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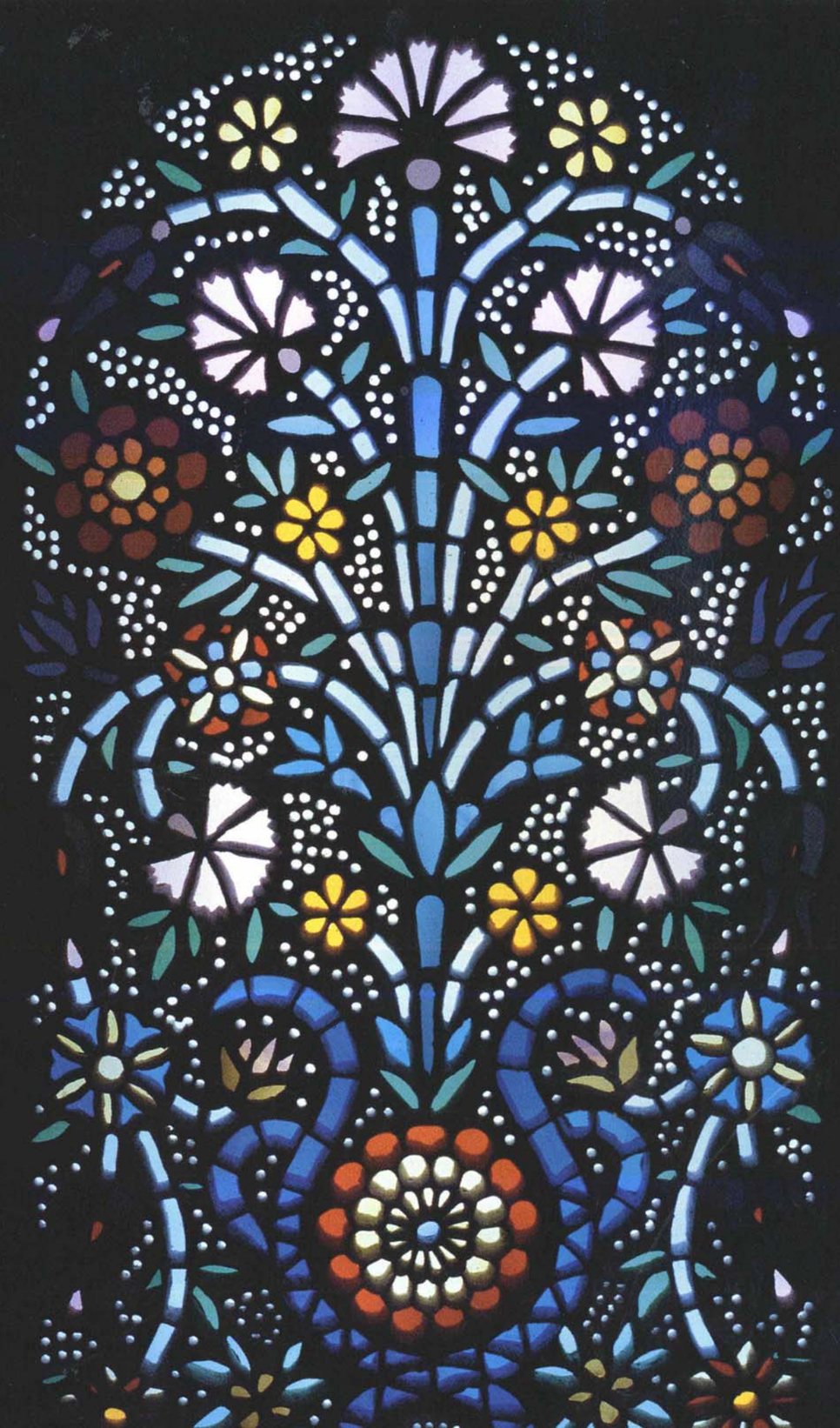

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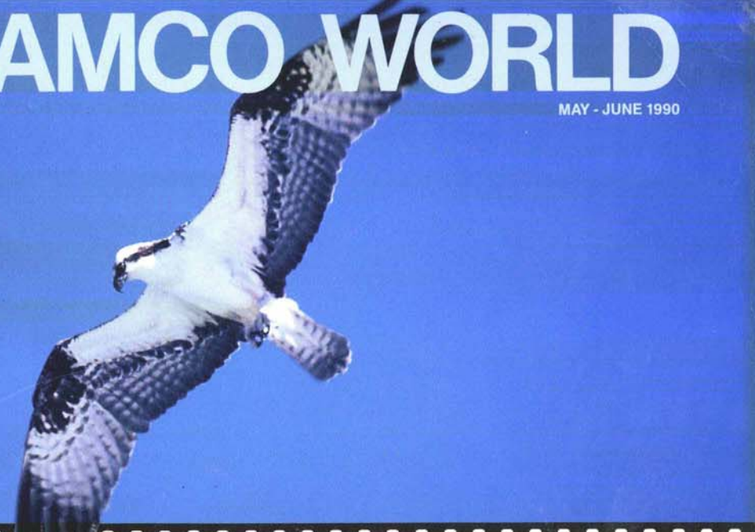

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Hamad A. Juraifani
PRESIDENT

Shafiq W. Kombargi
DIRECTOR, PUBLIC AFFAIRS

Ismail I. Nawwab
CONSULTING EDITOR

Robert Arndt
EDITOR

William Tracy
ACTING ASSISTANT EDITOR

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Editorial correspondence should be addressed to
The Editor, Aramco World
Aramco Services Company,
Post Office Box 2106,
Houston, Texas 77252-2106, USA
Requests for subscriptions and changes of address should be sent to
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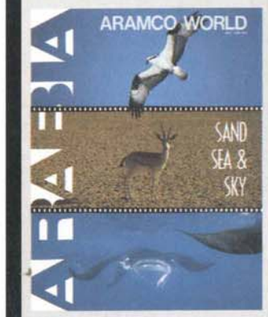

Cover: An osprey, a gazelle and a manta ray represent the wildlife of the Arabian Peninsula shown in "Arabia: Sand, Sea and Sky," to be broadcast in the United States in May and in Saudi Arabia and the United Kingdom thereafter. Photos: Stephen Dalton/NHPA, Michael McKinnon and Peter Vine. Back cover: Traditional flowers spring from a vase in Simon Tretheway's stained-glass window.

Crossing Wadi Rayan on Stage Two of the Pharaohs Rally, Youssef El-Mogi gets a brief respite from miles of scorching sand. Photo: Dick Doughty.

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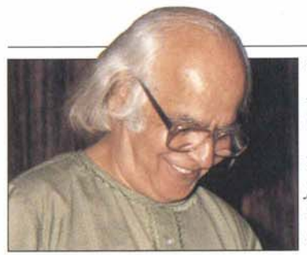


The New View From Space 2
By Arthur Clark
To see Planet Earth in a new light, look in the mirror of an astronaut's eyes. Space explorers from 13 nations gathered in Riyadh to reflect on ways that knowledge from their realm could help solve problems here in ours.


CLARK

Historian at the Helm 8
By Larry Eldridge
Vartan Gregorian became known as a miracle worker when he revitalized New York's decayed Public Library. Now, as president of Brown University, he has a new mission: "We're in the business of creating the future," he says.


ELDRIDGE

In the Mind of the Beholder 10
By Lydia Sharman Male
"The first principle of Islamic art is unity. From calligraphy to fabrics, tile, brickwork, buildings, cityscapes and landscapes, it is to the glory of God." Art students look beneath the surface at the RCA in London.


MALE

Arabia: Sand, Sea & Sky 16
By John Lawton with Miranda McQuitty
Yemen linnets raid a terrace wheatfield; ibex rams battle in their mountain fastness; reef fish flutter like leaves down a long blue wall of coral: a first look on film at the ecological riches of the Arabian Peninsula.


LAWTON

The Desert Game 26
By Dick Doughty
In the Arab world's most punishing and most prestigious motor rally, drivers push cars and cycles across 1900 trackless miles of Egyptian desert, from Giza to Sakkara – for the thrill of it, and maybe for a prize.


DOUGHTY

The Black is Back 34
By Brian Clark
Children's literature's noblest Arabian, the Black Stallion, returns, and young readers who love books about horses will devour this "prequel" to Walter Farley's famous series – the most successful of the 20th century.

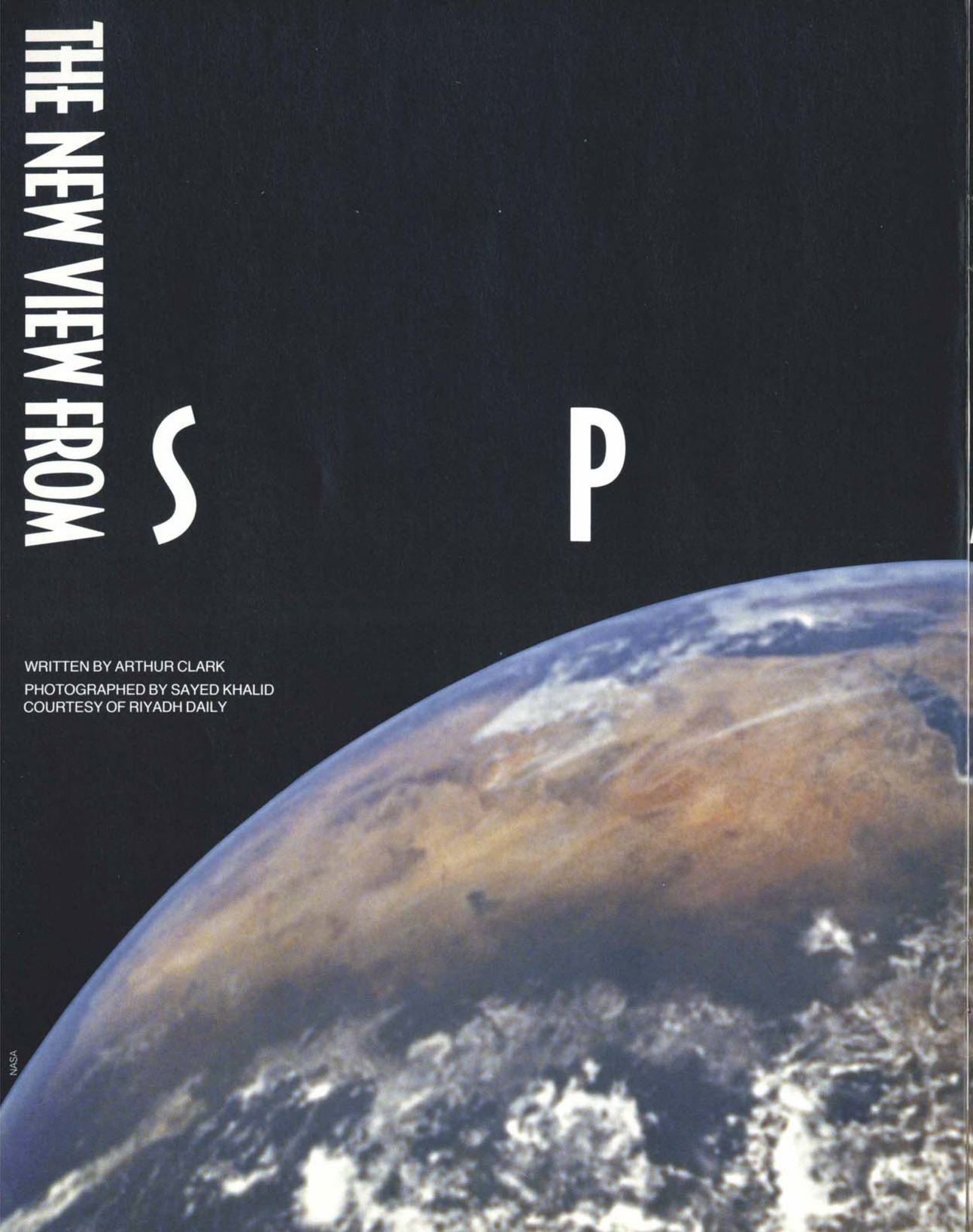

CLARK

THE NEW VIEW FROM SPACE

WRITTEN BY ARTHUR CLARK

PHOTOGRAPHED BY SAYED KHALID
COURTESY OF RIYADH DAILY

NASA



"Our eyes are a mirror for the earth..."

The right stuff" came to Riyadh last November when 55 astronauts and cosmonauts, and two of their honored guests, met there to put to practical, earthly use the unique vision they'd gained from space.

Many of the space travelers were heroes in their own right – possessors of what writer Tom Wolfe called "the right stuff" – but their "mission" in the Saudi Arabian capital, at the Fifth Planetary Congress of the Association of Space Explorers (ASE), was far broader than the space efforts of any single nation.

Among the topics they discussed: how to bring the bounties of space down to earth in the fields of communications, remote sensing and laboratory science – and in particular, how to use them to meet the threat posed by planet-wide environmental ills. They also talked about a subject of very personal interest: how to save the lives of space travelers whose missions go awry.

"Space for Earth" was the theme of the Planetary Congress, brought to Riyadh through the efforts of Prince Sultan ibn Salman ibn 'Abd al-'Aziz, a lieutenant colonel in Saudi Arabia's Royal Air Force, who won his astronaut's wings in June 1985 as a payload specialist aboard the US space shuttle *Discovery* (See *Aramco World*, January-February 1986). The prince is a charter member of the five-year-old ASE and served on its executive committee.

Prince Sultan told *Aramco World* that the organization is a fresh voice that could help bring change in the world, thanks to the public's strong "faith and trust" in space travelers. "We have seen our home from a far distance," he said, noting that their view allows spacefarers to transcend confining political boundaries, the better to face issues of broader concern.

"It really strikes you at mid-mission. The earth becomes smaller and continues to get smaller. It's a most incredible sight," the prince said of his feelings during his eight-day *Discovery* trip. "The boundaries of separate nations, the boundaries that are pounded into your head in geography class, just don't exist."

Speaking about the insight – and the attendant responsibility – that space flight seems to have bestowed on many of its veterans, Prince Sultan said, "Our eyes have become the mirror through which the earth looks at itself."

And what he and his colleagues in Riyadh see on our planet's face is environmental degradation, spreading and clearly visible from high overhead. To help Earth avoid ecological catastrophe, the congress recommended that both crewed and automatic environmental monitoring stations be rocketed into orbit to serve as a perpetual early-warning system.

Citing the depletion of the earth's ozone layer and the build-up of greenhouse gases in the atmosphere. Indian astrophysicist Yash Pal, the conference's keynote speaker, warned that humanity's gross misuse of the planet's resources might collapse into 30 years the changes that "used to happen in 10,000 years." He called for "space monitoring and education to combat pollution," and pointed out that delay invites disaster.

"We won't be able to cope. Millions of people will be involved" in a possible future ecological crash, he warned, "with enormous numbers of deaths. Islands will be wiped out, cropland will become desert and floods may become more serious."

"Space is not a panacea," he said, "but space should be brought into the race to save the planet." As a start, he suggested orbiting satellites to collect solar energy, covert it to electrical power in the form of microwaves, and beam it to earth – thus supplying power without the pollution that results from burning fossil fuels.

Pal told *Aramco World* that, although he had feared humans would not be able to change their ways in time to meet modern challenges, he had detected a change.

"Suddenly, in the last three or four years, people have woken up," he said, and become ready "to progress even farther, to move away from what has become almost a mad kind of world. This new planetary communication, planetary consciousness and planetary responsibility is the only way of thinking that will be able to save us from the extremes of a nuclear winter or an environmental summer."

American astronaut Rusty Schweickart, one of ASE's founders and head of its American chapter, told the conference that the environmental crisis was worsening. "When I first flew [in 1969], there were no oil slicks and relatively few fires," he said. "Several years later there were several slicks, and many fires throughout the tropical regions of the planet."

But he too believed there was "a growing awareness around the planet, in both the developing and the developed world, of the massive environmental challenges facing us." Space systems would be a key way of "monitoring our actual performance as nations, industries and individuals," he said, "as we attempt to bring our behavior into line with the rest of the natural environment."

Riyadh governor Prince Salman ibn 'Abd al-'Aziz and cosmonaut Alexei Leonov open the Space Art Exibition as astronaut Prince Sultan ibn Salman looks on at left.

