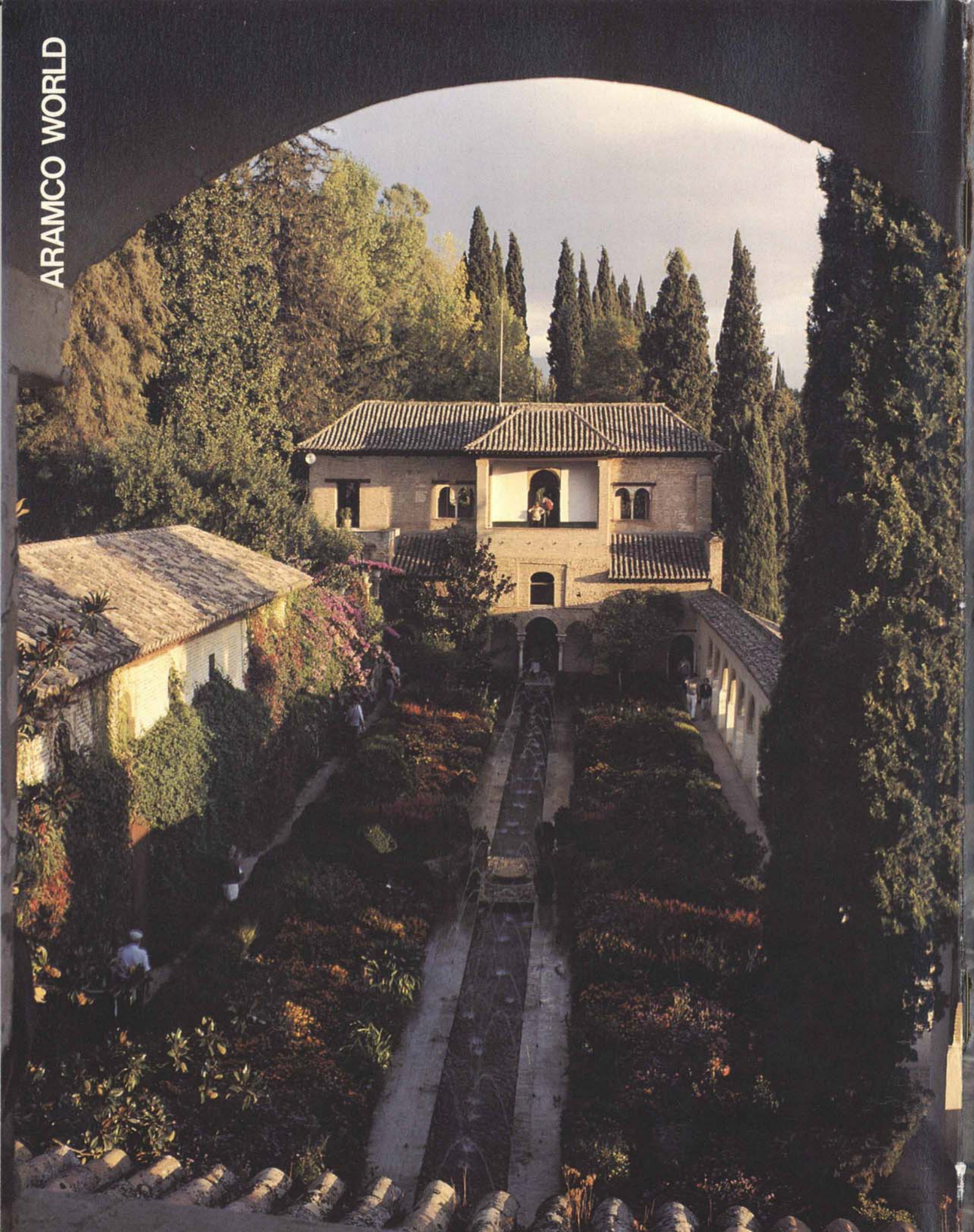
ARAMCO WORLD



ARAMCO WORLD

SEPTEMBER-OCTOBER 1990

MEETING PLACE *of the* SPIRITS

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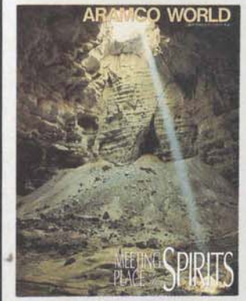


Cover: A sunbeam penetrates the vast gloom of Majlis al-Jinn, a domed cave chamber in Oman so huge that a dozen Boeing 747's could be parked wingtip to wingtip on its floor. The light enters through First Drop, one of three entrances to the cave, each of which involves a free-rope descent of more than 100 meters. Photo by Don Davison, Jr. Back cover: Patio de las Acequias in Generalife Park, Grenada.

◀ Natural Arabian Gulf pearls, uniquely lustrous and rare, once ruled the lives of thousands, and have their loyal servants still. Photo by Victor Lambourne.

ARAMCO WORLD

VOL.41 NO.5 PUBLISHED BI-MONTHLY SEPTEMBER-OCTOBER 1990


EIGELAND


LAWTON


DAVISON


KHOURY


KHOURI


CLARK

WHEN YOU ENTER

A LOVELY PATIO

FULL OF FLOWERS

AND PLANTS,

WITH A FOUNTAIN

IN THE MIDDLE,

YOU FORGET

ALL ABOUT THE

POLLUTED

TROUBLED WORLD

WRITTEN AND PHOTOGRAPHED BY TOR EIGELAND

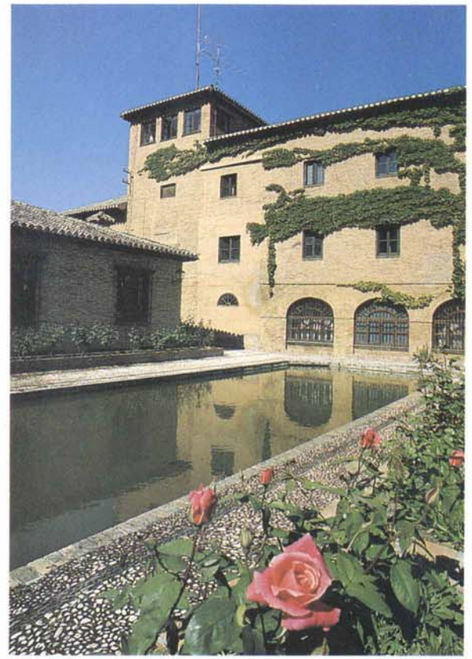
ESCAPE FROM A TROUBLED WORLD

"If you have a patio, you possess your own piece of sky," said María Luisa Llorente as I admired her manicured, flower-filled patio in the center of Seville.

Said a friend in Granada, "The patio is the heart of the house; it is where friends come to talk. And it is also the lungs. The plants and the running water clean the air."

"The antechamber of heaven" is what some Andalusians call their patios, with a characteristic sense for poetic phrasing – and poetic license – no doubt inherited from the great poets of their Muslim past.

Reflecting on visits to a hundred or more patios across Andalusia, I was suddenly struck by a fact that says volumes about the spiritual influence of these outdoor living rooms: I did not see a single television set in a single patio, even in this land of television addicts.



The Andalusian patio is automatically associated in people's minds with the traditional Arab house. This is correct as far as it goes, since the ultimate refinement of the patio was indeed achieved by the Muslims in Andalusia during their six centuries of rule; the Patio of the Lions and the Patio of the Myrtles at the Alhambra in Granada are the high points of this development, and the most famous patios of all. The Corral del Carbón – an ancient *funduk*, or Arab inn, now turned into a center for artisans – is almost as well known. The Albaicin quarter of Granada also has a number of beautiful patios. At the villa Carmen de los Martires, only about a hundred meters from the Alhambra, there is a jewel of a restored Arab-style patio and a fine old Persian/French garden – very peaceful in contrast to the Alhambra itself, which has about two million visitors a year. The Parador San Francisco, a hotel, also has a lovely Andalusian patio and an Arab garden.

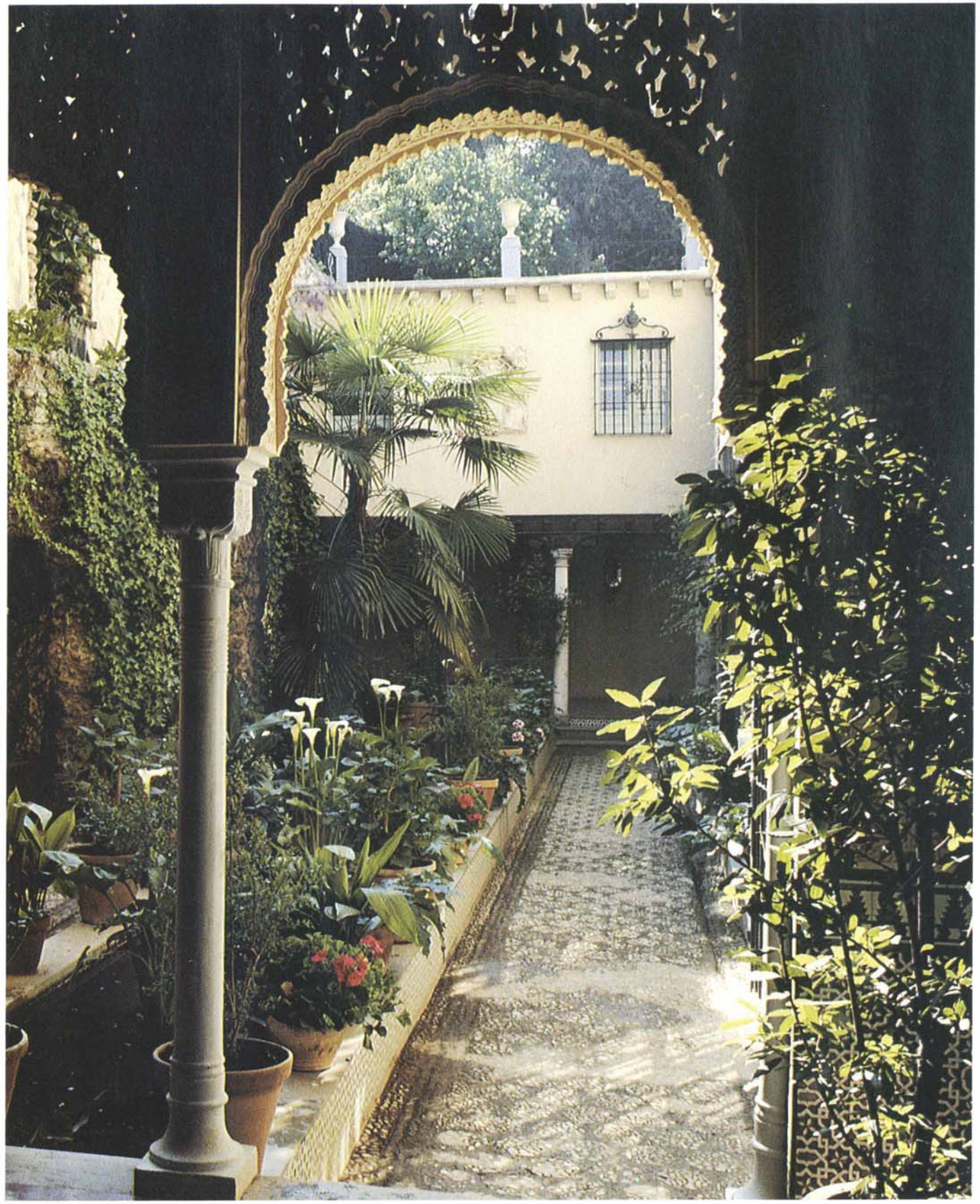
The predecessors of these patios date back thousands of years, to ancient Babylonian, Egyptian, Greek and Roman cultures. It was simply a natural way of constructing a home: Dwellings surrounded and protected a central open space where a family lived its life and where the outdoors, its rigors tempered, could be enjoyed in complete privacy.

The Muslim Andalusians, though highly urbane, remembered the blazing deserts of North Africa and the Middle East, which was the heritage of some of them. Consequently they had a great love of beauty, nature, and growing things, and a positive passion for running water – qualities evident in their art, architecture, and, above all, in their patios.

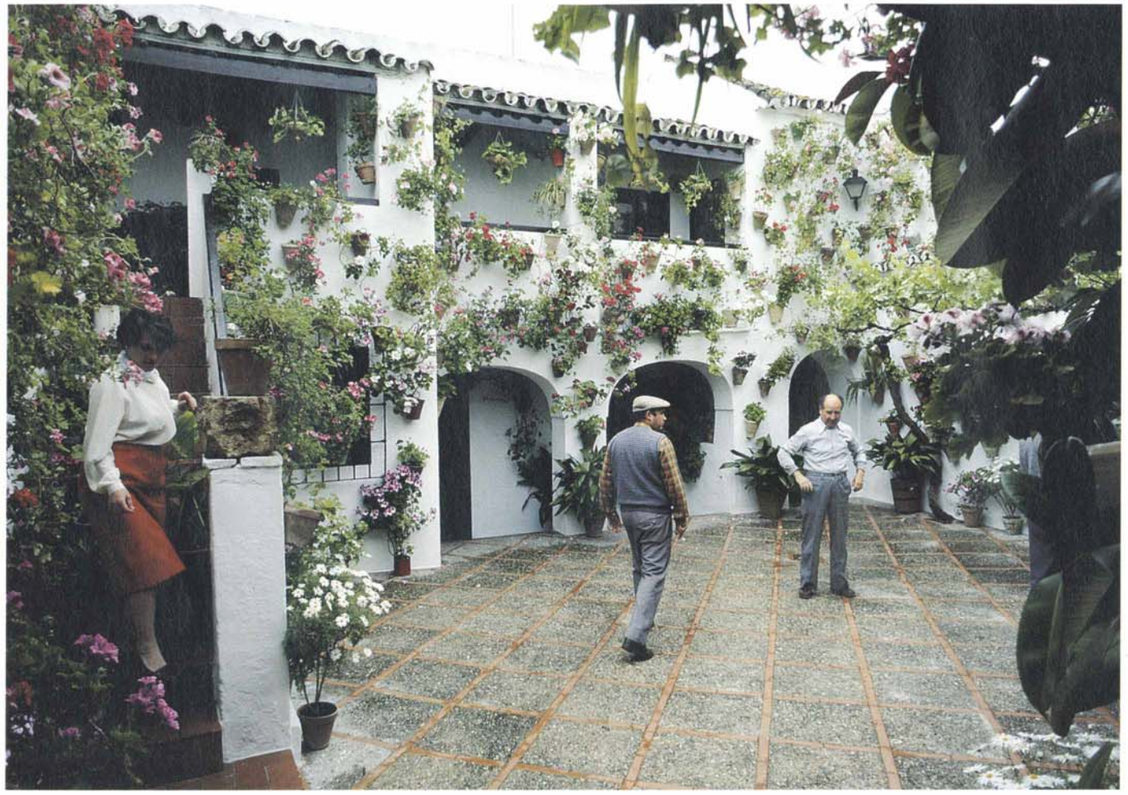
Traditional Muslim Andalusian patios were secretive, enclosed – even had a jealous quality. It was nearly impossible, from outside a house, to find out what was going on inside: The eye met blank walls. If there were any windows at all, they were high up, so that people could see out but not in. A front gate would open onto a passage that turned at right angles and only then gave onto the patio, protecting the family, especially the women, from curious eyes. ►►

Previous page: Inner patio, Parador San Francisco
Left: Patio de las Acequias
Above: Garden patio, Parador San Francisco

Left: Inner patio, Carmen de los Cipréses
Above: Garden patio, Carmen de Nuestra Señora de las Angustias



Left: Garden patio, Carmen de los Martires
Above: Inner patio, Carmen de los Martires



Many older Spanish homes are still this way, and the layout of more modern homes, when they are built with patios, is basically unchanged – rooms open onto a central patio which is often surrounded by an arcade. What differs is the entrance from the street. Instead of a blind passage, only a decorative wrought-iron gate prevents someone from walking in, and seems positively to invite spectators.

