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THE SUQS OF 'ASIR

Contents

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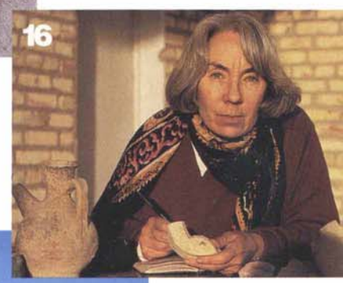

COVER:
Shopping in the busy Tuesday market at Abha, capital of Saudi Arabia's 'Asir province, is very much a matter of good scents. 'Ud wood is one, an aromatic that may be used alone or mixed with the frankincense that has been traded here for centuries. Fat blue-black raisins smell of sugar and of the hot sun that dried them on the vine. Chile peppers the size and color of small firecrackers are used, in moderation, in Saudi cooking. Photos by Peter Sanders.

OPPOSITE:
Daggers, scabbards and belts, once among the practical accessories of a man's costume in the Arabian highlands, are now symbols of traditional decorum, but they are still expertly crafted. Photo by Peter Sanders.

BACK COVER:
A late 13th-century terra-cotta wall plaque found at Merv is evidence of Mongol habitation or influence there some decades after the invasions of the 1220's. Photo courtesy of IMP.

Saudi Aramco, the oil company born as a bold international enterprise more than half a century ago, distributes Aramco World *to increase cross-cultural understanding. The magazine's goal is to broaden knowledge of the culture of the Arab and Muslim worlds and the history, geography and economy of Saudi Arabia.* Aramco World *is distributed without charge, upon request, to a limited number of interested readers.*

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Mist shrouds the mountains above Habalah, a farming village—now abandoned—that could be entered or left only by climbing a habal, *or rope.* **Inset:** *A sampling of Abha's foods, spices, weavings and wares.*

THE SUQS OF 'ASIR

Written by Ni'mah I. Nawwab • Photographed by Peter Sanders

In the far southwest of Saudi Arabia, the highland city of Abha was once a strategic point on the ancient spice route that linked far southern Arabia—modern Yemen—with the Mediterranean. Today, it is capital of the province of 'Asir, whose spectacular terraced fields and soothing, temperate climate provide an unexpected contrast to much of the rest of the country, and which is thus one of the most popular travel destinations within the kingdom. Nearby, Mt. al-Sudah rises to 2910 meters (9457'), the highest point in Saudi Arabia, and, going in the other direction, a cable car plunges more than 300 meters (975') to the ghost town of Habalah, where a farming community for centuries used a single hanging rope as its sole tie to the outside world. Throughout the province, visitors enjoy walks among the villages dotted with brightly painted mud-and-stone houses, an attractive architectural feature of the region.

Yet all travelers to Abha share a common desire: to visit the famous *suq*s. The scents, sounds and wares of these traditional markets are today often as enticing—and even exotic—to Saudi urbanites as they have been for centuries to visitors from the West and Far East.

In the past, however, these markets served a more local function: They were the place where members of different tribes met not only for trade, but also to discuss marriages, crops, business prospects and politics. Today, the *suq* retains these social and economic functions, though in forms adapted to modern times.

Following tradition, the *suq*s are open in a different town each day of the week, with each market named after either the day or the town, or both. This practice has for centuries allowed merchants to cover a larger territory, although not all merchants sell in every market: The *Suq al-Thaluth*, or "Tuesday market," in Abha and the *Suq al-Khamis*, or "Thursday market," in Khamis Mushayt, the second city of the province, are the largest and most renowned.

I couldn't miss the site of the Tuesday *suq* in Abha when I decided to visit it, surrounded as it was by a bustle of cars, pickup trucks and people, all of which had been converging since the end of dawn prayers. Upon entering, to my surprise, I felt like a stranger, an outsider. Although I have long been familiar with *suq*s in other parts of the country, I realized how accustomed I have become to doing my shopping in air-conditioned stores and shopping malls. Here, the open-air market, with its spread-out stalls and neighborly vendors, was a wonder to me.

