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MARCH-APRIL 1993

ACROSS THE HIGH ATLAS

ARAMCO WORLD

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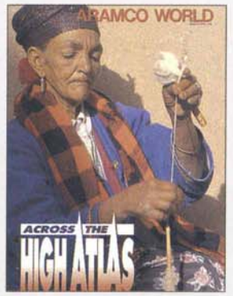

Cover : Lured to her doorstep by the first warm sun of spring, a henna-fingered woman uses a wooden distaff and drop spindle to spin wool from her own sheep in Ait Benhaddou. This classic Moroccan fortified village, which includes four kasbahs, has been declared a UNESCO World Heritage Site. Photo: David Melody.Back Cover: Surgical chief resident – and Saudi Aramco employee – Ali Alaud-din (left) watches a monitor during a laparoscopic procedure. Photo: Seth Resnick.

◄ Lengths of cloth and ribbon show the skill of Cham weavers.

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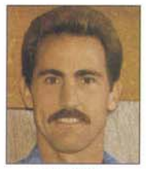
GRUTZ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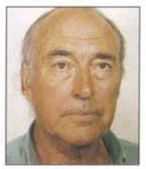
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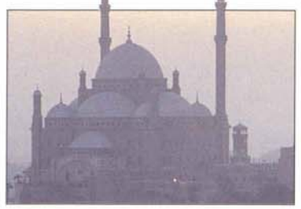


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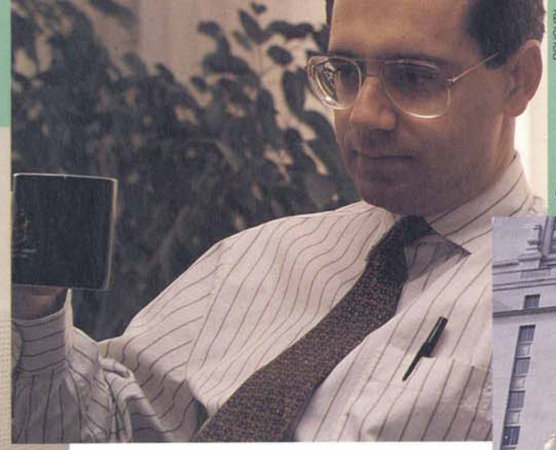


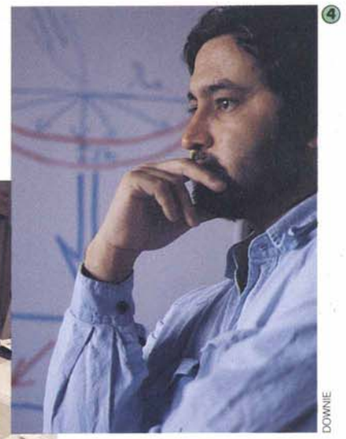
DOUGHTY

ST. GIL

HEALERS, PROBLEM-SOLVERS AND INNOVATORS...

WRITTEN BY JANE WALDRON GRUTZ

A COMMITMENT TO EXCELLENCE



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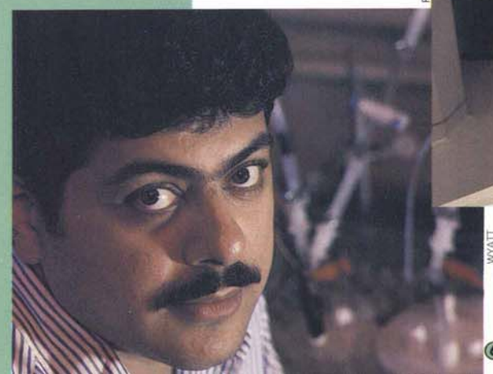


WYATT

Surgeon Ali Alaud-din ①
Radiologist Rifat Abdi ②
Chemical Engineer Ramzi Abu Khadra ③
Geophysicist Nabil Akbar ④
Pediatrician Hissah al-Moammar ⑤
Materials Engineer Omar Abdul-Hamid ⑥

They are six young Saudi professionals. Explorers and problem-solvers by inclination, they work in very different fields. Along with hundreds like them, they have been selected by Saudi Aramco to fill critical company posts in the future, and they are receiving training now that will enable them to fulfill their own ambitions at the same time as they help meet one of Saudi Aramco's most important goals: to create a Saudi work force that can compete with the best in the world.

"Saudi Aramco's training program is unparalleled in any other company," says Hamad Juraifani, president of Aramco Services Company in Houston, which monitors the progress of more than 300 Saudi Aramco employees on career development assignments in North America. The Saudi company, he points out, sponsors training not only for engineers and other technologists – more than one of whom has gone from bachelor's degree to doctorate under company sponsorship – but also for specialists in medicine, management and every other discipline that Saudi Aramco draws on.

Ali Dialdin, general manager of Training and Career Development for Saudi Aramco, explains that the company doesn't just manage most of Saudi Arabia's vast oil reserves. "We do everything ourselves," he points out. Saudi Aramco has a huge transportation fleet, provides medical services to employees and their dependents, and maintains its own communities, complete with dining halls, recreation centers and schools. Trained employees are needed to run and manage every facet of these operations. And to be sure they run them well, Saudi Aramco employees attend the very best schools in their fields – whether those schools are in Saudi Arabia, North America or the United Kingdom.

Physicians are completing their residencies at such institutions as Harvard, Georgetown and Baylor. Geophysicists are working toward advanced degrees at Stanford, the Colorado School of Mines and the University of California. Engineers are earning master's degrees and doctorates at MIT, UCLA, the University of Texas and more than 50 other engineering schools in the United States.

But Saudi Aramco has committed itself to more than just funding these educational programs. It has also established a support system that monitors and encourages the employees it sponsors for out-of-kingdom training. The career development department in Dhahran works closely with its counterpart in Houston, which provides company advisors to meet with the students on campus, consult with their academic advisors at the schools and, in general, try to prevent problems before they arise. Yet strong as this support system is, the employees' success depends in the end on their own commitment and their realization that, to succeed at Saudi Aramco today, they must prove themselves not only in the work place but also at some of the best schools in North America. Like so many others, these six young professionals have done just that.

The whole point of going to engineering school is that it teaches you how to think. Once you have that capability you're not limited to one problem: You can deal with different problems. – Omar Abdul-Hamid

Now in his fifth year at the Massachusetts Institute of Technology, Omar Abdul-Hamid is well into his Ph.D. thesis for a degree in materials engineering. Like many engineers, he entered the field because "I get a kick out of understanding a problem and coming up with a solution." In his projected role with Saudi Aramco's consulting services department, he should have ample opportunity to do that.

Along with other young technologists who have a gift for getting to the heart of the problem, Abdul-Hamid has been selected to participate in the company's Specialist Development Program. In most companies, specialists evolve through years of experience in their fields. Saudi Aramco is speeding up this evolution by choosing training assignments that will expose the SDP candidate to all facets of the specialty and condense the learning process. At each stage, the candidate's progress is followed by a mentor, a technologist who is already an expert in that field.

Not all participants in the specialist program go on to advanced degrees, but, as Abdul-Hamid explains, in materials engineering "you have to understand the theory before you can begin to solve the problems." It was with this in mind that Saudi Aramco opted to sponsor Abdul-Hamid for a doctorate at MIT.

The topic he has selected for his thesis is the diffusion of hydrogen into titanium and its alloys – central to the problem of corrosion, because the metal loses its mechanical properties when this diffusion takes place.

Corrosion, Abdul-Hamid explains, occurs when an electrolyte such as water comes into contact with a metal and generates hydrogen. Because hydrogen atoms are small, they are quickly absorbed into the surface of a material and, from there, diffuse deeper into it through the spaces between the atoms. Within the metal, it reacts with the available atoms, changing the metal's mechanical properties – in the case of steel, making it brittle.

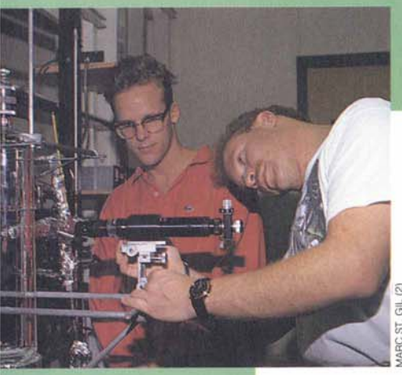
How fast the hydrogen diffuses depends on the arrangement of the metal's atoms. "For example, in one arrangement, diffusion of hydrogen could be very fast," Abdul-Hamid says. "In another arrangement of the atoms, diffusion might be slower. I want to look at the dynamics of the diffusion of hydrogen in specific arrangements of titanium atoms."

To do this, Abdul-Hamid has developed his own experiments, in which he first diffuses hydrogen through titanium foils, then monitors the extent of the diffusion. Before running his experiments, however, he must first create dozens of samples of two types of foils, one type in which the atoms are in what he terms a hexagonal close-packed arrangement, and a second

CHAD EVANS WYATT (2)

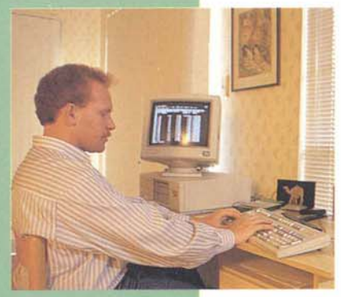
Omar Abdul-Hamid prepares the vessels in which his diffusion experiments take place...

...then immerses them in a controlled-temperature bath.



MARC ST. GIL (2)

Ramzi Abu Khadra and a fellow UT student adjust equipment in the laboratory...



...and Abu Khadra reviews the resulting data on the computer at home.

whose atoms are in a body-centered cubic arrangement. In each case, the desired atomic arrangement is created by heat-treatment and alloying of the foils. Abdul-Hamid also treats the surface of the foils by applying hydrofluoric acid to destroy the oxide that normally coats titanium and acts as a barrier to hydrogen absorption and diffusion. He replaces the oxide with palladium, which serves as "window" for his experiments.

Though Abdul-Hamid cannot be certain what the practical applications of his research may be, he does know that he is gaining the understanding of materials science that he will need when he returns to Saudi Aramco and what he calls "the Aramco family."

In the words of his advisor, Professor Ronald Latanision, Omar Abdul-Hamid has also become "one of the family" at MIT. "I think of Omar as an ambassador for his country, not diplomatically – though he's certainly that too – but technologically," says Latanision. "He has the ability to do whatever he wants to do."

What I love most about engineering is doing things that no one else has done. I love coming up with solutions.
– Ramzi Abu Khadra

Ramzi Abu Khadra, now completing his graduate work in chemical engineering at the University of Texas at Austin, sees an engineer as "someone who takes a practical problem and finds a practical solution."

This is the type of straightforward approach he used to solve problems for Saudi Aramco's process and control systems department, and it is the same approach he is using in his research work at the university, where he may have found the answer to a particularly vexing problem: the need for an inexpensive and efficient means of purifying industrial wastewater.

As Abu Khadra explains, most industrial plants use activated carbon to remove organic toxins from wastewater. But because activated carbon is indiscriminate in the toxins it removes, it can quickly become exhausted; once exhausted, it is expensive to regenerate.

Thus, scientists have long been looking for a simpler, cheaper and more specific method that targets such highly poisonous organic compounds as benzene, which can be tolerated only in very small amounts. As Dr. Robert Schechter, one of Abu Khadra's two advisors, points out, "If the toxin is benzene, which is the one Ramzi has been working with, it should be limited to parts per million or parts per billion."

This is a matter of some importance to the state of Texas, which granted the university more than $300,000 to research the problem. But it wasn't until Abu Khadra's other advisor, Dr. William Koros, suggested trying polymers to remove organic toxins that he really became interested.

For one thing, Abu Khadra says, it was an original research program, and for another, he thought that, somehow, he could actually make the process work.

It wasn't easy. "Research goes on for months," Abu Khadra explains. "You go into the lab every day. You work all day. After two months, you ask yourself, what have I accomplished? The answer is, nothing. You haven't done anything."

But after a year of 10-hour days and seven-day weeks, Abu Khadra did accomplish something – more than even he had thought he would. Starting with commercially purchased polymers, he went on to work with polymers he created himself, tailoring their molecular structure to suit that of the benzene so precisely that the polymer molecules would actually attract and absorb the molecules of the organic toxin. As the solid polymers absorbed the liquid toxins, they expanded so much that they could be extracted from the water by a simple porcelain filter.

The simplicity of the system was one advantage, but there were others. While carbon must be heated to 700 degrees Celsius (1300°F) before the toxins can be released – an extremely expensive process – polymers will release them at a mere 100 degrees Celsius (212°F). This means that, with the polymeric method, the toxins can easily be burned off at the user plant and the polymers reintroduced into the system and reused continuously. Activated carbon relies on batch methods, in which the industrial process is shut down every time the carbon trays are removed for regeneration – and that regeneration normally takes place outside the user plant.

That is not to say that Abu Khadra's process is a proven success: It isn't. In fact, says Schechter, it could take three more years to fully develop it and prove whether it is applicable to organic toxins other than benzene. "What we have is the idea, and some results that show that the idea works. To make it work on a full industrial scale requires other steps that we're looking at."

Nevertheless, both Schechter and Koros are highly impressed with what Abu Khadra has accomplished so far. "He's a very innovative guy," says Koros. "If there's a problem that's not going to get out of his way, then he just *puts* it out of the way. He puts his whole enthusiasm into whatever he's focusing on. What he did, essentially, is to take a concept and transfer it to practice. And that's very impressive."

Abu Khadra is pleased with the recognition he's received at the university. Even more rewarding, however, is his own sense of accomplishment. "I was lucky," he says: Lucky to have had the chance "to do some original research," and luckier still "to get somewhere with it."

To be a geophysicist, you have to be a physicist and a geologist. You have to have some background in chemistry, and in mechanical engineering. You have to know modeling. It's a broad subject.
– Nabil Akbar

Nabil Akbar, who is working toward his doctorate in geophysics at Stanford University, originally planned to be a physicist. He holds a bachelor's degree in that subject from Riyadh University (now King Sa'ud University), as well as a master's from Northeastern University in Boston. But when Akbar joined a program established by Saudi Aramco's exploration organization to train geophysicists, he developed his interest in geology, and found the chance to channel his expertise into a more practical vein.

"Physics is more theoretical," he says. Geophysics, on the other hand, "is practical. You can apply it. And you can see results."

In great need of geophysicists – Saudi Aramco employs between 80 and 90 of them, almost all trained in North America – the company designed the program to take young Saudi physicists, geologists, mathematicians, computer scientists and electrical engineers and supplement their training as extensively as necessary to qualify them as geophysicists.

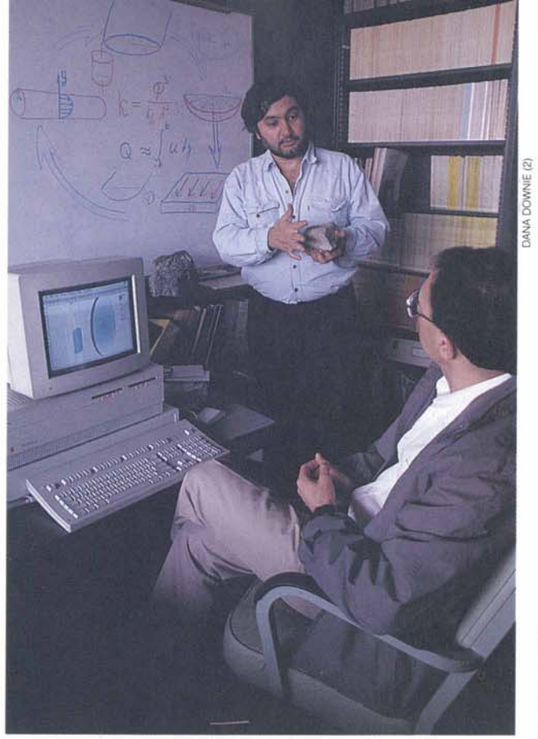
"A geologist might have a deficiency in physics and mathematics, a mathematician might have a deficiency in physics and geology, and so on," explains Dr. Ahmed Fouda, a geophysical specialist, now retired, who developed the program for Saudi Aramco. "First, the candidate would take the courses in which he has a deficiency, which might take a year, and then go on for the required courses in geophysics."

At the moment, Fouda adds, students sponsored by Saudi Aramco Exploration are enrolled at some of the top schools in the United States, including Stanford, MIT, and the University of Southern California. Most complete their studies with a bachelor's degree, some go on for a master's, and a select few – those who have the ability and interest to carry out cutting-edge research – go on to a Ph.D. and a career in exploration research and development.

Almost from the outset, it was clear that Akbar would fit into this latter category. A top student in both his course work and his qualifying exams, he proposed a research topic for his doctoral thesis that, says advisor Dr. Jack Dvorkin, "is a very important topic in geophysics: trying to predict the properties of oil- or gas-bearing reservoirs from remote measurements."

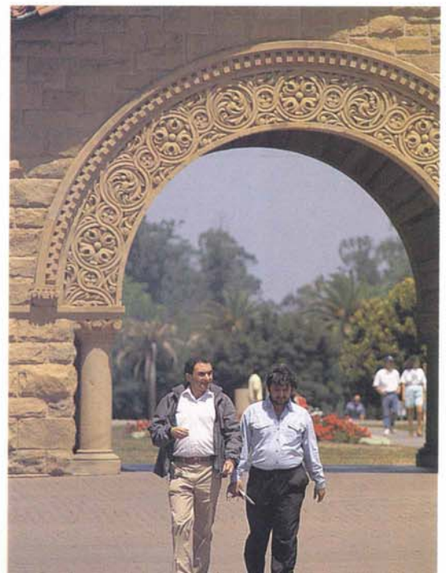
Though the concept might seem complex, both Dvorkin and Akbar insist that, like all good mathematical models, it is really quite simple. As Dvorkin explains, a principal function of geophysics is "to listen to rocks, how they respond to sound signals that we send from the surface and from inside the well bores. We send a sound signal and then we record the reflected signal. If the signal has traveled with a certain velocity, what can you say about the rock? Especially, what is its permeability? That's one of the most important properties, because permeability determines how easily we can extract oil or gas from the reservoir."

To predict permeability, Akbar is building theoretical models by what he calls forward modeling. Using computers, "we calculate what the attenuation and velocity of sound will be in



DANA DOWNIE (2)

Nabil Akbar and Dr. Jack Dvorkin discuss their geophysical model in Dvorkin's office...



...then take their discussion on a walk across the Stanford campus.

DIANA DOWNIE

Akbar and his sons circumnavigate the block near their Santa Clara home.

the model. Then," says Akbar, "we compare the result of the model with the real data." The next step, he explains, will be backward modeling, which "is just the inverse. If we know the attenuation and velocity, what is the permeability of the rock?"

To date, the correlation between real data and projected data has been so exact that both Dvorkin and Akbar are convinced they are on the right track. If so, their models could greatly enhance oil recovery, in Saudi Arabia and elsewhere, by giving petroleum engineers a much better indication where they should inject gas or water into an oil field to force up the oil.

But Akbar's work won't be completed when he receives his doctorate. Indeed, chances are that Akbar will continue with this, and similar, work throughout his career – which he cannot imagine anyplace but Saudi Aramco. "I love working for Saudi Aramco," he says, citing the state-of-the art equipment and the attention paid to good organization. "It is a very productive atmosphere."

In Dvorkin's view, Akbar's future is unlimited. "He's a bright guy. He can compete with anyone." Even more important, says Dvorkin, Akbar has

SETH RESNICK (2)

...after morning rounds with his colleagues...

Ali Alaud-din performs laparoscopic surgery, the first case scheduled...

the enthusiasm to carry him through the 24-hour days and seven-day weeks needed to work out any project. "It's as important as having good brains," says Dvorkin. "And people like that ... well, they make a difference."

Nowhere do such people make a greater difference than in the field of medicine, and since Saudi Aramco runs one of the few health centers outside the United States to meet the standards of the US Joint Commission on Accreditation of Hospitals, the company also sponsors advanced training for the best of its physician-employees.