Taking advantage of this new openness, people line up in front of particularly attractive patio gates in the old Santa Cruz section of Seville, for a glimpse inside. That quarter, in the center of the city, is full of patios, and two notable ones, one now a restaurant, are on the very short Callejón del Agua (Water Lane). The main patio of the Alcázar, Seville's 14th-century royal residence, is also impressive.

Cordoba is the best place to see a great number of superb patios very easily, especially in May, when they have fiestas and patio flower-decoration contests. The Palacio de Viana has no less that 14 different patios, and the Patio de los Naranjos of the Great Mosque is magnificent.

Simple and natural as the idea of the patio is, the actual constructions vary greatly according to the taste and pocketbook of the owner, and the use to which they are put.

Palatial homes may have enormous marbled patios with tall, splashing fountains, statues, ornamental plants and flowers. A country home might have orange and lemon trees as well as a vegetable garden in its patio, in addition to the usual geraniums, roses, jasmin and vines. Everywhere, the murmuring or splashing of the water and the scents of flowers and trees are as important as the visual beauty.

In poorer quarters of the cities of Andalusia there are the *corralas* – joined two- or three-story houses or apartment buildings looking onto a large rectangular or square patio, the center of life for several families, rather than just one. Chairs and tables are put out in front of each home. At the very least, a few pots of geraniums hang from the walls.

On Santiago Street in Granada there are two colorful, decayed, 16th-century apartment buildings, four and five stories tall, with interior galleries on each floor that look down into a rectangular patio. Partly built of wood, the buildings have miraculously survived years of smoking in bed and past attempts at modernization. But one elderly resident told me that the government was now going to restore them-something the tenants regretted, she said, since they would have to move out.

"Now, when people really need them," laments María Luisa Llorente, "the patios are disappearing." 🌐

Tor Eigeland, a Norwegian free-lance photographer now based in London, lived in Spain for more than 20 years.

Above: Círculo Flamenco Cordobés

EVENTS & EXHIBITIONS

THE TEXTILE MUSEUM

A Minangkabau cloth of gold headdress

Trailing the Tiger – To Golden Cloths of Sumatra's Minangkabau. This is the first exhibition in the United States devoted to the "fabled cloth of gold" woven in the highlands of West Sumatra by the Minangkabau, who embraced Islam in the 15th century. Drawn primarily from the museum's own collection, it includes 49 ceremonial textiles of the 19th and early 20th centuries, jewelry and photographs. The exhibition also explains weaving techniques, materials and design motifs used to create these elegantly patterned textiles. The Textile Museum, **Washington, D.C.**, through June 9, 1991.

In Our Time: *The World as Seen by Magnum Photographers.* From the Middle East and elsewhere and arranged by themes, 300 images by 60 first-rate photojournalists. **Fort Worth [Texas]** Museum of Science and History, September 16, 1990 through January 6, 1991; Friends of Photography, **San Francisco**, January 15 through April 7, 1991.

Paintings in Oil: *Suha Katibah Noursi.* Recent paintings by the Jordanian artist. Alif Gallery, **Washington, D.C.**, September 16 through October 18, 1990.

Court Arts of Indonesia. Some 160 works of art dating from the eighth to the 20th century reflect the 1000-year traditions of the royal courts of Indonesia. Sculpture, court regalia, manuscripts, shadow puppets, and dance masks are included. Asia Society Galleries, **New York**, September 19 through December 16, 1990; **Dallas** Museum of Art, February 10 through April 7, 1991.

Matisse in Morocco: *The Paintings and Drawings, 1912-1913* illuminates the effects of Moroccan space and light on an artist trying to balance intellect and emotion. The Pushkin Museum of Fine Arts, **Moscow**, September 28 through November 20, 1990; The Hermitage Museum, **Leningrad**, December 15, 1990 through February 15, 1991.

Seeing Double. The San Francisco Mime Troupe's much-acclaimed and outspoken comedy about cultural differences and similarities. Various venues, Midwest and East Coast university towns, September 29 through November 29, 1990. Information from (415) 285-1717.

The Artistry of Arabic Script in the Work of Ahmed Moustafa. Arabic script as a creative and versatile medium for expressing various universal and sacred subjects. Royal College of Art, **London**, through October 6, 1990.

Memories of Egypt is a salute to Jean-François. Champollion, founder of scientific Egyptology. Manuscripts and artifacts are displayed in a temple and burial labyrinth. Eglise Saint-Paul, **Strasbourg**, through October 8, 1990.

Tigers Round the Throne: *The Court of Tipu Sultan* is centered on the tiger motifs that identify the personal possessions of the 18th-century ruler of Mysore, and includes textiles, jewels, arms and the famous automaton. Zamana Gallery, **London**, through October 14, 1990.

Bronzes. Containers and sculptures dating from the third millennium BC to the third century of this era, including a Sumerian scepter shaped liked a horned god. Merrin Gallery, **New York**, October 18 through November 10, 1990.

The Raj. An account of the British in India between 1600 and 1947 through British and Indian eyes: paintings, engravings, textiles, furnishings and documents. The National Portrait Gallery, **London**, October 19, 1990 through March 17, 1991.

Elements of Design: *The influence of Oriental Rugs on Navajo Weaving* explores how turn-of-the-century reservation traders encouraged Navajo weavers to assimilate oriental rug designs. Cowboy Hall of Fame, **Oklahoma City, Oklahoma**, through October 21, 1990; Lowie Museum of Anthropology, **Berkeley, California**, November 9 through December 30, 1990.

Gold of Africa: *Jewelry and Ornaments from Ghana, Côte d'Ivoire, Mali, and Senegal.* More than 150 spectacular objects are evidence of highly developed skills and tastes in the West Africa of the 19th and 20th centuries. **Birmingham [Alabama]** Museum of Art, October 21, 1990 through January 2, 1991; **Tampa [Florida]** Museum of Art, January 9 through March 16, 1991.

Beyond the Pyramids: *Egyptian Regional Art from the Museo Egizio, Turin.* A selection of objects from one of the world's largest museums of Egyptian art outside Cairo. Emory University Museum of Art and Archaeology, **Atlanta**, October 24, 1990 through March 10, 1991.

Art of Indonesia features batik from Java, ikat from Sumbawa and Borneo, fabrics with gold and silver threads from Sumatra and gold jewelry from Nias. The **Cincinnati** Art Museum, October 26 through December 26, 1990.

Four Contemporary Calligraphers. English, Chinese, Arabic and Hebrew manuscripts. Renwick Gallery, **Washington, D.C.**, through October 28, 1990.

Bedouin Arab and American Indian Artifacts. The collection highlights similarities in the artifacts of two distant cultures. Nance Museum, **Kingsville**, Missouri, through October 1990.

First Encounters: *Spanish Exploration in the Caribbean and the United States, 1492-1570.* Her *hidalgo* warrior class was one of the forces behind Spain's efforts to settle and explore the New World. Important elements of culture and technology used were of Arab origin. Witte Museum, **San Antonio, Texas**, through November 4, 1990; The **Albuquerque [New Mexico]** Museum, November 1990 through February 1991; The South Street Seaport Museum, **New York**, March through June, 1991.

The Sculpture of Indonesia opens the Festival of Indonesia in the United States with 135 treasures from the classical 8th to 15th centuries of the world's most populous Muslim country. National Gallery of Art, **Washington, D.C.**, through November 4, 1990; Museum of Fine Arts, **Houston**, December 9, 1990 through March 17, 1991.

The Book in the Islamic World. An international conference focusing on the history, art, production, and impact of the book in the Islamic world. The Library of Congress, **Washington, D.C.**, November 8-9, 1990.

Contemporary Art from Uzbekistan reveals a dynamic and productive art community. Zamana Gallery, **London**, November 9, 1990 through January 13, 1991.

The Nehru Gallery of Indian Art. The new £2-million gallery houses a spectacular display of Indian arts of the 16th to 19th centuries. It incorporates a 17th-century Ajmer colonnade and a covered treasury of Moghul jewels, surrounded by Jali screens. An educational program based on the collection will aim at encouraging the study and appreciation of the Indian heritage. Victoria and Albert Museum, **London**, opening November 23, 1990.

Romance of the Taj Mahal. Shah Jahan's eye for beauty and his collector's instincts are demonstrated by 200 objects from European and American collections. Virginia Museum of Fine Arts, **Richmond**, through November 25, 1990; The Asia Society, **New York**, January 10 through March 17, 1991.

Traditional Crafts of Saudia Arabia. The John Topham collection of weavings, jewelry, a Bedouin tent, and metal, wooden and leather handicraft objects. University of New Mexico's Maxwell Museum of Anthropology, **Albuquerque**, through November 26, 1990; Texas Memorial Museum, **Austin**, January 25 through May 12, 1991.

Siyah Kalam: *Contemporary Indian Miniatures* by artists from the Indian state of Rajasthan, heirs to an art brought from Persia by the Moghul rulers in the 15th century. Pigments are ground from precious stones and applied to handmade paper with squirrel or calf's-hair brushes. Commonwealth Institute, **London**, December 7, 1990 through January 27, 1991.

Islamic Art and Patronage: *Selections from Kuwait.* More than 100 masterworks of Islamic art of the 8th to 18th centuries – ceramics, glass, metalwork, stonework, wood, illuminated manuscripts, textiles, and rugs – drawn from one of the world's foremost private collections. Walters Art Gallery, **Baltimore, Maryland**, December 9, 1990 through February 17, 1991; Kimbell Art Museum, **Fort Worth, Texas**, March 16 through May 11, 1991.

Chess and Art. Nearly 100 exotic and historic chess sets and artifacts, including sets from India and Egypt and a black stone elephant from 6th- or 7th-century Iraq, believed to be the oldest known chess piece. The Metropolitan Museum of Art, **New York**, through January 6, 1991.

Glass Gatherers. Fifty objects trace five techniques of glass decoration from pre-Islamic through Islamic cultures to Renaissance Europe and the new world. Metropolitan Museum of Art, **New York**, through January 6, 1991.

Visions of Infinity: *Design and Pattern in Oriental Carpets.* Classical carpets of the 15th through 19th centuries from the museum's collections, presented in the context of Islamic art. The Textile Museum, **Washington, D.C.**, through February 24, 1991.

Carthage: *A Mosaic of Ancient Tunisia.* Pictorial mosaics, Punic jewelry, Roman bronzes and 300 other pieces from 800 BC to the coming of Islam show ancient Tunisia as a center of culture and art. Musée de la civilisation, **Quebec City, Quebec**, through March 5, 1991.

Current Archeology in the Ancient World. A series of 10 lectures on current research and discoveries. Musée du Louvre, **Paris**, through July 10, 1991.

Palestinian Costume. Richly ornamented traditional costumes, headdresses and jewelry of Palestinian villagers and Bedouins are revealed as expressions of social status and regional identity. Photographs provide context. Museum of Mankind, **London**, until November, 1991.

Pre-Islamic Arabia. A preview of pre-Islamic antiquities – inscriptions, sculpture, pottery and architectural elements from the Arabian Peninsula – which will be exhibited later at the Louvre. The Arab World Institute, **Paris**, until 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 travelling. Readers are welcome to submit information for possible inclusion in this listing.

The Lighthouse of Alexandria, center, inspiration for the Egyptian-style keepers' cottages at Noss Head, bottom, and Eilean Glas, top, in Scotland.

WRITTEN BY JOHN LAWTON
ILLUSTRATED BY MICHAEL GRIMSDALE
PHOTOGRAPHED BY KEITH HOBBS

SCOTLAND'S EGYPTIAN LIGHTS

"For sale," said the real-estate agent's notice, "two handsome Egyptian-style lighthouse-keepers' cottages" at Noss Head.

Agent's exaggeration or designer's folly? It must be one or the other, I thought as I set off for Scotland to investigate. But I had reckoned without the seventh wonder of the ancient world.

Noss Head is just south of John o'Groat's, the most northerly point of the Scottish mainland. This was the region early geographers called *Ultima Thule* – the northernmost place in the inhabited world. Even today it has that hollow, "world's-end" feeling.

It was six o'clock on a Saturday night, but hardly a soul stirred as I drove through the grey-granite town of Wick, across its deserted, one-plane-a-day airport runway, and on to a featureless, heather-covered headland at the southern end of Sinclair's Bay.

Dusk was gathering and a cold wind whistled eerily through the ghostly ruins of Castle Sinclair. But for once a real estate agent had not exaggerated. There, beside the lighthouse on the very edge of the cliff, stood a low, oblong building that did indeed look as if it had been transplanted from the banks of the Nile: Its facade was the series of four pylon-shaped structures typical of ancient Egyptian architecture.

And, incongruous as it looked on this wild Scottish headland, it was no mere designer's folly, but, as I learned later, a direct result of the broad influence of the Lighthouse of Alexandria on the men who have built and kept lighthouses throughout the ages.

Furthermore, besides Noss Head, three other 19th-century Scottish lighthouses have classical Egyptian features: the beacon at Cromarty, on the Black Isle; and the keepers' cottages at Eilean Glas, on the island of Scalpay in the Outer Hebrides, and at Ardnamuchan, the most westerly point on the Scottish mainland.

Not only lighthouse architecture was influenced by the Lighthouse of Alexandria, the last of the seven wonders of the ancient world.