Contrasted with Abha's otherwise quiet morning streets, the calls of the vendors and the sounds of people bargaining and talking among each other were overwhelming. I gazed about at young and old, city dwellers and villagers, some from distant places speaking Arabic dialects even I could barely understand, and wearing equally distinctive, often colorful regional garments.

The most eye-catching are the people of Najran, a region some three hours' drive southeast of Abha, famed for its honey, where the men often wear bunches or garlands of sweet-smelling flowers about their heads. Their bright, multicolored, sarong-like *izars*, topped by black embroidered jackets, are a colorful contrast to the desert-adapted plain white Saudi *thawb*. Those rural Najrani men who are not beekeepers are mostly shepherds, and a few are farmers.

The market is organized by trades, as it has been since time immemorial, and loosely arranged in sections that appeal largely to men or to women, even though the two genders mingle freely throughout the *suq*. One side of the square is filled with honey stalls; another side is made up largely of stalls run by women. In the central area, merchants selling all types of wares spread their goods on the ground.

The honey stalls feature white and golden local honey, as well as imported varieties. It is often swarmed by customers as thickly as it once was by the bees of 'Asir, who draw on the area's unique combinations of vegetation to create superbly aromatic, rich honeys that are often used in local cooking. (See *Aramco World*, January/February 1995.)

As I made my way into the central area, I found it too was divided by type of merchandise. There were separate areas for merchants of vegetables, fruits, livestock, outdoor plants and, on plastic groundsheets, clothes—new and used—shoes, toys, candy and a variety of locally tailored coats of goat or lamb's wool.

Ceramic knickknacks based on 'Asir's distinctive architecture are popular among both Saudi and international tourists. **Opposite, top:** *Chunks of* bakhur al-Jawi, *Javan incense, are made of frankincense, gum arabic, sandalwood and other aromatics. The* bakhur makhlut, *or mixed incense, contains Javan incense plus* 'ud *wood. Green fennel seeds are often chewed after meals to aid digestion.* **Opposite, bottom:** *Brushes and brooms are made from locally grown materials.*

As I looked up from examining an enticingly smooth leather sandal, I spotted the *jambiyah* (dagger) merchants sitting cross-legged next to each other, expounding freely on the provenance and virtues of each of their weapons, many of which are more intricately worked than the best of women's silver jewelry. There were *khanajir*, the short, curved daggers, and also the longer *janbiyyat* from as far away as Oman. The merchants obviously knew each other well, and I could tell that they took pleasure in their competitive camaraderie, waging a war of prices on their customers in which each merchant was bound to know the other's next move long before any but the most savvy customer could guess it. And theirs were not arguments over a mere riyal here or there: Despite the change in function from necessary weapon to sartorial decoration, prices of such daggers have risen to the equivalent of $300 to $3000.

As I entered the women's suq, I noticed that most of the vendors were 40 or older. Women much below that age are generally engaged either with young children, or with studies or the professional opportunities that have become more abundant for the younger generations. Here many of the women vendors wear dresses embroidered with locally specific designs, cut similarly to the traditional dresses of Egypt and Palestine. (See *Aramco World*, January/February 1997.) The women hawk locally produced items such as straw baskets—ranging in size from pinbox to family laundry basket—woven from palm fronds and decorated with geometric designs made with natural dyes of red, turquoise and burgundy. When fitted with a traditional conical lid and covered with goat's leather, such baskets can serve to store or carry everything from sewing kits and fabrics to dates and other food.

One of the *suq*'s most enterprising women, Umm Ibrahim, started a thriving business when she noticed that her baskets were especially popular with international visitors. First a dress vendor—her son now manages the dress business, also based in the *suq*—she not only organized a group of women to work at turning out baskets to sell in what became the biggest basket stall in the market, but she also began transporting truckloads of baskets to customers as much as 1500 kilometers (1000 mi) away, including Dhahran, where "the basket lady" has become well known.

Another popular and practical item from the women's *suq* is the *tafashah*, the wide-brimmed straw hat characteristic of the area that is used by both men and women while herding or farming in the sun-soaked, high-altitude villages of the province. According to *tafashah* merchant Umm 'Abd Allah, always the first to tout her wares, this hat and another high-crowned type (the latter favored by inhabitants of the lowlands of Tihamah), "are among the goods most sought after in the *suq*s all over 'Asir."

