from Algeria, Mohamed Rachid Benhadj's "Desert Rose" (1989), tells the far more intimate, yet unsentimental, story of Mousa, a young, severely handicapped man who fights to overcome his own infirmities in his search for love and a place in society in a remote oasis village. The film is rich in unforgettable detail, expressed in images or sound rather than words. The metallic bubbling of water in a kettle as Mousa makes tea defines domestic comfort in an isolated village home. The matter-of-fact prostration of a neighbor who offers his back as a step to help Mousa climb aboard a donkey demonstrates the community's warmth. The sad face of a young bride in a camel litter leaving her home for her husband's mirrors Mousa's grief at her departure.

Mousa's careful tending of a tiny rose on a distant dune, says Benhadj, "is a symbol of Algeria, of the Third World in general, formed by rigid beliefs and intolerance, but now having to redefine itself as all the alibis on which its place in the world depended begin to fall away."

Hollander, the film's Western distributor, believes that "Desert Rose" represents the coming-of-age of Algerian cinema. "The intent is to deal with a universal theme rather than a Maghribi problem," he says. "The film moves beyond reacting against things and presents world-class cinema dealing with human problems."

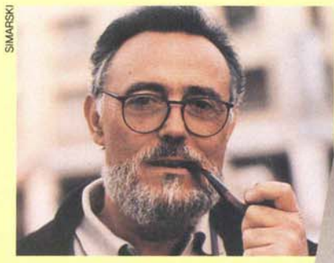
Tunisian cinema, which was challenging Algeria for international acclaim by the 1980's, began in the 1920's with films by Albert Sammama-Chickly. In contrast to those of its neighbor, Tunisia's films rarely focused on the struggle for liberation. The country's biannual Carthage International Film Days, founded in 1966, is the oldest international festival for films from the developing world.

Tunisian Nacer Khemir's "The Dove's Lost Necklace" (1990), screened in Washington, also typifies the exquisite detail with which many Maghribi filmmakers tell their stories, but is particularly exceptional for its technical refinement. Khemir employs a fairy-tale facade, a technique also used in his earlier film, "Searchers of the Desert" (1984), to follow a young calligrapher's apprentice, Hassan, on his increasingly fantastical search for the meaning of love. Among the film's poetic images, which sparkle like gems, are the master calligrapher's jasmine-scented ink, a pomegranate inscribed with 60 Arabic names for love and a chess game between distant partners who communicate their moves by carrier pigeon. But this city of order and refinement is threatened by murmuring barbarians who gather ominously outside the walls.

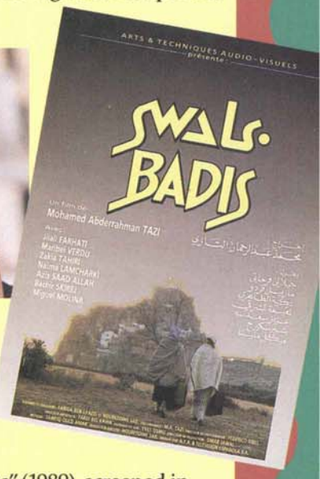
The film's dreamlike aura is enhanced by the fact that it is not anchored in time, explains producer Hassen Daldoul, but occurs somewhere between the 9th and 15th centuries, during Islam's golden age. Not only Hassan but almost everyone else in the film as well is on a quest -- the captivating little Zin is seeking a monkey he believes is a prince, and the calligraphy master journeys away in search of the patron who requisitioned a finely-embellished Qur'an. The motif of incessant searching is a metaphor for a people and a nation whose history and spirituality are slipping away, Daldoul says.

Another short but superb Tunisian film also shown in Washington, Moncef Dhouib's "The Trance" (1989), echoes Khemir's work in its use of the irrational and the mystical as a doorway to fuller meaning. A man trapped in a tomb is beset by visions that destroy his Western facade and force him to confront the deeper realities of his own culture. The film's traditional setting and motifs make it a decidedly indigenous parable.

Morocco, the third country contributing to the Maghrib's new generation of cinema, has produced fewer films to date than its neighbors, even though it boasts good production facilities and several times the number of theaters in Tunisia. "Possibilities were much more limited in Morocco because of a lack of both public and private funding," explains Rosen. Director Tazi is more blunt. "The system could be described as 'the law of the jungle,'" he says. "There is no legislation to protect local films against imports."