The study of lighthouses, for example, is called "pharology" in English, after the small island of Pharos, off Alexandria, on which the ancient lighthouse was built and from which it took its name.

Similarly, the word for lighthouse in French is *phare* and in Italian *faro*, while six ships called *Pharos* have served as lightships, tenders and, now, as flagship in the gallant little fleet which has supplied Scotland's island lighthouses for the past 200 years.

The first *Pharos* was a captured Prussian fishing vessel adapted as a floating lightship off notorious Bell Rock, after 70 ships were lost in a storm which lashed Scotland's east coast in 1799.

The lightship was replaced at the beginning of the 19th century by a lighthouse built by workmen who scrambled onto Bell Rock each time it appeared at low tide. And it was during a visit to the lighthouse in 1812 that the novelist and poet Sir Walter Scott wrote in the visitors' book his *'Pharos' Loquitur*:

Far in the bosom of the deep
O'er these wild shelves my watch I keep;
A ruddy gem of changeful light,
Bound on the dusky brow of Night,
The seaman bids my lustre hail,
And scorns to strike his timorous sail.

A monument to the ingenuity and perseverance of the men who built it, Bell Rock lighthouse was a milestone in the history of lighthouse construction, just as was its predecessor of 2200 years on Egypt's Pharos Island.

Built in 279 BC by Sostratus of Chidus for Ptolemy II, the Lighthouse of Alexandria was one of the greatest esthetic and technical achievements of the ancient world.

It was over 120 meters (400 feet) high and built in three stories, each of a different geometrical form. The bottom story, which stood in a courtyard surrounded by colonnades, was square in plan, the second story octagonal, with a spiral ramp to the third story, which was cylindrical.

The Pharos was surmounted by a huge lantern – although no one knows exactly what the technology of the lighting arrangements was – and atop the lantern stood a statue of Poseidon, god of the sea. The bottom story contained 300 rooms, which housed the workmen and technicians who attended and maintained the light.

The great lighthouse was also said to contain a mirror that reflected ships at sea that were still invisible to the naked eye.

Legend went much further. In *The Romance of Alexander the Great*, probably written in the second century, the last pharaoh, Nectanabos, uses the mirror both to see the arrival of an enemy fleet and, by focusing the sun's rays, to destroy it.

Unlike some of the ancient wonders, parts of the Lighthouse of Alexandria survived into modern times. It disappeared in stages. Muslim historians say the mirror and third story were destroyed by the Umayyad caliph al-Walid – who was tricked into doing so by a Byzantine spy, so that the Pharos could not be used against the Byzantine fleet – but the rest survived much longer.

The Muslim rulers of Egypt attempted on several occasions to restore the Pharos, but about the year 1100 the second story fell to the ground. It was, nevertheless, still an imposing structure. Some 90 years later, for example, the Andalusian traveler Ibn Jubair saw it and wrote:

> *It can be seen for [110 kilometers, or 70 miles] around and is most strongly built in all directions. We measured one of the four sides and found it more than 50 arm's lengths. It is said that in height it is more than 150 heights of a man. Its interior is awe-inspiring.*

In the next century and a half, however, it began to crumble. The Arab traveler Ibn Battuta visited the Pharos in 1349 and found it so ruinous he was unable to enter.

Finally, in 1480, the Mamluk ruler Qa'it Bay constructed a fort on the site of the Pharos, and used bits of it in the walls. The seventh wonder of the world was no more.

The first Scottish lighthouse was not built until the late 18th century – despite the dangers to seafarers of the North Sea. Scotland's coast is mostly abrupt cliffs buffeted by fierce ocean storms, with the shore a jumble of rocks often hidden at high tide. Scattered in the sea around are almost 800 islands, many merely vicious little points marking the summits of submerged reefs.

The Scots – a hardy mix of Celt and Viking – had a special relationship with the sea; it was their only route to the world beyond. As early as the 13th century, Scottish merchants were trading wool and hides with the Channel ports of the Netherlands, Belgium and France, and by the 15th century had a lively commerce with Lübeck and Danzig on the Baltic, mainly in salted fish.

But to guide them home, the only help these early mariners could hope for was the flickering light of an occasional beacon. Tenth-century monks, for example, are said to have kept one burning on the Isle of May to guide sea pilgrims to the shrines of St. Andrew. Starting in the 12th century the processing of coastal salt in great iron pans over coal fires, which burned day and night along the Forth estuary and the Angus coast, provided some guidance.

There were, however, few purpose-built aids to navigation: Even by the late 18th century there were only three primitive coal-fired shipping beacons on the entire Scottish coast.

But suddenly things changed. By the 1830's there were as many as 90 lighthouses, all built by one remarkable family of engineers: the Stevensons of Edinburgh. Over five generations, these men at last made Scotland's waters safe.

Almost all Stevensons – even Robert Louis Stevenson, the writer – trained for civil engineering from boyhood, and eight Stevensons became designers, engineers and supervisors for the Northern Lighthouse Board.

Sometimes their work took them further afield. At various times they were also employed by the lighthouse services of New Zealand, Newfoundland, India and Australia. They also designed the first lighthouses and keepers' dwellings for Japan, and the first fog signals in China.

In fact, so many inventions in the advancement of lighthouses were produced by the Stevensons, says the family biographer, Craig Mair, that "there is hardly a light anywhere in the world which does not incorporate some aspect of their work, and there cannot be a sailor anywhere who does not owe a debt of gratitude to these eight indomitable men."

Of all the Stevensons, says Mair, it was Alan, Robert Louis Stevenson's uncle, who was the most unusual engineer. His lighthouse work, most of it completed during the 1830's and 1840's, won him medals from the kings of Holland and Prussia and a splendid diamond ring from Czar Nicholas of Russia. He also had an extraordinary interest in literature – he knew Homer by heart and read Aristophanes in Greek – and for a scientific man had an unusual regard for esthetics too. Of his clan, says Mair, Alan had by far the most sensitive approach to architecture, and traces of his literary and classical tastes can be seen in the shapes of his lighthouses.

It was Alan Stevenson who designed the Egyptian-style lighthouse-keepers' dwellings that now dot Scotland's edge, and which, with the automation of the beacons themselves, are being sold as what the advertisements call "des. res." – desirable residences. "It's like selling off the family silver," laments Alan Perkins, administrative officer of the Northern Lighthouse Board.

Certainly Robert Stevenson, the first of the lighthouse builders, would not have approved. In his diaries, he made frequent references to the undesirability of private ownership and management of lighthouse properties.

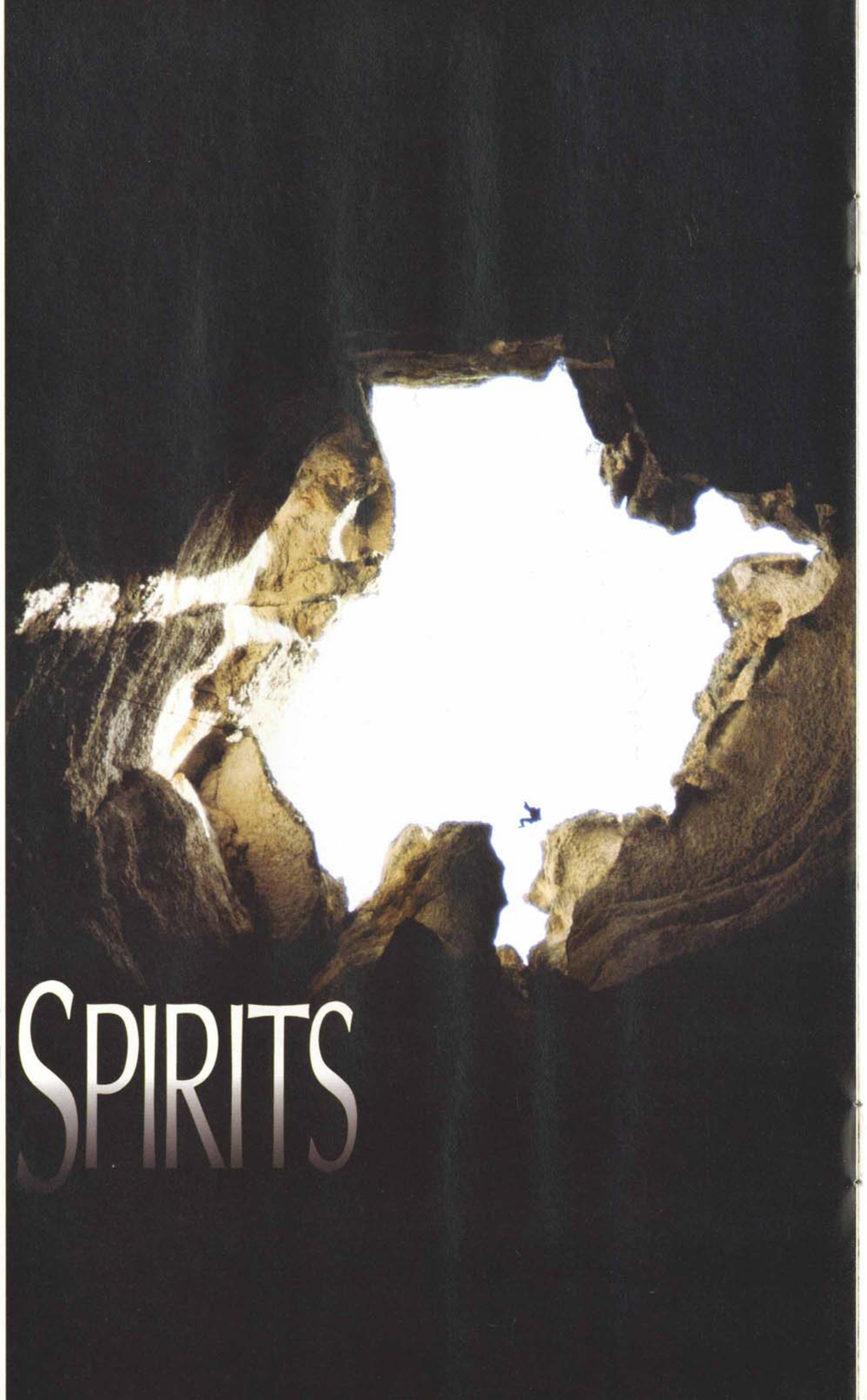
And he may yet have the last word. Since they were sold by secret tender to the highest bidder, the Egyptian-style keepers' cottages at Noss Head have remained empty and are becoming dilapidated – just as did the seventh wonder of the ancient world which inspired their design.

Aramco World *contributing editor John Lawton considered buying one of the Scottish-Egyptian des. res., but decided instead on a cottage home in Devon.*

The lighthouse and Egyptian-style keepers' cottages at Eilean Glas, on the island of Scalpay, and, inset, the Scottish lighthouse support ship *Pharos*, named after the Egyptian island on which the Lighthouse of Alexandria stood.

Right: Cheryl Jones ascending toward First Drop, one of three vertical entrances to Majlis al-Jinn, Arabia's largest subterranean chamber.

Opposite page: discoverer Don Davison, Jr., descending into the cave through The Asterisk.



MEETING PLACE *of the* SPIRITS

WRITTEN AND PHOTOGRAPHED BY DON DAVISON, JR.

I pushed off from the overhang lip and began rappelling downward into the dark. A short distance down, the shaft opened out, and as I dropped lower, turning slowly in midair on the rope, a stupendous panorama was revealed: This was by far the biggest cavern I had ever seen. Majlis al-Jinn (The Meeting Room of the Spirits), now the largest known subterranean chamber in Arabia and the second-largest in the world, had just been discovered.

The dimensions of Majlis al-Jinn are staggering. Some 340 meters (1115 feet) long and 228 meters (738 feet) wide, with a ceiling height of 120 meters (389 feet), it is roomy enough to hold more than a dozen new Boeing 747's, parked wingtip to wingtip. The largest indoor stadium in the world, the Superdome in New Orleans – 207 meters (679 feet) in diameter and 83 meters (272 feet) high, with a seating capacity of 97,365 – could easily be contained within the cavern's volume, with room for a 1600-car parking lot besides.

I had begun looking for major caves when I arrived in Oman, in September 1980, to work as a hydrogeologist in the Karst Research Program of Oman's Public Authority for Water Resources. The purpose of the program is to define how water is distributed in this type of limestone terrain that is characterized by subterranean drainage and caves. The information is vital to understanding and developing groundwater resources in arid Oman.

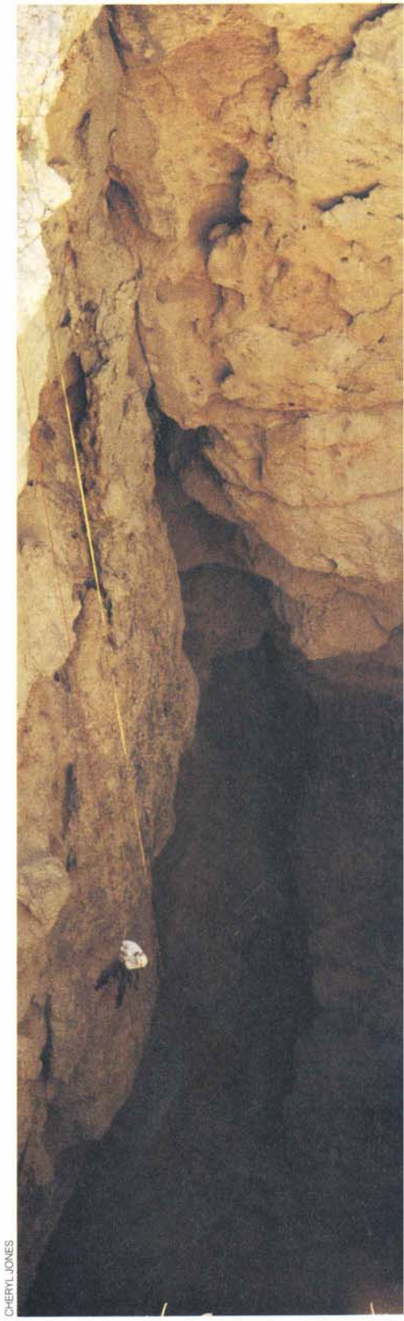
After two years, however, our search had produced few results. Then, in 1982, I found an exciting aerial photograph of the Bani Jabir mountains in the Sharqiyah Region of northeastern Oman. It showed a karstic plateau whose low relief stood out starkly in mountains so broken by escarpments and deep gorges that they were considered to be one of the most inaccessible areas of Oman. My interest in the photo was focused on several large "swallow-holes" – places where past or present streams disappeared into the ground – which disrupted the drainage patterns on the plateau; these looked promising! At the north edge of the plateau, I also noted two tiny black dots – much smaller than the swallow-holes. Each about the size of the period at the end of this sentence, the dots gave no clue, even under magnification, to the scale of the discovery hidden in their featureless depths.