The women also offer handmade products such as the brightly painted clay incense burners and miniature 'Asiri houses that are popular knickknacks, especially among Saudi city-dwellers. The model

houses are examples in miniature of what the province's women actually do on a much larger scale: The clean whites and dozens of vivid colors that make the region's homes so distinctive have long been prepared by women. In the traditional home, women are responsible for plastering and painting the walls, corridors and ceilings after men finish building them. This practice has resulted in uniquely expressive interiors, as women often compete with neighbors and relatives in the development of elaborate geometric patterns and color combinations. Saudis from other areas of the country often find these colorful houses of 'Asir a source of wonder, an outspoken contrast with what have become the customary Saudi residences, which are decorated in far more uniform fashion, much like European and North American homes.

Abha's *suq* is also an important center for the richly embroidered velvet dresses that are the mainstay of traditional female costume in southwestern Saudi Arabia. With the dresses are laid out piles of long black or striped undergarments edged with intricate needlework, as well as cotton cheesecloth head scarves with colorful tassels. Tasseled headscarves are also found in Taif, a few hundred kilometers north, but not elsewhere in the kingdom.

In the past, most of the dresses, particularly those used for formal occasions, were hand-embroidered, and today a well-made dress can sell for up to $1300. Unlike most traditional Saudi dresses, which are loosely styled for comfort in extremes of heat, the dresses of 'Asir are designed with a form-fitting cut and tight sleeves to fend off the chill of the highland air. That they are velvet, too, is a choice made to combine comfort and warmth in a mountain climate.

Nowadays, however, mass-produced 'Asiri dresses are available relatively inexpensively in colors ranging from traditional black to yellow, blue, green and even red. Each is abundantly stitched on the sleeves, chest and sides in long flowing panels. "Every day, when I was young," says Umm Ibrahim, "I used to cut out and sew 20 dresses. By the end of the day, they were ready to be sold." Now she and her family supervise a team of tailors, and she ships far more than 20 dresses each day to merchants and stores all over the country.

Further along, artfully strung Bedouin silver jewelry—long made mostly by Saudi, Indian and Pakistani artisans—sparkled from other stalls. There is so much of this jewelry in this market and the others of the province that collectors are frequent visitors here, and the women vendors can often negotiate in English as well as Arabic.

As I ventured into the dim recesses of one shop, the owner smiled, welcomed me, and showed me rows of tin cans, each filled with a different type of jewelry, no two pieces alike: huge rings, amber necklaces, intricately designed belts studded with red or blue beads, heavy bracelets, enormous anklets and broad headpieces.

In such a business, recognizing a genuine piece—as opposed to an imported imitation—requires a careful and experienced eye. All the jewelry features motifs such as crescents, bells and filigree work, but the roots of the designs are found in the centuries of Arab trade with Byzantium, Rome, Greece, Phoenicia, China, Africa, India, Central Asia and even medieval Scandinavia. The silver used in newer pieces is often recast from older ones; some less than scrupulous artisans will blacken their pieces to give them an antique look in hopes of commanding a higher price. Many of the old silversmiths lament the decline of their business caused by young people's preference for modern jewelry that does not use the traditional motifs. They find even more disturbing the trend of gold-plating old silver jewelry to create an illusion of the more desirable metal.

Not far along in the *suq* there is a lure that surpasses silver: frankincense. The sight of frankincense alone is enough to take one back to the days when camel caravans traced trails across the deserts of Arabia, a time when incense and perfumes ranked among the most desirable goods in the world. To this day, the aura connected with incense persists in homes throughout Arabia, where it is still traditional for hosts to offer guests incense or perfume—which in 'Asir is often mixed in the home—before they leave one's house.

Female merchants sell this frankincense as bark, as rolled balls of gum, or palm-sized pressed disks of incense mixed with sandalwood and other aromatic woods. The vendors call out, "Come here! Come, smell how lovely these are!"