The Dhahran Health Center "compares well with a large US community hospital," says Dr. Mark Speckhard, director of Medical Clinical Services, "in standards, procedures, peer review, tissue committee – right on down the line."

To continue "this high level of care on into the next generation," Saudi Aramco's 10-year-old medical residency program includes the proviso that all candidates be trained to US and Canadian board levels.

Like their counterparts in geophysics and engineering, Saudi Aramco physicians attend the best schools in North America, including Harvard, Georgetown, Tulane, Alabama, Indiana, Iowa, Miami, Dalhousie, British Columbia, McGill, Toronto, Baylor and George Washington.

There is a difference, however, between graduate training for scientists and specialty training for physicians. While geophysicists and engineers concentrate on research projects, physicians learn their skills as integral members of a medical team. Beginning as interns, they gradually advance through the system, taking on more responsibilities each year, until, in cases of marked ability, they reach the position of chief resident, themselves responsible for a team of residents, interns and usually one or two medical students as well.

You come to a diagnosis and you immediately ask, What can I do for this person? How can I solve this problem? And with surgery, you do solve it. – Ali Alaud-din

Dr. Ali Alaud-din is one of three chief residents at McGill University in Montreal; he works with seven or eight other residents who, like himself, specialize in surgery.

"I've always liked surgery," he says, partly because of "the excitement of operating." More important is the latitude he has, as a surgeon, to help the patient. "We're just like any other internists in taking care of the patient," he says. "But in addition, if they need surgery, we are capable of taking them to the operating room and solving the problem."

Normally, Alaud-din begins his problem-solving early. The day usually starts at 6:30, when he and his team "do rounds" – visit and discuss their patients, about 40 in all. At eight a.m. surgery begins, with five to six cases scheduled each day. In between operations, Alaud-din either goes up to the floor to see patients who are worrying him or down to the emergency room, if a trauma case has come in.

SETH RESNICK

...then consults on a CT scan of one of his patients.

"If you're on call and there's a big trauma, whether you're operating, whatever you're doing, you have to get out of there to the emergency room and take care of it," he says.

Scheduled and emergency surgery and morning and evening rounds do not make up Alaud-din's whole day, however. There are also grand rounds, as well as x-ray and oncology rounds. There are clinics, too, when Alaud-din sees outpatients who may have to come in for surgery. And, of course, there are his on-call duties: As chief resident, Alaud-din is on call for his patients 24 hours a day, every day – as well as every other night for the emergency room. "Any week could be an easy week, or a devastating week, with no sleep and you're dragging your feet." Either way, he says, it is the work itself that keeps him going.

During his five years of training, Dr. Alaud-din has rotated through pediatric, cardiac, thoracic, neuro-, vascular, urologic and orthopedic surgery, as well as through such subspecialties as cardiac and plastic surgery. As a general surgeon he will be responsible "for most of the head and neck surgery, the thyroids, hernias, gall bladders, stomachs, esophagi, tumors of the colon, things like that."

Dr. Andy Hreno, director of surgical residency training at McGill, has a special regard for Alaud-din. "He's become an excellent clinical surgeon. He has good judgment; he's very skillful; he's a caring surgeon, which is very important. I think he's a marvelous person, and I'd be very interested in following his career. I think he's going to make a real name for himself."

Though Alaud-din is not sure what the future will bring, he does look forward to his return to Saudi Arabia, where he will have more time to spend with his wife and their three young daughters, without losing access to the equipment and facilities he needs to do the life-saving work he has been trained to do.

EXCELLENCE

EXCELLENCE

SETH RESNICK (3)

Hissah al-Moammar plays with her own children...

...then examines a little kidney patient at Mass General...

...and checks lab samples to monitor the effectiveness of treatment.

I enjoy children, but they don't talk to you a lot. You depend on the mother or father to give your medications, to carry out your instructions. Pediatrics is really a family affair.
– Hissah al-Moammar

Dr. Hissah al-Moammar, who is completing her residency in pediatrics at Harvard, also looks forward to returning to Saudi Arabia and spending more time with her husband and their four children. She would also like to publish *Mother Care*, a book about pregnancy, delivery and the first two years of life that she has prepared for Saudi mothers. "It's a longtime project, but it's all waiting in stacks now," she says, ready to be shipped to Saudi Arabia and printed in Arabic.

It's hard to imagine how al-Moammar found the time to write a book. Like the other residents, she works 10-hour days and is on call every fourth night – though that's better than one night in three, her duty when she began. Most of the time she works at Massachusetts General Hospital, where she sees patients "that other doctors have referred to us." She works the different divisions in rotation: emergency room, wards, intensive care, neonatal, pediatric intensive care and pediatric surgery.

Al-Moammar also spends a month on each of the body systems – the heart, the gastrointestinal tract and, most recently, the kidney, "dealing with patients who are about to have a transplant, or have had a transplant."

As part of her program, she rotates through other hospitals of the Boston metropolitan area as well: Mount Auburn, where she does normal pediatric work; inner-city Cambridge Hospital; Brigham and Women's, where she works in neonatal intensive care and in the delivery room; and Boston City Hospital, where she sees patients with blood diseases, including AIDS. She spent much of her second residency year in emergency transport, bringing critically ill patients to "Mass General" by ambulance or air ambulance. Al-Moammar agrees that her training has been difficult, but she does not feel that being a woman has made it any more difficult. "For me," she says, "it's part of life, part of working. They say you have to do better if you're a woman, but I haven't felt that. I didn't feel it in Arabia and I don't feel it here." Her training has been hard, she says, but "it's hard for everyone."

Harvard International Program administrator Patrick Bauer says, "I think the best word to describe Hissah is 'determined.' She was determined to complete specialty training in pediatrics, and to do it well. And she has."

I was always impressed with imaging, and there have been so many technical advances in the field. In most cases, physicians can determine what's wrong just through the appropriate diagnostic study.
– Rifat Abdi

Dr. Rifat Abdi is the first Saudi Aramco physician to be accepted for residency training at the University of Iowa, one of the top US schools in the very competitive field of radiology. It is also a field that today comprises many more "radiologic modalities" than just x-rays. As Abdi points out, "it includes computed tomography scanning, magnetic resonance imaging, ultrasound, interventional radiology – basically angiography – and plain radiographics."

The radiologist must not only know how to read the films from all these modalities, but how to make a diagnosis from the films and pass that diagnosis on to the patient's physician.

"To be a good radiologist, you have to be a hard worker," says Dr. Yutako Sato, director of Iowa's residency program in diagnostic radiology. "You can't just learn radiology from the book. You have to read the films. That's the only way."

And learning to read the films takes time. For radiology residents at the University of Iowa, the day goes non-stop from about 7:30 in the morning to 5:00 in the afternoon. In addition to interpreting the films – literally dozens a day, thousands a month – there are the conferences. At least two or three times a day, the radiology staff and residents, 27 in all, are presented with cases to discuss. Normally one resident is asked to interpret a case in front of his or her colleagues. To come up with the correct diagnosis, the resident must have not only an understanding of radiologic techniques, but also a thorough grounding in most other areas of medicine.

"You have to know a little bit about everything," says Abdi, who, to build on his experience, rotates each year through orthopedic radiology, chest radiology, genito-urinary radiology and all the other forms of diagnostic radiology. A six-month rotation in general radiology at the nearby Veterans Administration Medical Center is also part of the program, as is a six-week course at the Armed Forces Institute of Pathology in Washington, D.C. An additional three months of the four-year program are set aside for research.

DICK DOUGHTY (2)

Rifat Abdi contemplates a series of ultrasound images...

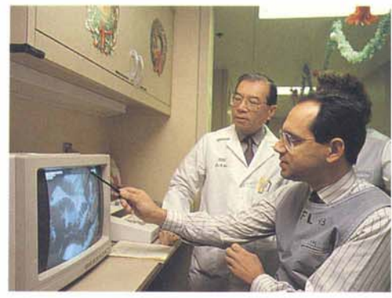
In all these rotations, radiology residents are required not only to fix on a diagnosis, but to interpret it and present it in a document for the clinician. "You have to be a good communicator," says Sato, "because the information has to be conveyed to your clinical colleagues. Unless you have a command of communication, the information will not help the patient. Rifat is very expert in that area, and I think that helps him a lot."

Abdi has great respect for his specialty, as well as for the radiologic facilities at the University of Iowa, which seems to "acquire the technology as it comes off the production lines." But while he is enjoying his training, Abdi too looks forward to the time when he can rejoin his family and friends in Saudi Arabia, and perhaps establish his own family. Nonetheless, he knows the pressures of radiology will not stop then, nor does he want them to.

As Dr. Tawfiq al-Daiel, a Saudi gastroenterologist who was one of the first physicians to complete the medical residency program, remarked, "Medicine is a field where you have to keep thinking and solving problems. What matters," he continued, "is how much you help and care for the patient. A hospital is more than its equipment: It's also its people. And Saudi Aramco has some very good people."

Al-Daiel's words could be echoed throughout the company: In geophysics, in engineering, as in medicine, Saudi Aramco does have good people. Dedicated, well-educated, ambitious, they are on the fast track – and they need to be. As former executive vice president Nassir Ajmi pointed out in a recent speech, "God willing, these are the people who will lead Saudi Aramco into the 21st century."

Jane Waldron Grutz lived in Saudi Arabia for 17 years, where she wrote for and edited The Arabian Sun. *She now free-lances in Houston.*



...and discusses a videotaped scan with Dr. Yutako Sato.

THE PEOPLE PERSIST

WRITTEN AND PHOTOGRAPHED BY BILL STRUBBE

Arabia Felix Typeface Courtesy of Judith Sutcliffe

Three Cham Muslim leaders from Thuan Tu, in their distinctive turbans, occupy the foreground of the composite image to the left. In the background, the Cham ruins of Po Rome dominate the surrounding plain near Phan Rang.

Hemmed in by popular nightclubs with names like Apocalypse Now and Hard Rock Cafe Saigon, and by a construction site heralding yet another hotel, the graceful minarets of the mosque rise unexpectedly above the trees, captivating the eye. Seemingly out of place amid the enormous Panasonic and Sony billboards presiding over teeming boulevards, the mosque beckons, an unlikely oasis in the heart of Ho Chi Minh City – former Saigon.

The visitor slips inside the gates of the compound and climbs the steps, brightened with fuchsia bougainvillea, to a veranda shimmering with reflections from the ablution pool. As the visitor steps into the mosque, and feels the welcome coolness of tiles underfoot, the bustle of the city recedes. This is the world of the Chams, descendants of an ancient people who built the powerful kingdom of Champa in what is now central Vietnam. Despite repeated conquest by invading armies and attempts at cultural – and even physical – obliteration, the Chams survive in Vietnam and Kampuchea (Cambodia) as a proud Muslim people, retaining a distinct linguistic, cultural and religious heritage.

Geographically, Vietnam has been likened to the peasant's traditional pair of carrying baskets balanced on a shoulder pole. The rich flood plains of the Red River in the north and the Mekong in the south are the rice baskets, while the mountainous backbone of the country serves as the sturdy pole. The dramatic drive from Hue to Da Nang, up the switchbacks of the Hai Van, or Pass of the Clouds, provides a breathtaking sight of the coastal mountains plunging into the sea and a view of what used to be the heart of the Champa kingdom, whose people once believed that the world lay divinely balanced between two elements: earth and water, masculine and feminine, mountains and sea.

While debate continues, many scholars consider the Cham people the original inhabitants of south-central Vietnam, rather than migrants from the Malaysian archipelago. People with "dark skin, deep-set eyes, turned-up noses and frizzy hair" are first mentioned in AD 192, in a Chinese description of Champa, then called Linyi, or "savage forest." The name Champa was not used until the seventh century; by then, a sophisticated civilization had developed, the most exclusive Hinduized culture outside of India. The Cham language, of Malayo-Polynesian origin and employing an Indian script, was the first written language in Southeast Asia. The Champa kingdom was preeminent in international trade; possessing a powerful commercial fleet, it exported enslaved prisoners of war and sandalwood – an important commodity for making incense used throughout Asia – in exchange for Chinese and Japanese silks.

At its peak, the kingdom of Champa occupied the territory of modern-day Vietnam from north of the 17th parallel – the old north-south dividing line – to Ho Chi Minh City in the south, embracing a number of tribes such as the Rhadé, Jarai and Rog-lai. As the splendid ruins of Mi Son and Dong Duong demonstrate, the sixth to ninth centuries were Champa's golden era, centered in the region of present-day Quang Nam province near Da Nang. The Cham people were outstanding builders, and the temples at Mi Son, 69 kilometers (43 miles) southwest of Da Nang, are among the oldest structures in Southeast Asia. Centuries before the Islamic faith made inroads into Champa, the religious practices were an amalgam of Hindu, Buddhist and animistic elements, and the Mi Son temples and towers were dedicated to kings and Brahman divinities.

The Champa towers were ingeniously constructed of dried brick mortared with resin from the *cau day* tree. When completed, the structure was enveloped in fire for several weeks, fusing the bricks and resin together to create an edifice able to withstand the onslaught of time and elements – though not 20th-century warfare. Mi Son valley became a free-fire zone for American B-52 bombers during the Vietnam War; out of more than 70 ancient structures that stood before the war, fewer than 20 remain.

From Da Nang to Phan Ri, numerous Champa ruins dot the Vietnamese landscape, their red-brick towers vividly silhouetted against blue sky and spectacular cloud formations. In the coastal city of Nha Trang, the Cham temple of Po Nagar is now a Buddhist shrine and a tourist attraction. Mi Son is a destination for only the most determined, requiring several hours by car and on foot, while the tower near Cam Ranh is just a few meters from the main highway.

A stone stele inscribed in Arabic, found near Phan Rang and dating from the 10th or 11th century, is the earliest record of the Muslim presence in Champa. Islam arrived in Southeast Asia via India and Malaysia, spreading along the trade routes (See *Aramco World*, November-December 1991). Arab trading communities lived in contact with the Chams from the 11th century onward.

With the gradual conversion of the Cham people from Hinduism to Islam in the early to mid-1600's, tension rose between Hindus and Muslims. Infighting was brought to an end when the Hindu king Po Ramo, whose wife was Muslim, required

subjects to attend each other's ceremonies and observe each other's holidays. The next king, Po Nraup, had two wives, one of each religion. It was Po Nraup's heir who embraced Islam. The religion of successive kings was a matter of personal choice until the kingdom of Champa disintegrated in the 18th century. As late as 1770, shipwrecked French sailors reported visiting a scaled-back Champa royal court, where the king's throne had been reduced to "a simple footstool."

I had traveled to Vietnam to learn more about the people whose ancestors had built the Champa kingdom. But on my fourth day in Hanoi, the authorities notified me that Cham villages were a "security problem" and off-limits to foreigners. Nonetheless, I moved on to Nha Trang, down the coast in former South Vietnam; through quiet inquiries there, I managed to find a car and driver willing to cover the 110 kilometers (68 miles) to the nearest Cham village. Following directions we had been given, we continued south from Phan Rang over two bridges, turned left on the dirt path past the pink pagoda on the right, then crossed another bridge and continued for two kilometers (about a mile) until we arrived at the village of Thuan Tu.

The youngsters there had probably never seen a Westerner before; scores of boisterous, curious children followed at my heels as I toured the village. Elderly women with red betel-stained teeth threshed rice without either baskets or winnowing mat by simply throwing handfuls into the breeze. The prickly-pear cactus hedges flourishing along the roadside give proof that Minh Thuan Province is the most arid part of Vietnam. Thuan Tu was one of the poorest villages I'd seen, and many of the children were visibly undernourished.

Interspersed among homes built of wattle and daub rose several newer homes of concrete and tile. We passed a schoolhouse undergoing renovations; half the crew was enjoying a midday snooze in the shade. Nearby, at the mosque, I exchanged Arabic greetings – *al-salam 'alaykum* (peace be upon you) – with the assembled Muslim leaders, dressed in white robes and turbans fringed with red tassels. These men, elected every few years, shave their heads and faces, dress in white and abide by special dietary and hygienic rules. After a brief visit, I reluctantly left the village and headed back to Nha Trang, mindful that the authorities might become suspicious if I did not return to the hotel by sunset.

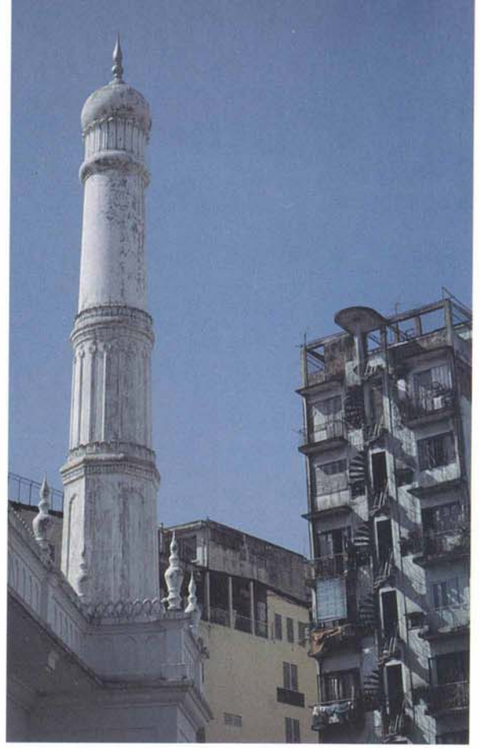
In 1970, an estimated 80,000 Chams lived in their ancestral homeland, a third of whom – as well as all those in Kampuchea – are Sunni Muslims of the Shafi'i school. Hindu Chams call themselves Cham *jat* or Cham *harat*, meaning Chams of "pure race," while Muslim Chams call themselves Cham *pak* or Cham *muk*, meaning "southern" Chams or Chams "of the community."

The Muslim Chams are further divided into orthodox and traditional communities. The orthodox Chams, who live mainly in Ho Chi Minh City and in Tay Ninh and Chau Doc near the Kampuchean border, adhere to mainstream Islamic practices. In the coastal plains of Binh Thuan and Minh Thuan provinces, where Thuan Tu is located, live the traditional Chams, whose lifestyle blends Islam with indigenous cultural elements.

Long ago, Cham society was dominated by several powerful matrilineal clans, and until recent years, all property was inherited through women; when a woman marries, her husband comes to live in her parents' home. In these respects, Cham society resembles that of the Minangkabau, a Muslim people of Indonesia (See *Aramco World*, July-August 1991). Mixed marriages of Chams to Khmers, Vietnamese or Chinese almost always result in the non-Cham partner's conversion to Islam. Vietnamese – and in Kampuchea, Khmer – is the language of trade and commerce for the Chams, but at home Cham is spoken. Muslim Chams also attend Qur'anic schools to learn Arabic and Malay in Arabic script.

Rural Chams live at subsistence level, much like the poorest Vietnamese and Khmer peasants. Those who work as farmers tend to grow cash crops such as cotton, sesame, indigo or vegetables, rather than cultivating wet or paddy rice. A number

Angkor Wat reliefs (upper and lower) depict Chams, with upswept hair, battling Khmer foes, with "slicked back" hair. Chams move cargo on the Tonle Sap River (far left). The minaret of Ho Chi Minh City's central mosque overlooks downtown area (right).



of women supplement their incomes by weaving bright, multi-hued textiles and ribbons. Muslim Chams often control local cattle trading, lumbering, weaving and commercial fisheries, and serve as butchers of cattle for Buddhist Khmer and Vietnamese – many of whom will eat beef but refuse to slaughter it.

Braving the traffic of Ho Chi Minh City on a motor scooter, we wove in and out of the swarms of bicycles and trucks, headed for the Cholon district, home of the city's ethnic Chinese. In the 1930's, the Indian Muslim community erected a mosque in the district, called Jami-ul Masjid Cholon, which sits at a skewed angle to the street, oriented westward toward Makkah. By the end of the Vietnam War in 1975, many of the Indians had fled the country, and the mosque was taken over by Cham Muslims. The modest complex is maintained largely through donations from overseas relatives. On an average day, some 20 people attend prayers there, and on Fridays close to 100.