In January 1983, my wife, Cheryl Jones, and I reached the plateau I had seen in the photographs. It lay 1400 meters (4593 feet) high, at the end of a strenuous six-hour hike. But we had run out of time getting there, and we had to turn back before locating any of the karst features on the airphoto. The only habitation we had encountered on our route in from the coast was the small herding camp of Sukun, partway up the mountain; although we had not reached our objectives, we now appreciated the difficulties of an approach to the plateau on foot.

Despite the lure of the karst, I didn't return to the plateau again until June, when Adventure Training Instructor Doug Green arranged for seats on an Omani air force helicopter operating in the area. Doug and I were dropped off in the middle of the plateau and, exploring on foot, located three of the large swallow-holes. Only two more features, the two dots, remained to be located and checked out.

We moved north across the light tan rubbly surface, past scattered thorny *sumra* trees and a small deserted herding camp. We continued on our compass course and climbed the hill above the plateau. Just beyond the crest, the ground fell sharply away before us into a deep vertical pit. And just a hundred meters farther on yawned a second pit with overhanging sides, ready to swallow the unsuspecting or clumsy. We measured each drop using a small weight and a spool of fine copper wire; one was almost 120 meters (389 feet) and the other 140 meters (454 feet) deep. It was a great end to a most successful "ridge-walk" – five cave entrances located in one day: five potential entrances to the deep subsurface drainage systems!

Doug booked me a seat on the next helicopter flight two weeks later and I packed the equipment that would be needed for descending one of the deep



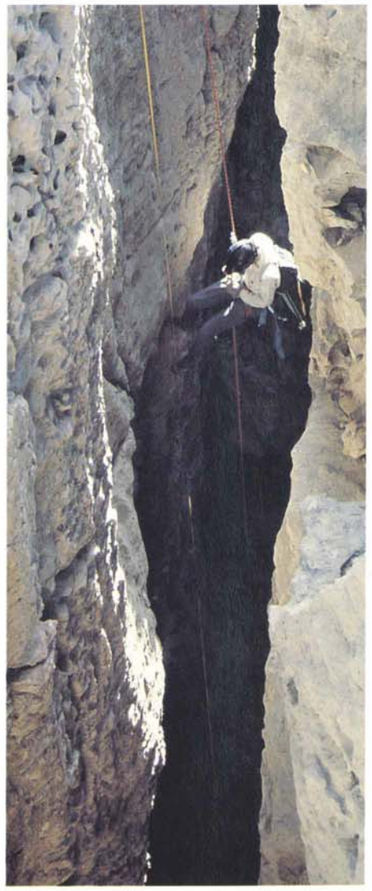
CHERYL JONES

drops – helmet, electric miner's lamp, 180-meter (583-foot) caving rope, rope pads, chocks, slings, carabiners, rappel rack, ascending rig, compass, notebook, water, survival equipment and more.

The morning of June 23 found me again standing on the plateau, with the tan dust-cloud of the helicopter landing dispersing on the wind. The pilot yelled to me above the engine noise to be back on the surface for pickup in four hours, when he returned. Then the roar and whirlwind of the AB205 were gone – and I was totally alone.

After dropping my equipment beside the overhung pit, I carefully climbed around the 18-meter-wide (58-foot) opening looking for the best rigging point. I tied one end of the rope around a large rock and fed the other over the edge. It hummed as it sped from the duffel bag into the pit. I put on my rappelling harness, checked my equipment and rigged into the rope.

As I began rappelling downward toward the black silence of the cavern, the glare and hot wind on the plateau were immediately forgotten. The bright orange rappelling rope, hanging free in space, disappeared toward the dim floor, scattered with huge limestone blocks, that lay over a hundred meters below. Suddenly the rock walls around me seemed to leap back into the distance, to stand barely discernible in the diffuse light from another large hole in the ceiling – the other pit!

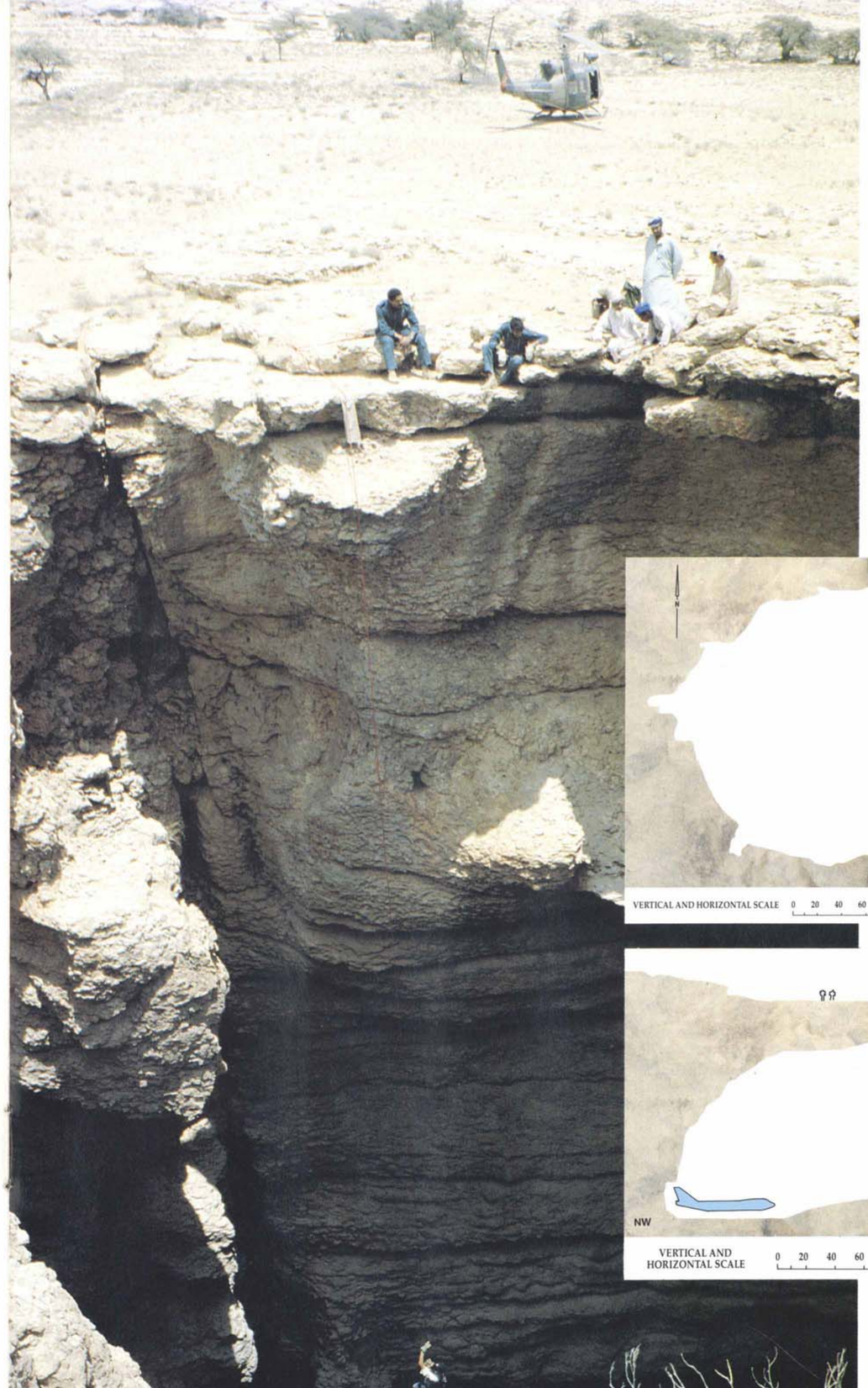


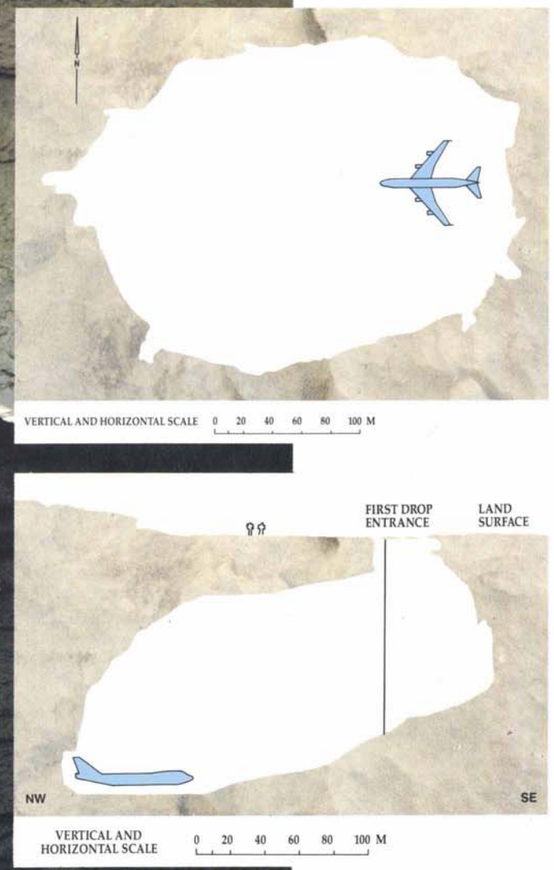
Five awe-filled minutes after leaving the surface, I landed atop the mountain of breakdown debris, formed when part of the chamber roof collapsed, creating First Drop entrance – as it came to be called – through which I had just descended. The skeleton of a large snake was beside me. Nearby, a brightly colored cloth bundle, thrown in from the surface, contrasted with the brown hues which dominated the cave. I unclipped from the rope feeling somewhat disoriented. The immediate terrain was real – its dimensions, from dust to the five-meter-high (16-foot) limestone blocks, were familiar. But farther off, the scale seemed somehow distorted in the deep gloom. The plain in the middle distance, still well below me down the slope, was crossed by stream beds – but how far away *was* the middle distance? My sense of scale could not immediately accommodate such huge distances being under a roof – "indoors," so to speak. I took off my harness and started to work my way down the unstable debris slope.

At the bottom of the blocky rubble, the slope eased, and I stepped over a dry stream channel. Its bed was composed of sand and gravel, mixed with myriad large and small bones from the breakdown cone on which I had landed – mute testimony that many other animals had not made the entrance drop quite as slowly as I. I followed another stream channel onto the silt and clay plain. The surface was broken into hummocky mud-cracked polygons, occasionally punctuated by an embedded rock or cave formation that had fallen from the ceiling high above. The stream bed separated into smaller channels leading to a damp and muddy area against the north wall. This was the lowest part of the cave room, but I could find no exit passage above the mud line. I turned over a piece of decaying wood to discover a family of white, translucent pill bugs. Because they were cave-adapted, they had no visible eyes.

The plain is the drying bed of a shallow lake which only floods during infrequent storms, when runoff pours into the cave entrances. The sediment settles out and the water slowly seeps away through the mud. The lowest part of the lake bed remains damp for many weeks because the cave temperature is cool – a maximum of 17 to 18 degrees Celsius (63-65°F) – and there is little air circulation. On the north wall, the tips of flowstone "draperies" – rippled calcium carbonate deposits – have been slowly buried by the thin layers of deposited mud, which raise the level of the floor in this part of the cave after each storm. If the sediment deposit is thick, its deeper layers may, with plant spores and animal bones, preserve a record of species native to Oman some thousands of years ago, when the climate was wetter and cooler.

I paced the lake bed – 200 meters long and 50 meters wide (650 by 160 feet) – a "yardstick" for estimating the size of the whole cave. But my visual sense of scale was still not calibrated. I stood on the southern edge of the plain, near the center of the chamber, and surveyed the scene. From all directions the limestone walls smoothly transitioned into ceiling and then continued curving higher, finally merging 120 meters (389 feet) overhead to form a single immense unsupported dome – as if a gigantic hemispherical limestone cover had been set down over hills, small valleys and plains. The east and west walls stood over 300 meters (972 feet) apart while the north and south walls were separated by 250 meters (810 feet).





Opposite page: Cheryl Jones on first descent of Cheryl's Drop, the longest free-fall cave drop in Arabia.

Left: Cheryl Jones ascending First Drop entrance, with the crew of Omani air force AB205 helicopter, in background, and local Omanis looking on.

Below: A cross section and outline floor plan of Majlis al-Jinn showing a Boeing 747-400 at the same scale.

The interior of Majlis al-Jinn, the second largest cave chamber known in the world. The caver, standing atop the debris cone formed by the collapse of the Asterisk entrance, is 190 centimeters (6' 3") tall.

Opposite page, right: Cave pearls and delicate rimstone dams on the floor of Majlis al-Jinn. Opposite left: an unusual bicolor stalagmite: the yellow is caused by iron traces while the gray-green hue is due to a thin layer of algae.

Below: Davison and an Omani helper stuff caving rope into duffel bag following a descent into Majlis al-Jinn.

CHERYL JONES

Majlis al-Jinn was formed in limestone of the Dammam Formation, laid down in a warm shallow sea 40 to 50 million years ago, during the Middle Eocene geologic epoch. Many millions of years later, compressional forces associated with continental drift folded, faulted, fractured and gradually forced the bedrock above sea level, when the chamber started to form.

Although Oman is presently an arid country, in the recent geologic past – the last million years or so – the climate has repeatedly alternated between dry periods and wet periods called pluvials. Most of the cave development occurred during these many pluvials – as weakly acidic groundwater slowly dissolved and carried away the limestone bedrock. The development of Majlis al-Jinn was controlled by the location of the faults and fractures along which the rock-dissolving groundwater moved. The most recent pluvial period peaked approximately 7,000 years ago, when gradual desiccation of the area began.

The shape and stability of Majlis al-Jinn's free-standing dome is due to the fact that any large blocks of limestone that were not held in place by compression, as in a gigantic Roman arch, have fallen to the floor. The resulting debris blocked the original lower exits from the chamber and gave rise to the lake bed. How deep beneath the debris the original bedrock floor now lies is unknown.

Near the highest part of the ceiling, I caught a hint of soft light on the wall of an apparent small alcove. I never did get into position to see sky through the hole, but took bearings from the two main entrances, planning to look for this narrow third entrance when back on the surface. I left the edge of the dry lake bed, heading west across fine gravel toward the far end of the room.