Schweickart's Soviet colleague Vladimir Titov, who shares the record for the longest space flight – 366 days – and who lectured at Riyadh's King Fahd College of Security about preventing crime with space technology, said that countries – and even individual cars and ships – which pollute the environment could be identified from space.

"I have seen cities covered with smoke," he said. "This really makes me fearful for the future of the cities. When you work in them, you can't see the smoke, but from space you can."

Along with its push for an environmental early-warning system, the Fifth Planetary Congress also urged countries now exploring space to work closely with the developing world to advance space technology and to share discoveries.

Three-time US space-shuttle veteran Charles Walker called space "the greatest laboratory that exists for seeking knowledge. It is up to men and women of conscience," he said, "to make [its] technology and applications available to all nations and peoples who want them for peaceful purposes." For example, larger and more perfect protein crystals have been grown in space than have been possible anywhere else, Walker said; he believes they could lead to "treatment of diseases now untreatable." Walker also suggested that "faster and less energy-hungry computers" might result from experiments in the gravity-free environment of space.

A space-rescue capability was also the subject of an appeal for cooperation among spacefaring nations at the congress. Participants said the increasing frequency of manned space flights, and the psychological toll of disaster on the nations and the crews, made an international space-rescue program imperative. Fourteen people have died so far on space missions, ASE members pointed out, seven other astronauts have experienced close calls, and individual space programs have been immobilized for as long as 32 months after accidents.

James Lovell, an ASE member who flew on two Apollo missions, had one of the close calls. In 1970, the moon-bound three-man craft he commanded was rocked by an explosion 56 hours and nearly 330,000 kilometers (205,000 miles) away from earth. *Jane's Spaceflight Directory* tells the story: "At first it was thought that, even by using the lunar module (LM) as a lifeboat to tow the crippled spacecraft home, only 38 hours of power, water and oxygen were available – about half as much as would be needed .... Firings of LM's descent engine were ... accompanied by heart-stopping moments...when the astronauts, tired and chilled, made mistakes...."

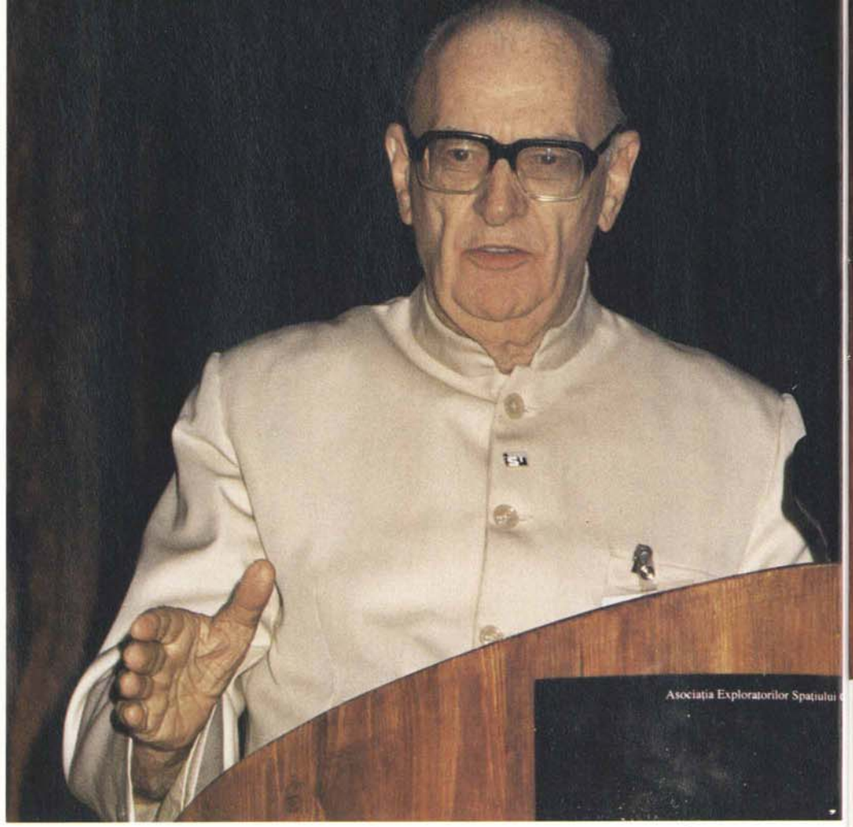
On a Soyuz mission 13 years later, Vladimir Titov and a comrade escaped only 90 seconds before their launch vehicle blew up on the ground. They used a launch jettison system for the first time in history, landing four kilometers (2½ miles) away from the blast. Titov joked in Riyadh that he held the record for "both the world's shortest and the world's longest" space flights, but his mood became serious when he contrasted his good fortune with that of the crew of the *Challenger*, which was not outfitted with post-launch escape devices.

Another congress highlight was a Riyadh-based teleconference linking the Saudi capital with three cities in the United States through a seven-satellite hookup operated by Saudi Arabian Television. Prince Sultan, the Saudi astronaut, moderated the event, in which a seven-man panel fielded questions from journalists and students in Riyadh and at the Hayden Planetarium in New York, Techworld in Washington, D.C., and the Fairbank Science Center in Atlanta.

In a sense, the congress was an outline of how people might work together for a better life on the planet as a whole. And ASE members maintained that astronauts hold enough public confidence to make their voices heard.

"Mankind is attracted to what we do: discovery, going a bit forward, stepping out," said Reinhard Furrer, one of two West Germans who took his country's payload aloft in the US Spacelab *D-1* in 1985. "As long as we do not have a war in space or weapons in space, people will listen."

Speaking against a background of epochal change in Europe – the Berlin Wall had begun to crumble only days before the congress convened – Furrer said the ASE had helped show that international cooperation on issues of grave importance is feasible. "We started talking before the blocs opened up," he said. "We were able to speak, to develop friendships and set up the organization despite the fact that some in our home countries didn't like it."



Cosmonaut Igor Volk, who spent 12 days in space in 1984 on a Soyuz-Salyut mission, conceded that the ASE had "no real political or financial power" to use in furthering its work. "But, on the other hand, first comes the word. One of our missions is to wake people up and show them what they haven't seen before."

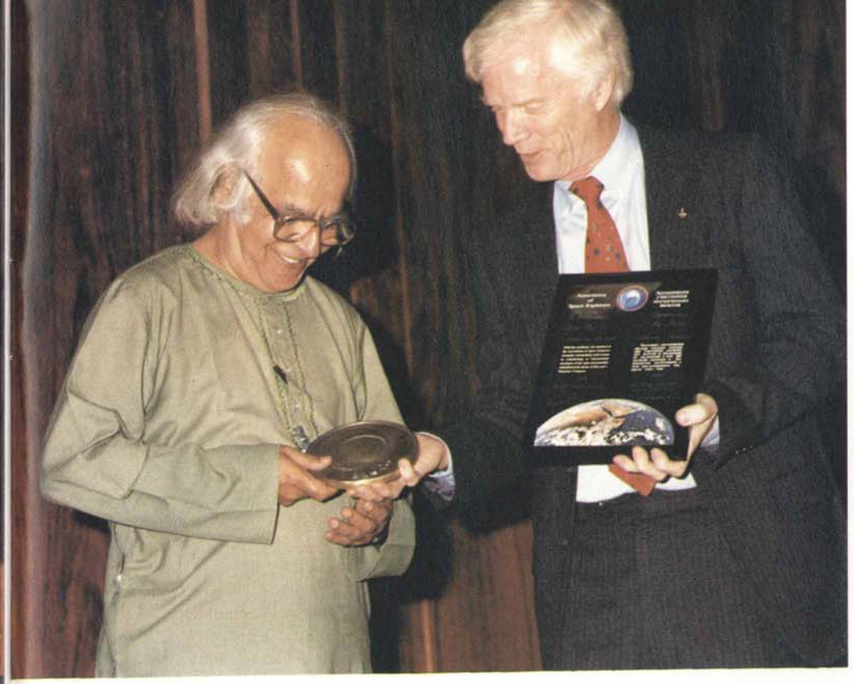
Said Prince Sultan, "Our message will reach politicians either directly, or indirectly through the people."

The congress's message was relayed from Riyadh to the world by the Saudi Press Agency. The BBC, *The Times* of London, and Tass and *Izvestia* from the Soviet Union also covered the meetings, along with other correspondents and broadcasters from Europe, the United States and the Far East. But the message was also carried across Saudi Arabia – in a single afternoon – by 38 ASE members themselves.

Schweickart, for example, jetted to Jiddah on the kingdom's west coast to lecture to the Saudi Meteorological and Environmental Protection Agency; Buzz Aldrin, the second man on the moon in 1969, spoke to students in Dhahran on the east side of the country; Aleksei Leonov, deputy chief of the Soviet Union's cosmonaut training center, talked to audiences at King Fahd University of Petroleum and Minerals in Dhahran along with three American astronauts.

"The lectures were an important part of the planetary congress," noted Dr. Abdallah Dabbagh, director of the Research Institute at the university. "They provided the opportunity for valuable exchanges of information in face-to-face meetings." Dabbagh, no stranger to applying space technology on earth, headed the Saudi team responsible for the scientfic experiments carried out by Prince Sultan on his *Discovery* mission.

The seed that eventually became the Association of Space Explorers was planted in California in 1981, when a meeting between Schweickart and Soviet cosmonaut Georgi Grechko was privately suggested. Grechko, the veteran of several Soyuz missions, wanted to talk about parapsychology, but Schweickart, who flew on an earth-orbit Apollo mission in 1969, saw the chance for something bigger. In Moscow on a lecture visit the following year, Schweickart met with several cosmonauts, and plans went ahead to form an organization "to bring together all who have flown in space and to encourage the exploration and the use of space exclusively for the benefit of all."



Guests of honor: at left, space visionary Arthur C. Clarke speaks at the Fifth Planetary Congress; above India's Yash Pal receives his award from astronaut Rusty Schweickart.

Founders were united on several points from the beginning: All feared for the quality of earth's environment; all agreed that the organization should be nonpolitical, the better to support the cooperative development of space for humanity. At the ASE's first congress, held in 1985 in a chateau in Cernay, France, with the theme "The Home Planet," French oceanographer and environmentalist Jacques Cousteau was the keynote speaker.

Twenty-five space veterans from 13 countries attended that first congress; in Riyadh, about 20 ASE members each came from the United States and the Soviet Union. Other nations represented included France, Mexico, Hungary, West Germany, East Germany, Poland, Bulgaria, The Netherlands, Romania and India, besides host country Saudi Arabia.

Yash Pal, the Fifth Congress's keynote speaker, received an ASE award in Riyadh in part for a project that he masterminded in the 1970's. It provided instructional television, via satellite, to 5000 isolated villages in India. Pal has since played a main role in his country's space research program and served on a number of national and international science committees, including the United Nations Advisory Committee on Science and Technology for Development.

The other honored guest – and ASE award recipient – at the congress was British science-fiction writer and visionary Arthur C. Clarke, author of *2001: A Space Odyssey, 2010: Odyssey II* and more than 40 other books still in print. He is also the inventor of the geosynchronous communications satellite, of which scores have been launched since he first described the concept in 1945. Clarke, who has lived in Sri Lanka for the last 30 years, arrived in Riyadh from England, where he had been created a Commander of the British Empire by the Queen. He took a vigorous part in the free-wheeling discussions that illuminated – and sometimes heated – the halls of the congress.

The topics ranged from space weapons to the possibility of a joint US-Soviet manned mission to Mars, and from the truth of reported landings by extraterrestrials in the Soviet Union to the likelihood of vacations in space.

Schweickart told a teleconference questioner that he wanted "to see the perceived necessity of military activity in space reduced to zero by increased understanding between nations." He said monitoring systems in space should be used "to maintain and preserve peace" on earth.

For his part, Leonov said the Soviet Union "fully rejected" the militarization of space, and he too called for a space-based monitoring system. He said the cost of a mission to Mars would be "a tiny fraction of what is being spent on space weapons," and that a joint flight could lift off as early as 2005. "Cosmonauts and astronauts think it is a very good idea," he added.

Buzz Aldrin, recalling his moon walk 20 years earlier, said, "It is my hope that it will not be another 20 years before people from many nations on the earth will be going to the moon, and to Mars as well."

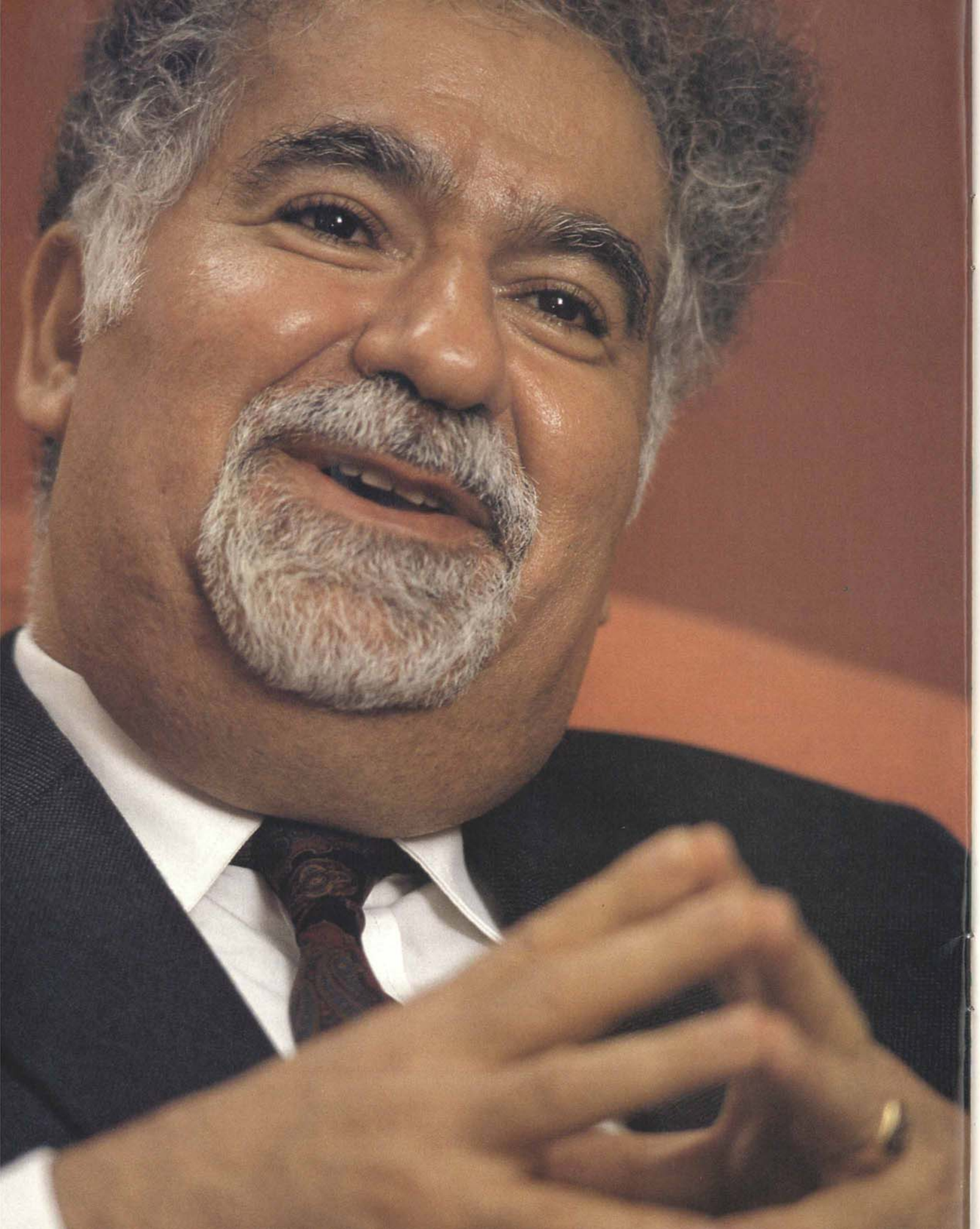
Clarke, who has written about such long-distance travel – a round trip to the Red Planet would take about two years – called a US-Soviet mission to Mars "very likely." Sporting a windbreaker emblazoned with the title of his last book, *2010*, and bedecked with Soviet and American flight patches, Clarke said that, although no new technology would be required to go to Mars, "a lot of systems need to be made reliable."