I was introduced to the imam; interpreting for us was a Cham businessman, whom we will call Rama. Because of his association with the Americans during the war, Rama spent a decade in re-education camps; now he is involved in foreign trade. Over the years the government has worked to assimilate the Chams, bestowing on them family names such as Ong, Ma, Tra and Che. At the government's behest, Rama vietnamized his Cham-Arabic name.

Rama explained that animosities, often escalating into confrontation, have always existed between Vietnam's regimes and the religious and ethnic minorities – the Chams, the mountain tribes, and the Hoa Hao and Cao Dai sects. A group known as FULRO – United Front for the Liberation of Oppressed Peoples – was organized by a Kampuchean Cham in 1964, and survives to this day. During the Vietnam War, most minority groups were sympathetic to, or actively supported, the Americans. When the United States withdrew and the Communist regime of North Vietnam swept to victory in the south, a futile Cham uprising was brutally suppressed.

Though the last 20 years have been untroubled, the Chams are still treated with suspicion by the current government. In Vietnamese society, Chams are often discriminated against on the basis of language. "Because Cham is spoken almost exclusively in their homes," Rama explained, "Cham children enter school with a language handicap that affects their education and later job opportunities, so the Chams tend to be poorer than their Vietnamese neighbors."

Up until the fall of Saigon, every year 100 Cham Muslims flew on chartered planes from South Vietnam to Saudi Arabia to make the Hajj, the pilgrimage to Makkah. But since the reunification of Vietnam under the Hanoi government, it has been impossible for Chams to make the Hajj, due to the government's anti-religious stance and the lack of funds. Rama added a hopeful note: "The political and religious climate is slowly changing for the better. Things are slowly opening up. Two years ago, I would not have dared to meet and talk with you."

But fear still lingers. Rama asked me not to photograph him or use his real name. Later, a Cham declined to take me to a Muslim wedding because he was afraid to be seen with an American riding pillion on his scooter.

The origin of the hostility between Vietnamese and Cham goes back some 14 centuries, to a time when the kingdom of Champa found itself in frequent conflict with the Dai Viets to the north, ancestors of the modern Vietnamese. The first Champa capital of Tra Kieu was destroyed by the Dai Viets in the sixth century and a new capital was built south of there at Indrapura. As warfare continued, the Cham people were forced to move their capital five more times – each time farther south. Trying to re-establish themselves, the beleaguered Chams then fell prey to their western Khmer neighbors. The intermittent fighting between these two peoples, spanning the 12th century, is well chronicled in the bas-reliefs at the famous Angkor Wat ruins in Kampuchea.

Beset by internal dissension and the ensuing Mongol invasions of Kublai Khan, Champa began to crumble. In 1471, the Vietnamese emperor Le Thanh Ton swept down from the north, vanquishing Champa and sending much of its population fleeing to Angkor, the predecessor state of Kampuchea, where the refugees were welcomed by the Khmer king. When the Vietnamese captured the Champa port of Phan Rang in 1693 and a massacre ensued, another 5000 Chams fled westward to Kampuchea.

It made sense for me to follow the route of the Chams to Kampuchea, where Cham villages are more accessible. From the air, Kampuchea looked like a vast swamp, with the Mekong River a great, brown swath slicing through it all.

Since the 13th century, a small community of Muslims of Malay origin existed in Kampuchea. By 1590, Muslim Arab and Malay traders had settled in Lovek, the former Kampuchean capital, engaging in brisk business up and down the Mekong and intermarrying with Chams fleeing the intermittent upheavals in Vietnam. Muslim influence gained ascendancy in Kampuchea when Prince Ponhea Chan, supported by the Malays, assassinated the reigning king. Ponhea Chan converted to Islam, adopted the name Ibrahim and shortly thereafter launched a *jihad* or holy war against the Dutch East India Company. In 1650, Ibrahim's Khmer enemies overthrew him and Kampuchea's only Muslim king was captured and killed. In 1790, another large wave of Chams migrated to Kampuchea following the collapse of the Tay Son revolution in Vietnam.

A census carried out in 1874 by French colonial authorities found 25,599 Chams in Kampuchea, about three percent of the total population. In 1936, the Chams' numbers there had grown to 88,000, and by 1975 swelled to 250,000, making the Cham Muslims the country's largest minority. By 1970, there were 132 mosques in Kampuchea, and 25 Cham scholars had graduated from various Islamic educational institutions outside Indochina, nine of them from Egypt's al-Azhar University. Eighty Kampuchean Chams annually made the Hajj to Makkah, and by 1975, when the Khmer Rouge captured Phnom Penh, an estimated 1000 Chams in Kampuchea had completed the pilgrimage and thus were entitled to be called *hajjis*.

Today, most Kampuchean Chams live in 70 villages scattered along the banks of the Mekong and Tonle Sap rivers in Kompong Cham and Kompong Chhnang provinces. Some also live in communities in Takeo Province near the Vietnamese border and in Kampot on the Gulf of Thailand. Just north of the capital Phnom Penh, in the Cham heartland, is the village of Chrang Chamres, wedged between a ribbon of asphalt called Highway 5 and the reddish-brown waters of the Tonle Sap. At the heart of village life is the river, providing food, transportation, water for bathing and cooking, and, for the giggling children splashing in the shallows, sheer fun as well. The wooden houses perch on tall pilings, allowing the waters to sweep just below the floor boards during the monsoons.

For centuries, fishing was the traditional means of support in Chrang Chamres, but now many people work in fish-processing, lumber or weaving factories. A fisherman might make $30 a month, a factory worker $25. With city life encroaching on the villages, a substantial number of villagers have become street vendors, selling drinks, foods, and small products of various kinds.

Many women in Chrang Chamres once labored over looms, weaving the brilliant silk fabrics found throughout Kampuchea, but now a lone woman preserves the craft locally. Sitting in the shade beneath a house, the heddle suspended from pilings, she passes the shuttle back and forth between the silk weft threads, patiently producing a black-and-purple checked cloth. "The silk thread is imported from Vietnam and is becoming too expensive," she said. "None of my daughters or other girls are interested in learning to weave. I'm the last one in this village." But in villages farther from the capital, the weaving continues.

Masjid An-Nur an-Na'im (above) was devastated by the Khmer Rouge in the 1970's, and is being reconstructed. Cham children study Arabic at the Qur'anic school in Prek Kdam (right).

Off in the distance, the insistent beating of a heavy *skor* drum accompanies the muezzin – here called a *bilal*, the name of Islam's first muezzin – as he calls the faithful to prayer. Plastic slippers line the steps of the mosque. Inside, men pray wearing white caps (*kapeas*) and colorful batik cloth skirts tied in a knot at the waist. Mosque An-Nur an-Na'im, built in 1901, was once the largest in the country; now, like many Muslim places of worship, it is being rebuilt after being destroyed by the Khmer Rouge. When the Khmer Rouge were finally ousted from power in 1979, only 20 of the 132 mosques in Kampuchea remained.

In 1972, amid growing unrest on the eve of all-out civil war, the Khmer Rouge revolutionaries launched a campaign to eradicate Cham culture. The distinct Cham communities, with their large villages, separate language and independent organizational networks, posed a threat to the Khmer leaders' vision of a homogeneous, highly regimented country. In areas under Khmer Rouge control, the Chams were accused of excessive religious devotion that detracted from work time, and their religious observances were gradually restricted. Cham women were compelled to shear their long hair and adopt the short Khmer style. The traditional Cham batik was forbidden and the people were forced to wear black "pajamas." Eventual suppression of the five daily prayers precipitated a general protest, and Khmer Rouge authorities began arresting religious leaders.

As the Khmer Rouge gained full control in Kampuchea, mosques and schools were closed and Cham villagers dispersed throughout the countryside, along with the rest of the urban population. When the massacres of the educated, the talented, the exceptional and the recalcitrant began in earnest, a Cham Muslim's simple refusal to eat pork was grounds for immediate execution.

Curious children size up a visitor in the Vietnamese Cham village of Thuan Tu (far right).

By the time Vietnamese troops entered Kampuchea in 1979 and ousted the Khmer Rouge regime, only 30 out of 1000 Cham hajjis were still alive, 38 of 300 Qur'anic teachers, 45 of 350 community leaders and deputies and two of 25 foreign Islamic school graduates. All told, some 90,000 out of 200,000 Chams were killed in the dark years of the Khmer Rouge regime.

Every Cham has a devastating personal story to tell. "The Khmer Rouge killed over half of my family. I escaped to the Thai border, passing as Khmer," said the imam at the Chrang Chamres mosque. "There are still many Chams who live as Khmers because the situation is still so unsettled and they're afraid something could happen again." He lives in a house with some of his 30 grandchildren and does not take any of their lives for granted.

Thousands of Kampuchean Khmers and Chams were bludgeoned to death at the extermination camp of the Choeung Ek "Killing Fields" outside of Phnom Penh. Cows graze in the gaping mass-burial pits, the soil still visibly impregnated with bits of cloth and bones. Over 8000 disinterred skulls are stacked according to age behind the glass panels of a memorial erected in 1988. As we returned to the car, our guide said quietly: "One of those skulls is my father."

Later, we arrived for dinner at Abdullah Ben Yousef's house in Prek Kdam, not far north of Chrang Chamres. Security in the area was somewhat unsettled, but the sight of an AK-47 assault rifle beside the bed – and the presence of the local police chief – assured me I was in safe hands. Abdullah's spacious house and new car, the only one in the village, were evidence that his lumber business was prospering, making him among the wealthiest men in the village. Abdullah was fortunate enough to make the Hajj to Makkah in 1988 and his walls are covered with souvenirs and pictures of his pilgrimage. In the past two years, in an indication things are gradually returning to normal, a total of 55 Kampuchean Chams have made the Hajj.

Delicious smells wafted from the cookhouse on the far end of the veranda, where Abdullah's wife Fatima prepared dinner. Food was served on the floor: dishes of fish, one smothered in ginger, garlic and green onions, another with peppers. Rice and a salad of cucumber and green tomatoes – and Coca Cola – completed the meal. The men dined separately, while Fatima and the children watched. I chewed self-consciously, each swallow eliciting giggles from the children as my Adam's apple bobbed up and down.

To my surprise and disappointment, shortly after we'd finished eating, my host announced we would have to head back to Phnom Penh. I asked to stay longer, but the translator explained that "bad men are on the road" and "it's not safe to have foreigner in car." Several people had been killed recently at nearby Angkor Wat. As we drove back, the long stretches of dark, empty road seemed interminable. Several times, we were stopped at roadblocks manned by local militiamen, and the Marlboros I had given as a gift to my hosts were handed out the window to the soldiers. When I was dropped off at my hotel in Phnom Penh, I gave Abdullah my last pack of cigarettes and a few dollar bills in case they needed to pay a "toll" on the return trip home.

The next morning, we returned to Prek Kdam. From behind the village mosque, we could hear a chorus of children's voices reciting the Qur'an, in that melodious lilt that helps youngsters remember. The children squirmed on wooden benches, laboring over pages of Arabic script. My appearance in the classroom doorway caused an instant uproar, and the teacher beckoned me in.

Mohammed Abdul Hamid has lived in Malaysia for 15 years and visits here periodically to teach the children English, Malay and Arabic. He pointed to the bare bricks and said, "The school has been undergoing construction for four years. Sometimes the UNTAC [United Nations Transitional Authority in Cambodia] soldiers from Muslim countries come and help us. But as you can see, we have a way to go."

I asked the children what they wanted to do when they grew up. They responded with enthusiastic flurries of hands when I suggested a doctor or a teacher; being a fisherman also seemed desirable, while a few wanted to be movie stars. Three boys and one girl – who looked around and then lowered her hand – wanted to drive a truck. Interestingly, the notion of a government job produced much giggling and few hands.

Through the translator, I urged them to listen to their teacher and study hard, so they could one day contribute to the rebuilding of their country. I asked if they had any questions for me – expecting some to be curious about where I was from and what I was doing in their country. One girl, about 12, timidly raised her hand and asked, "Would you like to contribute some money for the construction of our school?" She was practical and to the point; how could I refuse? I advised the teacher to keep an eye on that one; with such children, the future of the Chams would be assured.

Boston writer-photographer Bill Strubbe has a long-standing interest in Islamic culture and history, and writes articles dealing with the world's cultural and environmental diversity.

Morocco's original Arabic name, al-Maghrib al-Aqsa, means simply "the farthest West." Culturally, the country stands at the crossroads of Europe, Africa and the Arab world; in political terms, it was traditionally divided into the *bled al-makhzen*, the domain of central authority, and *bled al-siba*, the region of tribal dissidence. But it is the land that is most important:

Morocco is a country defined by its geography.

WRITTEN BY LOUIS WERNER
PHOTOGRAPHED BY DAVID MELODY

ACROSS THE HIGH ATLAS

Foremost in Moroccan geography are its mountains. The Rif, the Middle Atlas and the Anti-Atlas – each a formidable range in its own right – together seem quite enough for a country just slightly larger than Texas and 30 percent larger than France. But they are overshadowed by an even more daunting divide: the High Atlas, al-Atlas al-'Ulya, whose name alone lends unparalleled grandeur to the land.

Rising 4167 meters (13,668 feet) to Jabal Toubkal, North Africa's loftiest peak, the High Atlas cuts across Morocco in a great diagonal sweep. On the northwest side lie the imperial city of Marrakech and the lowland routes that lead to Fez and across the coastal plain. On the other side are the oases and palmeries of the southern watersheds, isolated Berber strongholds, and finally ... the Sahara.

For centuries, the southern face of the Atlas was Morocco's front door to the rest of the world. In trekked caravans from the kingdoms of Benin and Ghana, and out rode Sultan Ahmad al-Mansur on his booty-rich campaign against Timbuktu in 1591. Trans-Saharan trade, centered at Sijilmasa – now buried deep in the Tafilalt oasis to the southeast – helped create the local wealth and influence from which sprang the Alaouite dynasty in the 17th century. That dynasty rules Morocco to this day.

From the vantage of Marrakech's balmy Agdal gardens, the High Atlas seems an endless wall whose snowy peaks blend into the clouds. The distance, however, hides the secret of the many paths permitting passage from the southern side. Across these Atlas passes once streamed Guinean gold, Saharan salt, and the mounted Berber warriors who founded the Almoravid and Almohad dynasties (See *Aramco World*, September-October 1992, January-February 1993). And across two of these passes, the Tizi-n-Test and Tizi-n-Tichka, travelers today routinely enter and return from the desert on paved roads.

But the old trans-Atlas trails continue to fascinate, and none more so than the animal track winding up Mount Tistouit over the Tizi-n-Telouet pass and down the Oued (river) Ounila to the lion-maned palmeries of the rivers Drâa and Dadès. Fabled kasbahs, mountain strongholds like Tamdaght and Aït Benhaddou, line this rugged way. Travelers descending the valley in late February pass, seemingly from one step to the next, out of a highland winter and into the almond-blossomed splendor of a pre-Saharan spring.

This was the mountain crossing most commonly used until the French Foreign Legion completed the Tizi-n-Tichka road in 1936. It was this route that the indomitable explorer Charles de Foucauld followed in 1883 and described in detail in his *Reconnaissance au Maroc*, the classic of geographical lore which earned him membership in the French Geographical Society.

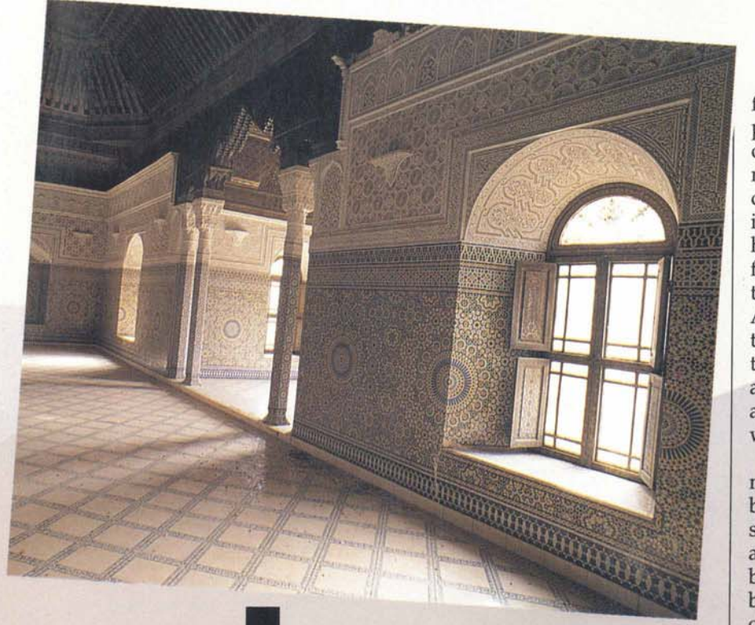
On October 16 of that year, having just topped the pass from the north, de Foucauld wrote: "After three more hours of travel through this sad, barren country, I suddenly entered a valley offering the most striking contrast, whose aspect is as gay and cheery as its surrounding solitudes are sad and mournful. At its bottom flows a river whose banks are uninterruptedly garnished with gardens and cultivated fields.

"Amid fig, olive, and walnut trees rise clusters of houses and granaries. Everything breathes of plenty. The elegant and picturesque architecture continues to amaze me even now: Fortresses with gracious towers, crenelated terraces, running balustrades, walls with paintings and moldings, courtyards covered from top to bottom in arabesque and ornament."

De Foucauld ably described and sketched many of the valley's principal kasbahs, but he cautiously skirted Telouet, the seat of the Glaoua tribe's stern Berber leaders. It would have been a fascinating visit, though, coming just prior to the tribe's time of glory as the pashas of Marrakech.

In a fascinating sidebar to Morocco's early 20th-century history, Madani al-Glaoui and his brother T'hami eventually raised so brazen and so strong a challenge to Sultan Moulay Hassan that his Alaouite dynasty, seriously shaken, was forced to open the door to French rule in the south. In their time, the Glaouis were so powerful that they entertained the likes of Winston Churchill, attended the coronation of Queen Elizabeth II, and sat in high council with the resident generals of the French Moroccan protectorate – until they were so sweepingly double-crossed by the French that their name entered the language as a verb: *glaouiser*.

Some terms in this article, and the names of the Moroccan persons and places, are spelled according to local preference, rather than our standard Arabic orthography.



Previous spread: Layer upon layer of mountain peaks and ridges await the traveler on the northern approach to Telouet, seat of the Glaoui tribe. Tribal leaders once dined in splendor in the men's dining room of the Telouet palace, right.

An inner courtyard of Aït Benhaddou's kasbah complex, upper right, features classic vernacular mud architecture. Lower right: Near Telouet, mines with deep underground shafts continue to extract salt, once valued in the region on a par with gold.

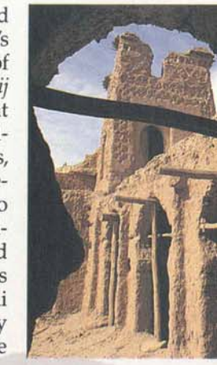
In 1893, Telouet was visited by Walter Harris, the Tangier-based correspondent for *The Times* of London, whose book *Morocco That Was* is still much admired. Looking past the kasbah's dramatic architecture, Harris saw only the palace's impending doom. It reminded him of a prison not unlike the Tower of London. "Nothing more dreary or majestic could be conceived," he wrote, "frowning with its towers and buttresses, seen against a background of torn mountain peaks and snow."

Just as Glaoui power pushed past the confines of the tribe's home valley toward its eventual collapse far beyond, so the precincts of their kasbah spread and grew beyond all reasonable scale. The Glaouis raised fresh battlements long after defeating their last enemies, and built new living quarters for their retinue of a thousand, rather than repair the old.

Telouet today looks like an above-ground archeological dig, fallen kasbah abutting ruined kasbah in an organic chain of rammed earth and adobe brick. More than tribal ambition overreached and failed here: So too did mud walls and multi-storied towers. Only the last-built complex, the pet project of T'hami's son Brahim, *caid* or chief of Telouet, remains upright and solid.