SYGMA

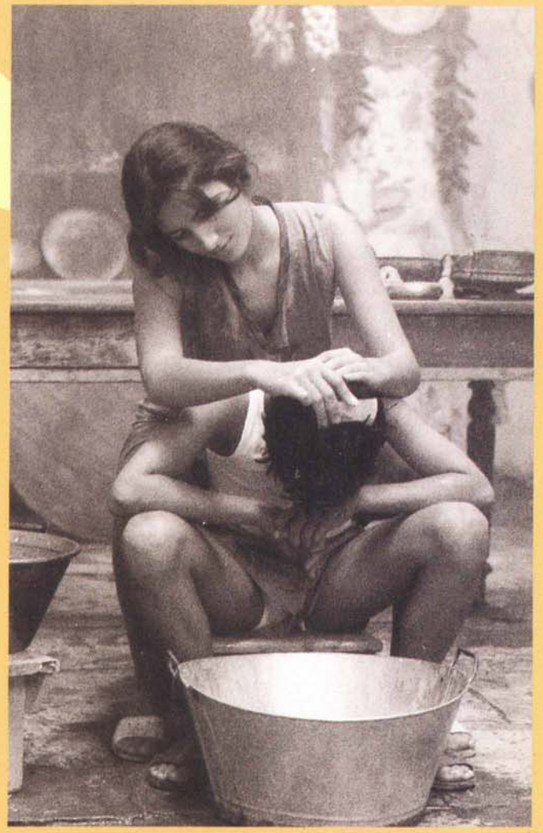


Mohamed Abderrahman Tazi, above, director of "Badis," a Moroccan film released in 1989. At right, a poster, and below, one of the characters from this powerful film.

Tazi's haunting tragedy, "Badis" (1989), screened in Washington and Seattle, exemplifies what Rosen describes as the "intimacy and visual refinement" of Moroccan films. The action takes place in a remote coastal town that is loomed over, literally and figuratively, by a Spanish enclave garrison housing prisoners of Generalissimo Franco's regime. Each day, a Spanish soldier sets out to the village well to fetch water for the enclave, where he secretly meets and falls in love with a local fisherman's daughter. Meanwhile, a schoolteacher from Casablanca has moved to the village along with his wife. Friendship grows naturally between the wife and the village girl, who finally decide to flee the stifling hypocrisy of village society. Inevitably, they are caught, and stoned for their transgressions. "There are few sounds, few words in 'Badis,'" observes Rosen. "It is the images that speak, that cry out the violence of intolerance."

Paradoxically, it is an old woman who throws the first stone in the final scene. As Tazi explains, "It was not to kill that the old woman did this, but to stop the spectacle. Women are the guardians of tradition; the men were shocked, mesmerized, so the woman in a sense acted to protect the young women."

"It is astonishing," says Benlyazid, one of three female directors in Morocco and co-writer of "Badis," "but all the male filmmakers are preoccupied with the situation of women." Still, she believes Tazi stereotyped women



CRITIC OF THE NEW WAVE

The irrepressible force behind "Halfaouine – Child of the Terraces," which broke all box office records in Tunisia, is director, documentarian and celebrated Maghribi critic Ferid Boughedir. The energetic Tunisian filmmaker is very much in the forefront of defining the new wave of North African cinema. His two documentaries on Arab and African film, "Caméra Arabe" (1987) and "Caméra d'Afrique" (1983), serve as reference works on regions whose film is unknown to mainstream audiences of the West.

"I think cinema is the most powerful thing in the world. It can break through all borders, make people find brotherhood through a story, and cancel all the stereotypes. That's important for me," says the voluble director, a special guest at Washington's Filmfest D.C. in 1991.

The setting of "Halfaouine," Boughedir's first feature, is an old neighborhood in Arab Tunis, whose residents are well-known for their outspokenness, special sense of humor and quick resistance to any oppression. "It's my neighborhood – my grandfather's house is still there and I spent all my childhood there," Boughedir says. His family's cultural background made filmmaking a natural profession for him, he explains. "My grandfather was a bookseller in the *suq* of Tunis near the Grand Mosque, and he was also a storyteller in the café. My father is a playwright and the oldest Arabic journalist in Tunis. My grandfather used his voice, the oral tradition, my father used the pen, and for my generation there is the cinema – image and sound."