I stopped abruptly; the ground before me was covered with white "cave pearls" lying by the thousands in shallow dry pools! Each cave pearl had grown as layers of calcite – the crystalline form of calcium carbonate – formed on sand grains or pieces of fine gravel in the pool. In the past, rainwater percolating downward dissolved minerals from the limestone of the chamber roof; dripping from fractures in the high ceiling, the mineral-laden water struck the pools with sufficient force to agitate the cave pearls so that a uniform coating of white calcite was deposited all around each grain, including its underside. In this way, the pearls grow larger and yet remain loose and free. When cave pearls grow too large to be moved by the falling water, they are gradually cemented to the bottom of the pool. This had happened to some of the very large pearls before me, four centimeters (1.6 inches) in diameter. Although cave pearls are chemically similar to pearls that form in oysters, they have no luster and no economic value. The conditions which created these cave formations might never exist at this spot again, I realized: A detour was in order.

A sharp report, from the First Drop end of the chamber, abruptly turned my head, and shattered the silence. A piece of the ceiling had fallen and the sound of the impact echoed through the chamber. This was not the last disconcerting crash during my circuit of the room, but fortunately all the other impacts were also distant.

I struggled up the dusty debris cone at the west end of the room, slipping half a step down for each upward effort, but at the top, 50 meters (162 feet) above the floor, again found no passage. The view was impressive, though: From this high position, the chamber resembled an immense amphitheater – the lake bed a stage, with natural seating for tens of thousands on the slopes of the debris cones.

I screed down the slope, crossed a long, narrow, flat-bottomed depression and started to climb a slope toward the other large hole in the ceiling – an entrance later named The Asterisk. My way was now blocked by a forest of unusual meter-high white stalagmites decorated with erratic mineral growths extending upward like dense clumps of branching coral. The formations were aligned under a set of long fractures in the ceiling – probably the source of the water-drops that formed them. There were flat areas on top of some stalagmites which, together with the surrounding fuzzy fringe, led us to call them "Friar Tuck" stalagmites.

I bypassed the formation forest and stood atop the Asterisk debris cone, looking upward. The fracture lines responsible for its existence were very prominent. The two major entrances, First Drop and The Asterisk, had been formed where three families of fractures intersected. As the roof became thinner over time, these highly fractured areas became unstable and were the first to collapse. The smaller entrance was formed at the intersection of only two fractures.

As I headed back toward the lake bed, I became aware of a softly glowing spot some 150 meters (500 feet) away on the gloomy north wall. The rock hadn't been glowing before, and I couldn't see a cause. I stared in fascination as the eerie glow grew in intensity and size and then suddenly brightened at the center. Moments later, its cause, a single sunbeam from the First Drop entrance, became visible by the dust it illuminated along its 300-meter (972-foot) path.

At the bottom of the debris cone, I passed an area which was 50 to 100 millimeters (two to four inches) deep in loose, dry dust. The dust had been blown in from the plateau above and slowly accumulated in the dry protected area, away from the stream channels and driplines. Tracks on its surface betrayed the recent presence of insects and a lizard, while a sinuous groove recorded the passage of a snake. Less distinct tracks, masked beneath subsequent fine layers of dust, recorded earlier crossings. In another section, myriad small white rocks sat partially buried in their impact craters, among dusty wing brushings and drag marks that led to the carcass of a pigeon.

I climbed back up the First Drop debris cone to the rope and unpacked my ascending gear, clipped onto the rope and began to climb out of the cavern. The slow turning of the rope continuously varied my view of the chamber as the features of the cave floor became gradually smaller and my view of the roof grew more detailed. Above the chamber ceiling, the heat and glare of late morning greeted me. Twenty minutes after leaving the cave floor, I crossed back over the lip to stand on the surface again – the coolness of Majlis al-Jinn just a memory.

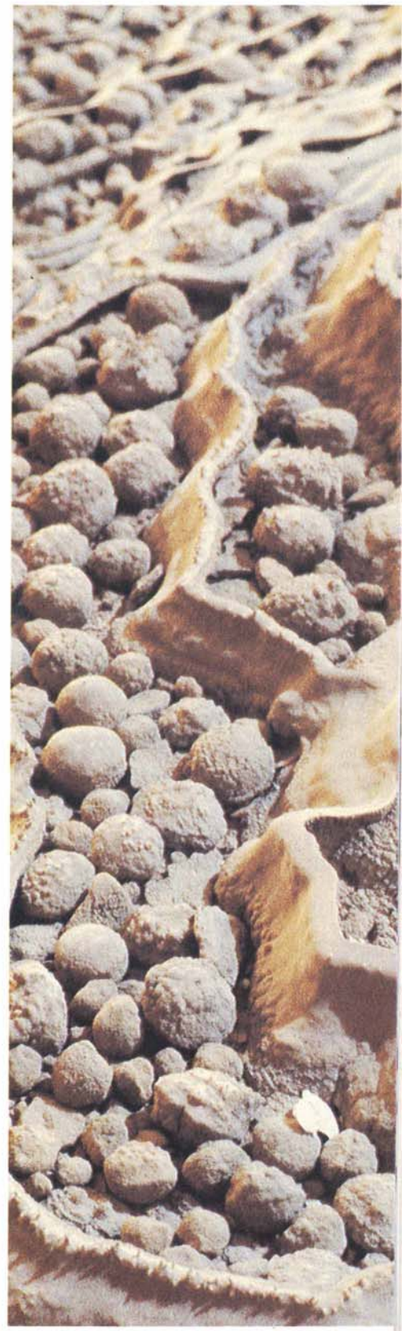
After pulling up the rope and packing the caving equipment, I followed the compass bearing toward the small hole in the ceiling I had seen from below. I found myself looking over a sharp cliff, at whose base was the third entrance. In contrast to the grand scale of the cave's other features, it was only two meters (6.5 feet) wide.

The status of Majlis al-Jinn among the large cave chambers of the world was not known until Cheryl and I completed our mapping survey during five trips in April and May of 1985, and it was only then that we gave the cavern its name. Our mapping revealed Majlis al-Jinn to be the second largest cave room in the world, after Sarawak Chamber in Malaysia.

Majlis al-Jinn has a floor area of 58,000 square meters (more than 14 acres) and a volume of more than four million cubic meters (5.2 million yards). The only entrances are three free-fall drops through the roof: First Drop of 118 meters (382 feet), The Asterisk drop of 140 meters (454 feet) and Cheryl's Drop, the small, narrow third entrance, which was the cave's one final surprise. For Cheryl's Drop, first descended by its namesake in March 1984, remains, at 158 meters (512 feet), the longest free-fall drop in Arabia.

And it all began with two tiny dots on a photograph!

Don Davison, Jr., is an American hydrogeologist, caver, climber and diver resident in Muscat, Oman.



Servants of the Pearl

WRITTEN BY EILEEN KHOURY PHOTOGRAPHED BY VICTOR LAMBOURNE

"We are all, from the highest to the lowest, servants of one master – pearl."

Muhammad ibn Thani, 1863

When Muhammad ibn Thani uttered those words to William Palgrave, much of the population of the Arabian Gulf, around 60,000 people, were servants of the pearl. Their lives and livelihoods were compressed into the six months between April and September, pearl-diving season. If the oyster beds produced a good harvest, they would have enough money to feed themselves for the rest of the year. A bad season meant hunger and poverty for all but a few.

For thousands of years, the pearl has been a prized possession, a treasure sought after by the earliest civilizations of China, India and Persia in the East; Egypt, Greece, Rome and the Americas in the West. Throughout history, the magical luster, the almost other-worldly glow of the pearl, has captivated the wealthy and powerful. The Queen of Sheba, Moghul emperors of India, Queen Elizabeth I and Catherine the Great were among those who spent their lives collecting pearls.

Even today, pearl dealers of New York, London, Geneva and the Arabian Gulf battle regularly at Christie's and Sotheby's international auctions in an attempt to buy some of the remaining fine-quality natural pearls before they disappear from the world market.

One such pearl dealer is Hussain Alfardan of Doha, Qatar. He estimates that his family has dealt in pearls for over 300 years. They have traced their origins to Sittrah, in Bahrain, though now there are branches of the family throughout the Arabian Gulf.

It was the grand patriarch of the family, the late Hajji Ibrahim Alfardan, who established them as a leading pearl dynasty. Hajji Ibrahim is still remembered by old pearl divers all over the Gulf as an extraordinary pearl man. He was known as The Surgeon for his exceptional skill and patience when using a knife to remove the microscopically thin outer layers of an ugly *majhoolah* pearl to reveal a perfection of quality, color and luster underneath – an operation that sometimes took weeks. Hajji Ibrahim died in 1981 at the estimated age of 111 years, one of the last of his generation totally involved in the pearl.

Why do men like Hussain Alfardan and his uncle, Hajji Hassan Makki – himself a venerable man in his 80's – still occupy themselves with the many details of the pearl business, from buying and selling, to selecting designs and fashioning jewelry with their own hands? The answer appears to be that, though they are leaders in their field and widely acknowledged experts, the moment a fine pearl drops into their hands, it takes over. It is the master, for some reason in their blood and their genes; it embodies their childhood past and their cultural heritage. The pearl has an attraction that Hussain, a most articulate man, cannot put easily into words.

"I have my own private collection [of pearls] which is not for sale," he says. "When I'm sad or tired, I take the pearls out and look at them, losing myself by dreaming of the past and singing the old pearling songs. And I feel happy. Just looking at pearls makes me happy. Their monetary value is nothing compared with the special feeling I have for them."

To understand this rare passion we must look at the pearl itself. Every pearl is unique – nature at her glorious best. They need no enhancement, no cutting or polishing to add to their natural beauty and symmetry. They are found in almost every color of the rainbow: pink, blue, green, black, gray, yellow, cream and bronze, but the most prized of all is white with a faint sheen of rose pink, ideally combined with a deep luster that gives the pearl an almost translucent quality.

Arabian Gulf colloquial Arabic has many words for "pearl," such as *lulu'*, *dana*, *hussah*, *gumashah*, and *hasbah*, and the Alfardans still use the old, traditional names to describe shape and color. There is the *sujani*, or pear-shaped drop; the *khaizi*, with an elongated upper half and a half-rounded bottom; the *adasi*, cylindrical with flat sides; the *majhoolah*, or unknown, a large, irregular, ugly pearl which on rare occasions conceals a perfect one under its exterior. The *sindaali* is flesh-colored, *sofri* is yellow, and the *khardil* is black. The *sin-*

Opposite page: Natural pearls from the Alfardan collection.
Above: A fine *sujani* pearl.
Right: Natural pearls in a variety of colors.

jabaasi is the finest black pearl of all, and the *nimro* is a pearl fixed in the shell. Lastly, there is the *jiwan* – a corruption of the Persian word *jawan*, meaning young or premature – the perfect pearl, rose-tinted white, completely round and with a luster so pure that it comes alive with radiance.

Pearls are still sorted and graded using a series of 25 brass sieves collectively called *gurbaal*; each individual sieve is a *tasah*. And, while the rest of the world weighs precious gems in carats, the pearl merchants of the Arabian Gulf still use the old unit, the *chow*, whose relationship to the carat is complicated. One writer claims that one carat equals 0.6518 *chow* but two carats are 2.6074 *chow*; dealers use handbooks with equivalency tables.

A symbol of purity and chastity in the East as well as the West, the pearl's mysterious origins have been variously described as magical drops of dew or rain; Sumerian tablets refer to them as "fish-eyes." Even today, experts cannot agree on how they form: Is a parasitic worm responsible, a grain of sand or a disease? Some pearls have a clearly defined parasitic nucleus while others have no nucleus at all. The only thing that is clear is that the oyster coats the irritant deep within its shell with layer upon layer of nacre, the secretion with which it builds its shell, until a pearl is born.

This is the difference, and, conversely, the similarity between a natural pearl and a cultured pearl. When pearls are cultured, an irritant, usually a tiny piece of shell, is placed inside the young oyster, or spat, which is then returned to the sea to grow for another two to 10 years, or even more. But the cultured pearl loses its luster, both dealers and wearers believe, and its color fades a few decades after harvesting, whereas there are natural pearls 300 or 400 years old that are as lustrous and beautiful today as when they were found.

While natural pearls are found all over the world, those from the Arabian Gulf are acknowledged to be among the finest, and no other location has produced pearls of such quality and quantity so consistently.

The center of the Gulf pearling industry was Bahrain. Kunz and Stevenson, in *The Book of the Pearl*, published in 1908, stated that the "Gulf fisheries employ about 3,500 boats, large and small, of which 1,200 of the best are owned at Bahrain, 700 on the coast of Al Hassa from Al Qatar to Kuwait, and the remaining from various parts of the Gulf, especially from the Pirate Coast east of Al Qatar."

Today Bahrain remains the main pearl-trading center. It is also a cultural repository for the pearling way of life, thanks to people like Ahmed Alfardan, who founded the Pearl Divers' Society in Bahrain, providing premises – the *dar* – where pearlers can meet several evenings each week and relive the old days. While many of the divers have retired and no longer work, some are still active as pilots in Mina Salman, Bahrain's main port. Almost all are in their 70's, and they gather to sing the old pearling songs that are so much of their past. There are two or three young men present in the *dar*, grandsons of the older generations, but they do not dive; they only come to sing and preserve the songs for posterity. Indeed, the Bahraini divers today travel all over Europe, singing their plaintive melodies at cultural festivals.

During the pearling season, in the old days, men and their boy *tabbabah*, or apprentices, worked, ate and slept on the open deck under the iron rule of the *nokhatha*, or captain, who was frequently also the boat owner. The *nokhatha* earned his position by his expertise at finding the best pearling banks, called *hayrat*, and navigated only by the sun, the stars and his knowledge of the Gulf waters.

Traditional methods of pearl diving changed little in thousands of years. It required only the strength and endurance of a two-man partnership: the *ghais* or *ghawwas* – the diver – and his rope-tender, or *saib*. The *saib* literally held the diver's life in his hand, for if he did not pull him up fast enough, the diver would drown. The *ghawwas* dived from sunrise to sunset, and was expected to go down at least eight times in 15 minutes, depending on the depth – typically around nine to 12 meters (30 to 40 feet) – before he was allowed a rest. With *dayyeen*, a net basket, strung from his neck, a rope weighted with a stone tied to his waist, a nose clip, or *fetam*, on his nose and leather fingerstalls called *khabat* to protect against sharp coral, the diver sank to the sea floor in search of mother oysters. Some wore cotton overalls to protect them from jellyfish stings or to ward off shark attacks.