Such sumptuous quarters were intended as the Glaouis' High Atlas pleasure dome: Their palace in Marrakech, the Dar al-Glaoui, would serve the more practical needs of administration and adjudication. But T'hami, and with him 11 sons, fell from grace before his vision of the Telouet kasbah was fully realized. He died in 1956 and not long afterward, on the return of Moroccan king Muhammad V from exile, the family's power was broken.

As one climbs the sharp incline that sets the kasbah above its village, the ranks of untrimmed, unglazed windows have the look of empty eye sockets in a weathered skull. Inside, patches of concrete stand bare, with rusted reinforcing rods protruding. Only the reception and entertainment rooms are decorated. Only here, standing on the oriental dance floor flanked by men's and women's viewing rooms, does the past fully return to haunt the present.



Master artisans were called from Marrakech to cover T'hami's palace with the same profusion of carved plaster filigree and *zellij* mosaic star-bursts that adorn that city's dazzling 16th-century Saadian tombs. Stalactite ceilings, horseshoe archways, and millefleur wooden inlay strive to echo the decorative achievement of al-Andalus, Islamic Spain. Behind the ancient artistry, though, lurks the inescapable fact that Glaoui aspirations were a 20th-century anachronism. The decorative work was begun only in 1942.

A pair of storks returns every year to nest in the minaret of an abandoned mosque in the kasbah, building up the old nest each year in much the same way the kasbah itself was built, in a process of annual accretion upon a neglected foundation below. Some years after its abandonment, Glaoui biographer Gavin Maxwell called the kasbah "ill-ordered, ill-planned, but majestic in its proliferation and complete absence of symmetry."

Telouet sits on the banks of the Mellah river, named for the low-lying salt deposits along its upper reaches. For centuries, salt had been the very coin of the Moroccan realm. In the trading entrepôts of Sijilmasa and Akka, its barter rate for gold had at times reached one-to-one by weight.

The Glaouis' first wealth was based on salt; and as salt will, that wealth finally melted away. But in its time, salt brought camel caravans from the Sahara, from the coastal plain, from the great southern oases, and from as far away as Mauritania and the Sudan region. It was salt that first marked this route on the map, and that still gives people a livelihood on these barren upland slopes.

Walter Harris described salt-quarrying here in an account of his incognito Moroccan journey entitled *Tafilet*. All that has changed today is that, with the help of French-made dynamite and winching gear, mining operations have shifted to deep underground shafts. "Only salt and dirt are in this valley," is how one exhausted miner describes the scene today. Pickaxes, human muscle, and the strong backs of donkeys continue to put this man's salt on the Moroccan table.

The watershed between the Mellah and Ounila rivers is not far beyond the mines, and a short way further on one finds the first fruits of the Ounila's sweet waters. Here the valley opens out into terraced fields of beans and winter wheat, the river is dammed in places to fill irrigation canals that run along the contours above the stream bed, and the earth is rich and brown rather than Telouet's salt-encrusted pale.

The village of Anemiter stands near the head of this valley. Here one finds a kasbah that is a living organism, an example of successful architecture in a difficult environment and the keystone of a village plan worked out over centuries of trial and error. It is here one understands what a southern kasbah really is and how it functions.

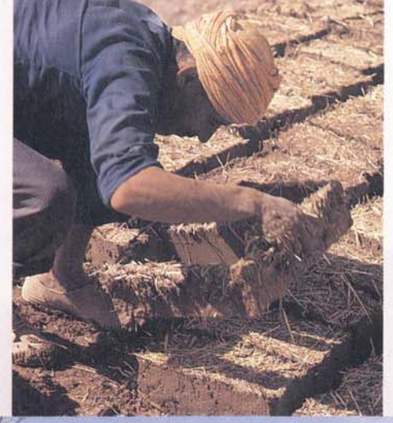
In southern Morocco, a kasbah (in Arabic, *qasabah*) is a castle complex, the stronghold of a ruling family, serving domestic, military, and ceremonial purposes. It is built, depending on local availability, of rock, adobe brick, or rectangular casts of rammed earth known in French as *pisé*. Rock is usually used for the foundation, *pisé* for load-bearing walls, and the lighter adobe brick for ornamental work on the top story.

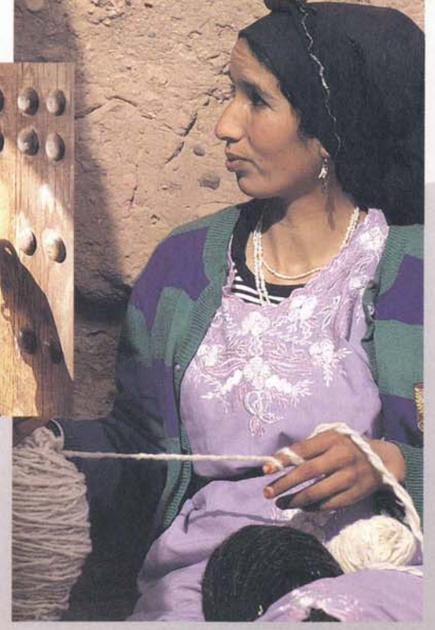
Pisé casts usually measure about 180 by 80 by 30 centimeters (70 x 30 x 12 in.) and are often used two abreast to build a wall 60 centimeters (two feet) thick. They are made by pouring damp earth, gravel and an occasional potsherd into wooden forms on site, tamping the earth down hard with a blunt-headed pounder, and allowing the mix to set. What emerges is an uncommonly strong and dense building element of manageable size.

A southern kasbah's distinguishing mark is a cubical, generally three-story structure with a high tower rising from each corner. From the inside, however, there is no predictability to the floor plan: Half-stories and split elevations abound. Unlit stairwells become cul-de-sacs; some windowed rooms have no point of interior entry.

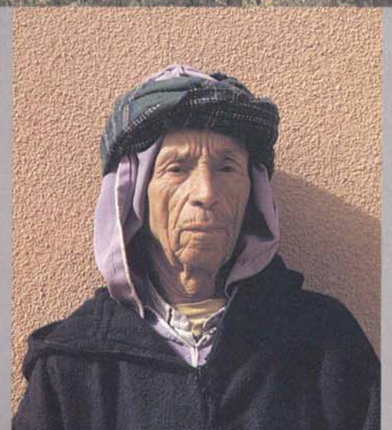
Attached to the rectilinear central unit the village's more humble dwellings are built – or rather, they grow, for the process is almost an organic one. It is this architectural agglomeration of individual units, which from a distance appear all of one piece, that is often referred to as a *qsar*, or palace.

Anemiter's kasbah and its subsidiary housing teach the lesson of environmental architecture well. Its thick-walled ramparts offer shade and cooler temperatures inside and out. A maze of circling paths and water courses winds around and through. Except at high noon, the sun's rays never fall too long onto any one wall, for most walls loop and twist to every point of the compass. Uninterrupted southern exposure here is rare.





Adobe bricks, left, are used for ongoing restoration at Taourirt kasbah. Almond blossoms surround the classic kasbah at Tamdaght, below. At right, a key unlocks a door in the Telouet kasbah's outer wall. Far right: The wife of the owner of the Aït Benhaddou kasbah plies yarn in a courtyard.



The Tikirt kasbah, far left, is now in ruins, inhabited only by storks. At left, a resident of Anemiter, whose kasbah exemplifies environmental architecture. At right, the dense palmery at Tazenntoute muffles construction sounds from Ouarzazate. The village of El-Khèmis, far right, with its distinctive green minaret, lies west of Telouet.

Leading due south down the Oued Ounila as it widens into the irrigated flats at Tioughassine, one comes full-face upon the approaching spring. Willow thickets are greening, fig trees budding and almond blossoms nearing their peak. Stands of date palms, seeming out of place at 1700 meters (5600 feet) elevation, still struggle to emerge from the shock of winter.

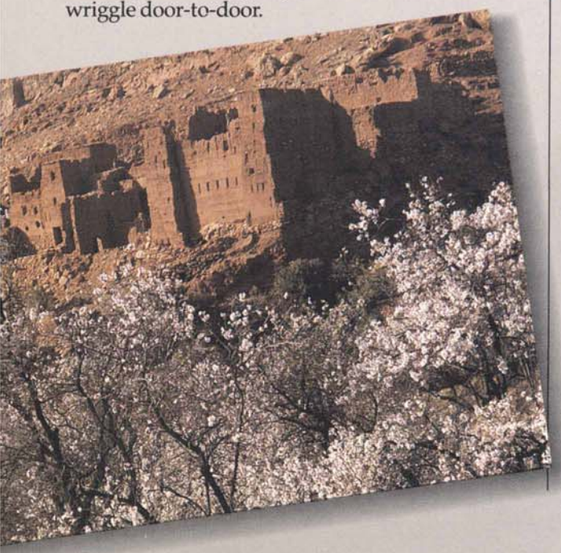
The road, bluntly called a mule track by the guide books, squeezes into the narrowing defile alongside the river and the fields. Here and there, huge boulders have tumbled into the gorge and now sit dumbly in the middle of some unfortunate farmer's beans.

South of Anemiter, the Ounila river narrows into a canyon, left, whose green ribbon of farmland provides sustenance for villagers. At Telouet, below, a pair of storks have claimed the minaret of an abandoned mosque.

Either by luck or prescient planning, the *qsars* are built under the valley's most stable cliffs – some in fact are built right into them, in the style of the Amerindian cliff-dwellings of the American Southwest. No rockslide-ruined villages are apparent, though a tumbled *qsar* – all stone and mud and splintered wooden beams – would soon be almost indistinguishable from the rest of the natural landscape here.

In places the track climbs to the lower canyon's flinty rim, but going from here in any direction but south still leaves the valley's insurmountable upper gallery walls to scale. The detritus of Glaoui watchtowers dots this mid-level desolation. Rain-pecked and wind-lashed, their walls have long since collapsed, their service to a fallen *caid* long obsolete.

From these heights, one has a nearly vertical view into the canyon, and the basic shapes of a *qsar*'s elemental geometry are revealed – circular threshing floors, well-trodden by donkey hooves, square and off-square buildings atilt to one another, and alleyways which undulate and wriggle door-to-door.



At the valley's narrowest points, its *qsars* must closely follow the contour line. Here the villages of Tajeguirt, Aït Oumazir, Taghoura and Taguendoucht have learned to expand longitudinally, rather than concentrically, as they would on flat land. Each new dwelling is built as another link on a long horizontal chain.

The way soon reenters the valley floor and passes the *qsar* of Tizgui-n-Barda. Stepping forward as village *muqaddam*, or mayor, Muhammad ibn Abdullah invites wayward travelers to pass the night. Extra bedding is never a problem in this well-upholstered household, with its ample store of brightly-colored Berber carpets and thick woven blankets.

Seated in the lamp-lit guest quarters after the mint tea has been served, eating a lamb *tajine*, or stew, and listening to the rising wind, one offers quiet thanks for the unprompted, overflowing hospitality for which the High Atlas is justly known. All Muhammad asks for in return is news of the city, of Marrakech and beyond, and how the Moroccan ski team fared in the Olympic Games. The battery which powers his television set, he laments, has just now chosen to expire.

Morning comes in four distinct stages in this *qsar* tucked deep into the canyon: First comes the call to prayer, then the arrival of morning tea, then first light touches the valley's western rim, and finally the sun's rays slide down the bluff to warm the fields and homes below. Almond trees are in full blossom here, the beans are nearly ripe and, according to Muhammad, Tizgui-n-Barda's storks will arrive in "five more days."

Next along the road is Tamdaght, the first of several sites selected for big-budget movie extravaganzas. The kasbah's erect and solitary site, with rock and sand on one side and the confluence of the Ounila and Mellah on the other, is exactly as Hollywood thinks an Arab fortress should look.

However, few location scouts know that Tamdaght's earlier history makes even B-movie plots seem thin by comparison. At the turn of the century, Tamdaght had been ruled by one of the Glaouis' archenemies, Ali n Aït Haddou, who, in an act of war, blocked the passage of the Glaouis' salt caravans and prevented collection of their taxes. Madani al-Glaoui sent brother T'hami to deal with the menace, and deal with it he did.

The *qsar* of Tizgui-n-Barda, framed in almond-tree blossoms, left, is a hospitable stopover on the journey south. Tikirt's kasbah, right, now abandoned, was a stopping point in 1883 for Charles de Foucauld on his way west to Agadir.

The family's Krupp cannon – the only one in the country at the time – blew holes in the kasbah's two-meter-thick (six-foot) walls, Ali was captured and beheaded, and his followers were given the choice of a similar fate or lifelong obedience to Glaoui lordship. Perhaps not surprisingly, many of these proud Berber warriors opted to fight to the death, which, for the captives, was known to be unmercifully slow.

Just past Tamdaght is Aït Benhaddou, a UNESCO World Heritage site and easily southern Morocco's most classic fortified village. Here scenes were filmed for *Lawrence of Arabia*, *Romancing the Stone* and other epics. And here tourists by the busload come to experience the North African apogee of vernacular mud architecture.

Aït Benhaddou is in fact a complex of kasbahs, with not less than four of these solid strongholds anchored to the steep hillside around which the rest of the village is wrapped. A ruined *agadir*, or fortified granary, surrounded by a fallen wall, commands the hill's summit. A luxuriant palm grove and orchard at its base softens the edge of what otherwise would be a mass almost too insistently cubical. Seen in golden afternoon light from across the wide but nearly dry Mellah river, this earthen ensemble seems to want to take to the air, to levitate off its rocky bed and become a shining city in the sky.

One movie director, unable to leave well enough alone, decided to build a grand portal of concrete and plaster in front of the *qsar*, apparently for a triumphal entry scene called for in his script. But the truth is that no *qsar* can have a formal front gate, because no *qsar* has ever been built to a formal plan. They may grow or shrink, but never can their building program be declared final. Nonetheless, the gate remains standing, marking the spot where Hollywood thinks Aït Benhaddou should end.

Some five miles on, the Mellah empties into the Ouarzazate river, and here the French-built road over the Tizi-n-Tichka branches west. On either side of the river sit two noteworthy *qsars*, Tikirt and Tazenntoute, both with spectacular front-on views of the snow-topped massif formed by the central High Atlas.

Tikirt's kasbah is now entirely ruined except for its six stork nests, occupied and apparently in good repair. It was here that de Foucauld rested, more than a century ago, before pushing on to Taliouine, Taroudannt, and finally Agadir. As far as it is from the road and with the river still unbridged, one can fairly ask how, if at all, the village has changed since de Foucauld's visit.

Tazenntoute's character has more clearly been touched by the hand of progress. Buses take wage laborers to Ouarzazate's booming building sites. Most recent construction, except for the whitewashed tomb of the local *marabout*, Sidi Ali Ou Salih, has a modern edge. Fortunately, the roar of trucks climbing a low *jabal*, or mountain, is muffled by the most densely planted palmery yet encountered this side of the Tizi-n-Telouet.

Just beyond the *jabal* lies the modern town of Ouarzazate, whose one historic feature, the Glaoui kasbah of Taourirt, has been completely rebuilt by the Ministry of Cultural Affairs. Finally here, after having passed ruined kasbah upon ruined kasbah all on the way down from their seat of power at Telouet, one can see how the Glaoui must have lived in their heyday.

If all roads north across the High Atlas are said to lead to Marrakech, then it is also true that all roads south lead through Ouarzazate to points beyond. For it is here that the main route divides and its distributaries flow in every direction.

One trail heads up the Drâa valley to Zagora, the southernmost margin of Glaoui rule, and on into the Sahara. Another follows the Dadès river past Skoura into what has become known as the "Valley of the Kasbahs." Others take off overland east to the Tafilalt oasis and west toward the port of Agadir on the Atlantic coast.

Once having reached Ouarzazate, a caravan moving south would have left behind the most dreaded perils of the journey: The threats of sudden snow in a High Atlas pass or an ambush in the Ounila's narrowest gorge would now be past. A few more easy ascents, over the Anti-Atlas's Jabal Sarhro or Jabal Bani, and you are well on your way to Timbuktu.

Author and filmmaker Louis Werner studied at Princeton and Johns Hopkins SAIS and lives in New York.

Spain has been won, and Muslim settlers have arrived.

But beyond the Pyrenees a great continent awaits....

The year is 719

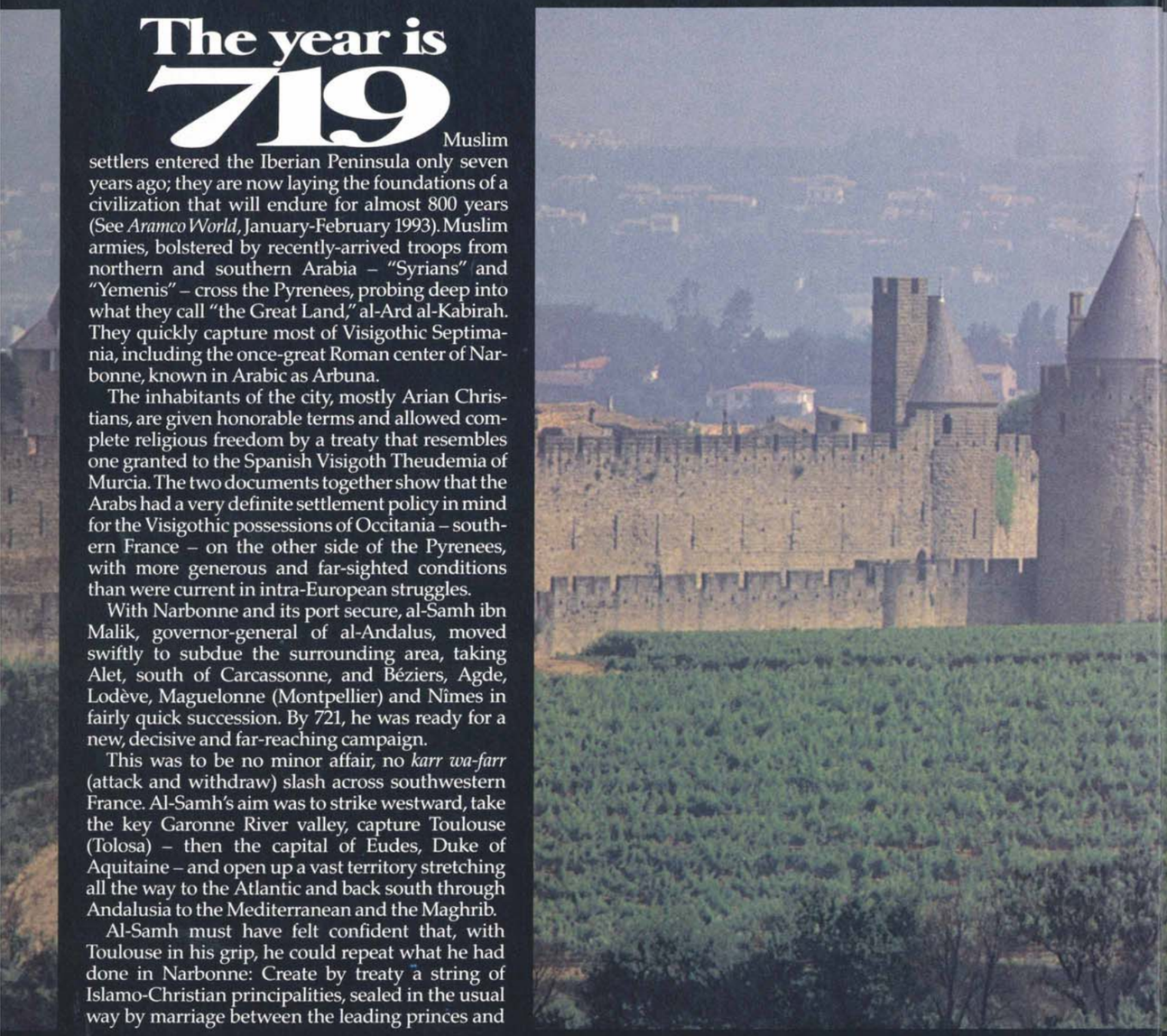
Muslim settlers entered the Iberian Peninsula only seven years ago; they are now laying the foundations of a civilization that will endure for almost 800 years (See *Aramco World*, January-February 1993). Muslim armies, bolstered by recently-arrived troops from northern and southern Arabia – "Syrians" and "Yemenis" – cross the Pyrenees, probing deep into what they call "the Great Land," al-Ard al-Kabirah. They quickly capture most of Visigothic Septimania, including the once-great Roman center of Narbonne, known in Arabic as Arbuna.