The tradition continues, for "Halfaouine" stars Boughedir's 12-year-old nephew as a boy poised on the edge of maturity. "He is one of the small street kids, nicknamed 'birds of the terraces,' who are always in the streets and on the roofs watching everything, knowing all that's going on in the neighborhood," Boughedir says. The film is full of unforgettable characters and hilarious encounters as it follows the boy's daily life in a household of indulgent women and more distant men.

"It was the magic and poetry of his father's and grandfather's fables that enabled Ferid to conceive the story," says Paul Cohen of Aries Film, the American distributor of "Halfaouine," who plans to release the film commercially in the United States this month. The film is also slated for release in Japan.

Boughedir's feature has already been screened in several countries in Europe and in Canada. It won recognition at Cannes' "Directors' Fortnight" in 1990, grand prizes in Spain, Corsica and Tunisia, and awards in Egypt, Switzerland, Italy, Las Vegas and Chicago, as well as from UNESCO.

"My ambition was to make a personal film completely with elements of my own culture – to be local and universal at the same time," he says. "There's nobody as Swedish as Ingmar Bergman, yet his films are universal. That's my aim – to start from my expérience but not to be a prisoner of it, and to communicate the richness of my culture in an artistic way – not as a sermon or a lesson."

Boughedir's next film will be a comedy on tolerance, also to be shot in Tunisia. "The proverb says that if you respect your neighbor's difference, you may live in peace, but it's more than that," he says. "If you see the richness within the difference of your neighbor, you can not only live in peace but enrich yourself."

as victims in his film. "I'm happy he's talking about women – still, it's a more subtle, nuanced truth than that," she says. "Women have more strength than he shows them as having."

The new cinema indeed displays a fascination with the lives of women. Another Tunisian director, Abdellatif Ben Ammar, whose "Aziza" (1982) was shown at the Seattle festival, told an interviewer, "Women are the alternative. Victims yesterday, and still sometimes so today, tomorrow they will be pushing forward a genuine renewal."

Women live in a gentler, more intimate world than men in Boughedir's "Halfaouine." "I admire the genius of woman," the director told National Public Radio in Washington. "She always finds a way to transcend the taboos, to find spaces of happiness and joy that man doesn't have."

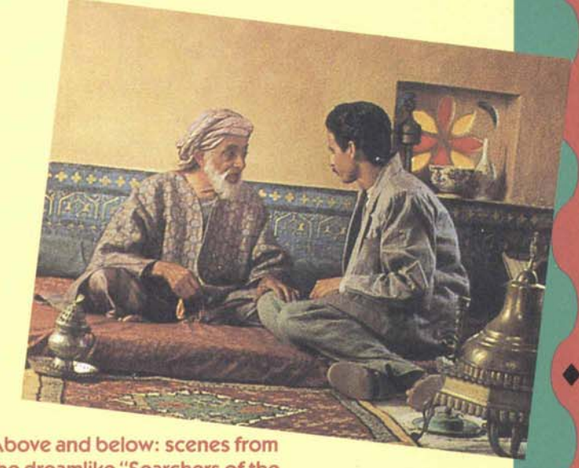
Female director Benlyazid's own first film, "A Door to the Sky" (1988), presents a decidedly different version of a woman's search for meaning, in the context of Islam. The resonance in the United States of "Door's" vision was demonstrated by the overflow crowds attracted by the film in Washington, and its warm reception in Seattle was epitomized by a woman who told Benlyazid that it was the most beautiful film she had ever seen. The story begins as Nadia, a young Moroccan, returns from France for her father's funeral. Rediscovering her spiritual heritage through an older, devout woman, Nadia forsakes her French boyfriend and eventually turns the old family home into a *zawiyah* or hospice for needy women, filling it with a loving community. Benlyazid, who herself studied filmmaking in Paris and personally exudes the same calm transcendence as her film, believes her work expresses the "double culture" within which an entire generation is forging its identity.

As for being a woman director in the Arab world, a topic she is often asked about in the West, Benlyazid says that women confront the same obstacles as men. "Filmmaking isn't looked up to as a profession," she explains. "One is supposed to be productive, and filmmaking doesn't have the prestige or money – but that's the same for women as for men."