Other important members of the crew were *al-mejaddimi*, the second-in-command; *al-musally*, the prayer leader, who also relieved the *saibs* when they were praying; and the *nahham*, who kept everyone's spirits up by leading group singing. While many of the songs were plaintive and sad, all had the strong beat of the drum as a base, still predominant in today's Gulf music. The first song of the morning, however, usually went like this:

Oh, blessed morning!
May we be fortunate today.
Oh, pardoner of our sins,
May we ask you to forgive us.
Your mercy is unlimited.
We therefore appeal to you
To bless and forgive us.
Oh, God, I repent
And turn from my sins
To your love.
It is you who grants us pardon....

After evening prayers, the *nahham* would always finish the day with the evening hymn:

Oh, God, make our lives easy.
May riches come to us from God.
So that we may announce the good tidings
To our families and neighbors,
And anger the envious.

Life on board the pearling boats was spartan, and the pearlers suffered great hardship. They were frequently undernourished, with their staple diet of coffee and dates for breakfast and lunch, and fish and rice for the evening meal. Whatever flesh was on their bodies at the beginning of the season quickly disappeared, and only skeletal shadows of men returned to their villages at the end. They suffered from lung disease, fungal infections of the skin, scurvy, rheumatism and arthritis; they faced shark attacks and, more seriously, they must frequently have suffered slow degeneration of the brain caused by a lack of oxygen during the long cycles of diving.

The hard-won oysters were placed in a pile on deck and were left for two or three days to dry out, making the task of opening them much easier. Finding pearls was a matter of pure luck. Sometimes a day or a whole week would pass without a single pearl being found in thousands of oysters. At other times, a few hours' diving would bring a rich haul of pearls. The captain took charge of all those found and kept them in red cloth pouches, still used by pearl merchants of the Gulf today.

Before today's Gulf states were formed, there were no territorial waters: The pearl beds were free to all, and boats ranged far and near. It was thought – and some of the old divers still believe – that the best pearls are found in the Gulf's deepest waters, between 15 and 20 meters (50 to 70 feet) down. These areas of the Arabian Gulf are still known by the old pearling names, such as Haloul, Abu Masan, Abu Graiha, and 'Id al-Gibli.

Opposite page: Hajji Hassan Makki, an active senior member of the Alfardan clan, weighing pearls with traditional scales and carnelian weights.

MINISTRY OF INFORMATION, QATAR

As soon as the captain sold some pearls, he paid each member of the crew in cash. There was a payment hierarchy that was rigidly defined and meticulously adhered to. The largest share was set aside for the captain, another for the boat, and the remainder was shared in proportion to the position each individual held in the hierarchy. Divers frequently borrowed against their share before the season started in order to provide for their families during the six months they would be at sea, so if the season were good, they might just have enough to see them through to the next season without having to borrow again. If not, they faced ever-increasing hardship, hunger and debt from which even death could hardly free them, for when a man died, his son had to assume all his debts. Many divers were thus heavily burdened even before their first dive.

Above: Pearl divers kept their spirits up during long and hazardous voyages with group singing and drumming.

Next page: A traditional Arab pearling dhow anchored off Bahrain.

The *tawwash*, or pearl dealer, was the next link in the chain of the pearl. The lesser *tawwash* traveled around the pearl beds in dhows every week buying what they could, and then reselling the take to the larger merchants. The more prominent merchants received consignments of pearls sent ashore by special messengers, who were paid with a share of the value of the goods.

Buying pearls was strictly governed by a complex system of bidding that all considered fair. In fact, pearls are traded in almost exactly the same way today, except that the traditionally furnished rooms of the past have given way to air-conditioned, modern offices. The Italian furniture is pushed aside and the traditional red cloth is spread atop the luxurious carpet, while the dealers discuss the merits of the pearls. Even the old system of silent bidding may be used: If a dealer does not want the others present to know how much he is offering for a pearl, he and the seller cover their clasped hands with a cloth and indicate their bids and counterbids with a system of finger signals that dates back at least a thousand years.

From Bahrain, the pearls were sold to the leading Indian merchants, who sent them to Bombay to be drilled by hand.

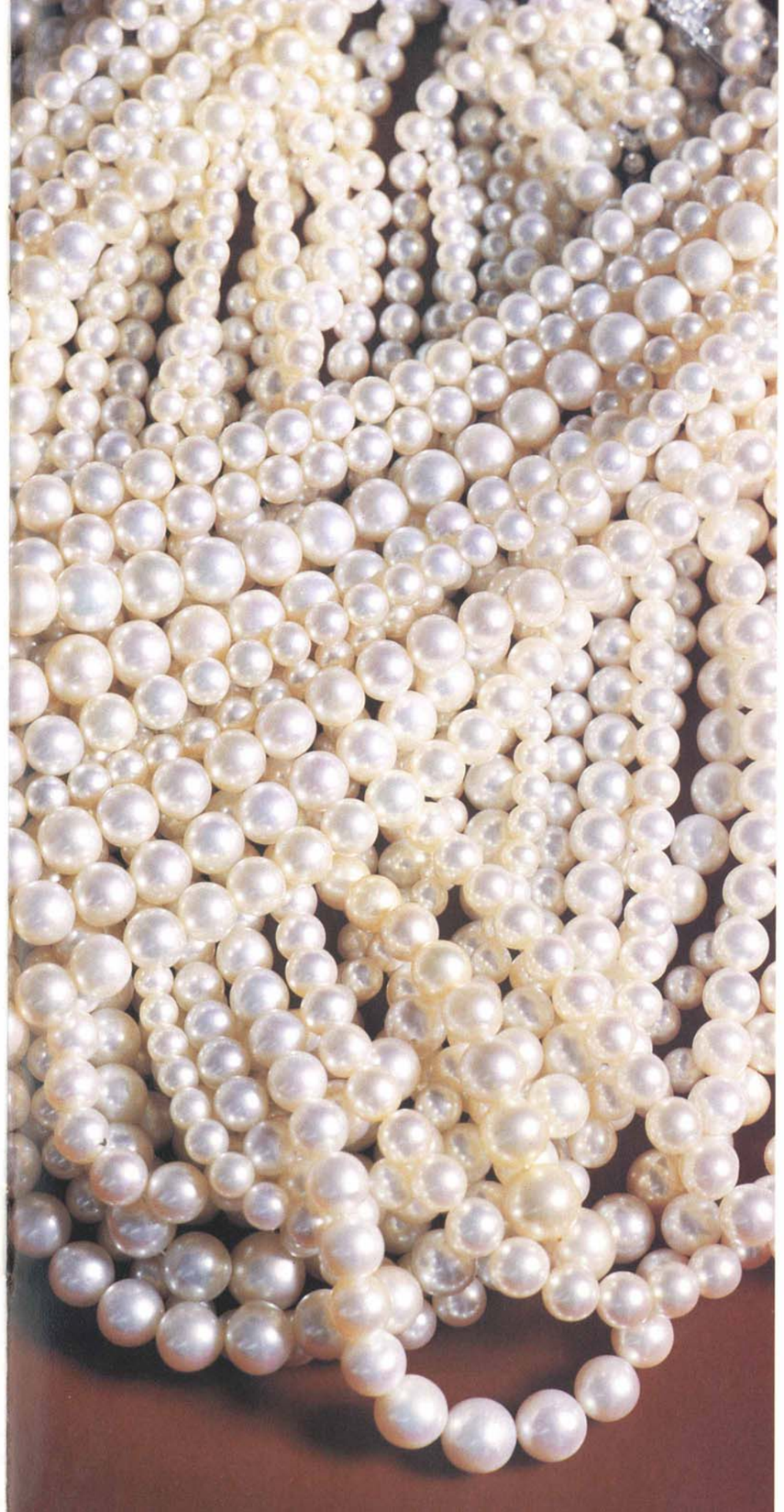
Above: Hajji Ibrahim Alfardan, founder of one of the Gulf's leading pearling dynasties. Below: Servants of the pearl in Doha: Hussain Alfardan; Sayed al-Bedeed, a retired pearling captain and former diver; dealer Mehdi al-Majid; Hajji Hassan Makki and his eldest son, Mahmoud Makki. Opposite page: A handful of natural-pearl necklaces with a total value of some $3.5 million.

Finally, they were sold to the Europeans, whose hunger for pearls was insatiable.

Of Hajji Ibrahim Alfardan's nine sons, five are still in what remains of the natural pearl trade today: Hassan and Ali in the United Arab Emirates, Hussain in Qatar, and Khalil and Ahmed in Bahrain. They grew up during the great worldwide depression of the 1930's, made much more severe in the Gulf by the loss of traditional pearl markets to the more easily available, cheaply produced Japanese cultured pearls. They learned the art of buying and selling sitting at their father's feet, where they also learned the necessity of hard work and the rewards of doing it well.

As Hussain Alfardan, now in his mid-50's, recalls: "We went through a very difficult period when the pearl trade came to an end. Some people had to sell their homes and others tried to find work in other fields. The whole area suffered terrible poverty for a time. While the discovery of oil in the Arabian Peninsula and Gulf waters heralded a great economic future for the Arabs, it took many years for the effect of the oil wealth to trickle down to the ordinary people of the Gulf."

They made a modest new beginning that became the foundation of a jewelry empire that now covers all of the southern



Arabian Gulf, and places the Alfardan family on the level of Tiffany or Chaumet. But they are still best known for their fine pearls, whose prices, unfortunately, are now beyond the reach of most people. Fifteen years ago, a single-strand necklace of perfect pearls would have cost perhaps $8,000. In today's market the same necklace would cost around $100,000. Indeed, at a recent Christie's auction in Geneva, a pearl necklace estimated before the sale at around 80,000 Swiss francs sold in fact for more than 400,000 francs – some $300,000 at current rates.

If pearls are so commercially valuable, why don't divers go down with modern equipment and start to collect oysters again? It is not a simple matter. First, there is the question of territorial waters. Then, Arab governments have banned scuba-diving for pearls in order to prevent the pearling beds being stripped, but they are also unwilling to permit the hardship and exploitation the divers suffered in the "good old days" – and no one knows whether willing divers could be found today. The question of commercial viability is unanswered without actual experience of modern running costs. And finally, there are the unknown effects on the pearling grounds of the eight-year Iran-Iraq war, with its probable oil pollution, mines and other hazards.

Will the natural pearl have a future in the Arabian Gulf? Dr. Sami Abdulla Dannish of Bahrain is finding out. He is the head of a Bahraini government study project on oysters in Bahraini waters. His study is at present surveying the oyster beds, and will then go on to study the growth of oysters, their habitat and the effects of pollution and fouling agents in the Gulf waters. Based on the final results, three to five years from now, Dannish may then look into the feasibility of rearing spats artificially to repopulate oyster beds or create new ones, thus – it is hoped – increasing the potential harvest of natural Gulf pearls.

Such scientific and economic studies are the key to the future, for however traditional the old pearling industry may be, and however great the nostalgia that surrounds it, any effort to re-establish it must at least break even. Yet so little understood is the genesis of the pearl that even oyster beds full of oysters are no guarantee that the oysters will be full of pearls. For now, the future of the natural Gulf pearl is uncertain at best – and so is the future of its few remaining fascinated servants.

Free-lance writer Eileen Khoury lived in Qatar for 14 years and worked with the Alfardan family. She is now based in Bristol.

ENIGMAS IN STONE

WRITTEN AND PHOTOGRAPHED BY RAMI G. KHOURI

Shimmering on the far horizon in the desert haze, they rise like distant mirages to taunt and tease, spectral buildings, challenging you to wipe your eyes and take a second look. Is that *really* a four-square castle, towered and fortified, emerging from the barren plains of the Jordan desert? What is a domed brick building doing all by itself, a hard day's march from civilization? And why is a lavishly decorated bath complex set alone in the middle of a deserted steppe strewn with black basalt stones?

The structures are not mirages. The castles, baths and fortified palaces, collectively known as Jordan's "Umayyad desert castles," are real. Most were built in the seventh or eighth century by Umayyad rulers – members of an early Muslim dynasty, based in Damascus, which generated an Arabian art and architecture rooted in the Greco-Roman-Byzantine traditions of the eastern Mediterranean world. The buildings were once thought to be the desert retreats of Umayyad princes and noblemen.

Recent research, however, has radically revised historians' understanding of these monuments, stimulating a new appreciation both of the Umayyads' art, and of their skill at hydraulic engineering, through which they harnessed scarce desert water resources. It is becoming increasingly evident that the "Umayyad desert castles" were not exclusively Umayyad, did not exist in an isolated and barren desert environment, and, with a few exceptions, were never even true castles at all.

There are at least a dozen Umayyad sites in Jordan today, most of them easily accessible from the capital, Amman. From here, a series of new roads and resthouses permits visitors to take in the half-dozen finest "desert castles" in a one-day trip. The sites with the most extensive remains are the fresco-filled baths of Qasr 'Amra, the unfinished brick palace at Mushatta, the Qastal palace, mosque and related monuments, the fortress-like Kharranah castle, and the palace, mosque and extensive agricultural facilities at Qasr al-Hallabat. Qasr Tuba – sited in the middle of the desert, well away from paved roads or villages – is more remote, but also more exciting to visit.

Since Jordan's desert castles were first visited by Europeans and Americans in the late 19th century, they have been presented to the world through the romantic eyes of Western Orientalists, whose imagination typically tolerated – even demanded – a certain poetic license in interpreting the art, culture and architecture of Arabia and Islam. For nearly a century they were viewed as reflecting the Umayyad caliphs' nostalgic desire to leave behind the urban bustle of their capital in Damascus and to retreat to their roots: the desert Bedouin's carefree lifestyle (See *Aramco World*, September-October 1968). In their remote and lavishly decorated desert retreats, the theory had it, princes, caliphs, governors and noblemen endulged in hunting, falconry, racing horses and camels, bathing and eating, and poetry recitals.

Such popular legend, however, has proved more durable than accurate. During the past decade, scholarly analyses and archeological excavations at several Umayyad desert estates in Jordan have radically revised our knowledge of the role of these still enchanting, still partly enigmatic complexes. Although located in what now seems to be isolated desert terrain, in the Umayyad period (AD 661-750), they represented the ability of a rich and dynamic culture to expand beyond its urban heartland in Syria, and beyond the cities of western Jordan, to exploit the agricultural and trade potential of what, in the pre-Islamic era, had been the marginal frontier regions of the southeast.

Dr. Ghazi Bisheh of the Jordanian Department of Antiquities, who has spent two decades analyzing and excavating Jordan's desert castles and contemporary structures in Syria and Palestine, says that scholars' previous focus on the architecture and art of the castles has recently shifted to seeking a broader understanding of the total environmental and economic context in which these sites existed. "The desert castles were always studied independently, and not as part of more extensive desert complexes," Bisheh says.