The inhabitants of the city, mostly Arian Christians, are given honorable terms and allowed complete religious freedom by a treaty that resembles one granted to the Spanish Visigoth Theudemia of Murcia. The two documents together show that the Arabs had a very definite settlement policy in mind for the Visigothic possessions of Occitania – southern France – on the other side of the Pyrenees, with more generous and far-sighted conditions than were current in intra-European struggles.

With Narbonne and its port secure, al-Samh ibn Malik, governor-general of al-Andalus, moved swiftly to subdue the surrounding area, taking Alet, south of Carcassonne, and Béziers, Agde, Lodève, Maguelonne (Montpellier) and Nîmes in fairly quick succession. By 721, he was ready for a new, decisive and far-reaching campaign.

This was to be no minor affair, no *karr wa-farr* (attack and withdraw) slash across southwestern France. Al-Samh's aim was to strike westward, take the key Garonne River valley, capture Toulouse (Tolosa) – then the capital of Eudes, Duke of Aquitaine – and open up a vast territory stretching all the way to the Atlantic and back south through Andalusia to the Mediterranean and the Maghrib.

Al-Samh must have felt confident that, with Toulouse in his grip, he could repeat what he had done in Narbonne: Create by treaty a string of Islamo-Christian principalities, sealed in the usual way by marriage between the leading princes and



The Arabs in Occitania

WRITTEN BY IAN MEADOWS
PHOTOGRAPHED BY TOR EIGELAND

families on both sides. But first he returned to al-Andalus to muster fresh troops. Reinforced, he crossed back into Occitania in early spring, 721, and immediately marched west toward Toulouse.

Al-Samh's army included siege engines, infantry, a few horsemen and numerous mercenaries, as well as the redoubtable Basque slingers. And though Toulouse was a big, well-defended city, whose walls had been consistently strengthened since Roman and Visigothic times, Eudes wasted no time. Leaving Toulouse safely locked up, he rode out to scour the four corners of his territory, urgently calling in every possible ally to build up an army big enough to meet the approaching danger. Appeals to the Frankish ruler Charles Martel, illegitimate son of the founder of the Carolingian dynasty, fell on deaf ears, however. Charles, called "the Hammer," had larger ambitions; it suited his strategy to watch and wait.

The siege of Toulouse, with its near-impregnable walls, lasted until early summer. The defenders, short of provisions, were close to surrendering when, around June 9, 721, Eudes of Aquitaine returned at the head of a large force, hurled himself at al-Samh's rear and launched a highly successful encircling movement. A major, decisive battle ensued; on this, three major Muslim historians of the period agree: Ibn Hayyan (died 1067), Ibn al-Athir (d. 1234) and al-Maqqari (d. 1632).

Their accounts suggest that al-Samh had fallen into the classic trap of static warfare and had concentrated his entire potential against the walls of Toulouse. With woefully few horsemen – the extensive use of Arab cavalry in Europe came later – he was unable to react fast enough to Eudes's charge, which completely engulfed him. Caught between the city's defenders and Eudes's men, al-Samh tried to break out, but was trapped with the bulk of his troops in a place called Balat (Plateau), where he made a determined last stand.

Al-Maqqari puts Eudes's force at 300,000 men. European sources speak of 375,000 Arab dead or wounded at Balat, against only 1500 casualties for Eudes's forces. The number of Arab casualties is of course inflated, but the Arab historians agree that Toulouse was a total disaster, the final phase being particularly murderous as survivors tried to break out eastward toward Narbonne.

Al-Samh himself was badly wounded. His second in command, 'Abd al-Rahman ibn 'Abd Allah al-Ghafiqi – who re-emerges in command at Poitiers a decade later – was able to march the shattered remnants of the army back to Narbonne. There, shortly after his own arrival, al-Samh died. So serious was the defeat that, each year for the following 450 years, those who died at Balat al-Shuhada' (Plateau of the Martyrs) were honored in a special remembrance ceremony.

In subsequent years, with the Garonne Valley closed to them, and no desire to fight another major pitched battle, the Arab forces moved eastward and then north in a series of raids as far as the city of Autun, in east-central France, in the fall of 725. But the raids were clearly meant largely to maintain some portion of the Arabs' lost momentum, to prevent stagnation and avoid any further territorial losses in Septimania.

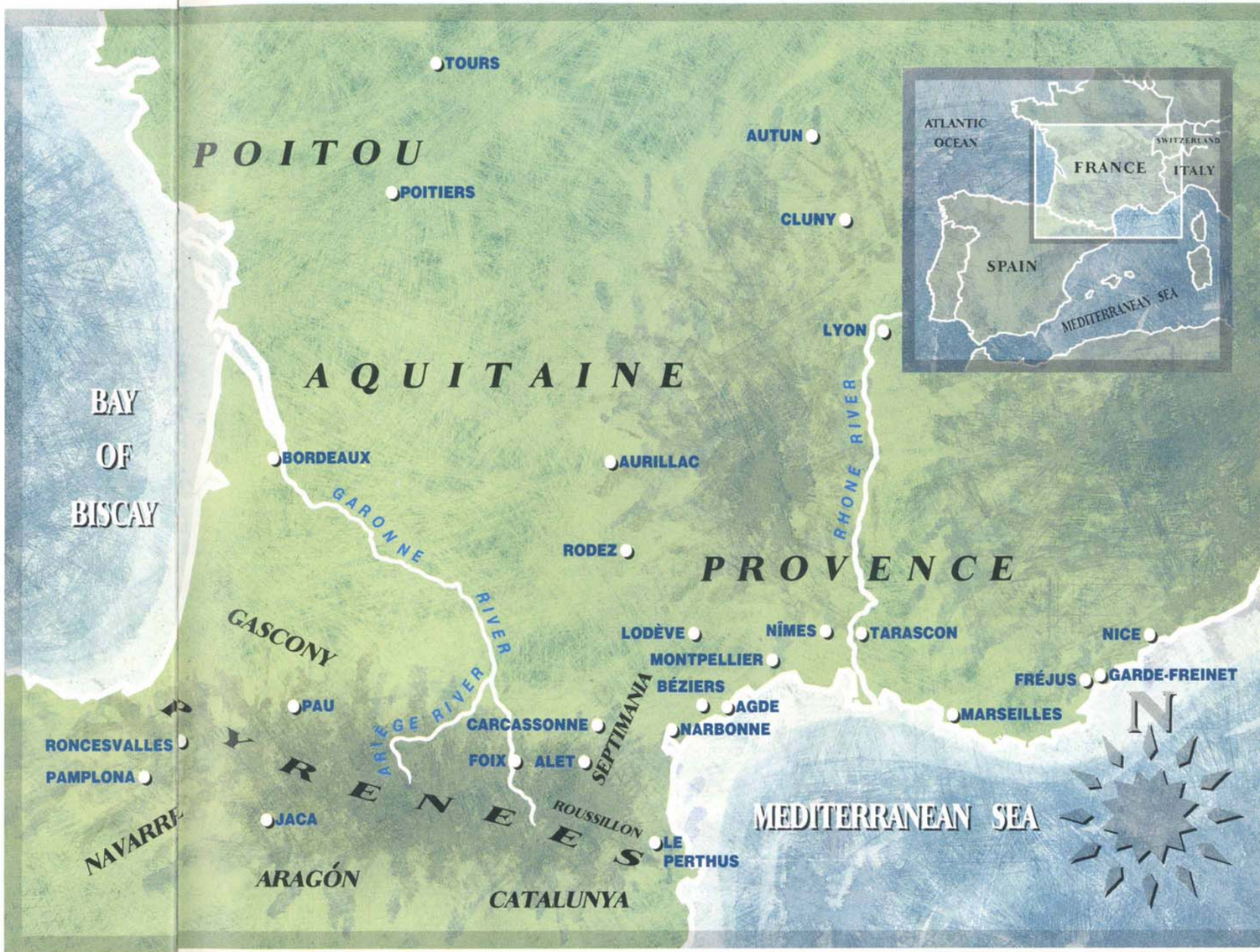
However, new and powerful players were waiting to take a hand. Eudes of Aquitaine was well aware that his greatest enemy was not Muslim: The real threat was the Franks under Charles Martel. Charles wanted Aquitaine, and Eudes was not only master of Aquitaine but also the hero of Toulouse and a possible rallying point for those opposing the Franks – in short, an obstacle in the way of Charles's expansionist ambitions. The two men were inevitably on a collision course.

This explains why, in 730, Eudes opened negotiations with 'Uthman ibn Naissa (Munuza), the Berber deputy governor of Catalunya, who may in fact have initiated the talks. They led to a peace treaty sealed by the marriage of Eudes's lovely daughter Lampagie to Munuza. Arab raids on Aquitanian possessions immediately ceased. Peace was restored, and Eudes retired to his capital, confident that Charles would not dare attack him.

But fate took a nasty turn when Munuza revolted against the Arab governor-general of al-Andalus, with the aim of setting up an independent Catalunya for himself. He was declared a traitor, attacked and defeated in a short, sharp battle – and Eudes was accused by the governor-general of abetting the traitor. Eudes had probably, by this time, disbanded a good part of his levies; he was attacked by an Arab army and beaten at Bordeaux, the city the Arabs called al-Burdil.

Eudes's appeal to Charles Martel for immediate aid was met by the curt reply that he had betrayed Christianity when he made a treaty with the Arabs. His only salvation lay in submitting to Charles's authority. He submitted.

The defeat of Eudes left Charles with an ideal opportunity to strike at 'Abd al-Rahman ibn 'Abd Allah al-Ghafiqi, who had also taken losses in Bordeaux. That's how the relatively small Arab force under 'Abd al-Rahman ran into Charles near Poitiers, and was defeated in October 732. 'Abd al-Rahman was killed in this skirmish, which was thereafter blown up by chroniclers to heroic proportions, in versions that have traveled unchallenged down the centuries.



Previous spread: The medieval walled town of Carcassonne, captured by the Arabs early in the eighth century. At left: Sheepskin-clad folkdancers perform at a festival in the Place du Capitole, old center of Toulouse.

Recent research by Toulouse historian Sydney Forado shows that it was in fact the battle of Toulouse in 721, much more than the battle of Poitiers – sometimes called the battle of Tours – 11 years later, which prevented further, and possibly more permanent, Muslim gains in southern France. Just as significantly, Eudes's victory at Toulouse resulted in a number of Islamo-Christian political alliances in southwestern France, initiating those first crucial cultural and commercial exchanges between Muslim Spain on the one hand and Languedoc, Gascony, southern Aquitaine, the Pyrenees, Septimania and Provence on the other.

Despite Poitiers, the Arabs remained in control of Narbonne and Septimania for another 27 years. The treaties reached earlier with the local population stood firm and were further consolidated in 734 when the governor of Narbonne, Yusuf ibn 'Abd al-Rahman al-Fihri, concluded agreements with several towns on common defense arrangements against the encroachments of Charles Martel, who had systematically and brutally brought the south to heel as he extended his domains. Charles failed in his attempt to take Narbonne in 737, when the city was jointly defended by its Muslim Arab and Christian Visigoth citizens.

Ibn al-Athir and al-Maqqari both record a powerful increase in Muslim settlement in Septimania, especially in the Narbonne area, between 718 and 755, as well as several minor treaties which suggest that the newcomers had every intention of settling permanently in this fertile land. But Narbonne finally fell, by treachery, in 759 to Pepin the Short, one of Charles Martel's sons, and the Arabs ultimately decided to withdraw from all of Septimania, due in part to insecurity caused by the political troubles of the Umayyad caliphate in Damascus, as well as to a desire to concentrate available Arab and Berber manpower back in the heartland of al-Andalus. Another factor was the serious famine which hit Septimania and parts of Spain in the second half of the eighth century.

There would be no more full-scale Arab attempts to win lands in Occitania, although an expedition was sent against Narbonne in 793, led by al-Mugith, another in 841 under al-Iskandaruni and a seaborne assault in 1020. This period is also marked by a series of raids in Provence, notably on the coastal cities of Nice, Fréjus and Garde-Freinet, by Maghrib-based Barbary privateers – popularly known as pirates but, like the American privateers of the 18th century, supported by their government. In an interesting footnote, the town of Garde-Freinet (Fraxinetum), on the Mediterranean coast between Marseilles and Nice, was captured by an Arab force from al-Andalus in 891 and held for almost a century, serving as a small colony and a base for maritime and overland raids.

In cultural terms, the three centuries between 800 and 1095, when the Crusades in the Holy Land began, were marked by a stimulating flow of contacts between al-Andalus and southern France, and peopled by a host of colorful characters who played key roles in these cultural transfers between the Islamic and Christian civilizations.

The region was certainly fertile ground for new ideas; its people were known for their enquiring minds and an almost mystical bent born of long contacts with Greek, Phoenician and Roman thought. Alcuin, an Anglo-Saxon scholar and one of Charlemagne's most trusted counselors, spoke of the Aquitanians' strong sense of independence, their love of freedom and the fact that "they prayed directly to God."

Deep-rooted affinities – ethnic, cultural and linguistic – linked the peoples of Occitania with the Ibero-Celtic and Visigothic populations across the border to the south, who had also been deeply influenced by Greek and Roman culture. The Andalusian Arabs did little to disturb these native populations and allowed them great latitude in matters of religion and cherished customs.

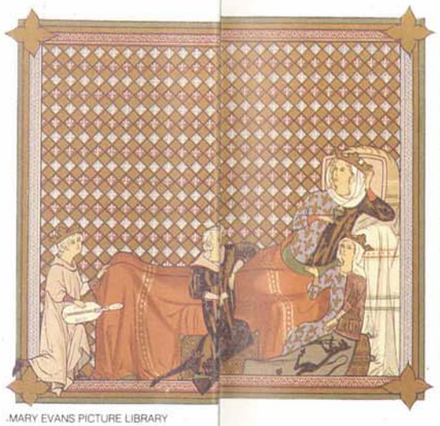
Freedom, tolerance and ease of assimilation were common denominators, indeed hallmarks, of both al-Andalus and Occitania, which had very apt words of its own: *convivenzia*, coexistence, or the art of living together, and *paratge*, sharing.

Prime agents in the process of cultural transmission between al-Andalus and the south of France were the Mozarabs, or arabized Christians, and the many Jews as well, who spoke Arabic as well as Romance, the lingua franca of the day. Other links in that formative period came via the jongleurs, minstrels, mercenaries and traders who plied among the Arab possessions in al-Andalus, the pockets of Christian territory, such as Navarre or Aragón, and southwest France. These travelers used either the Mediterranean coastal route across Catalunya and Roussillon, the high passes through Andorra and the Ariège valley into Foix and Toulouse, or the western route through Aragón and Jaca toward Pau, Toulouse and the rest of Aquitaine. The mixed culture they carried with them diffused far more widely.

Philosopher Rudolph Steiner mentions a school of chivalry near Jaca around the late eighth century, where Arab knights, called *Fida'iyu Ka's al-Futuwwah*, Knights of the Cup of Chivalry, were reputed to have handed custody of the Holy Grail to Christian knights. The legend of Parsifal was born there, according to Steiner. And Chrétien de Troyes, the 12th-century French poet whose epic *Perceval ou Le Conte du Graal* circulated widely in southern France, said he had the Grail story from Kyot the Provençal, who in turn attributed it to one Flegetanis, a man traceable to the Toledo area in al-Andalus a hundred or more years earlier.

Jaca, a town in present-day northern Spain, lay on the route used by Charlemagne's troops after they withdrew from their abortive foray against Saragossa (in Arabic, Saraqustah) in 777. The Arab governor of that town, in a bid for independence from the rulers of al-Andalus in Córdoba, had appealed to Charlemagne for help – but had changed his mind at the last minute. As we know, Charlemagne's rear guard, under his nephew Roland, was cut to pieces by Basques in the narrow passes of Roncesvalles, northeast of Pamplona. The fiasco was captured as heroic tragedy – and substituting "Saracens" for the ambushing Basques – in the *Song of Roland*, written some 300 years later. The epic, embraced by the church for its anti-Islamic message, is ironically often cited as an example of the poetic art learned from Arab Spain.

Distant Normandy received Arab culture, among other routes, through the diplomatic missions of the celebrated Andalusian poet-minister Yahya al-Ghazal to the court of Theuda, the Norman queen of the Pyrenean kingdom of Navarre in the early 10th century. Al-Ghazal, whose charm and good looks persisted to his death at age 92, composed pleasing verse in honor of the beautiful Norman ruler. Theuda maintained strong links with her kinsmen barely two days' ride away in Aquitaine and Poitou, so from an early date the kingdom of Navarre served as a transmission route for the northern flow of Arab music and poetry. It is also worth noting that an important Muslim community in Navarre, whose origins dated back to the eighth century, continued to prosper in an atmosphere of tolerance until that kingdom was absorbed into Castile in the early 16th century.



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A canal now parallels the Garonne River south of Toulouse, top, where the battle of Balat al-Shuhada' raged in 721. Above: Adenez, a 13th-century minstrel, performs for the French queen. Troubadours and minstrels were influenced by al-Andalus.

The Benedictine order of monks, whose great "reform" abbey at Cluny was founded in 910 by the duke of Aquitaine of the time, was a very important link in the chain of cultural transmission from al-Andalus to France. Benedictine monasteries were the most important repositories of learning and literature in Europe, and Gerbert of Aurillac – the French monk who became Pope Sylvester II – was also the first European scholar of importance to study Arabic sciences, spending three years in Catalunya as a young man absorbing mathematics and astronomy. He was responsible for sending many Benedictine study teams into al-Andalus during the closing years of the highly formative 10th century. One of the greatest intellects of his time, Gerbert introduced Christian Europe to the Arab classics on algebra and geometry.

The westward flow of Arabic translations of writings by Greek, Persian and other masters, along with Arab commentaries and contributions, had begun around the year 800 (See *Aramco World*, May-June 1992). By the end of the 10th century, various schools in Córdoba, capital of al-Andalus, employed hundreds of translators and just as many copyists – many of them women – working closely with Mozarab specialists and interpreters, translating hundreds, perhaps thousands, of manuscripts from Baghdad, Damascus, Cairo and Alexandria.

At Córdoba's apogee, its ateliers were producing some 60,000 bound volumes each year. It is safe to assume that a part of this output found its way across the Pyrenees into the abbeys, monasteries and learning centers of Narbonne, Toulouse, Montpellier and Nîmes – all thriving again after the heavy-handed Frankish incursions – as well as into Poitiers, the capital of Aquitaine.

With regular lines of communication established, first Córdoba, then Toledo (in Arabic, Tulaytulah) and finally Oviedo (then called Asturias) became the main channels for transmitting scientific knowledge from al-Andalus through Catalunya, Aragón and Navarre into southern France. What began as a movement of poetry, music and literature across the Pyrenees was transformed to a steady flow of mathematics, astronomy, medicine and agricultural expertise – on such subjects as raising Merino sheep, transhumance, irrigation, horticulture and hawking.

By 1031, when al-Andalus began to fragment under attack by Castilian forces, Mozarab and other exiles from Córdoba and Toledo crossed the Pyrenees into southern France, taking with them, it is said, more than 200 years worth of accumulated knowledge – and a good part of the city's former royal Visigothic library.

Mozarab exiles are also known to have settled in large numbers in Narbonne and Montpellier, where their skills were in much demand, and to have maintained contacts with the famous female Arab poets in the courts of León and Navarre. The poet al-Harizi provides a wealth of detail about Arab and Jewish teachers from al-Andalus in southwestern France at the beginning of the 13th century, particularly in Narbonne and Montpellier.