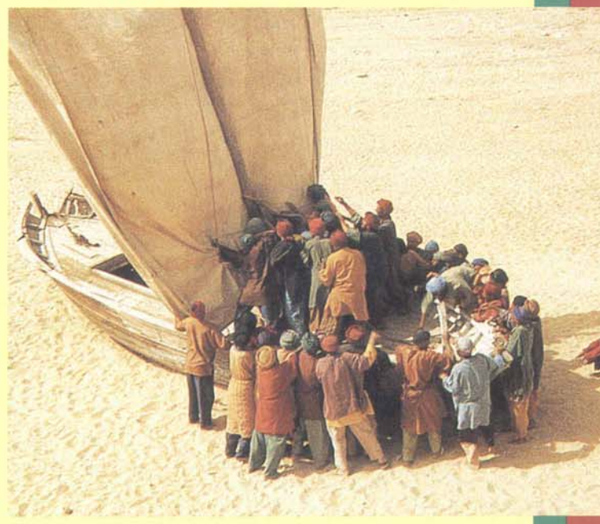
Even while they draw inspiration from their roots and seek to reach a local audience, many directors believe their films can cross international borders. Tazi points to the Turkish film "Yol," which made modest inroads into the American commercial market. Given the same promotion, he believes, a Maghribi film could succeed just as well. But in Hollander's experience, "here in the United States, film is to entertain, not to educate. In Europe we had more success in distributing 'Desert Rose' because film still has a cultural and an educational function there."

"Mahgribi films are actually received better in the US than in Europe," counters Benlyazid. "Europeans think they know North African and Muslim society, so they come with all sorts of prejudices, whereas Americans are more open. I think these films can make it in the West – the settings are foreign but at their center are universal human relations.

"One reason I think 'Door to the Sky' has been received well is that it's a spiritual film," she continues. "It's not about the sort of militant Islam that people expect to see, but the way Islam really is."



Above and below: scenes from the dreamlike "Searchers of the Desert," 1984, a Tunisian film by director Nacer Khemir. Left: the highly acclaimed "Halfaouine – Child of the Terraces," 1990, directed by Tunisia's Ferid Boughedir.



As Maghribi directors begin to probe beyond economic and political frontiers, North African cinema is clearly ripening into a genre of significance. "Algerian cinema was the best in the 1970's, but in the 1980's and 1990's, Tunisian films are getting the most prizes all over the world," says Boughedir. "Freedom and modernization have helped us to make the best cinema in the Arab world, for the moment. Maybe in the 1990's, Syria or another country will do better. We are fighting the clichés the West holds about fanatics and fundamentalists – we are fighting to show the reality of our countries." If Maghribi films can make it to screens in the United States, American filmgoers will surely be captivated by the honesty and power of images defined by North African eyes.

Lynn Teo Simarski is a Washington writer and editor who specializes in the Middle East.

MILWAUKEE PUBLIC MUSEUM

Gateway diorama of Ramses III's temple.

EVENTS & EXHIBITIONS

Temples, Tells and Tombs. Early civilizations of Egypt, Rome, Mesopotamia, Syria and Greece are brought to life in a major exhibition featuring dramatic re-creations of antiquity. Some 600 ancient artifacts are integrated into natural habitat settings. Visitors can peer through a temple window and experience the exciting work of an archeologist or witness a 19th-century grave robber stealing a mummy from a pharaoh's tomb. The exhibition includes a temple gateway diorama of the Temple of Ramses III from Medinet Habu, Egypt, and a partial reconstruction of a Bronze Age house and tomb from Tell Hadidi, Syria. Also featured are video displays, photo murals, and an Islamic-motif "Cinema of the Sands" theater that contrasts Hollywood illusions with historical interpretation. **Milwaukee [Wisconsin]** Public Museum, at least through September 30, 1993.

Islamic Art and Patronage: *Selections from Kuwait.* More than 100 works of Islamic art from one of the world's foremost private collections. Virginia Museum of Fine Arts, **Richmond,** through January 19, 1992; **St. Louis [Missouri]** Museum of Art, February 15 through April 12, 1992.