As for visitors from outer space, the outspoken Clarke said, "I have seen about six 'unidentified flying objects' and each had a natural explanation. All these stories are hoaxes, jokes, without an atom of truth. The idea that, for decades, governments have concealed secrets is nonsense: Secrets would be kept by the scientific community for about as long as it takes to send a fax."

But it was Yash Pal who best summed up the "Space for Earth" message of the Fifth Congress with a story. In early November, just before the congress opened, he said, a cyclone packing winds of more than 200 kilometers an hour (125 mph) and whipping up five-meter (16-foot) waves struck India's east coast. Twenty-five people were killed. A nearly identical storm in 1977 struck the same area and killed 10,000 people. What was the difference?

In 1989, an Indian satellite, providing communications services to thousands of remote villages and equipped with a powerful storm-monitoring and disaster-warning system, was in orbit overhead, Pal explained. In 1977, the skies above India were empty.

Aramco writer Arthur Clark is based in Dhahran. He is not related to Arthur C. Clarke, but is the brother of another contributor to this issue.



HISTORIAN AT THE HELM

Vartan Gregorian, hailed in the 1980's as "the man who saved the New York Public Library" and now president of one of America's most prestigious universities, traces at least part of his success to the cosmopolitan upbringing and education he received in the Middle East.

"I acquired an understanding of many different cultures and languages," says Gregorian, now in his second year at the helm of Brown University in Providence, Rhode Island. "And I learned that history can be a burden or a liberation – a burden if you don't understand, absorb, and analyze it, a liberation if you do these things."

Gregorian, who grew up in the Armenian community in Tabriz, Iran, and received his early education in Beirut, also speaks of his boyhood love of books – particularly the vivid impression made on him by Victor Hugo's *Les Misérables* when he was 12.

"I identified very much ... because I saw the same things all around me – the misery, the inconsistencies, the difference between advocacy and delivery," he said in a recent interview.

Another early influence was his maternal grandmother, whom he credits with instilling in him the truly important values of life.

"I learned all my ethics from her," he said. "She had a great sense of honor: If you give your word, that's it. It's not a question of whether you wrote it or not, or whether you can wiggle out of it. You've undertaken a commitment, and you're bound by it."

Gregorian was the first member of his family to leave Tabriz in quest of an education. He studied at the Collège Arménien in Beirut, moved to the United States to earn his bachelor's and doctoral degrees at Stanford University, and won an award for distinguished teaching while on the history faculty of San Francisco State College. As a faculty member at the University of Texas, he wrote *The Emergence of Modern Afghanistan*, a 600-page work published in 1970 and still considered definitive.

After serving as the second foreign-born provost of the University of Pennsylvania – the first one, William Smith, was brought in by Benjamin Franklin – he became president of the New York Public Library, a once-great institution that had fallen upon hard times.

It was in his eight years at the Library that Gregorian gained national fame as administrator, intellectual, entrepreneur and fund-raiser combined – and succeeded in re-establishing the library as an important cultural center. "We stressed that excellence and democracy are not mutually exclusive," he says.

Then last year he moved on to Brown, becoming the first foreign-born president of an Ivy League university. "The burden on the university," he was then quoted as saying, "is to increase the number of those who are willing to undergo 'the fatigue of judging for themselves.'"

Gregorian continues to speak out on Middle Eastern issues and to work for causes in which he believes, such as the current campaign to save the American University of Beirut. "I consider AUB one of the great contributions of America to the Middle East," he says, "because for generations it has educated people there regardless of nationality, religion, sex, or region."

Larry Eldridge, formerly sports editor of The Christian Science Monitor, *is host of a weekly magazine program on WQTV, Boston.*

WRITTEN BY LARRY ELDRIDGE
PHOTOGRAPHED BY JOHN FORASTE/BROWN UNIVERSITY

WRITTEN BY LYDIA SHARMAN MALE

In the Mind of the Beholder

Tarek El-Bouri sits at his desk surrounded by piles of glazed, handmade clay bricks. Paramjit Takhar paints in gouache intricate designs based on four-fold geometry. Saeid Massroor practices calligraphy, which he combines with gold leaf in his paintings. Delia Whitbread is struggling with the design of a rose window in seven-fold geometry, and Simon Tretheway is designing the stained-glass windows that he frames in carved and cast plaster.

These students at London's Royal College of Art, gathered from India, the Middle East, North Africa, Great Britain and North America, are working on master's degrees and doctorates at the school of Visual Islamic and Traditional Arts.

On the walls of the studios, and filling the director's office, are meticulously executed, glowing paintings inspired by Turkish, Indian, Persian and Moroccan designs. Bulletin boards are covered with posters, articles and postcards announcing and discussing events related to Islamic art and architecture. Islamic music plays in the background while, outside the window, an English drizzle descends on the South Kensington district of London.

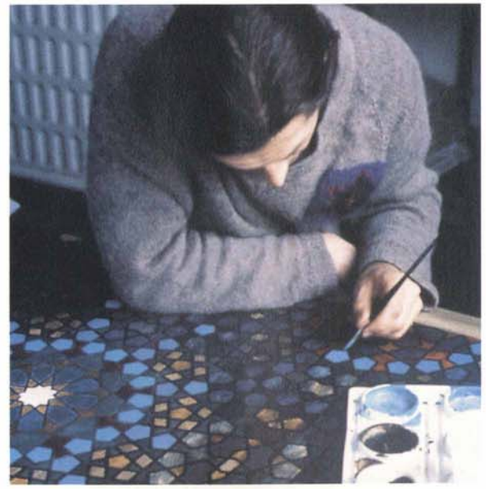
Founded in 1837, the Royal College of Art (RCA) is Britain's most prestigious independent post-graduate institution of art and design. Its faculties of fine arts, design and communications award higher degrees in subjects ranging from painting, sculpture and printmaking to automotive and industrial design and cultural history.

In a bold step, the Royal College of Art established the unique Visual Islamic and Traditional Arts (VITA) school in 1984 under the leadership of Keith Critchlow. Geometer, author, educator and lecturer, Critchlow is known internationally for his analysis of geometrical forms and their translation into structures and patterns. His research has found expression in three unique books, *Order in Space, Islamic Patterns,* and *Time Stands Still*. Critchlow has devoted 25 years to the study of Islamic patterns, has completed architectural and design commissions in Saudi Arabia, Kuwait and Iran and designed the Krishnamurti Study Center in Hampshire and Lindisfarne Chapel in Colorado.

Recipient of an honorary doctorate from the Royal College of Art, Critchlow was for 12 years a senior lecturer at the Architectural Association, one of England's most respected degree-granting schools of architecture, and at the RCA for nine years before he persuaded the college to create the Visual Islamic and Traditional Arts unit.

Fifteen years ago, when he was already a respected student of Islamic art, Critchlow was asked by Seyyed Hossein Nasr, at that time dean and vice-chancellor of Tehran University, to write a book on aniconic – nonrepresentational – Islamic art. The concept of unity, which is central to Islam, and a tradition that excludes the use of representational icons, which encourage idolatry, gave rise to aniconic visual forms in Islamic art which communicate the spiritual world through geometry, calligraphy and flowing, often floriated, rhythmic designs.

Critchlow asked Nasr why a Western scholar should write such a book. Pointing out that



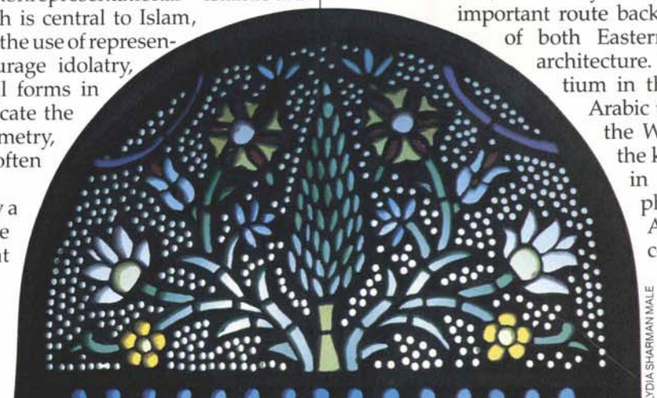
RCA student Simon Tretheway at work on an Islamic design. Left, hexagonal tiles; below, a stained-glass window, both by Tretheway

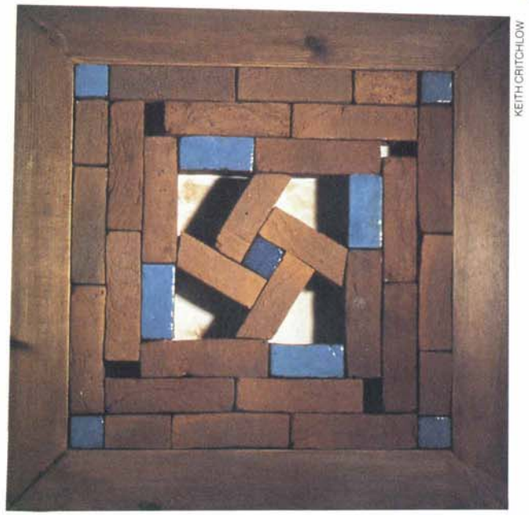
Muslim students were being increasingly influenced by Western art and architecture, at the expense of their own traditions, Nasr argued that a Western scholar and artist who could awaken the West to the profound value of Islamic art would also re-awaken Muslim students to the value of their own traditions. Critchlow took up the challenge, and in his foreword to the resulting book, *Islamic Patterns*, Nasr comments that "the writings of Keith Critchlow are among the first in the West to analyze the geometry of Islamic patterns from the point of view of the metaphysical and cosmological principles involved."

Critchlow is concerned that traditional Islamic arts are in danger of dying out in many areas. Competition from mass-produced artifacts, and the weakening of the traditional craft guilds, where rigorous scholarship and craftsmanship are practiced together under the direction of a master, are affecting both demand and supply: There is a serious shortage of artisans as well as decreasing appreciation of these traditions by both Islamic and non-Islamic designers.

Having finished *Islamic Patterns*, Critchlow felt the need to establish a center where the theory and practice of visual Islamic arts – in his thinking a universal language of contemporary significance – could be studied.

For Critchlow, the study of aniconic Islamic arts is an important route back to the esthetic traditions of both Eastern and Western art and architecture. The influence of Byzantium in the East and the influx of Arabic translations from Spain, in the West, were both crucial for the kindling of the Renaissance in 14th-century Italy. The philosophies of Plato and Aristotle, preserved and commented on in Arabic





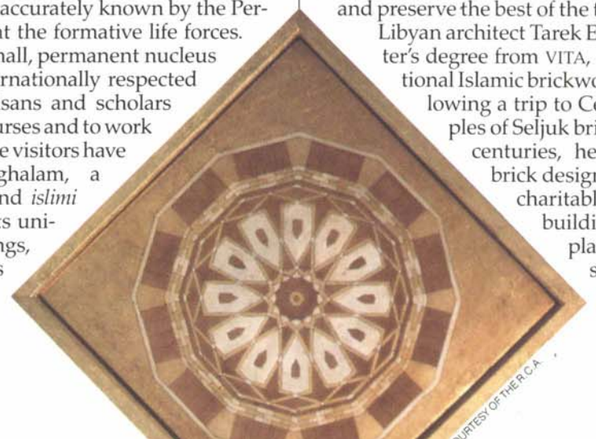
KEITH CRITCHLOW

Above and right, Islamic brickwork adapted for use in modern architecture by Tarek El-Bouri.
Below, "Remembrance" by Saeid Massroor, a design based on Islamic geometry.

manuscripts and translated in Muslim centers of learning, were introduced to Europe (See *Aramco World*, May-June 1982). So were Indo-Arabic numerals. The mathematician Leonardo of Pisa, known as Fibonacci, whose father had employed an Arab teacher of mathematics for him, had a profound influence on the esthetics of Leonardo da Vinci, as well as several other important figures of the Renaissance.

VITA qualifies its graduates to practice, teach and research the Islamic arts as living art forms within an ancient tradition. Critchlow explains, "The first principle of Islamic art is unity. The great architectural feats of Islam, from the Taj Mahal to the Alhambra in Spain, demonstrate a profound integration of structure, form and beauty. This is achieved through the overriding sense of unity that lies behind all the arts and crafts of the Muslim world. At VITA the whole range of Islamic arts – from calligraphy to decorative objects, fabrics, tiles, ceramics, brickwork, buildings, cityscapes and landscapes – is considered in its entirety. In very simple terms, it is to the glory of God or to the glory of the unity of creation..."

The VITA curriculum, taught in English, combines the fundamental principles of geometry with the vegetal forms often called "arabesques," but more accurately known by the Persian word *islimi*, that represent the formative life forces. The program is staffed by a small, permanent nucleus of teachers supported by internationally respected Islamic architects, artists, artisans and scholars who visit to give lectures or courses and to work with individual students. These visitors have included Mahmoud Zaringhalam, a superb artist of calligraphy and *islimi* who was rector of the first arts university of Iran; Martin Lings, author and scholar who was curator of Arabic manuscripts at the British Museum; and Ibrahim Allawi, Director of the Buldan Center in London and an expert on the cosmology of the city of Baghdad.



COURTESY OF THE R.C.A.

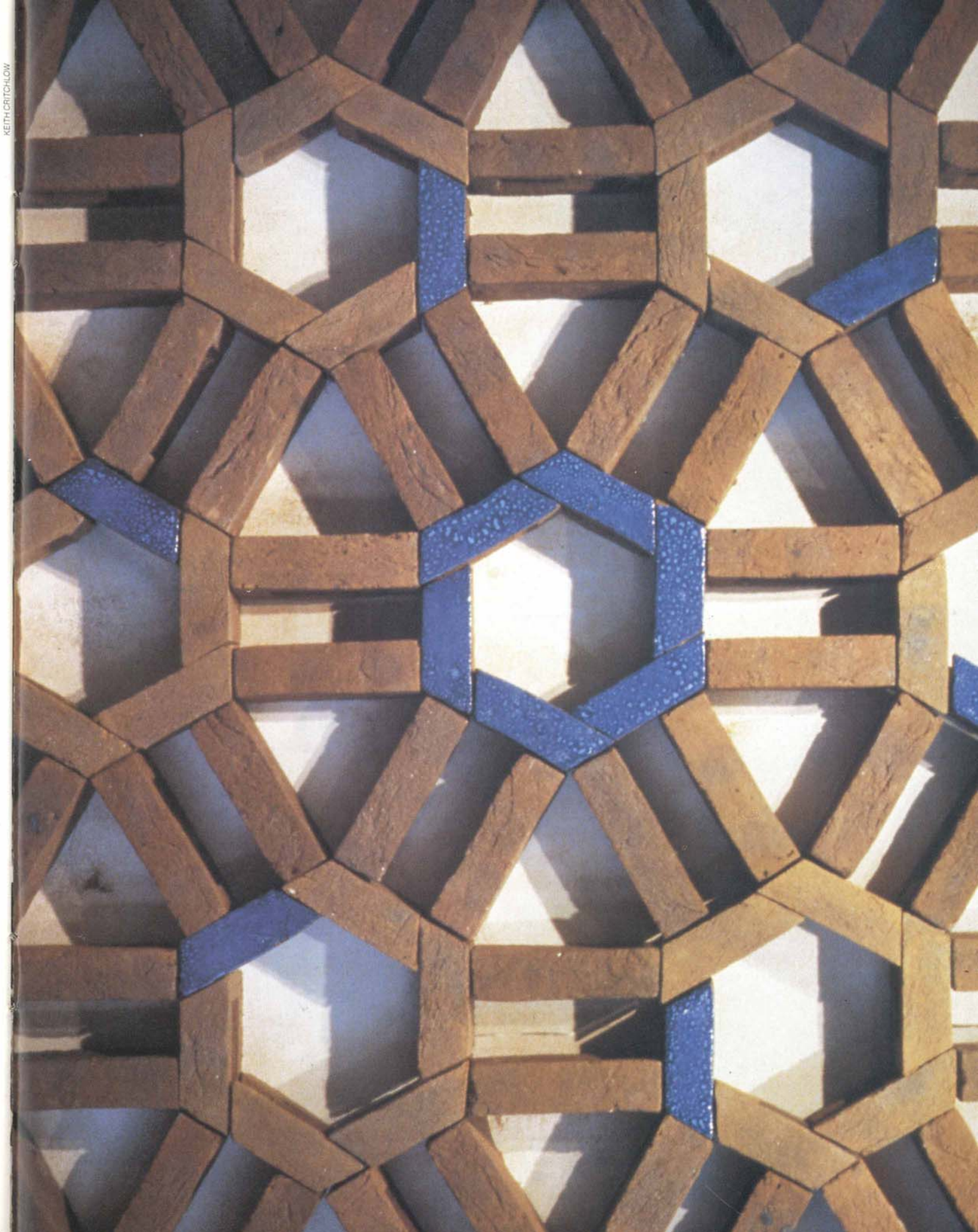
Keith Critchlow, dedicated, endlessly energetic and a brilliant lecturer, enthralls his audiences as they follow him into realms where number and geometry express profound universal truths and concepts of beauty and harmony. He opens doors and creates new connections in the minds of his students, and of listeners at lectures, workshops and conferences around the world. VITA students come from diverse cultural backgrounds; they have in common the desire to explore the esthetic order at the heart of traditional Islamic and Western art and architecture.