Because they are so popular, frankincense and other perfumes are also sold by men in other stalls in another part of the market. The most coveted perfumes are *'itr al-ward*, attar of roses (see *Aramco World*, November/December 1997), and *dihn al-'ud*, an aromatic wood extract. Musk and jasmine are next in popularity. Both male and female 'Asiris also often use local herbs to perfume their bodies and their homes. It is not unusual to see men here with sprigs of basil or jasmine tucked into headbands, or to enter a home where bunches of aromatic plants and flowers exude a refreshing scent.

It is a custom at least centuries old in 'Asir for men to wear daggers at their waists, though they are now objects of tradition and decorum—like neckties in the West—rather than defensive weapons. The suqs *offer a wide selection* ***(inset). Opposite, top left:*** *Baskets of all descriptions and* tafashahs, *the broad-brimmed hats popular in the sunny farming region, crowd the floor of a shop.* ***Top right:*** *Bedouin jewelry often incorporates coins into its designs—here a silver riyal.* ***Bottom:*** *A gunsmith shows a finely worked, silver-chased antique rifle.*

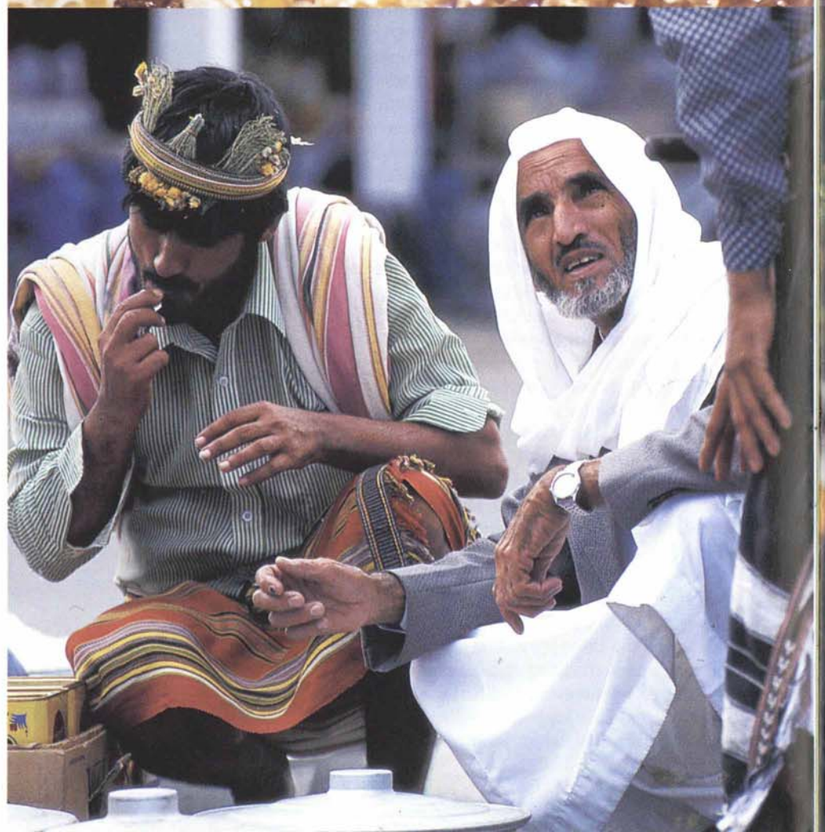
As I wandered farther, a gust of wind carried the punchy scent of the coffee and spices sold in the open in the delightful patchwork of the spice market. (See *Aramco World*, March/April 1988.) Here, spices and grains, coffee beans, dates and wheat are all sold from huge baskets not unlike burlap bags. Each merchant carefully mounds the colorful grains and spices for display, pleasing both eye and nose with rows that can be inspected and tasted on the spot. One notable scent is cardamom, the most popular spice in Arabia, which flavors many a dish and is an essential ingredient in Arab coffee. (See *Aramco World*, March/April 1997.) Ginger, cloves, cinnamon, pepper and cumin, too, all enrich the air. Children gather about the pistachios, cashews, peanuts and almonds that appear in plastic containers next to the spices and the sweets that fill still more bins.