The Here and the Hereafter: *Images of Paradise in Islamic Art.* More than 50 artworks portray the Islamic vision of the afterlife. Also featured are gold-leaf inscriptions by calligrapher Mohamed Zakariya. University Art Museum, **Berkeley, California**, January 22 through March 29, 1992; Museum of Fine Arts, **Springfield, Massachusetts**, April 24 through June 28, 1992.

Imagining the New World. Through paintings, drawings, maps and prints, taken largely from European collections, we see how the Old World visualized the New. The exhibition is part of the Columbus Quincentennial celebration. New York Historical Society, **New York**, through January 26, 1992.

Myths, Monsters, Maharajas: *Introducing the Binney Collection.* One hundred paintings have been selected from the most comprehensive assemblage of South Asian paintings in the Western Hemisphere. **San Diego** Museum of Art, through January 26, 1992.

From Snow and Sand: *Woolen Blossoms of Kurdistan.* Rare Kurdish textiles from Iran, Iraq, Turkey and the Caucasus are presented in the US Northwest for the first time. Pacific Arts Center, **Seattle, Washington,** through January 31, 1992.

In the Language of Stitches: *Folk Embroideries of India and Pakistan.* The embroidery of communities in India and Pakistan in the 19th and 20th centuries serves as "written" records of largely non-literate peoples. The Textile Museum, **Washington, D.C.**, February 1 through July 27, 1992.

The Afghan Folio. Luke Powell's masterful photographs of Afghanistan displayed as dye-transfer prints. **Moose Jaw [Saskatchewan, Canada]** Art Museum and National Exhibition Center, through February 2, 1992; Paul Mellon Art Center, Choate Rosemary Hall, **Wallingford, Connecticut**, April 20 through May 25, 1992.

Vanished Kingdoms of the Nile: *The Rediscovery of Ancient Nubia* is an overview of the flourishing Nubian culture of Sudan and southern Egypt. Oriental Institute Museum, **Chicago**, February 3 through December 31, 1992.

Out of the East: *Palestinian Embroidery and Adornment* features traditional embroidered dresses and jewelry created and worn by the people of Palestine. The display includes costumes from the Committee for the Preservation of Palestinian Heritage and a major part of the Farah and Hanan Munayyer Collection. Mingei International Museum of World Folk Art, **La Jolla, California,** through February 4, 1992.

Beyond the Pyramids: *Geometry and Design in the Carpets of Egypt, 1450-1750.* Rarely seen classical Egyptian carpets are featured in an exhibit exploring geometry and design in the Mamluk and Ottoman periods. The Textile Museum, **Washington, D.C.,** through February 16, 1992.

Grave Goods from Ancient Cultures. The exhibition compares burial customs of ancient Egypt, China, Greece, Iran and Mesoamerica. Art Institute of **Chicago**, through February 25, 1992.

The Beginning of Understanding: *Writing in the Ancient World.* Early writing systems, including Mesopotamian cuneiform and Egyptian hieroglyphics, show the origins and spread of writing. Kelsey Museum of Archeology, **Ann Arbor, Michigan**, through February 29, 1992.

Windows on the Maghrib: *Tribal and Urban Weavings of Morocco.* Over 50 examples of Moroccan weaving have been assembled from collections around the US. The University of **Tennessee**'s Frank H. McClung Museum, **Knoxville**, February 29 through April 5, 1992.

Five Masters of Persian and Indian Painting: *Sultan-Muhammad, Mir Sayyid 'Ali, Basawan, Payag and the Kotah Master.* Superb miniatures by major Safavid, Moghul and Rajput artists, spanning three centuries and painted at centers far apart, yet art-historically linked. Harvard University's Arthur M. Sackler Museum, **Cambridge, Massachusetts,** through March 8, 1992.

A Princely Array: *17th-Century Textiles from Moghul India.* This extraordinary gathering of fabrics produced at the height of the Moghul empire includes one of the two earliest known dated Indian textiles. **Cincinnati** Art Museum, through March 8, 1992.

When Kingship Descended From Heaven: *Masterpieces of Mesopotamian Art From the Louvre.* Some of the world's most celebrated artworks, created between 3500 and 2000 BC in Sumer and Akkad, will be presented in this loan exhibition from the Paris museum's Mesopotamian art collections.· Smithsonian Institution's Arthur M. Sackler Gallery, **Washington, D.C.**, from March 8 through August 9, 1992.