The French scholar Jean Sauvaget first suggested in the late 1930's that the desert castles were not pleasure lodges but self-contained economic units, based on water conservation and storage, agriculture and trade. More recently, Harvard University's Oleg Grabar has elaborated on Sauvaget's theory, and several Jordanian and foreign scholars have provided evidence from excavations at several sites.

"The archeological evidence supports Sauvaget's theory that these were integrated agricultural complexes," Bisheh says, "but we still have to determine the full political and cultural context in which they were built."

The tribes of the Jordanian desert were fervent supporters of the Damascus-based Umayyads, and Bisheh suggests that the desert complexes may have been designed to maintain close contacts with those tribes. The complexes flourished on the political, financial and military support that flowed from Damascus, and without such direct support, they faded away soon after the end of Umayyad rule.

It is also inaccurate, the new theory holds, to lump all the complexes together as a single genre, for each had a specific purpose related to its location – baths, residence, caravan station, trading post or security outpost. Grabar suggests the use of the term "country estates" rather than "desert castles," while others today refer to them as desert complexes or even desert farmsteads – given the presence of water systems and agricultural fields at almost every one.

Grabar also connects these complexes to the long historical tradition of a personal aristocratic architecture, reflecting "private needs and whims" and paralleled historically in Europe by Roman country villas, medieval farmsteads, Renaissance and Baroque-period Italian *castelli*, and, in the 18th and 19th centuries, English country estates and French chateaux. In Jordan, most were probably built by local rulers, but some may have been built by or for the Umayyad caliphs themselves. That point is perhaps peripheral, however, for Jordan's Umayyad desert estates are in any case, in Gabar's words, "the most spectacular and original monuments of early Islamic secular art."

QASR 'AMRA

The most celebrated Umayyad desert complex in Jordan is centered on the bathhouse at Qasr 'Amra, a diminutive structure nestled in a broad depression about 85 kilometers (53 miles) east of Amman and 21 kilometers (13 miles) southwest of the Azraq Oasis, alongside the highway that now links the two. Though the limestone and basalt building is not particularly impressive from the outside, 'Amra's interior walls and ceilings display a dazzling array of painted frescos from the mid-eighth century, with less well-preserved fragments of mosaics, carved stone and marble cladding. The fresco art is important not only for the information it provides about the culture and tastes of the notables who built these complexes; it also shows the Umayyad dynasty's clear links with both the classical and Byzantine traditions it had inherited, as well as demonstrating contemporary cultural influences from Mesopotamia, Persia and other Asian civilizations to the east.

The 'Amra complex, long known to and used by local nomads, was rediscovered for the West by the Czech scholar Alois Musil in 1898. The frescos were painstakingly cleaned and preserved between 1971 and 1973 by a team from the Madrid National Archeological Museum, under the direction of Martin Almagro.

'Amra is thought to have been built during the reign of the Caliph Walid I (705-715), builder of the great Umayyad Mosque in Damascus, although some scholars believe it may be the work of his uncle, Walid II (743-744).

The complex comprised the baths, an attached audience hall and domestic rooms, the hydraulic system – all within a walled area – and a small square, fort-like residential building (or caravanserai) and nearby watchtower (or mosque) in the hills to the northwest, where the staff and troops of 'Amra's patron probably lived. There are also traces of what some people believe is an ancient dam, and enclosure walls that delineated an agricultural area of some 25 hectares (62 acres).

The eighth-century water system includes a 40-meter (131-foot) circular well, and remains of the *saqiya*, or water-lifting apparatus, still marked by the circle walked by some beast of burden that provided the power to raise the water and send it through ceramic pipes to the baths or the adjacent outdoor tank.

The walls and ceilings of the spacious, rectangular, three-aisled audience hall are covered in relatively well-preserved frescos depicting a variety of scenes that were typical Umayyad decoration: hunting scenes, bathing scenes, and the famous Fresco of the Six Kings, with Greek and Arabic inscriptions under busts of

Although unimpressive from the outside, the diminutive Qasr 'Amra bathhouse (above) has a dazzling array of painted frescos inside, including (below) this musically talented bear.

Caesar – as the Byzantine emperor was called then – the Sassanian king Kisra; Roderic, the last Visigoth king of Spain, killed by Walid I in 711; the Negus of Abyssinia; and two other busts thought to depict the emperor of China and the king of the Turks. The audience hall also has frescos of Victory, attended by servants and flanked by peacocks; heavy-set wrestlers; flying angels; pacing lions; dancers and musicians; a very Byzantine-looking enthroned ruler; saluqi hounds energetically chasing some hapless onagers; female figures personifying Poetry, History and Philosophy, according to the accompanying Greek inscriptions; a lion attacking a horse; and 32 individual panels depicting craftsmen in various stages of the construction process, including blacksmiths, carpenters and masons.

The baths were typical of the period, consisting of a changing room, or apodyterium; the moderately hot room, or tepidarium, with its raised floor to allow warm air to circulate beneath the bathers; and the hot room, or calidarium, closest to the furnace. The frescos in the baths display an equally wide variety of motifs and styles, including three busts thought to represent the three ages of humankind – childhood, youth and old age – and pastoral scenes reminiscent of those in Byzantine mosaics of churches in the region, in the several centuries before and during the Umayyad era.

Many consider the dome above the caldarium to be 'Amra's most pleasing combination of architecture and art. Presented as the Dome of Heaven, and painted with the constellations of the northern hemisphere accompanied by the signs of the zodiac, it is thought to be the earliest surviving attempt to represent the vault of heaven on a hemispherical, rather than a flat surface, as had been frequently done by preceding civilizations.

Oleg Grabar has suggested that the ascendant Umayyad aristocracy of the early eighth century drew upon the land's ancient cultural heritage to produce a rich new iconographic repertoire, which Ghazi Bisheh, in turn, shows was rooted in the Greco-Syrian tradition. Dr. Fawzi Zayadine, deputy director of the Jordanian Department of Antiquities, says that "'Amra's frescos can be considered an artistic renaissance of Hellenistic art in the eighth century, stimulated by the will and sensibility of the Umayyads...." Martin Almagro, who worked on the frescos with his Spanish colleagues for three years, says 'Amra is "a key monument for the understanding of early Arabic art, which was still in a transitional state between the personality of Byzantine culture and the discovery of its own inspiration."

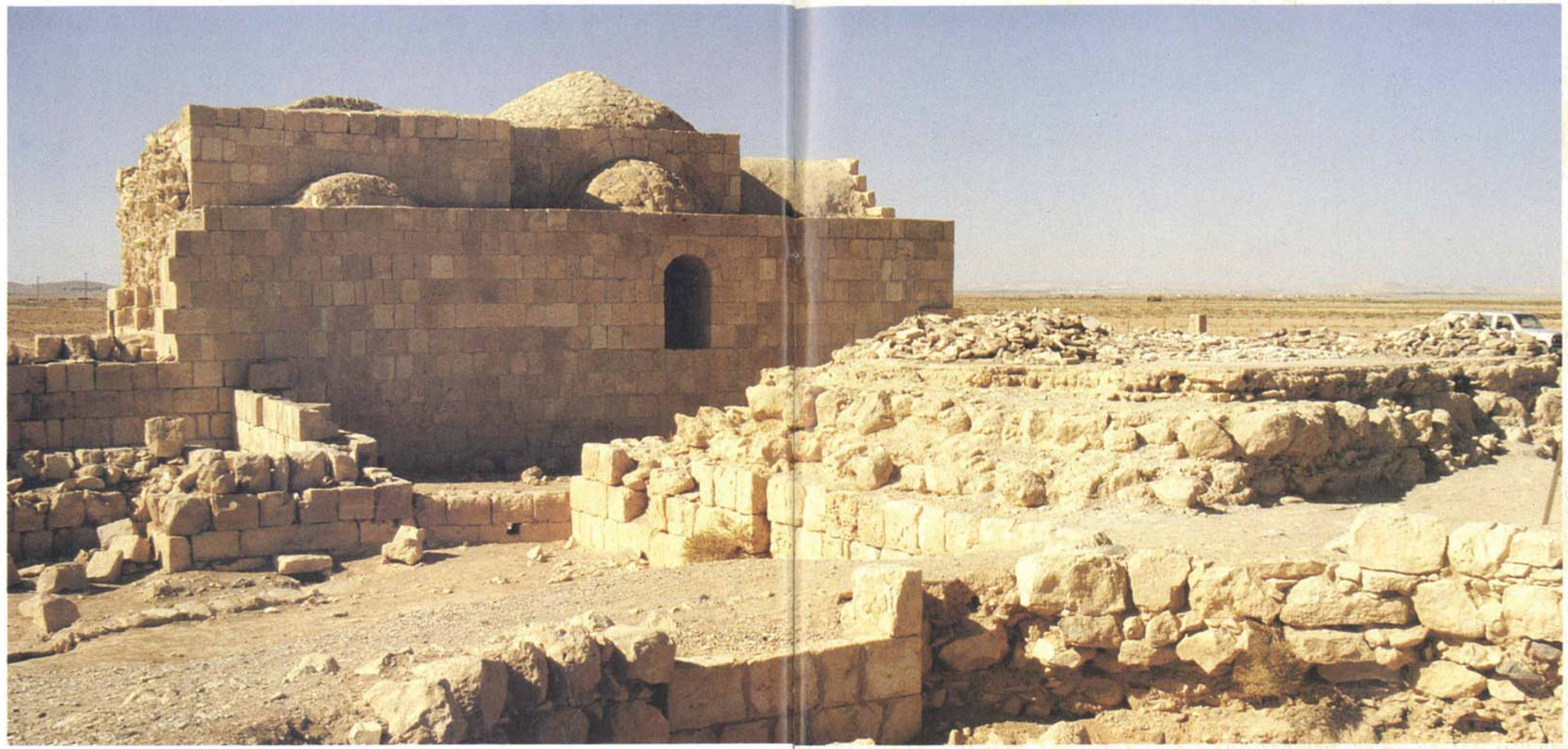
QASR AL-HALLABAT

Though the tumbled remnants of the hilltop, fort-shaped structure known as Qasr al-Hallabat, 35 kilometers (22 miles) north of Amman, were examined as early as 1904-1905 by the Princeton expedition of H.C. Butler, it is only since 1979 that excavations and a survey of the surrounding hills and plains by Ghazi Bisheh have brought to light the extensive Umayyad agricultural and water installations of the desert complex.

The main building is 44 meters (144 feet) on a side, with four large rectangular corner towers, originally three stories high, with narrow slit windows. The northwest corner of the castle incorporates a smaller and older fortress consisting of a central courtyard and cistern, surrounded by rooms.

Bisheh's work, and surface examinations by Dr. David Kennedy of the University of Sheffield and Dr. Tom Parker of North Carolina State University, have verified that the inner fort was built by the Roman conquerors of the area in the early second century. It was one of the string of Roman fortresses and watchtowers along most of the length of the Via Nova Traiana (Trajan's New Road), which the legions of that Roman emperor built between AD 111 and 117 to link the important city of Bostra, in south Syria, with the ancient Red Sea port of Ayla, present-day Aqaba. In the third century, the small fort – according to a Latin inscription found during excavations – was expanded into the largest structure which still stands on the site; another inscription, in Greek, tells of its restoration in the sixth century.

During the Umayyad period, however, the castle underwent a major, almost total, renovation, and became the centerpiece of a wider complex which included a mosque, baths, agricultural enclosures, dams, reservoirs, cisterns and water systems. The Umayyad master of Hallabat virtually razed the earlier structure to its foundations, totally rebuilt the internal walls on the same plan as the previous castle, and then redecorated the interior in a splendid, often luxurious, manner. Bisheh's excavations have turned up remains of very high quality mosaics with animal, human, floral and geometric motifs – 30 square meters (323 square feet) of which were stolen last spring, probably to be cut up and sold – as well as frescos and carved stucco with floral and animal designs, carved stone, delicately carved or painted timber decorative pieces, and tinted and painted window glass.



The small but stylish Umayyad bath house of al-Sarah (below and left) was once decorated inside (bottom left) with mosaics and painted plaster.

An adjacent rectangular mosque contains inscriptions dated stylistically to the first century of the Islamic era, between the middle of the seventh and the middle of the eighth century. A small but stylish Umayyad bath house, now known as Hammam al-Sarah, was built about two kilometers (1¼ miles) east of the castle, and was similarly decorated in fine marble, mosaics and painted plaster.

West of the castle at Hallabat, the Umayyads built or rebuilt at least five cisterns and a huge water reservoir. Bisheh examined a walled agricultural enclosure measuring 270 by 220 meters (886 by 722 feet), divided by internal walls into successively lower rectangular plots, with sluice gates, stone-built water channels and basins – the whole composing an elaborate system to trap the meager winter rains and use them for irrigation in the spring and summer.

Bisheh suggests that the reason for major transformation of Hallabat into an agricultural and trading center "may have been the need to maintain close communication with the tribes settled in the region, who were vehement supporters of the dynasty." Economically, however, they were not a meaningful enterprise, their maintenance requiring a constant flow of funds. "They were abandoned shortly after the fall of the Umayyad dynasty, around the middle of the eighth century," Bisheh says.

Castle-shaped Qastal palace (top) was lavishly decorated, and its floors were paved with mosaics (above) showing geometric motifs

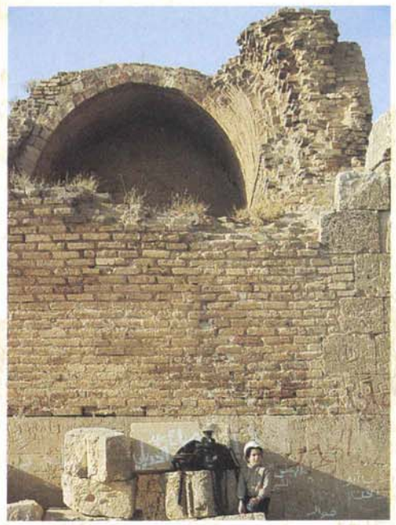
QASTAL

The most recent of the Umayyad complexes to be excavated in Jordan is at the modern village of Qastal, 25 kilometers (15 miles) south of Amman on the airport highway. Since the beginning of this century, the ruin which gives the village its name has been thought of as a Roman fort, largely because of its fort-like shape and the assumption that its contemporary Arabic name derives from the Latin word for a small castle, *castellum*. But surface examinations by German scholar Heinz Gaube, and two seasons of excavations, in 1983 and 1985, by a French team headed by Dr. Patricia Carlier and Frédéric Morin, have shown that it is actually one of the oldest and most complete Umayyad provincial communities in the Middle East.