The first students graduated from VITA in 1987, three years after the program was formally established. Architect Samar Damluji, from Iraq, obtained her doctorate from the VITA unit with a study of the mud-brick housing of the Hadramaut in South Yemen. As Damluji worked for two years in the office of Egyptian architect Hassan Fathy (See *Aramco World*, May-June 1988) and edited his writings, she absorbed his belief in the value of building with local materials, local skills and local traditions. Now a post-doctoral grant from Britain's Leverhulme Trust, a charity supporting research, will enable Damluji to make widely accessible, in both English and Arabic, a comprehensive study of the unique undocumented architecture of South Yemen, as well as a plan for the modernization and preservation of traditional local construction techniques (See *Aramco World*, May-June 1986).

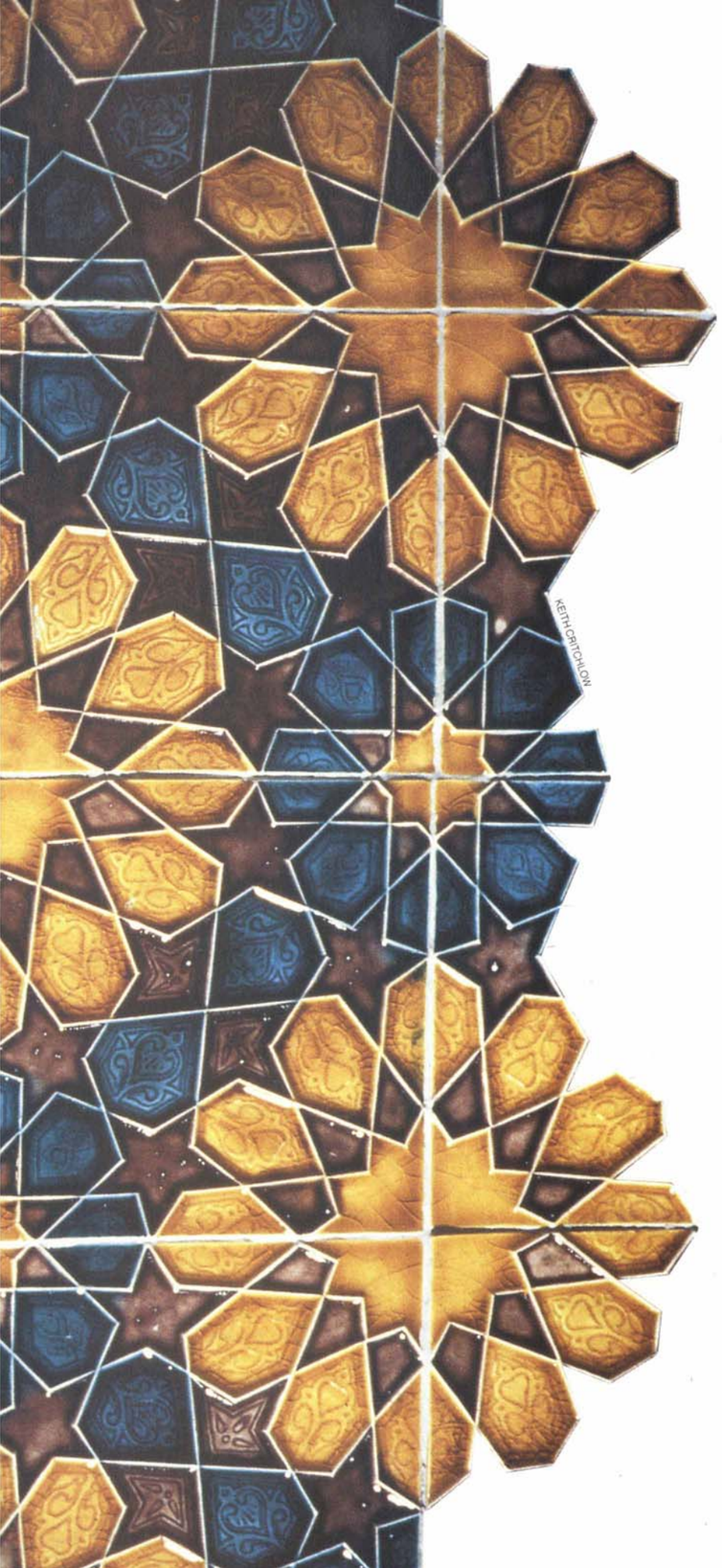
Waeil Samhouri, an architect and urban designer from Syria, shares a corner of the VITA unit. His walls are covered with intricate plans of Islamic cities, even at first glance quite different from the plans of typical Western cities. Dwellings, in random patterns, are built to the edges of the streets and surround inner courtyards, in contrast to the grid patterns, sidewalks and exterior gardens of Western communities. Samhouri was planning to join the Aga Khan program in Islamic architecture at Harvard when a weekend workshop with Keith Critchlow in New York convinced him that the RCA would be the best place for him to pursue his research.

The projects completed by the first two groups of VITA graduates included a study by Sunand Prasad, a practicing architect who undertook a doctoral thesis on North Indian *haveli* courtyard houses, the traditional house style of his birthplace. Here, columns support delicate arches and upper stories have decorative corbeling. Prasad's study compares these houses, which are rapidly disappearing, with the modern bungalows which are replacing them, in an effort to understand and preserve the best of the traditional type of dwelling.

Libyan architect Tarek El-Bouri, who obtained his master's degree from VITA, studied the relevance of traditional Islamic brickwork to modern architecture. Following a trip to Central Anatolia to study examples of Seljuk brickwork from the 10th and 13th centuries, he spent a month developing brick designs at Commonworks in Kent, a charitable trust founded by a large building firm, which includes a brick plant. Commonworks provided small, unfired standard handmade bricks from their own



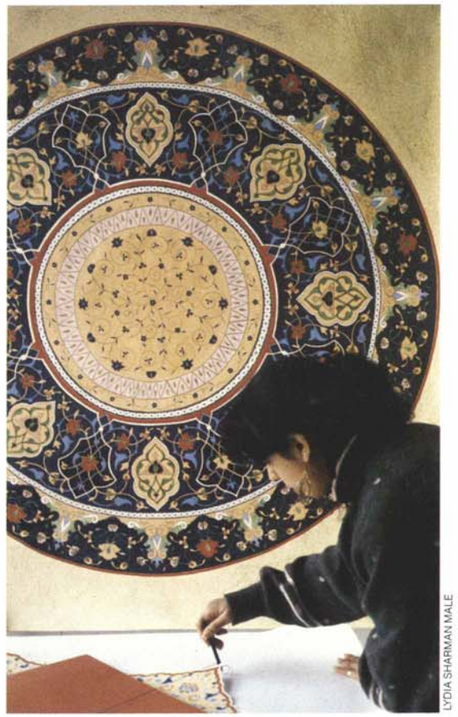
KEITH CRITCHLOW



KEITH CRITCHLOW

"As I make the designs, I find myself attuning very deeply with them."

Left, tiles by Simon Tretheway. Below, Paramjit Takhar at work in her studio beneath a large mandala design.



LYDIA SHARMAN MALE

production; El-Bouri cut them to the angles required by the geometry of his designs. The bricks were then fired. El-Bouri also developed a blue glaze similar to the one used in traditional Islamic brickwork. Returning to architectural practice, he now hopes to incorporate the timeless, inspirational quality of Islamic brickwork into the design of mixed-use urban projects in countries where it will be appropriate.

Another group of master's graduates from VITA work in two-dimensional design. Blurring the distinction between fine arts and crafts, they contribute equally in both areas.

Simon Tretheway, from London, has a background in fine arts and stained glass. In the degree show in which graduating students present their best work, Tretheway exhibited glowing circular designs symbolizing cosmic rhythms in six- and eight-fold geometry, windows with stained glass embedded in carved or cast plaster, and a series of delicately carved tiles inspired by his study of traditional Islamic patterns. The tiles, now being commercially produced in England, are hand-finished with glazes duplicating the chemical formulae used in Egypt and Persia 700 years ago.

For Tretheway, joining the VITA unit was the beginning of a completely new way of seeing and working. He tried to explain the change that occurred in him as he worked patiently to understand the structure behind certain Islamic patterns, and then to use variations of these patterns in his own designs.

"I can divide a circle perfectly into six equal sections to create a hexagram, but I have not actually *made* a hexagram if I do that. Rather, I have adhered to something that was already inherent in the circle. What this means to me is that I am not just working with pencil and pen, I am also working with an inner restructuring. As I make the designs, I find myself attuning very deeply with them, becoming peaceful and more alive."

Saeid Massroor, an Iranian now living in Britain, exhibited beautiful works inspired by Islamic calligraphy, geometry and *islimi*. Massroor explores the geometry of calligraphy, the meaning of this geometry and the meditational and abstract aspects of calligraphy. His exhibition included exquisitely refined visual interpretations of phrases from the Qur'an and of a poem by the 13th-century Turkish mystic Jalal al-Din Rûmi, all rich in meaning whether or not the viewer understands Arabic.

Paramjit Takhar, a Briton of Indian heritage, exhibited delicate, hand-painted patterns and designs for ceramics, textiles and carpets inspired by Islamic miniatures and ceramics and by the Moghul tradition of India. These patterns include very large, circular mandalas – requiring hours of meditative, repetitive brushwork – as well as many smaller-scale, individual designs.

Doctoral student Richard Foster, author and BBC television producer, undertook a thesis on the pavement in the sanctuary of Westminster Abbey, laid in 1268 in the distinctive Roman Cosmati style. Its pattern based on eight-fold symmetry, the pavement blends Roman, Greek and Islamic traditions, and is considered one of England's most important, least known and least understood art treasures.

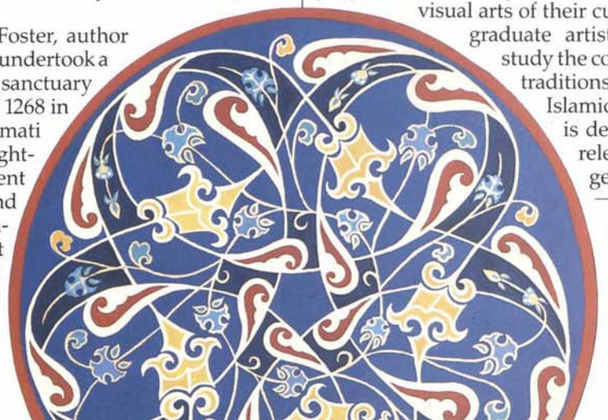
SAEID MASSROOR

Above, "Construction of the Allef" by Saeid Massroor; below, "Variations on a Turkish Theme" by Delia Whitbread.

Other students at VITA are pursuing such subjects as the mathematics of the ceramic art of the Alhambra, the drawing systems of Ottoman arts, the motifs of Islamic textile design, Coptic iconography, and the development of educational programs. VITA itself has been asked to develop a course on visual Islamic art that will lead to a General Certificate of Education for British high schools.

VITA students have already been awarded prizes – including The World of Islam Festival Trust Prize – at the RCA degree show. The Victoria and Albert Museum plans purchases; Prince Philip and other notable visitors to the show discuss the program and the students' projects. And Middle Eastern and Western patrons make their own purchases.

Keith Critchlow, even at this early stage in VITA's history, feels greatly rewarded by the accomplishments of his students. He is looking forward to the establishment of similar programs in traditional visual Islamic arts, combining practical application and scholarship, at universities in Muslim countries: Existing programs tend to be largely theoretical. Muslim art students living in England have not been able to find other programs which help them to understand and build on the visual arts of their cultural heritage. At VITA, post-graduate artists, designers and architects study the contemporary value of different traditions within the overall unity of Islamic visual arts. At VITA, tradition is defined as the sacred thread of relevance that runs through all generations.



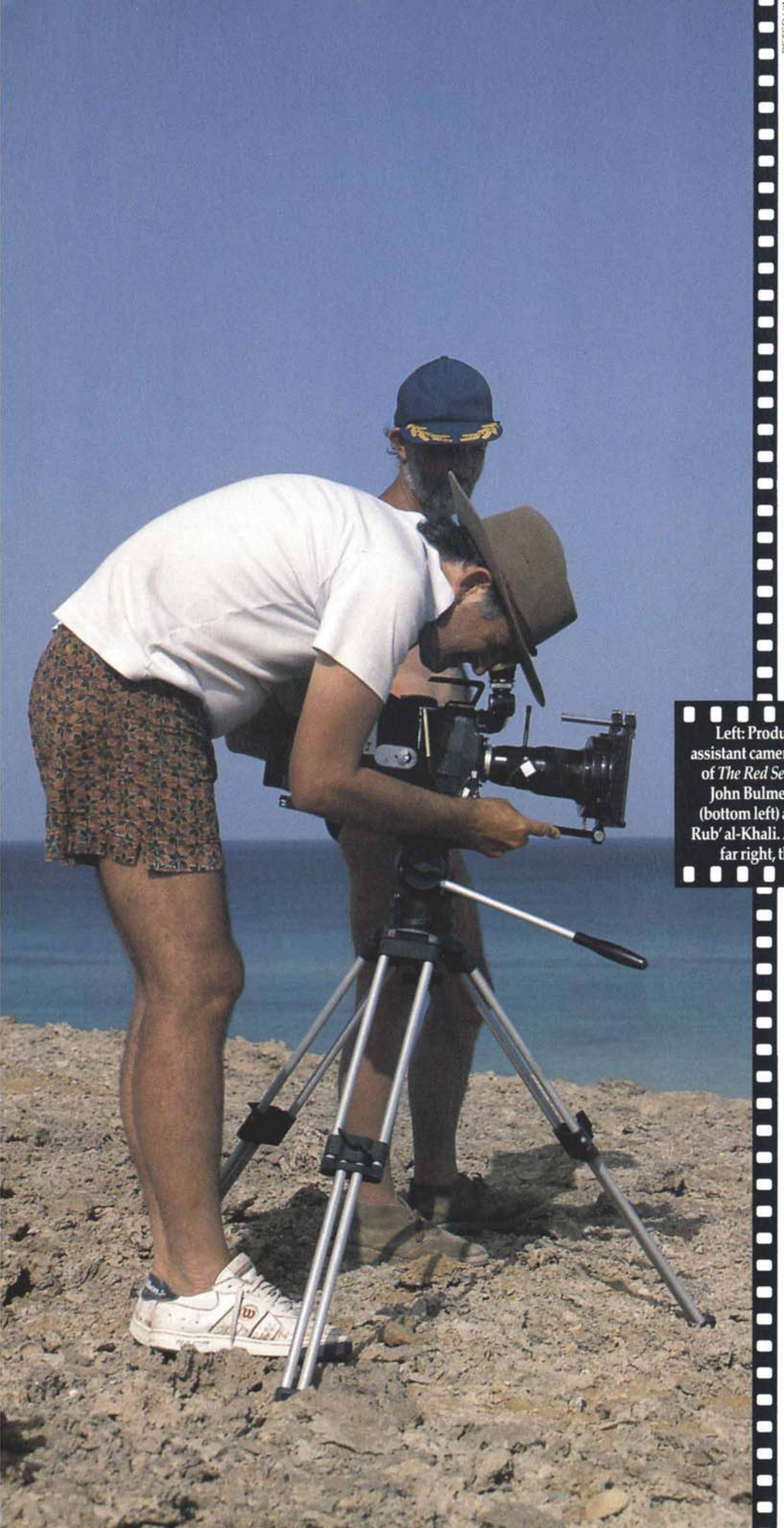
Lydia Sharman Male, a graduate of London's Central School of Art and Design, practices, teaches, studies and writes about design.