Through the Collector's Eye: *Oriental Carpets from New England Private Collections.* Anatolian, Baluch, Caucasian, Persian, Turkoman and Chinese weavings from the 18th to 20th centuries are featured. The Textile Museum, **Washington, D.C.**, March 20 through May 3, 1992.

Fabled Cloths of Minangkabau. An wide-ranging exhibit of textiles, jewelry and accessories from the Minangkabau of Indonesia. **Bellevue [Washington]** Art Museum, March 13 through April 12, 1992; Utah Museum of Fine Arts, **Salt Lake City**, May 10 through June 21, 1992.

Miniatures from the Courts of the Ottomans and Their Contemporaries. This show explores differences in styles and subjects of Ottoman, Safavid and Moghul paintings. Harvard University's Arthur M. Sackler Museum, **Cambridge, Massachusetts,** March 21 through May 17, 1992.

The Art of Painting a Story: *Narrative Images from Iran.* The Persian tradition of embellishing stories with paintings began in the late 13th century and involved many kinds of literature. Smithsonian Institution's Arthur M. Sackler Gallery, **Washington, D.C.**, through May 10, 1992.

Cristoforo Colombo: *Ships and the Sea.* In Columbus's hometown, a Quincentennial exposition focuses on the development of navigation from the 15th century to the present day. **Genoa, Italy**, May 15 through August 15, 1992.

Discovering America. This Columbus Quincentennial exhibit highlights many "discoverers" of America, from the Paleo Indians who crossed the Bering Strait to the ancient Phoenicians to the British. Jamestown Settlement, near **Williamsburg, Virginia**, June 1992 through March 1993.

Current Archeology in the Ancient World. A series of lectures on current research and discoveries. Upcoming topics include Chinese ceramics in the Islamic world, New Kingdom tombs at Saqqarah (Egypt) and archeological developments in Sind on the Indus River. Musée du Louvre, **Paris**, through June 26, 1992.

A World of Foreign Lands. Old maps, charts, letters and books show Europe's expanding view of the world in medieval and early modern times. The exhibit honors the Columbus Quincentennial. The Walters Art Gallery, **Baltimore, Maryland,** July 7 through October 4, 1992.

Gulf Arab States: *Beyond Camels, Oil and the Sand Dunes.* This year-long traveling exhibit on life in the Gulf Arab states features items from the Nance Museum, embassies, and other collections. Scholars speak on various Gulf topics. The exhibit, at a different California library each month, is sponsored by the Placentia Library and funded by the state's Council for the Humanities, with support from Chevron USA and the Saudi and Kuwaiti embassies. The schedule: January, **Santa Maria** Public Library; February, **Fresno** County Free Library; March, **Oakland** Public Library; April, **Monterey** County Library; May, **Oxnard** Public Library; June, **Coronado** Public Library; July, **Kern** County Library; and August, **Santa Clara** City Library.

Sifting the Sands of Time: *The Oriental Institute and the Ancient Near East* traces the history of the University of Chicago's Oriental Institute. Oriental Institute Museum, **Chicago**, through December 31, 1992.

Seeds of Change. A major event of the Quincentennial, this prodigious exhibition tells the history of five "seeds" – sugar, corn, the potato, disease and the horse – that indelibly changed the New World and the Old. The Smithsonian's National Museum of Natural History, **Washington, D.C.**, through April 1, 1993. Six other US museums and parks offer collaborative shows: American Quarter Horse Heritage Center & Museum, **Amarillo, Texas**; The Brevard Museum, **Cocoa, Florida**; Fernbank Museum of Natural History, **Atlanta**; Museum of Natural History, **Santa Barbara, California**; Witte Museum, **San Antonio, Texas**, and Faust County Park, **Chesterfield, Missouri**.

Turkish Traditional Art Today. This display of Turkish folk art emphasizes the religious and social environments that nurture the art. Museum of International Folk Art, **Santa Fe, New Mexico,** through June 30, 1993.

The Aramco Exhibit. Centered on the Arab-Islamic technical heritage, this permanent interactive, "learn-by-doing" scientific exhibit relates the historical background to today's petroleum exploration, production and transportation. **Dhahran, Saudi Arabia.**

Information is correct at press time, but please reconfirm dates and times before traveling. Readers are welcome to submit information for possible inclusion in this listing.