Al-Andalus itself, meanwhile, lived on until the last years of the 15th century with varying political fortunes (See *Aramco World*, January-February 1993), still producing great scholars and original thinkers. The Cordoban philosopher-physician Ibn Rushd, or Averroes, died in exile in Marrakech around 1198, but the historian Ibn al-Khatib did not complete his work until 1374, and the great philosopher of history Ibn Khaldun worked on in Granada until 1402.

By that time, as Occitanian scholar René Nelli noted, more than four centuries of cross-fertilization of classical, Islamic and Western thought, mediated by the Arabs of Spain and the mixed culture of al-Andalus, had helped southern France develop its own, unique civilization. Key elements of the culture of al-Andalus had been passed on, influencing the development in Occitania of concepts and doctrines that would spread far beyond the region, among them that of courtly love, partly inspired by verses of the troubadours that derived from Muslim Spain, and the positivism of philosopher Auguste Comte, which drew on sociological concepts advanced by Ibn Khaldun. Western Europe in general owes a great deal to this enormously long and rich intellectual flow from al-Andalus across the Pyrenees into Occitania and Aquitaine. Montpellier's medical school still stands as a very real monument to the time when knowledge knew no frontiers.

Ian Meadows, veteran journalist and author, lives in Languedoc, France, where he is working on a historical novel set during the Crusades in Palestine and Occitania.

SUGGESTIONS FOR READING

Once again, we offer the readers of *Aramco World* a selection of suggested readings, old and new, on the Arab and the Islamic worlds, in the hope of shedding some light on these important, overlapping segments of the world community. Though the Middle East remains in the headlines, events there are all too often reported without context. The books listed below, like those in our March-April 1991 issue, are an effort to provide that context. Some of them present conflicting views, some present new frameworks for thought, and some provoked much argument when they were published but have since become part of the "conventional wisdom." We do not necessarily endorse any positions or views set forth in these works, but we do endorse an inclusive but thoughtful habit of reading, and we believe these readings contribute, each in its own way, to increased understanding of the region and its people.
–The Editors

The Adventures of Ibn Battuta: A Muslim Traveler of the 14th Century. *Ross E. Dunn. Berkeley: University of California Press, 1989, 0-520-05771-6 (hb), 0-520-06743-6 (pb).* The broad sweep of the Islamic world of six centuries ago is captured in an entertaining account of one of the great travelers of the Middle Ages. Ibn Battuta spent three decades traveling through Asia and Africa.

'Antar and 'Abla, A Bedouin Romance. *Rewritten and arranged by Diana Richmond. London: Quartet Books, 1978, 0-7043-2162-9.* This collection of tales about a sixth-century Arab hero and his bride provides a survey of the manners, culture and history of pre-Islamic Arabia.

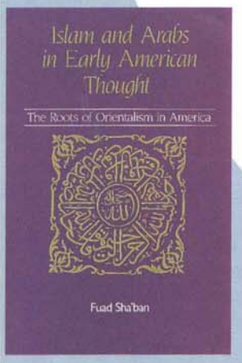
Arab and Jew: Wounded Spirits in a Promised Land. *David K. Shipler. New York: Times Books, 1986, 0-8129-1273-X.* A Pulitzer Prize-winning exploration of the attitudes, images and stereotypes that Arabs and Jews have of each other, by a *New York Times* correspondent in Jerusalem.

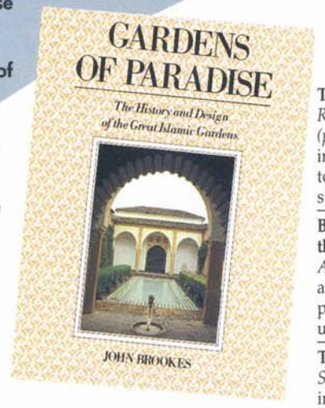
Arabian Cuisine. *Anne Marie Weiss-Armush. Beirut: Dar An-Nafaés, 1991, [no ISBN].* Delicious recipes from the Arab world, presented with clear, step-by-step directions and attractive illustrations. Making the exotic seem familiar, this book takes the fear out of dealing with a new cuisine.

The Arabs. *Peter Mansfield. London and New York: Penguin, 1991 [3rd edition], 0-14-013574-X.* A respected historian and journalist explores the history, politics and society of the Arab world in this well-structured and concise classic.

The Arabs: Activities for the Elementary School Level. *Audrey Shabbas, Carol El-Shaieb and Ahlam An-Nabulsi, editors. Berkeley: AWAIR (Arab World and Islamic Resources and School Services), 1991, [no ISBN].* An imaginative collection of hands-on projects for elementary and junior high students to acquaint them with the arts, crafts, foods and culture of the Arab world.

The Arabs and Mediaeval Europe. *Norman Daniel. London: Longman, 1975, 0-582-78045-4.* A classic exploration of the links between Arabs and Europeans in the Middle Ages. Daniel looks at the impression made by the Arabs, the reactions of the Europeans and some of the ideas shared by both peoples.





The Arabs: Journeys Beyond the Mirage. *David Lamb. New York: Random House, 1987, 0-394-54433-1 (hb); Vintage, 1988, 0-394-75758-0 (pb).* The *Los Angeles Times* correspondent in Cairo has created an insightful montage of images, sights, sounds and moods from today's Arab world, designed to strip away some of the stereotypes about the region.

Before the Mountains Disappear: An Ethnographic Chronicle of the Modern Palestinians. *Ali H. Qleibo. Cairo: A Kloreus Book, Al-Ahram Press, 1992, [no ISBN].* Jerusalemite Qleibo – an artist, cultural anthropologist and author – paints a vivid and multi-faceted picture of Palestinian life and culture in a time of political upheaval and transition.

The Crusades Through Arab Eyes. *Amin Maalouf. New York: Schocken Books, 1985, 0-8052-4004-7 (hb); 1989, 0-8052-0898-4 (pb).* An insightful and readable account, drawn from contemporary documents, of the Crusades from the viewpoint of "the other side," i.e., the Arab camp. The author is a prominent Lebanese writer.

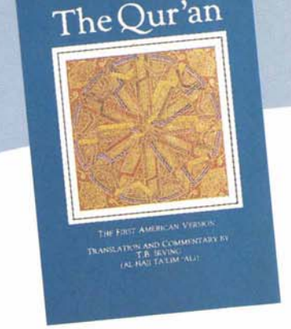
Europe and the Mystique of Islam. *Maxime Rodinson. Seattle: University of Washington Press, 1987, 0-295-96485-5.* The eminent French sociologist and Islamic scholar explains how the West has viewed the East through its own intellectual prism, and proposes a new approach to Arabic and Islamic studies.

The Flora of Eastern Saudi Arabia. *James P. Mandaville. London & New York: Kegan Paul International; Riyadh: National Commission for Wildlife Conservation and Development, 1990, 0-7103-0371-8.* The author has studied desert plants since 1963, when his work among Bedouin tribes pointed up the importance of plant uses and lore. This definitive manual, illustrated with color photos, is designed for use by both experts and non-specialists.

From Beirut to Jerusalem. *Thomas Friedman. New York: Farrar Strauss & Giroux, 1989, 0-374-15894-0 (hb); Anchor, 1990, 0-385-41372-6 (pb).* A *New York Times* correspondent, describing his personal journey between two cities and two worlds, sets forth his balanced and compelling picture of the Middle East in crisis.

Gardens of Paradise: The History and Design of the Great Islamic Gardens. *John Brookes. New York: New Amsterdam Books, 1987, 0-941533-07-7.* One of Britain's top landscape designers looks at the history and spread of the Islamic garden and offers practical tips on how to create your own.

The Heritage of the Kingdom of Saudi Arabia. *Wahbi Al-Hariri-Rifai and Mokhless Al-Hariri-Rifai. Washington: GDG Publications, 1990, 0-9624483-0-3.* A magnificent coffee-table book on the kingdom's cultural and natural heritage, illustrated with color photographs. Subjects include history, ancient trade routes, natural resources, architecture, markets and crafts.



A History of Islamic Societies. *Ira M. Lapidus. Cambridge, New York, etc.: Cambridge University Press, 1990, 0-521-22552-3 (hb), 0-521-29549-1 (pb).* This ambitious, 1000-page work shows sensitivity and scholarship as it chronicles the spread of Islam and the interaction of religious ideas with the lifestyles and institutions of people around the world.

Islam: An Introduction. *Annemarie Schimmel. Albany: State University of New York Press, 1992, 0-7914-1327-6 (hb), 0-7914-1328-4 (pb).* A lifelong scholar's clear, insightful and reliable overview of the faith, this book is a splendid introduction that corrects many erroneous notions about Islam prevalent in Western society.

Islam and Arabs in Early American Thought: The Roots of Orientalism in America. *Fuad Sha'ban. Durham, NC: The Acorn Press, 1991, 0-89386-029-8.* A Syrian professor of American literature shows how the "City on a Hill" mentality and the eastward extension of Manifest Destiny led to America's peculiar perspective on the Middle East.

Islamic Art. *David Talbot Rice. London: Thames and Hudson, 1991 [revised edition], 0-500-20150-1.* A new edition of a standard work, this is a richly illustrated, comprehensive look at the full range of Islamic art in a variety of media, from Spain to India over a time-span of a thousand years.

Jerusalem. *F.E. Peters. Princeton: Princeton University Press, 1985, 0-691-07300-7.* Subtitled "The Holy City in the Eyes of Chroniclers, Visitors, Pilgrims, and Prophets from the Days of Abraham to the Beginnings of Modern Times," this is a remarkable anthology of first-hand accounts about the city through the ages by Muslims, Christians and Jews.

Leo the African. *Amin Maalouf. New York: W.W. Norton, 1989, 0-393-02630-2.* A compelling historical novel, cast as an autobiography of Hasan al-Wazzan, the 16th-century Andalusian Arab geographer better known in the West as Leo Africanus.

The Literature of Modern Arabia: An Anthology. *Salma Khadra Jayyusi, editor. London and New York: Kegan Paul International, 1988, 07103-0261-4 (hb), 07103-0263-0 (pb).* This translated anthology, the first of its kind, brings together a selection of the best creative literature of the Arabian Peninsula since World War I, including poetry, drama and short stories.

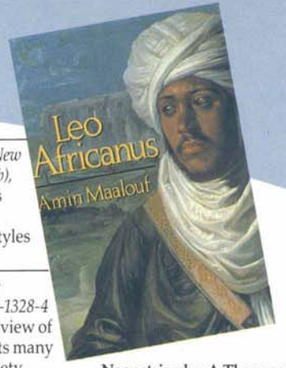
Maker of Modern Arabia. *Ameen Rihani. Westport: Greenwood Press, 1983, 0-313-23854-5.* A fascinating account of the founding of Saudi Arabia in the 1920's, as seen through the eyes of a prominent Arab writer who traveled the country with then-Sultan (later King) 'Abd al-'Aziz Al Sa'ud.

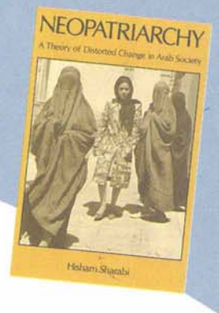
The Meadows of Gold: The Abbasids. *Mas'udi. Translated and edited by Paul Lunde and Caroline Stone. London: Kegan Paul International, 1989, 0-7103-0246-0.* This lively medieval Arab history, translated for the first time into readable, idiomatic English, captures the flavor of the Abbasid period, the Golden Age of Islam.

The Muslim Mind. *Charis Waddy. London: Longman, 1976, 0-582-78061-6 (hb); New York: New Amsterdam Books, 1990, 1-56131-014-X (pb).* This useful introduction to Islam takes the form of a symposium of Muslim attitudes and thought on a wide range of topics, drawn from Islamic literature, modern writings and personal interviews.

Muslim Peoples: A World Ethnographic Survey. *Richard V. Weekes, editor. Westport: Greenwood Press, 1984 [2nd edition], 0-313-23392-6.* This expanded version, in two volumes, surveys some 190 ethnic and/or linguistic groups, most of them entirely Muslim but some only partly so. Each group is covered by an expert in the field.

Nadia the Willful. *Sue Alexander, illustrations by Lloyd Bloom. New York: Random House, 1983, 0-394-85265-6 (juv), 0-394-95265-0 (adult).* A touching children's story about a young Bedouin girl who teaches her father, the shaykh, and the rest of the tribe important lessons of love and loss when a favorite brother dies. Kindergarten through sixth grade.





Neopatriarchy: A Theory of Distorted Change in Arab Society. *Hisham Sharabi. New York & Oxford: Oxford University Press, 1988, 0-19-505141-6.* Called a landmark in Arab thought, this courageous work sets forth a new theory of social change to account for the many setbacks the region has suffered on the road to modernity.

Orientalism. *Edward Said. New York: Pantheon, 1978, 0-394-42814-5 (hb); Vintage, 1979, 0-394-74067-X (pb).* An important study of Western perceptions of the Arabs and Islam, as exhibited in literature, Oriental studies and ultimately in the diplomatic arena.

Palestine: A Photographic Journey. *George Baramki Azar. Los Angeles: University of California Press, 1991, 0-520-07384-3 (hb), 0-520-07544-7 (pb).* The photographs in this striking journal provide a rare glimpse of life among today's Palestinians not shown in the popular media: the beauty of the land, the joy of the children, the life of the shepherds, the dignity of the elders.

The Qur'an: First American Version. *Dr. Thomas B. Irving (Al-Hajj Ta'lim 'Ali), translator and commentator. Brattleboro: Amana Books, 1985, 0-915597-08-X (hb), 0-9155597-14-4 (pb).* The first rendering of the meanings of Islam's Holy Book, in reverent yet contemporary American English, by an American Muslim scholar.

Samarkand and Bukhara. *John Lawton. Photographs by Francesco Venturi. London: Tauris Parke Books, 1991, 1-85043-178-7.* This exploration of two legendary cities of Islamic Central Asia provides a rich historical context for their monuments and brings the past to life.

The Seven Shaikhdoms: Life in the Trucial States Before the Federation of the United Arab Emirates. *Ronald Codrai. London: Stacey International, 1990, 0-905743-58-X.* This nostalgic tour through the photo albums of an Englishman who lived in the Emirates from 1948 through the 1970's puts today's progress in valuable perspective.

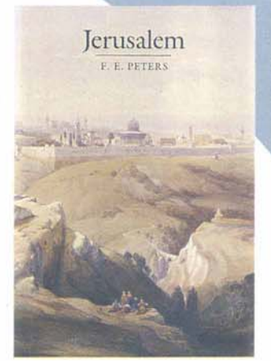
The Sheltered Quarter, A Tale of a Boyhood in Mecca. *Hamza Bogari. Austin: University of Texas Press, 1991, 0-292-72752-6.* The Saudi author grew up in the Holy City before the development of oil. He vividly recaptures a bygone way of life in this partly autobiographical memoir from his novel *Saqifat al-Safa.*

A Street in Marrakech: A Personal View of Urban Women in Morocco. *Elizabeth Warnock Fernea. Prospect Heights: Waveland Press, 1988, 0-88133-404-9.* A fascinating urban saga of an American family that adapts to life in the *medina* or traditional city of Marrakech, Morocco.

Traditional Crafts of Saudi Arabia. *John Topham with Anthony Landreau and William E. Mulligan. London: Stacey International, 1981, 0-905743-30-X.* Beautifully illustrated with objects from the Topham Collection, this is an essential guide to the arts and crafts of the Bedouin, including weaving, jewelry, costume, leatherwork, basketry, woodwork, pottery and metalwork.

Understanding Islam: An Introduction to the Muslim World. *Thomas W. Lippman. New York: Mentor, 1990 [revised edition], 0-451-62760-1.* A concise but comprehensive survey of Islam both as a world religion and as a political-economic force, by a respected *Washington Post* correspondent.

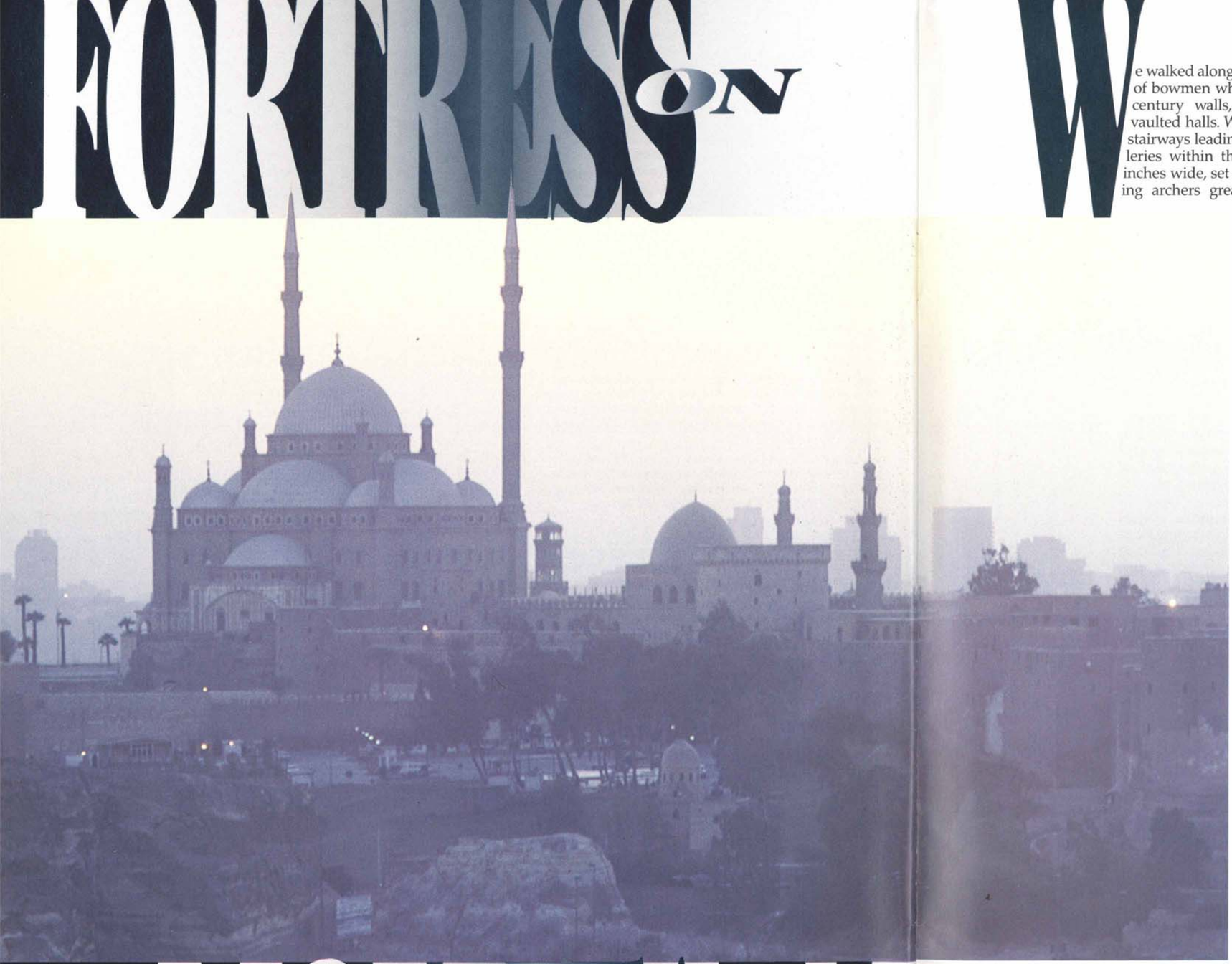
International Standard Book Numbers (ISBN) are provided for ease in identifying and ordering books. In some cases, other editions than those listed may be available in bookstores and libraries.



COMPILED BY ROBERT W. LEBLING, JR.