HAGEN SCHMIDT

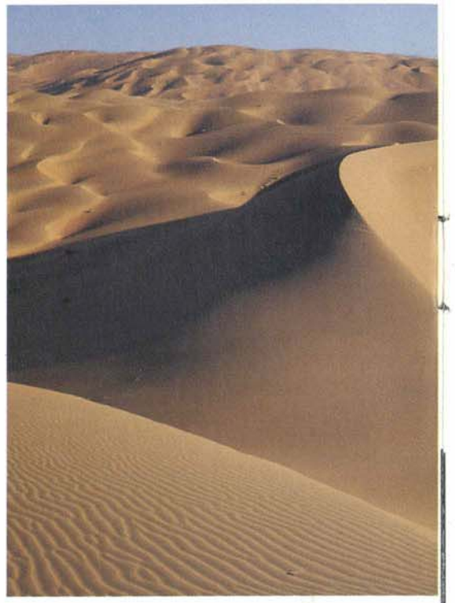
NHPA

Inhabitants of Arabia's sea, land and sky: from left, a giant Napoleon wrasse, a Bedouin milk camel, and a kestrel.

SAND, SEA & SKY



PETER VINCENT



WRITTEN BY JOHN LAWTON
WITH MIRANDA McQUITTY
PHOTOGRAPHED BY MICHAEL McKINNON

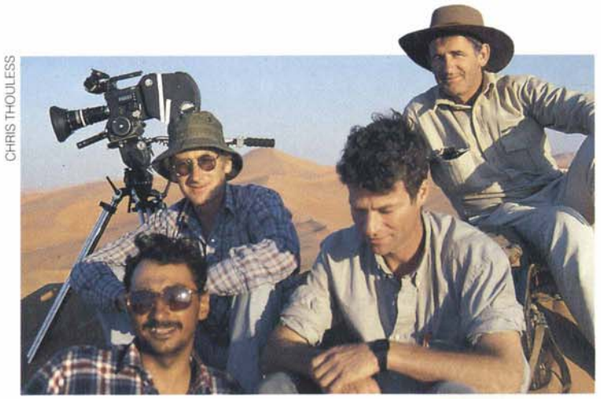
Left: Producer-director Michael McKinnon (at viewfinder) and assistant cameraman Alistair Kinneil on Farasan Island during filming of *The Red Sea Rift*. Above right: McKinnon (top right), cameraman John Bulmer (top left), associate producer Mohammed al-Edrissi (bottom left) and Alistair Kinneil filming *The Eye of the Camel* in the Rub' al-Khali. Above, the Rub' al-Khali; right, the Tuwaiq Escarpment; far right, the 'Asir highlands, subject of *The Mountain Barrier*.

It took a Saudi Arabian student studying in the United States to sum it up: "I had no idea Arabia had such interesting wildlife," said Azza al-Sharifah, "and I *live* there."

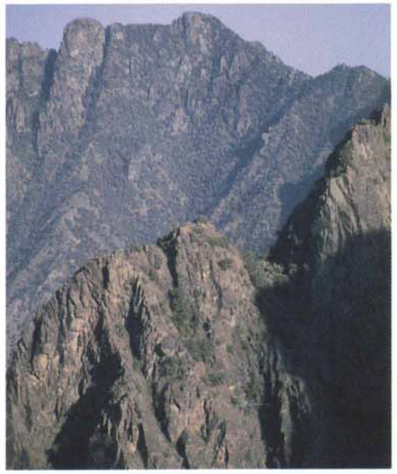
She was speaking following the March preview, in Washington, D.C., of the first in-depth study of Arabia's natural history on film (See box, page 22). For although the uniqueness and diversity of its wildlife has been known to experts for some time, it is only now – in the documentary series *Arabia: Sand, Sea and Sky* – that its story is being told to the public.

The series of three 50-minute programs makes its world television premiere in May, carried by 7,222 cable systems to 48.2 million homes in the United States by – appropriately – The Discovery Channel. For, says the series' producer-director Michael McKinnon, "each program is a journey of discovery."

The Mountain Barrier explores the wildlife of the high Sarawat escarpment that separates Saudi Arabia's coastal Tihama plain from the deserts of the peninsula's interior. *The Red Sea Rift* investigates the marine riches of the Red Sea from the mangrove swamps of the south, through the spectacular coral reefs of the center, to the sea-grass beds of the north. And *The Eye of the Camel* follows a Bedouin family across the sands of the legendary Rub' al-Khali, examining the extraordinary strategies adopted by animals and plants to survive in this desolate region.



CHRIS THOULESS



Filmed over a period of two years in more than 100 locations in Saudi Arabia and the Red Sea, the series benefited from what McKinnon, an Australian, describes as "a great piece of luck. Just as we went into production," he explained, "the results of a whole series of studies done by experts for the Saudi National Commission for Wildlife Conservation and Development were published. It was manna from heaven."

Even John Bulmer, the cameraman responsible for what Discovery Channel's Michael Prettyman described as "some of the best film we have ever had on our air," gave credit to the scientists of the Saudi wildlife commission who advised him. "There is no mystery about wildlife photography," said Bulmer. "It's just a matter of experts showing you the right place at the right time, and then being quick and on the ball."

But Bulmer's modesty belies the actual effort that went into making *Arabia: Sand, Sea and Sky*; over 30 people were engaged in 11 three-week shoots that involved four months at sea and more than 160,000 kilometers (100,000 miles) of land travel. For Arabia is a vast area – as large as Western Europe, or the United States east of the Mississippi – bordered on three sides by water and on the fourth by desert. And while this isolation led to the development of its unique wildlife, it also made filming it – until recently – nearly impossible.

"But modern development and the newly available scientific knowledge enabled us to film in the remotest places," said McKinnon, whose previous productions include *The Arabs*, a highly acclaimed study of the contemporary Arab world in a historical perspective.

McKinnon also takes a contextual approach to his subjects in *Arabia: Sand, Sea and Sky*. His scripts stress that the origins of much of Arabia's wildlife go back 30 million years, when the Arabian Peninsula broke away from the African landmass, isolating many species. The separation was part of a rifting process still going on – one that is responsible for a chain of great African lakes from Malawi to Kenya and that extends as far north as Turkey. In between, the tectonic movement tore a huge rift in the earth's crust from Ethiopia to Jordan, more than 1600 kilometers (1000 miles) long, into which poured the waters of the Indian Ocean, carrying marine life with them and creating the Red Sea.

Marooned on a vast peninsula, Arabia's wildlife evolved away from its African origins, while Red Sea marine life, isolated in a long sleeve of water, developed away from its Indian Ocean beginnings.

Thus were created the unique life forms found in the Red Sea today, and on Arabian soil – where, for example, four out of 10 insect species are endemic, that is, found nowhere else in the world.

The Indian Ocean still passes over the shallow threshold of the Bab al-Mandab to replenish the Red Sea, and McKinnon's cameras follow the flow of its nutrient-rich water along thousands of kilometers of coral cliffs, atolls, reefs and lagoons, which give the sea some of the most stunning underwater landscapes in the world (See *Aramco World*, May-June 1985 and May-June 1989).

In the southern Red Sea, abundant plankton supports an immense chain of life. Microscopic creatures support triggerfish, boat fish and a great variety of gobies and prawns. Vast schools of jacks feed in the biological soup, while shoals of barracuda prey upon smaller fish and groups of 20 or more giant manta rays feed in extraordinary circling formations.

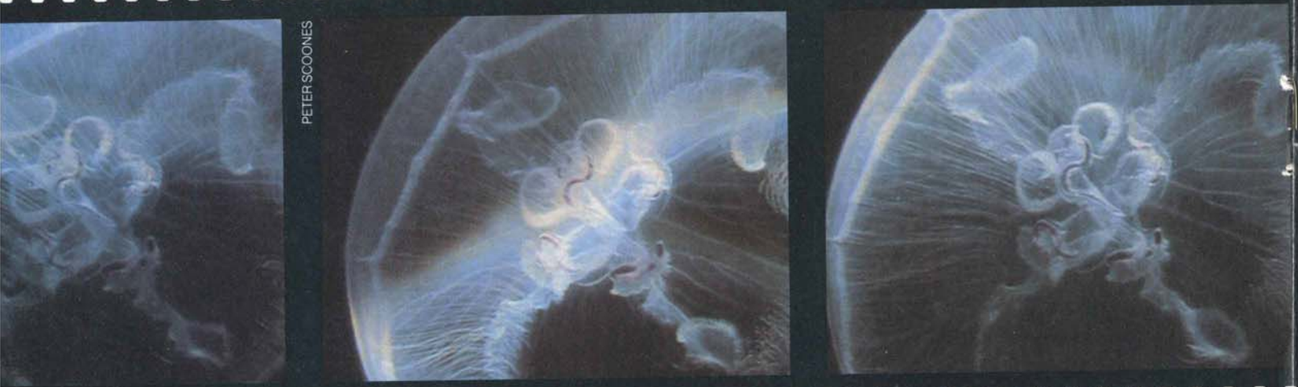
Where they meet the land, the nutrient-rich waters of the south have also created mangrove swamps – the domain of crabs, rock skippers and herons. But by the time the water reaches the central Red Sea – drawn north by evaporation from the surface – the Indian Ocean's flow is depleted of nutrients; marine life there is concentrated on deep coral walls.

These coral cliffs stretch north for a thousand miles to the Gulf of Aqaba, where sand washed down from coastal mountains provides ideal conditions for great meadows of sea grasses. Here seabed-dwelling creatures, vunerable to predators swimming above, have evolved intriguing means of camouflage and evasion. But McKinnon's cameras flush out the moth fish – rarely seen by man – and film groves of garden eels anchored tail-down in the sandy bottom, feeding on food drifting by.

Arabia's break with Africa was a violent affair; as the peninsula pivoted away to the east – the hinge point was Jordan – its western edge also tilted upward, creating a mountain wall the entire length of the Red Sea coast. This great mountain system is called the Hijaz – the barrier.

The acrobatic Abyssinian roller, representative of Arabia's ancient faunal links with Africa, performs for a potential mate.

Dormant eggs of desert shrimp may wait 20 years for revivifying rainfall. When it comes the shrimp hatch, grow to maturity, mate, lay eggs and die in the space of a few days. Below: a jellyfish in the Red Sea.



A NATURAL HISTORY PREVIEW

WRITTEN BY LIBBY DUDLEY

CHAD EVANS WYATT

Audience reaction to a preview, in Washington, D.C. last March, of extracts from the three-part series *Arabia: Sand, Sea and Sky*, was demonstrative and outspoken. The 480 invited viewers winced as a colorful mountain kingfisher repeatedly batted a neon-blue agamid lizard against a tree before devouring it, and gasped at the aerial acrobatics of the long-tailed Abyssinian roller as it performed for a potential mate.

They were wide-eyed at the lightning-paced race to the death between a desert hare and a saluki hound, and entranced by the "dance of the sea": underwater plants and eels swaying with the current, their movements choreographed to an inaudible undersea beat.

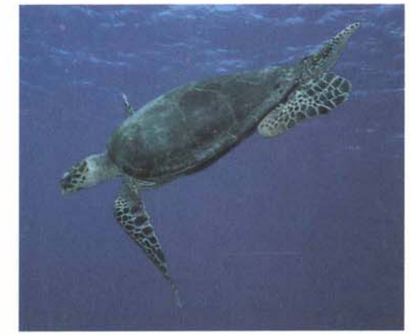
"Wonderful photography," said Dr. Roderic Davison, professor of history at George Washington University. "It's stunning footage," enthused Michael Prettyman, of The Discovery Channel, the US broadcaster of the series.

"I wish we could have seen more," added Jane Newson, editor of *Middle East Journal*, following the preview at the Smithsonian Institution's National Museum of Natural History.

Television viewers in the United States will be able to see the full series on three consecutive Tuesday evenings at 8:00 Eastern time, May 15, 22 and 29, when *Arabia: Sand, Sea and Sky* will be broadcast, with limited commercial interruptions, on The Discovery Channel. It will also be shown on three Thursdays at 10:00 a.m. (May 17, 24 and 31) and three Fridays at 11:00 p.m. (May 18, 25 and June 1).

Viewers in Saudi Arabia can look forward to seeing the first episode of the series on Saudi Arabian Television in the near future. Negotiations are under way with broadcasters in a number of other countries as well, says producer-director Michael McKinnon, and the BBC has agreed to broadcast the series this autumn in the United Kingdom. "We expect the series to be sold worldwide, perhaps to as many as 20 or 30 countries in the end," McKinnon added.

The production was financed by Saudi Aramco, Mobil Corporation, and Saudi Basic Industries Corporation (SABIC), who are also underwriting the US telecast.



Clockwise from above: A family of hamadryas baboons, a griffon vulture and a hawksbill turtle. Left: Guests at a post-preview reception at the Smithsonian Institution's National Museum of Natural History, in Washington, D.C., for viewers of *Arabia: Sand, Sea and Sky*.

Impassable for most wildlife, the mountains loom above a coastal plain where Arabia's ancient links with Africa are evident in such species as the Abyssinian roller, with its spectacular, gravity-aided mating display.

In the south, prevailing winds sweep the Red Sea's moisture-laden air up and over the mountain wall, where cooler altitudes wring rainstorms from the clouds that form. The high slopes are thus the most verdant region of the Arabian Peninsula, and the part where the greatest variety of endemic species is found. Here the Yemen linnet thrives in the steeply terraced fields, and in the high mountains juniper forests contain the greatest concentration of wildlife anywhere in Arabia, including some 350,000 hamadryas baboons and 11 uniquely Arabian bird species (See *Aramco World*, July-August 1989).

Elsewhere, in the rugged outcrops of the drier northern mountains, McKinnon's cameras discover the refuge of the ibex, and film the *harrahs* – vast volcanic plains of black lava rubble hundreds of kilometers across. Cold, bleak and barren in winter, the *harrahs* come to life with the spring rains, attracting nomadic animals and birds, including seven species of lark, which come here to breed.

On the eastern side of the mountains it seldom rains, but when it rains, it pours. Much of this water disappears into aquifers – layers of porous rock – beneath the desert, but in the brief life of the desert pools a fully rounded natural drama is played out. The waters bring back to life the dormant eggs of *Triops granarius*, one of the region's oldest inhabitants, the desert shrimp. In the space of a few days the shrimp grow to maturity, mate and die – leaving their eggs to lie in wait for rains that may not come for another 20 years.

In the southeast of Arabia lies the Rub' al-Khali, the largest continuous sand desert on earth, with linear dunes stretching for hundreds of kilometers and towering sand mountains rising more than 300 meters (1000 feet) from ancient dry-lake beds (See *Aramco World*, May-June 1989).

Covering an area larger than France, the sand desert is known as the Empty Quarter because, for at least the six months of summer, searing heat prevents animals or wandering herdsmen from venturing into it. Only in winter do the Bedouins of southern Arabia enter these forbidding sands, leading their camels into the desert in search of pasture.

McKinnon's cameras accompany a family of Bedouins of the Al Murrah tribe, and their camels, on their winter migration through the center of the Rub' al-Khali, together with their saluki hounds. The fleet-footed saluki is believed to have originated in southern Arabia 8000 years ago and has been used since earliest times to hunt gazelle, bustard and hare.

The lives of the camel and the Bedouins have been inextricably linked, too, since the beast of burden and provider of milk, meat and hair was domesticated in southern Arabia 4000 years ago – probably saving it from extinction.

Wild desert animals, however, must fend for themselves and have adopted an intriguing variety of survival strategies. The rare rheem gazelle, for example, may spend its entire life without drinking. Instead, it takes moisture from the desert plants it eats, and starts the day by licking the morning dew from its coat.

Although such habits do not change, the habitat of much of Arabia's wildlife has been transformed in recent years by modern development. *Arabia: Sand, Sea and Sky* examines the profound implications of these changes for the peninsula's wildlife, and assesses the conditions required to strike a balance between the demands of modern Arabia and the needs of its wildlife heritage.

The series shows, for example, how the technology of oil production has been used to pump water from vast subterranean reservoirs, making possible extensive new agricultural projects. For the millions of birds that migrate through the peninsula each year, these new areas of vegetation provide readymade refueling stops, while pools and rivers of irrigation water have become the new oases for resident wildlife (See *Aramco World*, November-December 1986).