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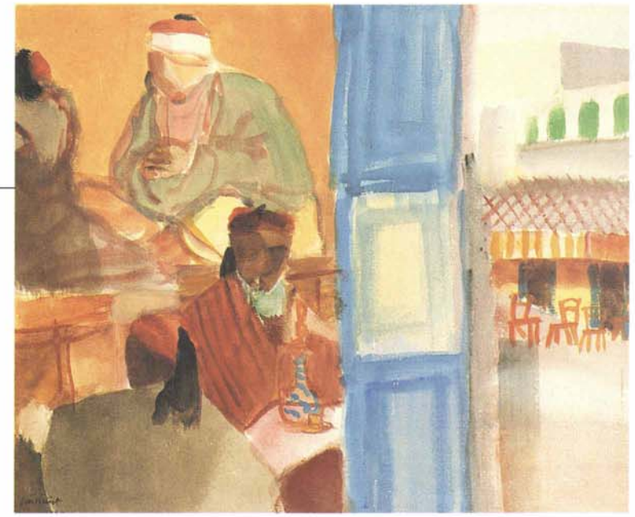

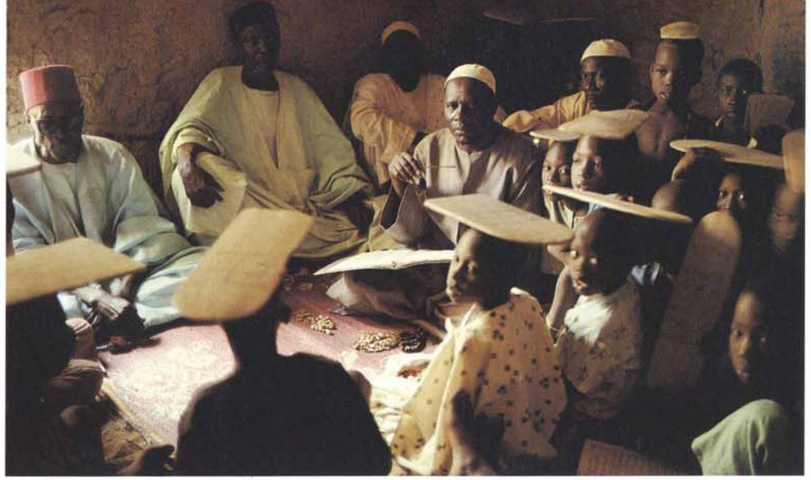

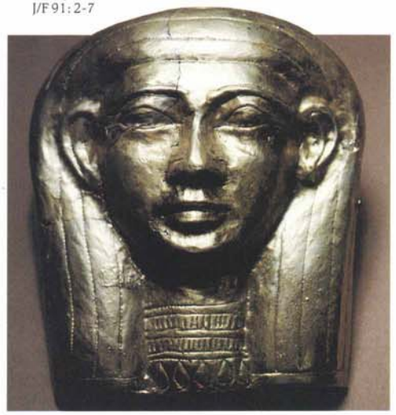

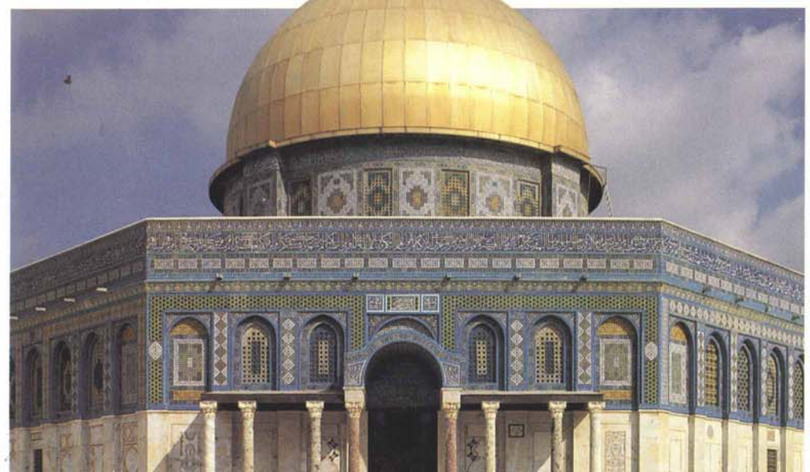

Authors

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