FORTRESS ON THE MOUNTAIN

WRITTEN AND PHOTOGRAPHED BY JOHN FEENEY



Domes and minarets of the Muhammad 'Ali mosque dominate this dusk-dimmed view of the Citadel. At right, the original walls, built by Saladin, embrace what remains of seven centuries of construction.

We walked along the battlements, in the footsteps of bowmen who had once manned these 12th-century walls, passing through towers and vaulted halls. We descended through a maze of stairways leading into a labyrinth of narrow galleries within the walls, past arrow slits a few inches wide, set at precise angles to give defending archers greater protection. As we walked through alternating shafts of shadow and sunlight, the guard repeatedly clapped his hands to frighten away any snakes that might lie in our path.

Suddenly, he motioned us to stop. Three meters (10 feet) ahead, a black glistening form, 60 centimeters (two feet) long, glided over the surface of the wall and disappeared into a crevice in the stone. Nothing could have been more appropriate: Long ago, in the days of the ancient Egyptians, snakes were considered to be symbolic guardian creatures, especially of a fortress.

To Cairenes, this is Qal'at al-Jabal, the Fortress on the Mountain, or just al-Qal'ah, the Fortress. The world knows it as the Citadel. Structurally, little has changed since the days of that hero of medieval legend, Saladin (Salah al-Din Yusuf ibn Ayyub), who ordered it built. After more than eight centuries of sun, wind and desert storms, the massive towers and walls are as strong as the day they were completed.

From 1183, when the fortress was finished, until just a few years ago, no one was allowed to visit these fortifications without special permission. Now large areas of what was once one of the greatest fortresses of the Middle Ages are open to the public.

What prompted Saladin to build the fortress? The decision was not taken hastily. The Mesopotamian - born commander, vassal of northern Syrian ruler Nur al-Din ibn Zanki, first came to Egypt in 1163. At that time, Egypt's ruling Fatimid dynasty, though immensely rich, was militarily weak (See *Aramco World*, September-October 1969). Egypt depended on trade between East and West, but all of the Egyptian ports in Palestine and Syria – where most of the camel caravans coming from the Far East and Persia ended – had been lost to the Crusaders. When Amalric I, Latin king of Jerusalem, began attacking Egypt itself, the Fatimid caliph in Cairo, al-'Adid, appealed urgently to Nur al-Din ibn Zanki for help.

In 1163, Nur al-Din sent an army to Egypt under the command of General Asad al-Din Shirkuh, who was accompanied – somewhat reluctantly – by his nephew Saladin. After repelling the Crusaders, they returned home to Syria. Later the Crusaders attacked Alexandria, and Shirkuh and Saladin were called back to deal with them again. In 1168, they returned to Egypt a third time, driving the Crusaders from the outskirts of Cairo and forcing them back to Palestine.

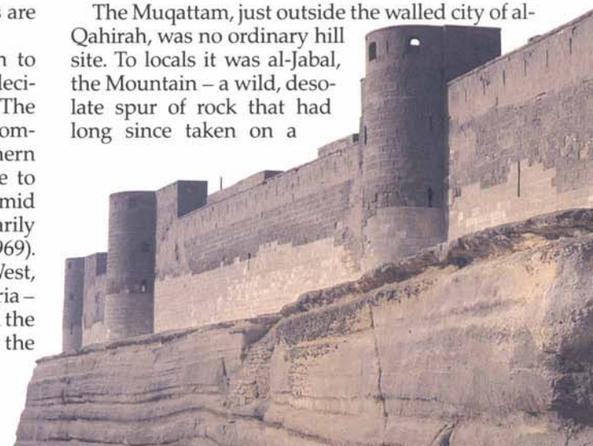
This time Shirkuh and Saladin stayed on in Cairo, and the Fatimid caliph made Shirkuh his vizier. But within two months, the elderly Shirkuh died, and the caliph chose young Saladin to succeed his uncle.

When the caliph himself died in 1171, amid growing political instability throughout Egypt, Saladin seized power from the ailing Fatimids and established his own Ayyubid dynasty. Yet, during his 24-year reign, Saladin spent very little time in Cairo – he was always away, relentlessly campaigning against the Crusaders in Syria and Palestine.

Saladin's priorities were to protect Egypt from further Crusader attacks and to secure his own position in the face of lingering pro-Fatimid resentment of his takeover. Egyptian historian Taqi al-Din al-Maqrizi (1364-1442) tells us that, on returning to Cairo in September 1176, Saladin decreed that "a citadel" should be built. He also gave orders "to make a new enclosure" – in effect, to extend the walls of al-Qahirah, the private palace-city of the deposed Fatimids, and include within it the old Umayyad city of al-'Askar and Ibn Tulun's ninth-century town of Qata'i'. In one stroke, Saladin made al-Qahirah – Cairo – a city 10 times its previous size and increased the security of the site where he planned to build his new fortress.

Saladin was born a Kurd and brought up in Damascus. In choosing the Muqattam Hills overlooking Cairo as the site for his Citadel, he was no doubt influenced by his army days in Syria and southern Anatolia, lands dominated by "citadels" or hill-fortresses.

The Muqattam, just outside the walled city of al-Qahirah, was no ordinary hill site. To locals it was al-Jabal, the Mountain – a wild, desolate spur of rock that had long since taken on a



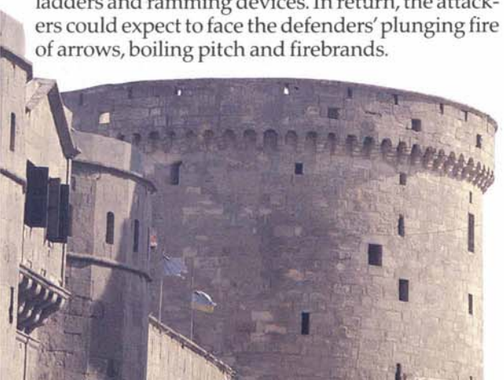
certain sanctity in the eyes of men. It was already the site of at least nine prayer sites and funerary chapels. It also possessed a certain earthly appeal, and was well known for its cooling summer breezes. The ninth-century Egyptian ruler Ahmad ibn Tulun built his summer rest house there and called it Qubbat al-Hawa', or Dome of the Winds. Saladin himself, according to al-Maqrizi, once observed "that whereas meat in the city stayed fresh for just a day and a night, a beast hung on the Muqattam stayed fresh for two days and two nights." Esthetic and domestic reasons aside, the ruler of Egypt had a pressing need for a safe residence – there had already been three attempts to reinstate the Fatimid dynasty – and for a secure fortress from which to govern the country.

Work on the Citadel began in 1176, supervised by Saladin's loyal vizier, Baha' al-Din Qaraqush, or "Black Eagle." All but one of the prayer sites were moved elsewhere, as was Ibn Tulun's rest house. Al-Maqrizi tells us that Saladin "employed 50,000 Crusader prisoners-of-war" to build the Citadel, and that "three small pyramids at Giza, a short distance away, were dismantled and mined for a supply of ready-cut stone blocks." Stone for the encircling walls and 11 great towers came from an ancient quarry in the Muqattam itself – used thousands of years earlier by the pyramid builders.

Writing in 1182, the Valencian traveler Ibn Jubayr, who visited Cairo, described the work in progress:

"We looked upon the building of the Citadel, an impregnable fortress adjoining Cairo, which the sultan thinks to take as his residence.... The forced laborers on this construction and those executing all the skilled services and vast preparations – such as sizing the marble, cutting the huge stones and digging the moat that girdles the walls, hollowed out with pick-axes from the rock – are all foreign Christian prisoners whose numbers are beyond computation."

In those days, Middle Eastern military architecture was much the same as European. The Crusader prisoners employed by Saladin were probably no newcomers to the work, and may well have helped to build Crusader castles of their own in Syria and Palestine. Whether in the East or West, a citadel was meant to be a self-contained fortress, capable of withstanding a long siege by attacking armies equipped with slings and catapults, scaling ladders and ramming devices. In return, the attackers could expect to face the defenders' plunging fire of arrows, boiling pitch and firebrands.



When completed eight centuries ago, the Citadel must have presented a formidable sight. The eastern wall rose sheer out of a rocky gorge, deepened to make it more inaccessible. The northern, southern and western walls – equally massive – looked out across open desert to the two nearby cities of al-Fustat and Cairo.

The new fortress had few entrances. Visitors coming on foot had to climb a steep, winding flight of steps cut out of the rock, up to Bab al-Mudarraj, the Gate of Steps. On entering, they could see the Citadel's founding inscription carved on the archway above them, which reads in part:

"Our master, al-Malik al-Nasir Salah al-Dunya wa al-Din Abu al-Muzaffar Yusuf ibn Ayyub, restorer of the empire of the caliph, has ordered the construction of this magnificent citadel close to the God-protected city of al-Qahirah, on the strong hill of al-Armah, which combines utility and beauty and gives sanctuary to whoever seeks shelter in the shadow of his kingdom."

Inside, the new Citadel was divided into two parts: the Northern Enclosure, consisting of barracks and administrative quarters, and the Southern Enclosure, separated from the northern half by a curtain-wall and towers and gradually developed into a heavily protected royal residence.

As it turned out, Saladin never lived in his Citadel; it was not completed until shortly after his death. Despite his fame, he was at heart a humble, religious man, and whenever he was in Cairo he preferred to stay at a modest house down in the city, rather than in one of the Fatimid palaces. When he died in 1193, the empire he created extended from Cairo to Aleppo in northern Syria, to the borders of Mesopotamia, and southward along the Nile into Nubia, and included Yemen and parts of western Arabia.

Saladin was succeeded by his brother, al-Malik al-'Adil (1193-1218), who strengthened the two great Citadel towers of Burj al-Ramlah and Burj al-Haddad. Al-'Adil's successor, his son al-Malik al-Kamil (1218-1238), was the first sultan actually to live in the new fortress. He launched a major construction program in the Southern Enclosure, building a mosque, private residential palaces, a library, a palace for his vizier and quarters for his royal guard.

Clockwise from above: From atop Saladin's walls, where his soldiers saw empty desert, a glimpse of Cairo; construction and reconstruction has left Baybars' armorial lions, once atop the walls, now at ground level; a passageway inside Saladin's walls, the purview of the Citadel's defenders; pharaonic columns in al-Nasir Muhammad's mosque; a 19th-century stone lantern near the main entrance that may have held torches at night; part of the complex of palaces that made up Muhammad 'Ali's private quarters.

In the mid-13th century, the only woman ever to rule from the Citadel – Shajarat al-Durr, or "Tree of Pearls" – reigned as sultana for just 80 days before abdicating in favor of her husband, who was a Mamluk, a member of the "slave" military corps that had been the backbone of both the Fatimid and Ayyubid dynasties. By 1260, with the rise to power of Sultan al-Zahir Baybars I, a new, powerful Mamluk dynasty had emerged – one that was to rule from the Citadel for almost three centuries.

Like his predecessors, Baybars built more palaces and reception halls within the fortress. His personal symbol was the lion, and around the top of a new Citadel tower he ordered the carving of a delightful procession of lions, which can be seen to this day.

After the Mongols brought an end to Abbasid rule in Baghdad, Baybars invited the defeated Abbasid caliph to come live in one of the Citadel's towers – fulfilling the promise of the fortress's founding inscription: "to give sanctuary to whoever seeks shelter in the shadow of the kingdom."

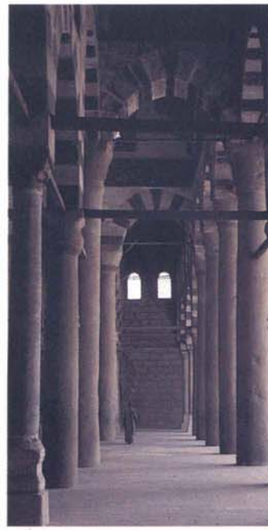
Following Baybars I, Sultan Mansur Sayf al-Din Qala'un ruled from the Citadel for 11 years. After repelling both Crusader and Mongol attacks, Qala'un strengthened the Citadel's defenses against another perceived threat: the Ottoman Turks. He did not hesitate to destroy his predecessors' buildings; his own, in turn, suffered the same fate.

Qala'un's youngest son, al-Nasir Muhammad (1293-1341), carried out the biggest and most prolonged Citadel construction program. When he took the throne, the Crusader and Mongol wars were almost over and relative peace had come to Egypt. Nevertheless, during a reign of nearly half a century, al-Nasir Muhammad transformed the Citadel into a highly organized military center. Under his protecting armies, Egypt's trade with East and West greatly expanded and Cairo became one of the largest and most prosperous cities on earth.

For his new palace, al-Nasir Muhammad borrowed the design of the famous Qasr al-Ablaq, the so-called Striped Palace, in Damascus. Like most Citadel buildings, it was eventually destroyed to make way for yet another palace, but today you can still see a small section of its black-and-yellow striping set into one of the walls.

The Citadel's palaces were quite unlike our conception of palaces today: Most were detached pavilions, usually of enormous proportions, linked by covered passageways. In al-Nasir Muhammad's Striped Palace, for instance, there were three enormous *qa'at* or Mamluk reception halls: a vaulted hall at ground level supporting two lofty halls, three stories high, above.

To grace the main *iwan*, or audience hall, al-Nasir had 32 colossal columns of Aswan red granite removed from some forgotten pharaonic temple and hauled up to the Citadel. Five centuries later, drawings by Napoleon's savants would capture this magnificent chamber, known as the Hall of Columns, in all its decaying glory.



A few years ago, one of the buried halls of the Striped Palace was partially excavated and four rose-red Aswan columns were hauled back up to the surface. Other columns and other halls doubtless lie buried elsewhere in the fortress, as yet undiscovered, biding their time.

Today, the only structure left intact from al-Nasir Muhammad's building program is his enormous congregational mosque, designed to hold 5000 worshippers, and completed in 1335. Like the pillars that once graced the Hall of Columns, massive pharaonic columns support the highest arches of the mosque, while a forest of Roman and Byzantine marble pillars supports a series of smaller arches.

The mosque's twin minarets, capped with green, turquoise and white tiles, recall Isfahan and Central Asia, and were probably decorated by craftsmen brought specially from Tabriz in Persia. One minaret was positioned to allow the daily call to prayer to reach the barracks area of the Northern Enclosure, and the other was directed at the Southern Enclosure and beyond to the city below.

Today, during the holy month of Ramadan, a cannon is fired at sunset from the heights of the Citadel to signal to the waiting city the end of each day's fasting. In al-Nasir Muhammad's time and for centuries afterward, mosques in the city took their cue from muezzins calling from within the Citadel. Because of the distances involved this was no easy task; to ensure the call reached all the faithful, a chorus of muezzins, operating in shifts, chanted together at the five daily prayer times.

Succession to the Mamluk sultanate was not hereditary; the new sultan was chosen by 24 Mamluk "great amirs," or princes. When Sultan Hasan, youngest of al-Nasir Muhammad's eight sons, was picked to succeed his father, it had become the fashion to build splendid palaces and mosques, public drinking fountains and palace-tombs (See *Aramco World*, May-June 1987). This fabulous architectural spree reached a climax with Sultan Hasan's own enormous mosque-*madrasah* – a house of worship and religious school combined – built in 1356, opposite the main entrance to the Citadel.

By Sultan Hasan's time, however, the life of a ruling Mamluk sultan had become a tenuous, even perilous, affair. Some sultans of the period lasted only a year or two before facing violent deaths at the hands of rival claimants. Even a citadel could not offer total protection; the ruler's personal safety depended largely on the courage and loyalty of his royal bodyguard.

To ensure maximum safety while he slept, Sultan Hasan arranged his bedroom within a high wooden tower constructed inside one of the palace halls. Once inside, the sultan would lock himself in for the night, and climb the steps to his bedroom. While he slept, his bodyguards below remained awake; to ensure that they stayed alert – and quiet – Sultan Hasan provided them with chess sets with which to play through the night.

As seat of government and ruler's residence, the Fortress on the Mountain had proved a success. Living in luxury behind impregnable walls, successive rulers discharged their powers – receiving supplicants, examining criminals, rewarding, punishing, dispensing justice and, at times, injustice – and generally attending to the day-to-day running of Egypt. From here, orders were decreed for digging new canals, building forts and defenses; from here armies were organized, fleets commissioned and military campaigns planned. And from here, through the gates of their Citadel, the Ayyubid and Mamluk rulers of Egypt set forth on the Hajj – the pilgrimage to Makkah – and on journeys to far-away battles.

By tradition, returning sultans always entered Cairo through the famous 11th-century Bab al-Nasr, or Gate of Victory, and after traversing the length of the old medieval city they emerged on the other side, through Bab Zuwaylah, to pass along the short road that led back up to their Fortress on the Mountain.

To this day, when Cairenes invite close friends to visit, they often say "*Afresh al-ard harir*" – "I'll spread the ground with silk" – a saying from Mamluk times, when each great amir was responsible for laying a section of the sultan's four-kilometer (two-and-a-half-mile) processional route with pure silk. After the sultan and his retinue had passed by, it was every man for himself: The miles of silk went to whoever could first get his hands on it.

Top: The eagle blazon of Saladin. Above: A lion guards the arch of the Mamluk Bab al-'Azab, restored in Ottoman and again in Khedival times.

Day-to-day life in the Citadel was governed by rigid court etiquette and exacting protocol. There were spectacular, solemn processions to be witnessed and dignified prayers to attend. Generally, life for some 20,000 souls living within the confines of the fortress was a highly organized affair. The Citadel was by this time a self-contained royal city – complete with workshops, market, royal mint, a farmyard for 2000 head of cattle and stables for about 10,000 horses, while the all-important Southern Enclosure was full of opulent mosques, bath-houses and palace pavilions.

A visit to the Citadel in the mid-15th century, at the height of its Mamluk splendor, was an occasion not to be missed. Ordinary visitors, approaching on foot, had to make the steep climb up to Bab al-Mudarraj. Mounted visitors – arrival on horseback denoted importance – entered by another gate and traveled along the Road of the Sultan. Both classes passed through a succession of great iron-studded gates, just as today's visitors do, before reaching al-Nasir Muhammad's Hall of Columns, where all the high splendor of the sultan's court burst upon them. As one visitor said:

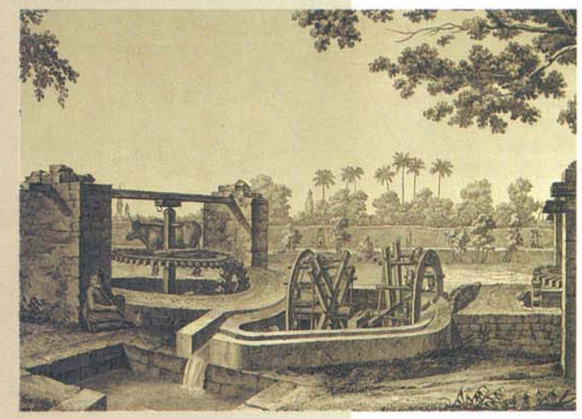
WATER FOR THE CITADEL

To the defenders of a citadel, who might be required to withstand a long siege, an adequate supply of water was as vital as the protecting walls and towers around them. But to this day, the Muqattam Hills area is bone-dry, and in Saladin's time too there wasn't a drop of water to be found anywhere.

Shortly after beginning work on his new citadel, Saladin ordered an enormous shaft, almost 13 meters (42 feet) across and 90 meters (nearly 300 feet) deep, cut through the solid rock, again by Crusader prisoners of war, in an effort to reach water. The resulting well, named Bi'r Yusuf (Yusuf's Well) after Saladin, was one of the engineering marvels of the Citadel.

A circling ramp around the central shaft led down to two *saqiyah* water wheels, one operating halfway down the shaft, the other at the water's surface. Driven by teams of oxen, these wheels brought water to the surface in a chain of clay pots. Unfortunately, the water proved both insufficient and brackish, and was useful only in emergencies.

Later arrangements linked the Citadel to an aqueduct system built by Ibn Tulun. Later still, two immense new aqueducts – the first built by al-Nasir Muhammad and an even bigger one built by Sultan Qansuh al-Ghuri in the early 16th century – supplied the Citadel with its needs. The aqueducts were supplemented by a giant storage cistern which could hold enough water to supply the Citadel and its inhabitants for a year.