Conversely, the numbers of large Arabian animals have decreased in the last 35 years, as four-wheel-drive vehicles have brought hunters with automatic weapons into previously inaccessible areas. Some animals, like the endemic Farasan gazelle, have survived only on remote Red Sea islands, while the ibex have been protected only by the continued inaccessibility of their mountain habitat.

National parks have now been established in most countries of the Arabian Peninsula, along with ambitious plans to protect endangered Arabian species.

"Arabia," says McKinnon, "has inherited a wildlife of great richness and diversity."

The message of *Arabia: Sand, Sea and Sky* is that the countries of the Arabian Peninsula are using their resources to protect it.

John Lawton is Aramco World's *contributing editor. Miranda McQuitty is a natural history researcher.*

Featured in *Arabia: Sand, Sea and Sky* are, from left, a brown booby on Farasan Island, desert vegetation in the Rub' al-Khali, and a coral reef in the Red Sea.

PETER VINE

A Nissan Patrol GR, driven by French competitors M. Gambillon and J. Marceau, returns to earth during a passage through Egypt's Eastern Mountains.

THE DESERT GAME

For 11 hellish days each year, the Pharaohs Rally winds across trackless miles of Egypt's wild and multicolored deserts in the most prestigious – and punishing – motor rally in the Arab world

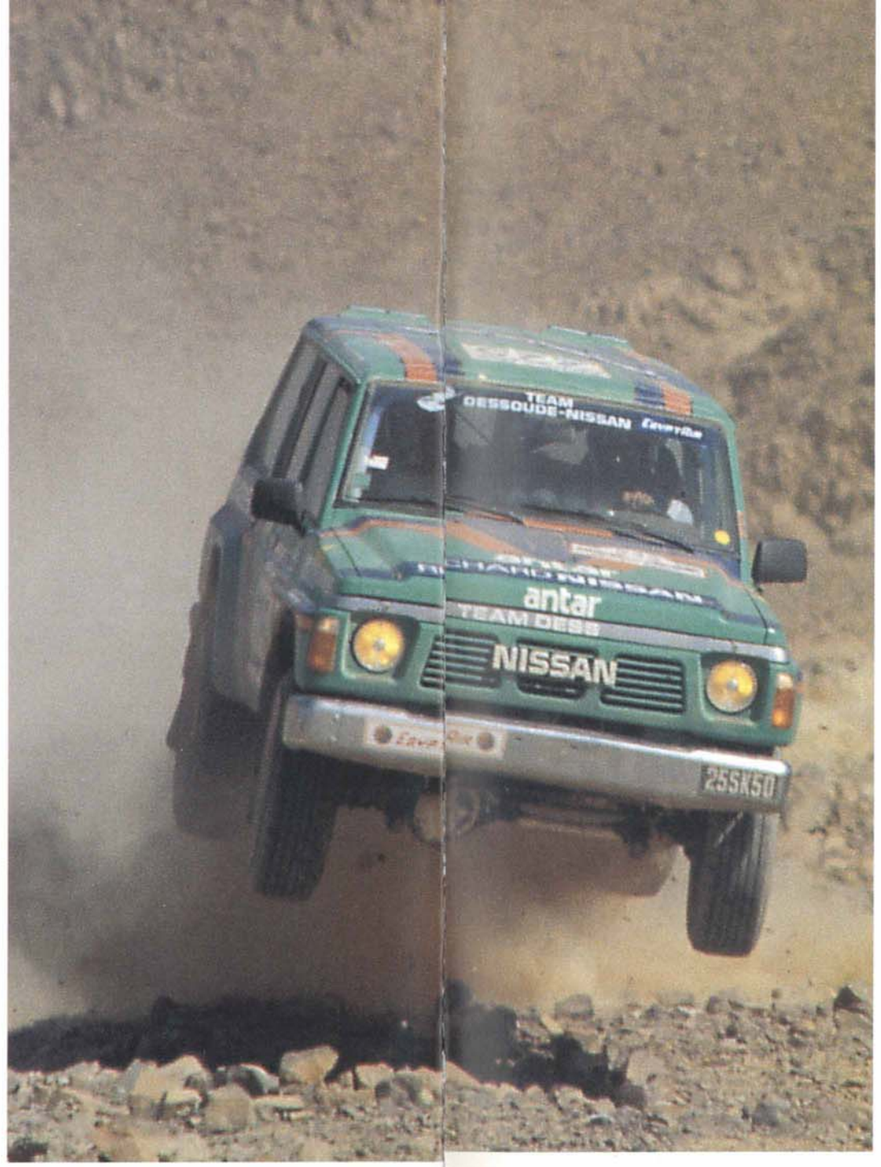
WRITTEN AND PHOTOGRAPHED
BY DICK DOUGHTY

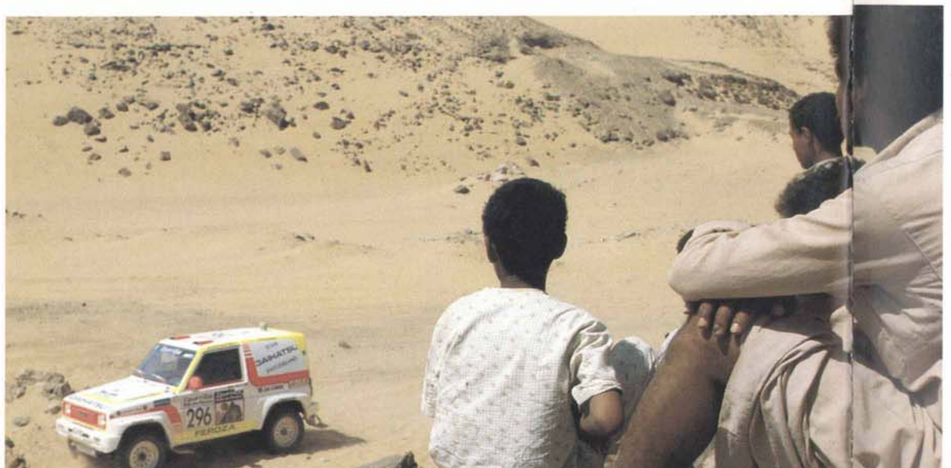
In a ritual driven by prestige, profit and plenty of sheer personal challenge, several hundred cars and motorcycles mass noisily each October outside Cairo, on the dusty plain at the foot of the Giza pyramids. They are there for the Pharaohs Rally, now in its eighth year. They are off-road drivers and motorcyclists, professionals and amateurs, mostly from Europe, but also from Japan, Australia and Egypt. In 1985, top racer Said El-Hajry of Qatar was one of the few non-Egyptian Arab drivers ever to enter, but he made a very good showing: He won.

On October 1, 1989, 140 cars, 86 motorcycles and a four-wheeled, balloon-tired motorcycle called a quadratrike set out from the starting line, bound for the pyramids of Sakkara, the end of the first stage. In the 10 days that followed, they raced, leaped, wallowed, rolled and occasionally limped through nearly every spectacular obstacle the desert could throw at them: the streams and waterfall of Wadi Rayan south of Cairo; the famous "white desert" of high, treacherously soft dunes between the oases of Bahariya and Farafra; the flat, baked expanses of dusty sand between Farafra and Dakhla; the thrilling – or terrifying – 450-meter (1500-foot) descent of the cliffs of Egypt's New Valley; the burning, nearly featureless sands north of Egypt's border with Sudan; the rock-strewn shores of Lake Nasser; and the sharp blue, red and brown mountains of the Eastern Desert. After logging more than 4960 kilometers (3082 miles) altogether – more than 3050 of them (1900 miles) off-road – only 82 cars and 46 motorcycles crossed the finish line. The desert defeated nearly half the entrants.

Among off-road rallies, the Pharaohs Rally ranks second in guts and glory only to the devastating 21-day, 12,000-kilometer (7500-mile) Paris-Dakar. Veteran rally motorcyclist Herbert Schek of West Germany describes Paris-Dakar as "much crazier," but in the Pharaohs Rally, he says, the terrain is "really just as hard, maybe harder."

According to organizers and participants alike, however, the Pharaohs Rally is the most fun of any rally going. Elaborate buffet dinners await weary participants at the end of every day, earning the race the affectionate title, "le rallye chic." "This is a rally people can really enjoy," said Rami Siag, Egyptian representative of Pharaoh SARL, the Lebanese-registered, French-based company that organizes the rally.





Above: Plowing through rocks and sand on the high plain near Hurghada

Above left: British biker James Watson Miller, who rode a BMW R100, cools himself in the waters of Wadi Rayan.

Left: A hilltop provides a safe grandstand view for spectactors near Aswan.

The logistics for such land-roving luxury are impressive: Two teams of 60 workers and 10 chefs leapfrog each other from one desert encampment to the next, setting up a colorful 1000-square-meter (10,764-square-foot) tent of traditional Egyptian tenting fabric and preparing meals for more than 800 people a night – sometimes including scores of curious local spectators. The meals consist of roast turkey, lamb, beef, chicken, pastas, stews, fresh-baked bread, more than a dozen salads and a wide array of gourmet desserts. Lots of desert-defying liquids, including case after case of mineral water, wash it all down.

Six of the 11 rally nights are spent in the desert camps, two of which, at Bahariya and Farafra, feature natural hot springs. Another, at Abu Simbel, lets early-rising ralliers watch the sun rise over Lake Nasser and illuminate the ancient temple. The other five nights are spent at top hotels in Aswan and Hurghada where pools, showers, air conditioning and – in Hurghada – the waters of the Red Sea soothe and refresh the weary.

Computer printouts giving the results of each day's racing are posted before dinner, and drivers receive a nightly briefing on the finer points of the next day's course. Some dinners are followed by video "rushes" of the day's stage, courtesy of "La Cinq" – France's Channel 5. Always tempering the festive atmosphere, however, is exhaustion – and, for many, the prospect of sleepless hours of repair work under generator-powered lights to prepare for the next day's dawn start.

"No, really, I am sometimes seeing double," said Egyptian driver Aladin Shannon as he stepped out of the hotel dining room in his now-sullied white driving suit. The breakfast buffet had failed to take the edge off a night spent waking up a succession of local mechanics in a search for a new clutch to fit his ailing CJ6 Jeep. His enthusiasm, however, remained undimmed. "Of course I will do the stage today," he said with a grin and a slightly fanatical glint in his eye. "If I don't make it, the sweeper truck will pull me out." Meanwhile, an assistant flew to Cairo for his new clutch and brought it back the next day. In the end, the sweeper truck didn't need to tow him in, although a crowd of local spectators nearly had to push him across the day's finish line.

After that kind of gritty, never-say-die enthusiasm, the second most important fuel of the Pharaohs Rally is money – more precisely, money from corporate sponsors. While there are several dozen companies sponsoring rally competitors, one team holds a seemingly unshakable lead. Peugeot and Pioneer field a nearly unbeatable three-car team with some of the best – and most highly paid – drivers in the world: two-time Formula-One world champion Ari Vatanen of Finland, seven-time Le Mans winner Jacky Ickx of Belgium, and champion rally driver Michelle Mouton of France. Their Peugeot 205 and 405 Turbo-16's outpower everything else on the sand – and, at $250,000 each, they ought to. Each evening, a crack mechanical team tears into the cars, replacing parts and cleaning, greasing and adjusting to perfection. Not unexpectedly, Vatanen took first place in 1989 (as he also did in 1987 and 1988), Ickx took second and Mouton placed third.

For drivers, sponsorship is almost as crucial as a good compass and a sand shovel, for the Pharaohs Rally is not a bargain desert vacation. Costs begin with the $4000 entry fee – half of which covers insurance – and go on to include the price of the rally vehicle itself, whether stock, modified or custom-built, the cost of any support vehicles bearing tools and spare parts, vehicle shipping costs, and possibly the fees and support costs for a paid team of one to 12 mechanics. Sponsors, in turn, are fueled by audiences – people to see and remember the names and logos plastered on the rally vehicles and the drivers' suits. And there's a rub: With 95 per cent of Pharaohs Rally media coverage directed to Europe, Egyptian and Arab participation is sharply limited by a scarcity of interested backers.

Corporate sponsors eagerly pay their money and paint their names on cars in the smaller rally circuit of the Middle East Marlboro Championship, because the regional races, such as the popular three-day Jordan Rally, are well-covered by Arab media – unlike the Pharaohs Rally. Much as Siag and other organizers have tried to promote the Pharaohs Rally in Egypt and the Middle East, lopsided media interest continues to favor European sponsorship. In October of 1988, four top Gulf-area drivers visited the Pharaohs Rally, yet none found sponsorship for 1989.

Among Egyptians, the story is little different. Four of 11 Egyptian entrants used private funds. While some received partial sponsorships, others found only conditional sponsorships that required a partial refund if the driver failed to complete the rally. Support teams were either non-existent or skeletal.

Under a raging desert sun, on a rocky plain in Upper Egypt, somewhere between the ancient temple of Abu Simbel and the modern high dam at Aswan, the thought came to first-time rally motorcyclists Michel and Maged Fikry that they might also be last-time rally motorcyclists. Maged's front wheel had tipped up a large, sharp stone that crunched through his bike's engine protection plate and punctured the crankcase.

"We were really at the dead end of Egypt. We were already so sweaty and tired from handling the bikes among such big rocks that we thought we were finished," Michel said later.

It took the brothers two hours to dismantle the engine, clean the crankcase and mix a sealant that took another two hours to dry. The pair finished the day's course, though they were somewhat late to dinner. "You almost lost us," commented Michel, shaken by the ordeal.

It was day six of the Pharaohs Rally.

Five more days to go.

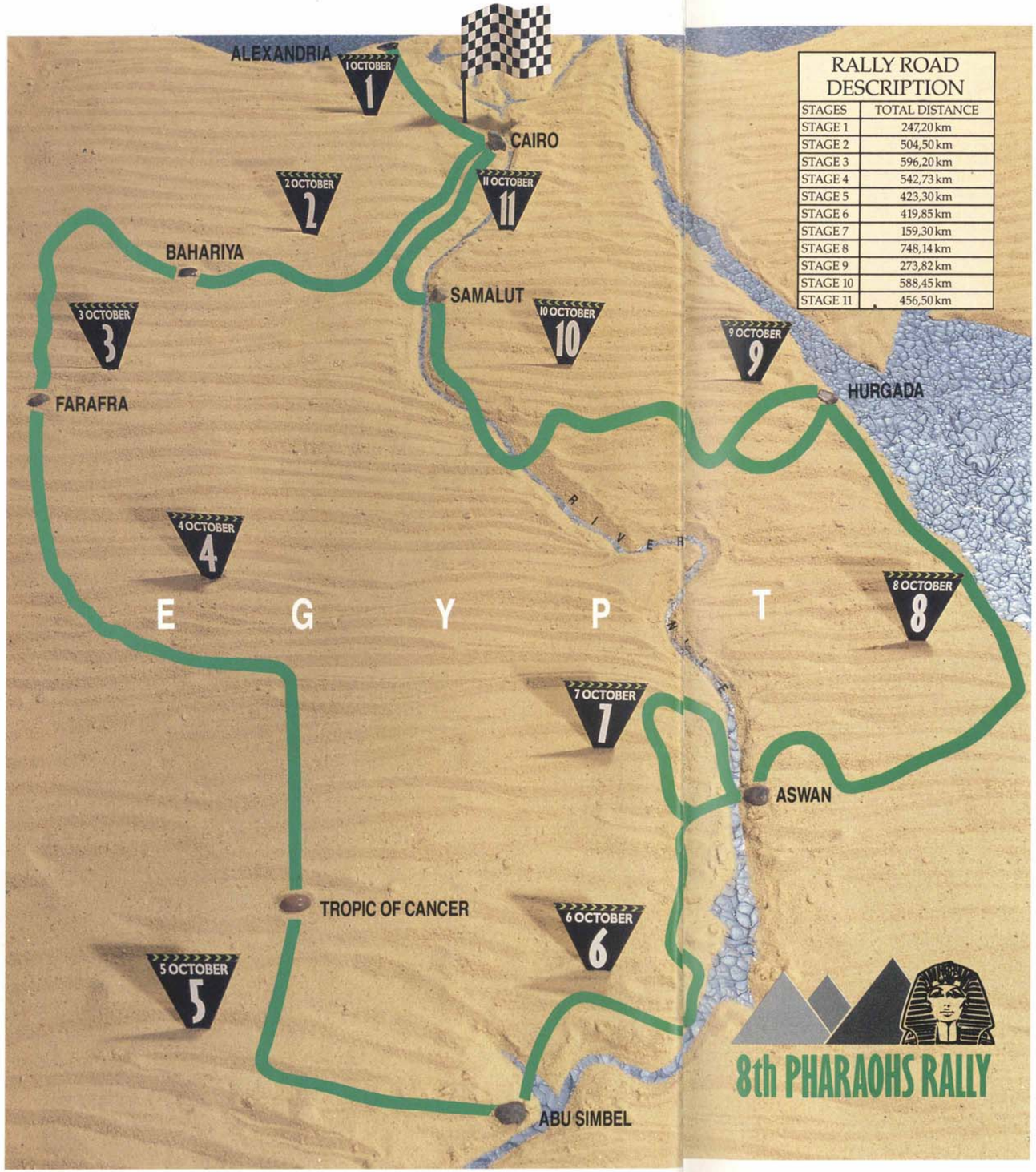
"Of course I know I'm not going to win. That's not the point. Just finishing this race makes you feel you have really accomplished something," said Egyptian veteran driver Azzam El-Farouqi, who carried all of his own tools and spare parts in his tough old Pinzgauer truck, a veteran of the Austrian army.