The 68-square-meter (732-square-foot) palace, its main entrance decorated with exquisite carved stonework, had four circular corner towers and 12 semi-circular interval towers. Its central courtyard, underneath which is a large cistern, was surrounded by six apartment complexes on two stories. The palace was lavishly decorated, and its floors were paved with mosaics showing geometric, floral and animal motifs.

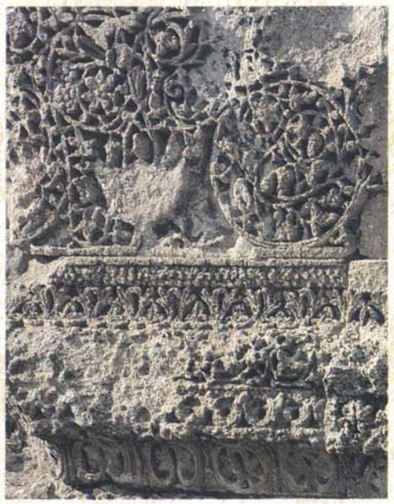
Several factors suggest that the palace was originally built by the long-reigning Umayyad Caliph 'Abd al-Malik ibn Marwan (685-705), one of early Islam's greatest builders, who was also responsible for the construction of the Dome of the Rock in Jerusalem.

Immediately north of the palace is the rectangular mosque, with the remains of its rectangular, rather than semi-circular *mihrab*, or prayer niche, and its circular minaret – one of the oldest minarets still standing. Southwest of the palace is an extensive early Islamic cemetery with scores of inscribed tombstones dated to the Umayyad and the subsequent Abbasid period. Some of the very earliest tombs are oriented towards Jerusalem, rather than Makkah, as later became customary. More than a kilometer (1100 yards) to the east is the 400-meter (1300-foot) stone dam that the inhabitants of Umayyad Qastal used to store rainwater for irrigation. Carlier estimates that the dam may have stored as much as two million cubic meters (528,000,000 US gallons) of water. Northwest of the palace, near the modern village, is the 4000 -cubic-meter (million-gallon) reservoir formed from the one-time quarry that provided building stones for construction of the palace and dam.



Qasr Mushatta (top) was a showplace of Islamic carved stonework (right), flanked by impressive barrel-vaulted rooms (above) built of fired bricks.

QASR MUSHATTA



The unfinished Qasr Mushatta, largest and most ambitious of the Umayyad desert palaces, sits incongruously just north of Queen Alia International Airport's runways. It is dramatic both for its size – it is surrounded by a square enclosure wall measuring 144 meters (472 feet) on a side, incorporating 25 semi-circular towers – and for the deep-orange fired bricks used in its construction. It is thought to have been started by the Caliph Walid II around 743 or 744 – just before the Umayyad dynasty gave way to the Abbasids of Baghdad. In the eighth century, Mushatta was a showcase of Islamic stonework and carved plaster; the few remaining pieces comprise floral, animal and geometric motifs, including bold rosettes, acanthus leaves and grape-laden vine stems. Many of the ornate carvings were sent to Berlin at the turn of the century – a gift from Ottoman Sultan Abdulhamid to Kaiser Wilhelm.

Unfinished foundation stones show the layout of buildings that were planned but never completed. One area at the north end of the palace is still flanked by impressive barrel-vaulted rooms made completely of fired bricks on stone foundations. Everywhere, there are signs of an architectural splendor that was never fully realized – column drums, capitals, pilaster bases, half arches and carved stones scattered on the ground.

QASR KHARRANAH

One of the best-preserved, most dramatic, but also most enigmatic of the desert castles is Qasr Kharranah, now easily accessible alongside the new highway to Azraq, some 55 kilometers (34 miles) east of Amman. It is certainly the most imposing of the Umayyad desert complexes, and probably the one that caused the entire collection to be called "castles." Its thick stone walls are interrupted by rounded interval and corner towers, projecting the look of a classic Roman frontier fortress. Though only about 35 meters (115 feet) on a side and two stories high, Kharanah is none the less impressive, with its clearly delineated towers and main entrance exaggerating its height.

First examined by Western scholars in 1896, Kharranah was only studied scientifically in 1979, when a doctoral candidate at Harvard University, Stephen Urice, surveyed the site and sank a series of excavation trenches. Upon concluding his field work, he questioned two previous assumptions: that Kharranah was a castle specifically built for defense, or a caravanserai. Though it looks very much like a military structure, with stone towers and "arrow slits" in its external walls, the towers are in fact solid, and rather than providing defensive stations for a resident garrison, may simply have buttressed the massive walls. And the "arrow slits," instead of flaring to their greatest width on the inside of the wall, in order to offer the defender both protection and maneuverability, are of a constant width and too high off the floor for easy access. More likely, they provided light and ventilation, as a visitor today will quickly appreciate within the cool but draft-free interior.

Kharanah's internal arrangement may also shed light on its original purpose. The central courtyard is surrounded by as many as 61 rooms on two stories, most arranged in suites of four or five communicating rooms around a large hall. Two low-angled, long staircases flanking the entrance lead to the second story and on to the roof. Some second-story rooms retain their fine decorative stonework, including engaged colonnettes, rosette friezes and squinches supporting semi-domes. A painted inscription in one of the upstairs rooms has been dated to November 24, 710, and a nearby shorter inscription includes the name of 'Abd al-Malik bin Omar, thought to be a member of the entourage of Walid I on his return from a trip to Makkah in 710.

The inscriptions and the almost exclusively Umayyad pottery found in the excavation trenches indicate that Kharranah flourished between the middle of the seventh and the middle of the eighth century. Some Byzantine pottery sherds and three building stones with fragmentary Greek inscriptions suggest to some scholars that a Byzantine building may have existed earlier on the site.

The excavations revealed how Kharranah's inhabitants secured their water supply – a cistern in the courtyard, plastered in white, like all the internal walls of the building. The cistern was probably filled by rainwater collected on the roof, and from *thamill*, or water-collecting wells sunk into the gravel bed of Wadi Kharranah – a system that present-day nomads and farmers in the area still use.

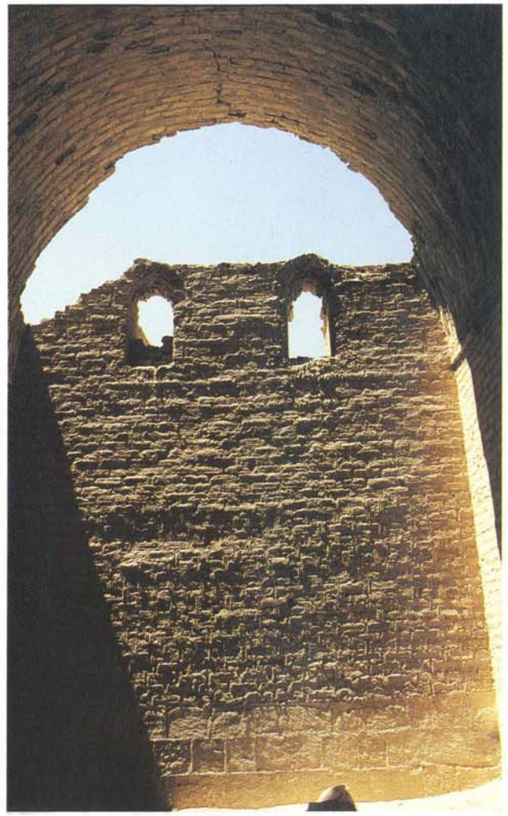
The rather modest water supply system weakens the argument that Kharranah was a typical caravanserai, which would have required a far bigger system to cater to the needs of caravans composed of hundreds of humans and beasts.

"Kharranah was clearly not a defensive military fortress, nor was it a caravanserai," Urice said in a recent interview. So what was it?

Urice's novel theory is that it may have been designed for occasional use as some kind of political gathering place – a conference center of sorts, where, during the early Umayyad period, urban and tribal leaders could meet in a lcoation that was both relatively private and mutually accessible. But such a hypothesis is difficult to prove – leaving Kharranah, in the words of Oleg Grabar, as "probably the best preserved of the Umayyad desert castles, and the least understood."

Qasr Kharranah (opposite page) is one of the most dramatic, but also the most enigmatic, of Jordan's desert castles.

The high walls of Qasr Tuba's fortified palace (right), and one of the rooms (below) with its original barrel vaulted roof.



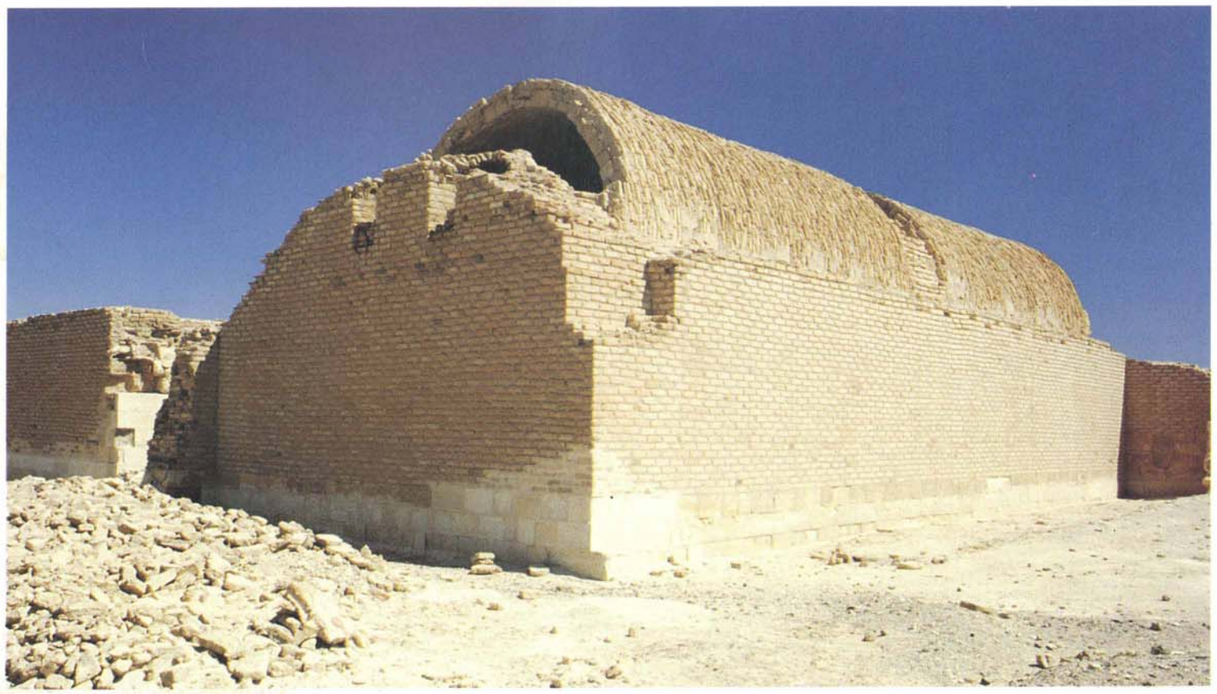
QASR TUBA

The only desert castle that still lives up to its billing as a vast, carefully crafted, remote, fortified palace is Qasr Tuba, which can only be reached with a four-wheel-drive vehicle and a guide. Tuba lies in a barren region 140 kilometers (87 miles) southeast of Amman and 35 kilometers (22 miles) from where the paved road ends. The effort is worth the drive – if one is romantic enough to relish a glimpse of eighth-century princely life on a desert estate.

Also thought to have been founded during the reign of Walid II, around 743, the unfinished Qasr Tuba is defined by a rectangular enclosure measuring 140 by 73 meters (460 by 240 feet), interrupted by semi-circular towers. It was designed as two identical, 70-meter (230-foot) square complexes joined by a corridor, though only one was finished. The building material, as at Mushatta, was large, square, fired bricks, often placed on stone foundations.

North of Qasr Tuba, alongside the dry riverbed, is the palace's ancient water supply – three massive wells built of stone, with adjacent plastered pools and round structures designed for use by the animals that powered the water-lifting devices.

Rami Khouri has written two guidebooks to Jordan's antiquities, heads that country's Friends of Archaeology society, and is host of a television interview program.



CELEBRATIONS OF LIFE

When Fadwa El Guindi was growing up in Cairo, she hoped to become an actress or a journalist.

But "just as I was finishing college, the Aswan High Dam was being built, displacing the Nubians from their homes on the border of Egypt and Sudan. It was a great challenge to study a way of life that was vanishing," says El Guindi. She lived with the pastoral Nubians for a year and then studied and wrote about them for three more years in Egypt.

That work won her a scholarship to the University of Texas in Austin, one of the best anthropology departments in the United States. She earned her doctorate there in 1972 and began teaching at UCLA. But it was in 1982, when she moved to the University of Southern California, that she started down the path that has brought her so much praise.

Today, El Guindi is considered one of the top Arab ethnographers. In light of her childhood acting aspirations, it is appropriate that she has made her greatest contributions to anthropology using film. Her work has been richly rewarded, with her 27-minute film on an Egyptian birth ritual, "El Sebou'," winning prizes around the world.

El Guindi arrived at USC just as visual anthropology, which uses film to record people's customs, was beginning to blossom. It didn't take long for her to discover that there were almost no films in US libraries showing the "culturally significant transitions from birth to death" in Arab life. "It was an exciting, emerging field and I got the bug," she says.

El Guindi set about filling that gap. "Film is one of the most powerful ways to convey culture. And the visual medium is more acceptable to the American public than books or articles because of the popularity of television."

"El Sebou'" was made in 1985 by an all-woman team. The ritual it records, which takes place seven days after birth in both Muslim and Coptic families, was filmed as it occurred, with no retakes, and reviewers say the film captures the essence of both the continuity and the change of tradition in a warm family environment.

El Guindi returned to Egypt in 1987 to make "El Moulid," which records a harvest-time festival celebrating the birth of a 13th-century Muslim cleric, Ahmad al-Badawy. The film premiered in Paris last March. Her next one, she says, will be about a Coptic religious ceremony. El Guindi's long-range aim is to record both public calendrical festivals and the transitions of the individual life cycle in a series called "Egyptian Celebrations of Life"; to achieve the goal, she has left teaching to set up her own non-profit ethnographic film foundation in Los Angeles, called El Nil – "The Nile."

Beyond the prizes her films have won, the 49-year-old film-maker says, one of the most rewarding parts of her work is the response she gets from young Arab women who see her as a role model. "I think, perhaps, because of my work, there will be a whole generation of female Arab ethnographic film-makers coming after me," she says. "That gives me a good feeling."

Brian Clark, a regular contributor to Aramco World, *free-lances from Olympia, Washington.*

WRITTEN BY BRIAN CLARK PHOTOGRAPHED BY NIK WHEELER

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