From the *Description de l'Egypte* compiled by Napoleon's savants, two views of the 15th-century al-Ghuri aqueduct that brought water four kilometers from the Nile to the Citadel.

"We came to a high dais, covered by fine carpets and shaded by a tent of rare and costly materials. Here, cross-legged, sat the sultan, an unusually tall old man of seventy three, ... his profile of distinguished delicacy, surrounded by dignified officials...."

A group of envoys from France approached the audience chamber through two courtyards: "In the first, 500 Mamluks were drawn up in rank, in long white robes and turbans of green and black. In the second stood 1000 more of higher degree and richer garb...." Before they reached the presence of the sultan, the envoys halted before seven successive curtains. As each of these was drawn aside, visitors were to bow and kiss the ground – though in the envoys' case, simply touching the ground was considered sufficient – until at last they came face to face with the sultan. Following established custom, the ambassadors knelt to kiss his hand, "but the potentate quickly withdrew his hand" into his sleeve.

Few were fortunate enough to gain entrance to the sultan's heavily guarded private palace. One who did was the Venetian Trevisano, who came to Cairo in 1512. He had first to pass through a succession of "marble-tiled courtyards and gardens of pomegranate and orange trees, with pools of cool water and splashing fountains ... through a series of palace apartments – windows shaded by carved *mashrabiyah* screens, ceilings inlaid with gold and azure," and patterns of colored glass shining like precious stones set high in vaulted walls. Costly rugs were spread upon mosaic-patterned floors, "while between every column hung a cage containing a singing bird...."

The more spectacular aspects of the Citadel were well calculated outward manifestations of a ruling sultan's power. Behind the scenes, too, everything was highly organized. Fast communication links were maintained with the farthest outposts of empire by means of the sultan's personal courier pigeon service. Al-Malik al-Kamil, Saladin's nephew, is said to have started the service and Baybars I expanded it, establishing new pigeon lofts in the Citadel's Burj al-Matar, or Flight Tower.

Nearly 2000 trained birds carried dispatches between cities and towns throughout Egypt, and to destinations as far away as Damascus and the Euphrates. The courier pigeon service was the personal prerogative of the sultan; it is said he never set out on a journey, a campaign or even a day's picnic at the Pyramids, without a few of his pigeons traveling with him. Security was paramount, and only the sultan, personally, was allowed to remove an incoming message from a pigeon.

Indeed, there was much to keep secret: From the mid-15th century, growing Ottoman power cast a shadow across the Middle East, and succeeding Mamluk sultans kept strengthening their fortifications throughout Egypt and Syria. Cairo continued to control the lucrative East-West spice trade. But eventually, as a result of miscalculations, a disastrous famine and the plague, Mamluk power began to decline. By 1516, the Ottoman Turks had arrived at the gates of the Citadel.

Almost overnight, the conquering Ottomans stripped the Citadel's mosques and palaces and shipped the treasures to Istanbul. For a time, the fortress complex was all but deserted. Then the Ottomans, too, began to build, marking the start of a 300-year occupation of the Citadel. Sulayman Pasha, the first Ottoman *wali*, or governor, of Egypt (1524-1534), built Cairo's first Ottoman mosque within the fortress's security. Constructed in the style of the celebrated Ottoman architect Sinan, Sulayman Pasha's mosque today remains in remarkably good condition. However, in contrast to the domes and minarets of its Ottoman exterior, the interior of the mosque is clearly the work of Cairene craftsmen and exhibits long-cherished local techniques of marble inlay work.

In 1805, after the departure of Napoleon, Muhammad 'Ali Pasha became the Ottoman sultan's viceroy in Egypt. In 1838, he issued a declaration of independence, ending three centuries of Ottoman rule in Egypt. Like his predecessors, Muhammad 'Ali launched a major construction project on the Muqattam, almost completely rebuilding the 26-hectare (65-acre) fortress complex into the Citadel we know today. The age of bows and arrows had long since gone, and Muhammad 'Ali set about strengthening the fortress's defenses. Inside, he built an arsenal for manufacturing cannon, and the original slits in the walls, designed for Saladin's archers, were superseded by wider openings for cannon atop Saladin's original walls.

The ruins of al-Nasir Muhammad's palace were demolished to make way for Muhammad 'Ali's new Qasr al-Jawharah, or Bijou Palace. Like al-Nasir Muhammad, he built another gigantic mosque, this time in the Turkish tradition, with enormous domes, cupolas and soaring, pencil-thin minarets – the most impressive structure in today's Citadel.

The Bijou Palace, in the old Southern Enclosure, was used by Muhammad 'Ali for day-to-day administrative functions and official receptions. In the Northern Enclosure, for centuries used exclusively as a barracks, he built three interconnected private palaces, combining the splendors of the East with the luxuries of Europe: "painted frescoed ceilings and marbles from Italy, chandeliers from England, mirrors from France and windows triply glazed to keep out the desert dust."

Today, sections of these three enormous palaces have been melded into a military museum. Though most of the original furnishings are gone, the magnificent Turkish-baroque ceilings remain. Three of the most private areas of Muhammad 'Ali's palaces remain closed to the daily wear-and-tear of public visits: the two hammams, or bath-houses, and Muhammad 'Ali's Fountain Pavilion.

In Muhammad 'Ali's personal hammam, slender marble columns support a canopied ceiling with magical patterns of colored glass. The sunlight sends shafts of multicolored light streaming down and splashing across the walls and white marble floors of the hammam. In another wing of the palace, a no less luxurious hammam for the women of the household is similarly favored with scintillating glass-patterned ceilings.

After bathing in the hammam, the sultan could retire to the nearby "summer fountain" room. At one end of this pavilion, under a painted canopy, stands a *salsabil*, or wall fountain, embellished with sculptured flowers and fruits. Water would pour out of the mouths of two winged horses – or dragons – placed high up beneath the painted ceiling, cascade down the wall in and out of a series of marble basins and flow the length of the pavilion along a white marble channel into a deep pool, where a second fountain played. Here, Muhammad 'Ali and his friends would sit, enjoying the cooling water spectacle.

All these splendors, from the relatively recent era of Muhammad 'Ali, give some idea of the grandeur of the earlier Mamluk period. The structures that survive today are but the final layer of seven centuries of construction. Deep down beneath the domes and minarets of Muhammad 'Ali's mosque are the ruins of older palaces and vaulted medieval spaces – vast underground areas shrouded in darkness, never visited by the public, slowly filling with sand and dust blown in by centuries of desert winds, inhabited by thousands of screeching bats and the ghostly echoes of ages past.

Indeed, Cairo's Citadel abounds with ghostly echoes – of offending amirs and political prisoners consigned to the stagnant darkness of its infamous dungeon. One notable ghost is the unhappy Shajarat al-Durr, who eventually had her husband the sultan murdered in his hammam, and then paid the ultimate price herself in the women's hammam, where she was beaten to death with bath-clogs by women slaves of her late husband's first wife.

Closer to our own time, the entire corps of Mamluk princes, suspected of plotting to overthrow Muhammad 'Ali, was massacred within the Citadel in a single afternoon. On March 1, 1811, the viceroy invited the entire Mamluk corps to a special levee. The 475 princes entered the Citadel on horseback, in their customary splendor. Muhammad 'Ali conversed calmly with them and then took his leave. As the princes began to depart, two inner gates of the Citadel were sealed and soldiers above opened fire on the trapped Mamluks. Muhammad 'Ali, listening to the shots ring out, is said to have asked for "a glass of water."

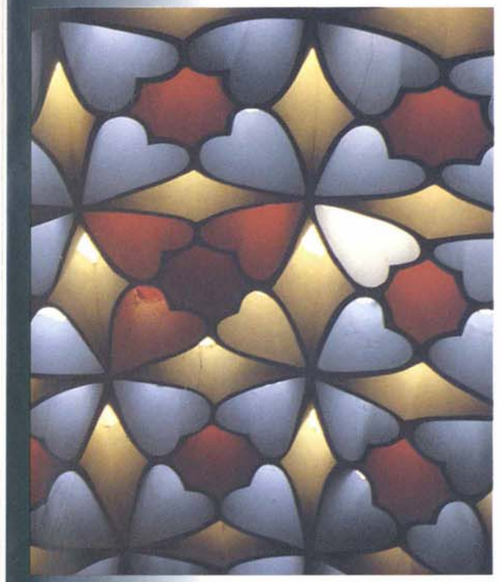
Over the course of eight centuries, Saladin's Citadel was never put to the military test. No great wars were ever fought around its walls, no hail of arrows was ever fired in self-defense. Yet over the centuries the fortress undoubtedly proved its strategic worth. The battles it was designed to withstand were always fought far from its walls. Saladin himself drove the Crusader armies out of Syria and recaptured Jerusalem. Later, the Crusaders were repelled at Damietta, at the mouth of the Nile, long before the attackers could reach Cairo. Succeeding Mamluk sultans not only prevented Crusader armies from reaching Cairo, but also rebuffed the Mongols in 1260 – sparing Cairo the fate of Baghdad, Damascus and other cities of the region.

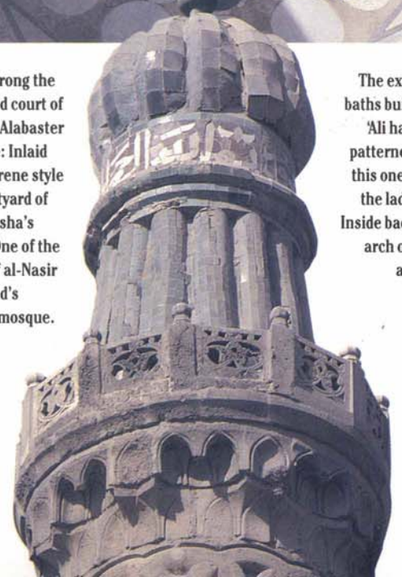
Late in the 19th century, the last of the Citadel's rulers, the khedive Isma'il I, Muhammad 'Ali's grandson, left the fortress and went down to live in the city, in his new 'Abdin Palace.

Today Cairo, with its 14 million souls, presses hard against the walls of the Citadel. No longer does a steep flight of rock-cut steps lead up to the main entrance. Instead, visitors sweep up in their cars and buses along a massive curving ramp built by Muhammad 'Ali. During daylight hours, tourists come by the thousands. But at dusk, it is the Cairenes who come to Saladin's hill site, to "sniff the breeze," like countless generations before them – like Ibn Tulun, at ease in his Dome of the Winds.

From here, looking westward, one's eye takes in a span of over 4000 years of architectural wonders, from the impressive mosque-*madrasah* of Sultan Hasan, just below, to the ancient Pyramids of Giza across the Nile. Through such structures, the awesome sweep of history takes on a vivid reality. It is a view that must have given even the sultans pause.

John Feeney, filmmaker, photographer and writer, is a long-time Cairo resident and frequent contributor to Aramco World. *He acknowledges with gratitude the contribution to this article of Laila Ibrahim, renowned historian on Mamluk Cairo.*





Top: Tourists throng the fountain-centered court of Muhammad 'Ali's Alabaster Mosque. Above: Inlaid marble in the Cairene style floors the courtyard of Sulayman Pasha's mosque. Right: One of the tiled minarets of al-Nasir Muhammad's congregational mosque.

The extensive private baths built by Muhammad 'Ali have ceilings of patterned colored glass, this one, above right, in the ladies' hammam. Inside back cover: The first arch of the al-Ghuri aqueduct.

Current Archeology of the Ancient World. A series of talks on current research and discoveries. Among upcoming Middle Eastern or Islamic topics: Tomb of the High Priest Abdès Barathé at Mhgara, northern Syria (March 19); Queens of Egypt in the Ramessid Period (April 16); Rediscovery of Assyrian City of Dûr-Kattlimmu, Syria (April 23); Origin and Fall of 3rd Millennium Civilization in northern Syria (April 30). Musée du Louvre, **Paris.**

Content and Strategies for Teaching About the Arab World and Islam is the theme of teacher workshops sponsored by the Middle East Policy Council in Washington, D.C., and conducted by AWAIR: Arab World And Islamic Resources and School Services of Berkeley, California. Confirmed sites and dates include: **Los Angeles** Unified School District, March 20; **Talladega [Alabama]** College, March 22; **San Diego** County Office of Education, March 27; University of Arizona, **Tucson,** April 3; University of **Toledo, Ohio,** April 23. For details, call (202) 296-5791 or (510) 704-0517.

Africa Explores: *20th-Century African Art.* This is the first comprehensive look at the relationship between traditional and modern African art. Included are works by Muslim Africans. Corcoran Gallery of Art, **Washington, D.C.,** through April 4, 1993.

Convivencia: *Jews, Muslims and Christians in Medieval Spain.* Works of art – some extremely rare – demonstrate the positive interaction of the three major faiths in medieval Spain during the period of Muslim rule. Meadows Museum, **Dallas,** through April 11, 1993.

The George Ortiz Collection – Antiquities: *Ur to Byzantium.* For the first time, the public can view the vast range of this famous private collection. Representing some 30 cultures worldwide, the exhibition features 51 artworks from the Middle East, including 25 from Sumer. Hermitage State Museum, **St. Petersburg, Russia,** through April 11, 1993; Pushkin Museum of Fine Arts, **Moscow,** May 6 through June 27, 1993.

discovery, focuses not on Carter's most celebrated find but on the archeologist's 30 years of work in Egypt that led up to it. British Museum, **London**, through May 31, 1993.

Expo/Feria Puerto Rico. A cultural and commercial fair commemorates Columbus's landing on the island of Puerto Rico during his second voyage in 1493. **San Juan**, June 1 through December 31, 1993.

African Themes features photographs and prints of three artists, including British-African Faisal Ammar Abdu'allah, whose artwork *Thalatha Haqq* demonstrates the revitalizing power of Islam in Africa. Victoria and Albert Museum, **London,** through June 6, 1993.

The Westward Migration of Chinese Blue and White. Some 50 pieces of ceramic ware illustrate the spread of underglaze blue and white porcelain from China to the industrialized world by the 18th century. **Minneapolis** Institute of Arts, through June 6, 1993.

EVENTS & EXHIBITIONS

Cincinnati Art Museum Reopening. A two-year renovation has restored the Romanesque grandeur of the "Art Palace of the West" and found new ways to highlight its treasures, including the largest collection of Nabatean art outside Jordan. Renovation of the 107-year-old structure has uncovered original limestone arches, polished granite columns and other fine architectural details hidden for decades. Some 80 galleries now display the museum's artworks, including a revitalized Egyptian collection. The Nabatean collection was acquired in 1939 from the American School of Oriental Research in Jerusalem, with the help of archeologist Nelson Glueck, a leading authority on this pre-Islamic Arab people. The museum's "Zodiac Tyche" from the early second century BC is one of the world's most important pieces of Nabatean art. Its lower half is in the Amman Archaeological Museum, and an exchange of plaster casts is being negotiated to enable both museums to recreate the entire sculpture. **Cincinnati [Ohio]** Art Museum, permanent.

CINCINNATI ART MUSEUM

Nabatean "Zodiac Tyche," second century BC.

Sifting the Sands of Time: *The Oriental Institute and the Ancient Near East.* This exhibit traces the foundation and growth of the institute. Oriental Institute Museum, **Chicago**, through June 30, 1993.

Vanished Kingdoms of the Nile: *The Rediscovery of Ancient Nubia* unveils more than 3500 years of the history and culture of ancient Nubia. Oriental Institute Museum, **Chicago**, through June 30, 1993.

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

The Mosaics of Jordan features an art carried on in the country long after the Romans left. **Manchester [England]** Museum, through July 3, 1993.

Ancient Nubia: *Egypt's Rival in Africa.* Some 300 artifacts help trace the history of Nubia from about 3100 BC to AD 500. University of Pennsylvania Museum, **Philadelphia**, through October 3, 1993.

Life and Death on the Nile: *Sun Gods and Mummies in Ancient Egypt.* Some 500 recently-acquired objects complement the museum's own collection in a two-part exhibition focusing on daily life in ancient Egypt ("Life on the Nile") and concern for the afterlife ("Death on the Nile"). **San Diego** Museum of Man, indefinitely.

The Nehru Gallery of Indian Art at the Victoria and Albert Museum features more than 100 artworks tracing the history of pre-Moghul India, the Moghuls of the 16th and 17th centuries, the Deccan Sultanates, the Rajput Courts and the India of the British Raj. Victoria and Albert Museum, **London,** indefinitely.

Permanent Collection of Contemporary Art. A display of some 100 artworks by painters from the Arab world. Institut du Monde Arabe, **Paris,** indefinitely.

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.**

Images of a Queen's Power: *Royal Tapestries of France.* Ten 17th-century French tapestries illustrate the life of the most famous ruling widow-queen of antiquity, Artemisia of Caria, builder of the Mausoleum at Halicarnassus in Asia Minor. **Minneapolis** Institute of Arts, March 21 through June 20, 1993.

The Waking Dream: *Photography's First Century – Photographs From the Gilman Paper Company Collection.* Drawn from one of the world's finest private collections, this show features the first photos ever taken of the monuments along the Nile. Metropolitan Museum of Art, **New York,** March 25 through July 4, 1993.

Ordinary People: *An Image of Indonesia.* Photographer Patricia Gallinek's exhibition is a "segment portrait" of the world's most populous Muslim country. Eckles Library Auditorium and Gatehouse Gallery, Mount Vernon College, **Washington, D.C.,** March 29 through April 16, 1993.

Bahraini Artifacts. A new section has been added to the Nance Museum, featuring artifacts donated by several benefactors, including costumes, brassware and other traditional items from Bahrain. Nance Museum & Gardens, **Kingsville, Missouri,** April 1 through October 31, 1993.

Seeds of Change tells the history of five "seeds" – sugar, corn, the potato, disease and the horse – that indelibly changed the New World and the Old. Smithsonian Institution's National Museum of Natural History, **Washington, D.C.,** through April 1, 1993. Traveling version at public municipal libraries in the following cities: March 20 through April 18, 1993: **Reno, Oklahoma City, Pittsburgh** and **Washington, D.C.**; May 8 through June 6, 1993: **Boise, Des Moines, Detroit** and **Baltimore**; June 26 through July 25, 1993: **Billings [Montana], Minneapolis, Hartford** and **Manalapan [New Jersey]**.

The Afghan Folio. Luke Powell's photographs of Afghanistan in the 1970's are displayed as dye-transfer prints. **Bismarck [North Dakota]** State College, through April 16, 1993.

Expressions of Belief. Artworks from African, Indonesian and Oceanic cultures are on loan from the Museum voor Volkenkunde in Rotterdam, The Netherlands. **Liverpool [England]** Museum, through April 18, 1993.

From the Treasuries of Eurasia is an exhibit of some 170 ancient art masterpieces from 15 museums of the former Soviet Union. Represented are 18 cultures, including the Egyptian, Urartian and others of the Middle East. Kunsthaus, **Zurich,** through May 2, 1993; City Gallery, **Kyoto, Japan,** from June 6 through July 4, 1993.

Freer Gallery of Art Reopening. This acclaimed national museum of Asian art reopens to the public on May 9, 1993 after more than four years of renovation. Freer Gallery of Art, **Washington, D.C.**

The Merry-Go-World Or Begat by Chance and the Wonder Horse Trigger. This environmental sculpture by Edward and Nancy Kienholz consists of a carousel with exotic animals and eight wall panels addressing the diversity of life. Objects were gathered from many countries, including Egypt and India. **Minneapolis** Institute of Arts, through May 9, 1993.

Egypt's Dazzling Sun: *Amenhotep III and His World* focuses on the golden age of Egyptian art. Included are a five-ton solid alabaster statue of the crocodile god Sobek with the king, and a monumental red granite lion. Grand Palais, **Paris,** through May 31, 1993.

Howard Carter: *Before Tutankhamun.* This exhibition, marking the 70th anniversary of the Tutankhamun tomb

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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