Each rally day begins early. Motorcyclists usually start at 6:00 a.m., roaring off in pairs at one-minute intervals. Cars, each with a driver and co-driver, begin departing singly at 7:00, also a minute apart. All stages are timed, with engine size determining separate competition categories for motorcycles. Cars are grouped according to whether they are fully customized, slightly modified or off-the-shelf designs.

Only part of the total distance from one camp to the next is actually raced against the clock. The rest is driven on paved roads before and after the racing stage. Rally rules are strict: Arrival more than five minutes late at the starting point disqualifies the racer on the spot; missing one of the three to five assigned checkpoints along the course brings a three-hour penalty; taking longer than the predetermined maximum time over the day's course costs nine hours; and accumulation of more than three nine-hour penalties results in disqualification.

En route, competitors navigate using a neatly handwritten rally road book that details landmarks from mountains to lone acacia trees and camel skeletons. The book notes distances between them in tenths of a kilometer, and gives advice – in French – along the way, from gentle hints like "ignore all tracks to the right" to vital warnings such as "extreme danger – quicksand."

Since 1986, only superficial changes have been made in the rally's all-around-Egypt course. While this has smoothed logistics and provided an impressive and popular variety of terrain, it has also given repeat ralliers an advantage over rookies. "You wouldn't believe that someone could remember several thousand kilometers of desert, but for those of us who race every year, it's like going home," said Raed Baddar, who has raced every Pharaohs Rally since the first in 1982. Laying out such a course is a daunting task, he pointed out, requiring weeks in the field and further weeks seeking local government and military approvals.



RALLY ROAD DESCRIPTION	
STAGES	TOTAL DISTANCE
STAGE 1	247,20 km
STAGE 2	504,50 km
STAGE 3	596,20 km
STAGE 4	542,73 km
STAGE 5	423,30 km
STAGE 6	419,85 km
STAGE 7	159,30 km
STAGE 8	748,14 km
STAGE 9	273,82 km
STAGE 10	588,45 km
STAGE 11	456,50 km

Most cars carry a compass and a multiple odometer that can track several distances simultaneously, but many times the easiest navigation method is simply to follow the dust clouds. Yet as all lemmings know, this technique can be dangerous: On the second day, after a half-dozen vehicles rolled and burrowed into the sand on the steep side of a dune, competitors took turns waving oncoming traffic aside as they worked to right each other.

Nine medical vehicles and a helicopter staffed by paramedics and doctors of Transworld Medical Services patrol the tracks each day. Two powerful sweeper trucks traverse the course behind the final car, pulling out the stuck and towing the disabled, sometimes working long into the night. Every car carries a pocket-sized emergency transmitter. Organizers take pride in the rally's safety record: There has been only one fatal accident in eight years – in 1988 – and, in 1989, only a handful of minor injuries.

Despite this record, the Pharaohs remains a gruelling desert game and holds its share of dangers. After having lost his four-wheel-drive, most of his clutch, his muffler, his generator belt, his starter, lots of radiator water, all of second gear and nearly all of his sleep on the first eight stages, Aladin Shannon, no longer seeing double, turned his wheezing Jeep up the wrong valley in the mountains of the Eastern Desert on stage nine. Realizing his mistake, he tried to retrace his path, only to stumble on blue markers that looked similar to those used in the rally – but were not.

After following these for several hours, his Jeep broke down for good, 43 kilometers (27 miles) from the track. His leaky radiator had consumed all his drinking water. Despite the emergency transmitter, no help arrived as one day passed, and then another. "By the third day I was sure I was not going to be picked up," he said, and he made a will. Half a day later, an Egyptian border patrol picked him up, hours before the desert claimed him.

Officially, the Pharaohs Rally is not connected to any racing circuit. It is a "raid" rally, like Paris-Dakar and the smaller Tunis and Moroccan Atlas rallies. Many drivers of "raid" rallies also compete in the better-known rally circuit that includes the famous Monte Carlo, as well as others like the Rally of the Acropolis in Athens and the Kenyan Rally out of Nairobi. "Raid" events are distinguished by long racing stages covering cross-country distances in epic style; circuit events have more numerous stages of only a few kilometers each, and are confined within a limited area.

With a top prize of $6125, the Pharaohs is not a cash bonanza. It is, rather, a contest for prestige among drivers and their corporate sponsors. Professional drivers receive confidential sums of prize money from sponsors that vastly exceed the official prizes – often including generous bonuses merely for finishing.

The Egyptian government, at first cautious, has embraced the rally as a boon to tourism. Officials in tourism promotion have helped organizers coordinate among 14 Egyptian governmental authorities, paving the way for everything from course layout approval to speedy customs clearance and temporary license plates for rally vehicles.

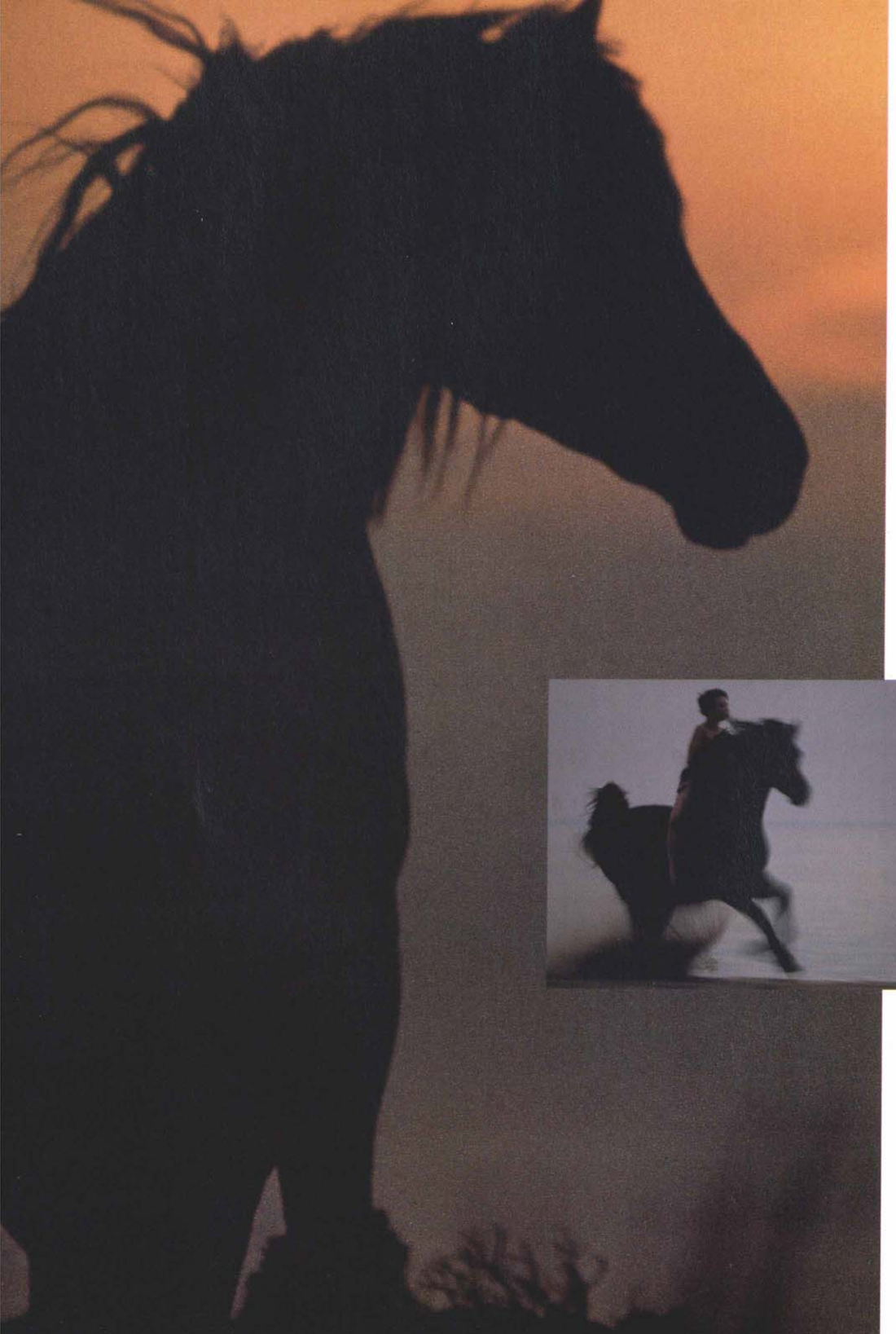
Media coverage, though aimed mainly at Europe, is growing and becoming more sophisticated. In 1989, a twin-rotor Egyptian army helicopter carried video editing and remote-broadcast facilities for Channel 5 – as well as a $350,000 satellite linkup to power fax machines and phone calls from the desert for more than two dozen journalists. Cairo's Channel 2 broadcast 15 minutes of race coverage daily, a first for Egyptian television. Tokyo sent a crew from Asahi Television, China's Xinhua Agency sent a photographer, and the Beirut-based *Sport Auto* magazine provided extensive coverage to racing enthusiasts in the Arab world.

At the finish line on October 11, it was time for ritual. Playing to an Argus-eyed crowd of cameras, winner Vatanen and co-driver Bruno Berglund climbed atop their car, tossed their dusty white driving scarves to the throng and, with Egypt's timeless pyramids in the background, prepared a victory toast of...glasses of milk, as befits clean-cut heroes. "They do this every year," commented a news photographer dryly.

Four hours later, with the sun beginning to drop in the sky, Michel Fikry rode alone across the same finish line, welcomed by a thinner crowd and photographed only by the cameras of friends. Exhausted, covered with dust and sweat, he embraced his brother Maged, who on the 10th day had fallen ill with a stomach virus. "I told Michel to go on," said Maged, "and I ended up spending 13 hours in the back of the sweeper truck. It was the worst ride of my life."

And next year? "On the first two days we were saying that, if we survived this, no way would we do it again," said Michel. "After that, we didn't have time to think about it. Now,...of course we'll do it again!"

Dick Doughty, formerly with Cairo Today, *is working on his master's degree in journalism at the University of Missouri in Columbia.*



The BLACK is BACK

WRITTEN BY BRIAN CLARK
PHOTOGRAPHED BY TIM FARLEY

"The colt of colts has been foaled!" Thus spoke powerful Sheikh Abu Ja Kub ben Ishak, the noble leader of a mountain kingdom to the east of the Great Arabian Central Desert, and a renowned horse breeder.

And so begins *The Young Black Stallion*, the newest book in the acclaimed children's series that began with the publication of Walter Farley's original *The Black Stallion* in 1941. Farley co-authored his latest – and 21st – book with his son Steven, though he died a few months before it could be published.

Millions of children around the world have fallen asleep with visions of the Black Stallion, the most famous fictional horse of the 20th century, galloping through their minds. At least 12 million of the action-packed Black Stallion books have been sold worldwide, according to children's editor Eugenia Fanelli of Random House – including an edition published in Saudi Arabia in Arabic. Farley's Black Stallion books are considered the most successful children's horse series ever written.

The Black Stallion legend reached millions more fans in the late 1970's and early 1980's when the first two books were made into movies. The first, based on and named after *The Black Stallion*, was produced by Frances Ford Coppola and won praise from critics for its photography.

The Black Stallion began with the abduction of "Shetan," as Sheikh Ishak had named the Black, from the Arabian Peninsula. It led readers young and old through a dreadful shipwreck on a desert coast and, after the horse saved, and was saved by, a young American named Alec Ramsay, depicted their life together in New York state. With Alec astride him, The Black was unbeatable in races but, unhappily, his growing fame attracted the villains who had originally stolen the horse from the sheikh.

In the second novel, *The Black Stallion Returns*, Sheikh Ishak arrives in America with legal ownership papers to reclaim Shetan. Alec must say goodbye to his beloved Black and falls into depression – until a wealthy breeder asks him to go to Arabia to look for Shetan and other fine breeding stock to improve America's Thoroughbred lines. Arriving in the fictional mountain kingdom, Alec joins forces with Sheikh Ishak to do battle with the evil horse thief – who has stolen Shetan from Sheikh Ishak once again. Alec rescues Shetan and, at Sheikh Ishak's request, rides The Black in a race matching the finest Bedouin horses. When Alec wins, the sheikh promises him the first foal sired by the Black Stallion out of his own prize mare, Johar. With that promise, Alex heads back to the United States for many more years of adventures. In only one subsequent book, *Black Stallion Mystery*, does Alex return to the sands and mountains of the Arabian Peninsula.

In the new book, published last December, followers of the Black Stallion learn what Shetan's life was like as a colt, in the years before he was stolen from his mountain home. It's a question, according to Steven Farley, that readers have been asking for 49 years.

The Young Black Stallion begins one night when an evil band raids Sheikh Ishak's mountain stronghold to capture the powerful colt, who, legend says, was sired by the dark horse that lives in the Horsehead Nebula of the constellation Orion. He is bigger and more agile than other horses in Sheikh Ishak's herd; full-grown, he will stand more than 17 hands tall – as big as a Thoroughbred. The colt escapes the raiders by heading higher and higher into the mountains, fleeing up steep canyons on trails that only the nimble ibex can scale. The horse thieves write him off for dead.

But Shetan – later to be The Black – is not alone. Rashid, the scout who had led the raiders to Sheikh Ishak's pastures and was then stripped of his gun and horse and abandoned, follows the colt in the high mountains, at one point battling a 200-pound (90-kilogram) leopard that has attacked The Black.

Eventually Rashid and the colt become wary friends. Rashid still wants to capture Shetan, to sell him and make his fortune. The colt trusts no man but Sheikh Ishak. When, after months of wandering, Rashid and the colt make it out of the mountains, Sheikh Ishak – whose prize falcon has tracked Rashid – is waiting with his men to reclaim his horse. Within minutes of Rashid's capture, however, Sheikh Ishak's band is attacked by *another* raiding party. Once again the colt is stolen, this time to be sold to an English breeder and shipped aboard the ill-fated vessel that will sink in the early pages of *The Black Stallion.*

Like *The Black Stallion* and *The Black Stallion Returns*, the new book is filled with abundant facts about horses. It is also laced with information about the clothing, food and culture of the Arabian Peninsula, and with Arabic words – though their transliterations are sometimes imaginative. *The Young Black Stallion* avoids ethnic stereotypes, with plenty of white hats and black hats on both sides of every encounter. There is no question, however, that the leader of the horse thieves wears the blackest hat of all.

One could assume that Walter Farley had spent time on the Arabian Peninsula, or worked or studied somewhere in the Arab world to research his books. In fact, according to his son Steven, his information about the Arabian Peninsula for the first two novels came entirely from the New York Public Library. Farley did come by his horse information firsthand, though, having spent countless days as a youth with an uncle who was a horse trainer in upstate New York.

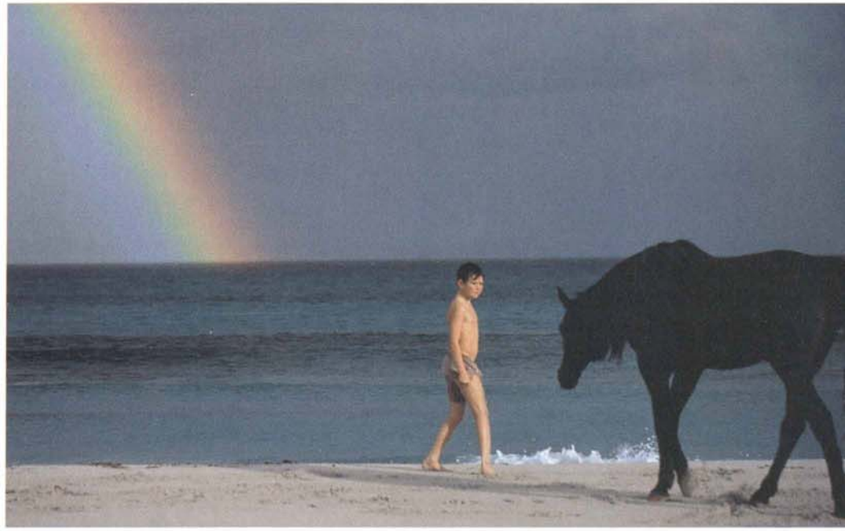
"Dad's genuine love of horses shines through in all his books," says Steven. Walter Farley suffered a stroke in 1988 and died at his home in Florida last year, but Steven knows well how the Black Stallion series came about: He grew up with it.

"In my father's mind, this was an imaginary, make-believe land and it was an imaginary horse. He was just spinning a good yarn. There are no political boundaries in his books. He wanted a faraway location and he picked the Arabian Peninsula because it was the source of Arabian horses. He wove in a lot of background, as we did in the newest book, but nothing is based on real, hard facts except the information about horses," says Steven.

The younger Farley is 35 and lives in Manhattan. He has written for children's magazines and, earlier in his career, was a long-haul truck driver, taking loads between Europe and the Middle East, traveling extensively in Syria, Lebanon, Egypt and Morocco when he was in his 20's, looking for adventure. He also worked on the production of the Black Stallion movies, as did his brother, Tim, a Los Angeles photographer who produced a coffee-table book from each of the films.

According to Steven, his father "fell in love with the romantic image of the Arabian horse as a child. I think it totally captured him," he says. "Today, the Arabian is a well-known and highly valued breed in the United States, but 40 or 50 years ago, that wasn't so. Arabians were fairly rare and Dad had to rely on a few books for reference. He had always been a reader.

"Dad learned about the customs of the Bedouins and came to love the way they treated their horses and even kept them in



their tents. He admired their traditions of honor and their ethics," Steven says.

Walter Farley conceived and began to write the first Black Stallion book while he was still in high school. The novel, published when he was in college, struck a chord with boys and girls and became a quick success. When Farley got his first royalty check, he hopped in his old Model-A Ford and headed west to see some real Arabian horses in the flesh. Unfortunately, according to Steven, few of the horses he saw there matched the ones in his dreams.

Today there are many fine examples of Arabian horses in America – ones which meet the senior Farley's standards (See *Aramco World*, March-April 1986). "Some of the credit for popularizing the Arabian must be given to the man who wrote the classic story of the Black Stallion nearly 50 years ago," Steven maintains. "In fact, Pop received an award from the National Arabian Horse Association for his contributions to the breed."

Steven says his father tried to keep in close contact with Arabian horse buyers and breeders till his last illness. "He'd been an active horseman all his life and over the past half-century had built up an enormous reservoir of experience and personal friendships with owners, trainers, sports reporters, jockeys and grooms. Their remembrances echo through his stories of people and horses. When I was a boy, Pop would go to races or sales and go out back to the stables, and I'd get dragged with him," he says.

The second Black Stallion book was written during World War II when Steven's father was in the US Army. He was a writer for *Yank* magazine, stationed in the Aleutian Islands – a cold and snowy world where Walter Farley had a lot of time on his hands.

"Using notes and information he gathered in the library, he let his imagination carry him from that frozen wasteland to the hot sands of the distant Arabian desert. Most of his later books were about race tracks and stables, but *The Black Stallion Returns* took place in the fictional Arabian kingdom. It was a New York City boy's love story about a fantasy horse in a land suggested only by his romantic notions of distant Arabia," Steven says.

The fantasy of the book blended with reality during the filming of *The Black Stallion Returns* in Morocco. As Steven tells it, "On location near the town of Zagora, the Arabian horse that played the part of the Black Stallion escaped from the set one night and was lost in the desert. He just disappeared into the blackness like a ghost. The movie could have been in real trouble. The crew had to wait until sunrise to search for the missing stallion, but fortunately they found him once it was light."

The film makers recruited 400 extras for the film's race scenes, as well as 60 of Morocco's most skilled horsemen. Seven Moroccan tribes, including Tuaregs from the deep desert and Berbers from the High Atlas mountains, were represented in the movie. Steven says they set up camp near the sets and staged their own festivals when they weren't working in front of the cameras. "And for one scene, the Moroccan royal family graciously lent seven of the prize colts from their stables in Rabat." Other locations used in the movie include Tafraout and the port city of El Jadida in Morocco and Djanet in Algeria.

Steven says his father was aware that his books were popular and influential in schools, even with children who knew little about horses. "He recognized his responsibility and effect on kids. He encouraged them to use their imagination. One of Dad's favorite sayings was 'Do not take lightly what comes easy to you.' He meant, if you are good at math, go with it. The same with reading or writing. He had encouragement from his teachers when he was a boy; without that encouragement, he probably wouldn't have started writing *The Black Stallion* when he was only in high school," says Steven.

Steven and his father tried working together on and off over the past decade, but couldn't agree on a project. Though *The Young Black Stallion* was their first major collaboration, Steven as a child helped his father with one of his beginning-reader books, *The Little Black Pony*.

"We'd tried before, but my ideas didn't get off the ground. This one was his idea, so maybe that's why it worked better," Steven chuckles. The project started three years ago and continued even after his father's stroke.

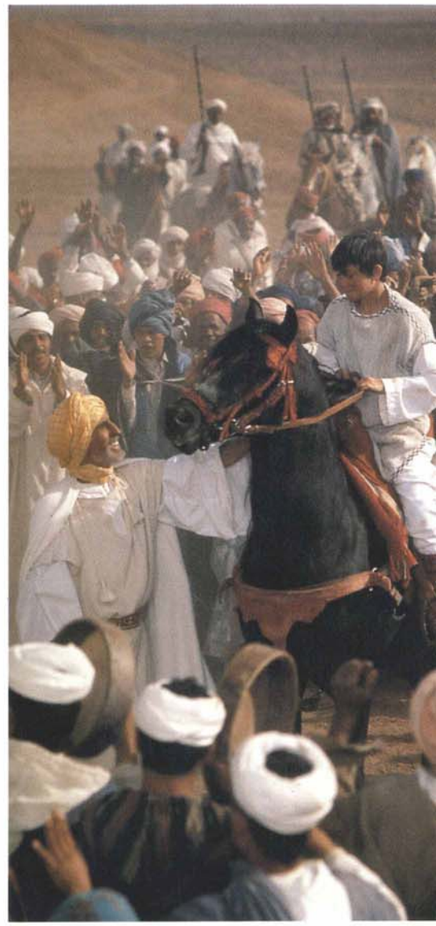
"It was easier than I thought it would be, though there were times when Dad was very sick when we didn't do much. Writing fiction is often a lengthy process. We didn't have an outline when we started, just a general idea. We knew where it was going to end up, but we had to create what we were doing as we went along. We had to hash out the details. And while I had to try to remain faithful to his style, I also wanted to bring my own imagination and spirit to the partnership. I think it worked out well," he says.

Retracing his father's footsteps, Steven spent a good deal of time in the New York Public Library and the New York University library doing his own research for the new book. "If I had to pick one reference that fascinates me more than any other I used, it's *Arabian Sands* by Wilfred Thesiger, one of the last great English explorers, who crossed the Rub' al-Khali by camel 50-some years ago," says Steven (See *Aramco World*, July-August 1981). "That book is still in print," he adds.

"My favorite books as a kid were in the *Island Stallion* series because we spent a lot of time in Florida and I identified with the ocean and the palm trees. But all the books were 'required reading'. It was great working on this project and adding to what is acknowledged to be one of the best children's yarns going.

"People had been asking Dad for years about the early life of the horse that grew up to be the Black Stallion. It was the obvious book for us to write, about the youth of the horse destined for greatness with a young boy in a land far away."

Brian Clark, a free-lance writer based in Olympia, Washington, has four horses of his own – one of them an Arabian.



EVENTS & EXHIBITIONS

BARBIER-MUELLER MUSEUM, GENEVA

Mudfish and catfish ornaments and ring in cast gold, from Ghana and Côte d'Ivoire.

Gold of Africa: ***Jewelry and Ornaments from Ghana, Côte d'Ivoire, Mali and Senegal.*** Some African goldfields have been producing for as long as 1500 years; travelers in medieval times told of the splendid gold regalia and weapons worn by the kings of ancient Ghana and Mali as symbols of power. The exhibition includes approximately 250 masterworks, evidence of highly developed skills and tastes in the West Africa of the 19th and 20th centuries. The collection represents a dazzling array of jewelry forms, African in spirit, original and inventive, but also drawing freely from North Africa and European designs. In Dallas, "Gold of Africa" is part of a larger exhibition, "Gold of Three Continents", which also includes "Gold of Greece" and "Gold of the Ancient Americas". **Dallas [Texas]** Museum of Art, through June 10, 1990; **Birmingham [Alabama]** Museum of Art, October 21, 1990 through January 2, 1991.

Saudi Arabia: ***Yesterday and Today.*** A 100,000-square-foot exhibition on the land and people, past and present, of the kingdom, including a live *suq*, traditional foods and dances, artifacts, film clips and a laser slide show. World Trade Center, **Boston**, May 12 through 27, 1990; The **Los Angeles** Convention Center, June 15 through 30, 1990.

Seeing Double. The San Francisco Mime Troupe's outspoken comedy about cultural differences and similarities. Various venues, **San Francisco Bay Area**, May 13 through 20, 1990; various venues, **Jerusalem and West Bank**, May 31 to mid-June, 1990.

Touat, City of Oases. A multimedia production depicts the miracle of water and the rhythm of life in a string of fortified Algerian desert villages. Arab World Institute, **Paris**, May 15 through September 30, 1990.

Sojourners and Settlers: ***The Yemeni Immigrant Experience.*** Photographs by Tony Maine, with photos, paintings and sketches by local Arab-American artists. Arab Community Center, **Dearborn, Michigan** through late May, 1990.

Indian Miniatures from the Galbraith Collection. Paintings from Kangra and other art centers collected by John Kenneth Galbraith. Sackler Museum, Harvard University, **Cambridge, Massachusetts**, through May 27, 1990.

Approach to Classical Arab Music. Instruments, melodies and rhythms for children seven to nine to discover. The Arab World Institute, **Paris**, through May 30, 1990.

The Arabic Calligraphy of Muhammad Zakariya. One of America's leading calligraphers presents 28 works in various styles. Augsburg College, **Minneapolis, Minnesota**, through June 1, 1990.

Matisse in Morocco: ***The Paintings and Drawings, 1912-13.*** Paintings from two American and two Russian museums illuminate the effects of Moroccan space and light on an artist trying to balance intellect and emotion. National Gallery of Art, **Washington, D.C.**, through June 3, 1990; Museum of Modern Art, **New York**, June 24 through September 4, 1990; The State Pushkin Museum of Fine Arts, **Moscow**, September 28 through November 20, 1990.

Letters from the East. An exposition of stamps tracing the history of Egypt, Syria, Lebanon, Tunisia and Kuwait since the first Egyptian stamp in the Ottoman period. The Arab World Institute, **Paris**, through June 5, 1990.

Gods, Thrones, and Peacocks, Revisited. Brightly-colored miniature paintings from northern India show the influence of the court style of the Muslim Moghul emperors. Arthur M. Sackler Museum, Harvard University, **Cambridge, Massachusetts**, through June 10, 1990.

Ikats: ***Woven Silks from Central Asia.*** Colorful hangings, robes and coats produced over a 200-year period demonstrate a complex and beautiful dyeing method. Holburne Museum and Crafts Centre, **Bath, U.K.**, through June 10, 1990.

After Tutankhamun. International conference on the Valley of the Kings, including as speakers 12 of the world's leading experts on the royal tombs, their treasures and their texts. Highclere Castle, **Hampshire, U.K.**, June 15 to 17, 1990.

Iranian Classical Music. Mohammad Reza Lotfi presents an evening of traditional Persian instrumental music. Arthur M. Sackler Gallery, **Washington, D.C.**, June 19, 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. **Toledo [Ohio]** Museum of Art, through June 24, 1990; Virginia Museum of Fine Arts, **Richmond**, August 23 through November 25, 1990.

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**, June 28, 1990 through March 5, 1991.

Town and Tribal Textiles of Central Asia. Turkoman rugs and embroidery. Fitzwilliam Museum, **Cambridge, U.K.**, through July, 1990.

Looking at Islam: ***Contemporary Devotional Posters from Pakistan*** reflect a wide range of Islamic traditions with images from calligraphic to allegorical. City Museum and Art Gallery, **Stoke on Trent, Staffordshire**, July 5 through August 19, 1990.

Convergence 90, national conference of the Handweavers' Guild of America, includes seminars on Saudi and Omani weaving and spinning. **San Jose [California]** Convention Center, July 13 through 15, 1990.

Tipu Sultan, Tiger of Mysore is centered on the tiger motifs that identify the personal possessions of the 18th-century ruler of Mysore, and includes textiles, manuscripts, jewels and arms. Zamana Gallery, **London**, July 19 through September 23, 1990.

Digging the Ancient Near East. Explores the scientific methods and techniques used by present-day archeologists and features five current expeditions working in the Middle East. Oriental Institute Museum, **Chicago**, through July 27, 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. South Carolina State Museum, **Columbia**, through July 26, 1990; Witte Museum, **San Antonio, Texas**, August 31 through November 10, 1990; The **Albuquerque [New Mexico]** Museum, November 1990 through February 1991.

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**, August 2 to September 8, 1990.

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. **Minneapolis** Institute of Arts, through August 12, 1990; **Fort Worth [Texas]** Museum of Science and History, September 16, 1990 through January 6, 1991.

Visions of Infinity. Classical carpet masterpieces from the museum's collections presented in the context of Islamic art. The Textile Museum, **Washington, D.C.**, August 19, 1990 through February 24, 1991.

The Wabar Meteorite. Fragments of the iron-nickel meteorite that left a 300-foot crater when it fell in the Rub' al-Khali, with related published material. Nance Museum, **Kingsville Missouri**, through August 31, 1990.

Variations on a Script: ***Islamic Calligraphy from the Vever Collection*** highlights a variety of calligraphic styles. Sackler Gallery, **Washington, D.C.**, through September 6, 1990.

Trailing the Tiger: ***To Golden Cloths of Sumatra's Minangkabau.*** Some 50 examples of the striking golden cloth woven in the highlands of West Sumatra, along with jewelry, photographs and music. The Textile Museum, **Washington D.C.**, September 6, 1990 through June 9, 1991.

Nomads and Nobility: ***Art From the Ancient Near East.*** Spectacular artifacts from the pre-Islamic Middle East, primarily metal-work, but including ivory and ceramic objects. Sackler Gallery, **Washington, D.C.**, through September 30, 1990.

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 Archeology, **Atlanta, Georgia**, October 24, 1990 through March 10, 1991.

Contemporary Art from Uzbekistan reveals a dynamic and productive art community in one of the Soviet Union's most important Muslim republics. Zamana Gallery, **London**, October 25 through December 21, 1990.

Traditional Crafts of Saudi Arabia. The John Topham collection of weavings, jewelry, a Bedouin tent, and metal, wooden and leather handicraft objects. Maxwell Museum of Anthropology, **Albuquerque, New Mexico**, through November 26, 1990.

Palestinian Costume. Richly ornamented traditional costumes, headdresses and jewelry of Palestinian villagers and Bedouins. Archival and contemporary photographs provide context. Museum of Mankind, **London**, until November 1991.

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

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

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