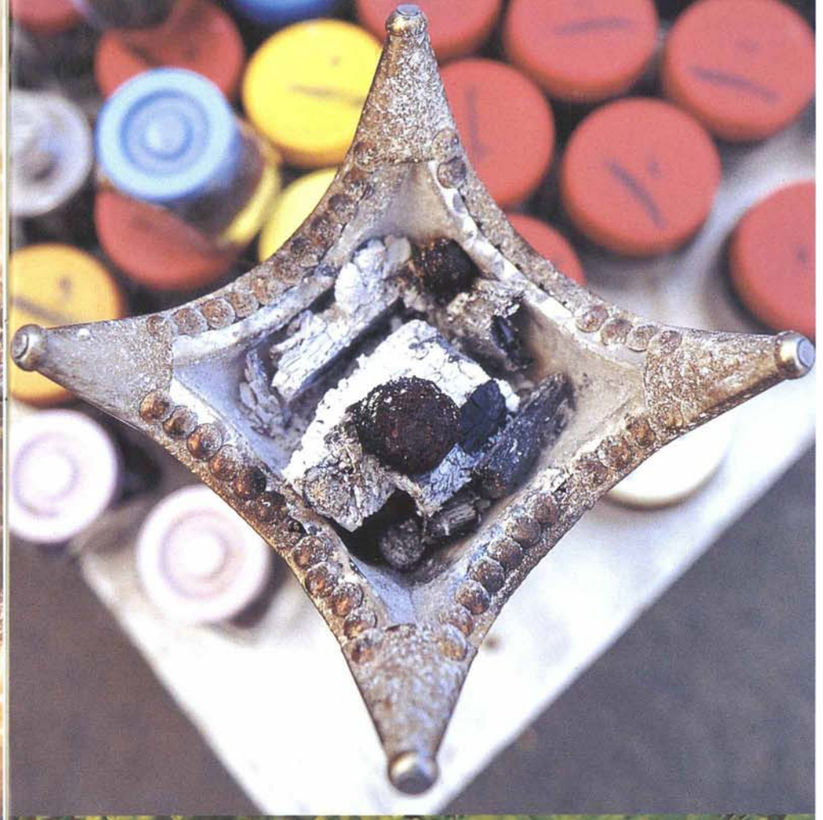
'Asir is known throughout Saudi Arabia as the place to find the finest grades of coffee from Yemen. (See *Aramco World*, September/October 1997.) In 'Asir, the best are generally agreed to be the Yemeni Khawlani beans, which are their own shade of greenish-brown. In the Tihamah lowlands, some farmers grow coffee beans similar to the Yemeni types, but so far they haven't been able to equal the quality of the coffee from Yemen itself.

It is not uncommon for Saudis to come to a market like this and buy coffee in bulk, for it is used throughout the year on every occasion, big or small. Arabs' love of coffee is legendary, and directly connected to the ways Saudi hosts show hospitality, a very important virtue. Many writers have described with fascination the ways in which Arab coffee is roasted, ground, mixed with spices, brewed and served. But in truth, few families roast their own coffee any more, and most buy it already ground, either here at the *suq*—for the best—or in grocery stores in towns and cities. Aside from the love of a well-prepared bean, the only truly enduring coffee custom is how it is served: three times, and in demitasses.

In addition to cardamom, Arab coffee is occasionally also spiced with saffron, cloves and other spices, all according to the preferences and the creativity of whoever prepares it. Thus its flavor can differ from region to region and from home to home. In Abha, many prefer it with ginger, cloves or a mixture of the two.

Herbs—cosmetic or medicinal—also draw crowds around their vendors and exude another distinctive aroma. Here in the women's suq, henna stalls are always popular conversation spots, and during the examination of the different varieties there





Clockwise from opposite page, top: *Honey for connoisseurs comes from 'Asir, well known for its aromatic—and often expensive—blends. The aromas are stronger still among the incense merchants, one of whom scents the* suq *with a lump of frankincense in a four-cornered burner. Bedouin poets often compare the smile of a beautiful woman to the petals of desert-blooming* al-'uqhwan (Anthemis melampodina)*. Potential buyers sample a honey seller's merchandise; the man on the left is dressed in the traditional clothing of Najran, which includes scented flowers tucked into a cloth headband.*

is discussion among friends, relatives and strangers about how to mix it for the most attractive red highlighting in the hair. For special social and festive occasions such as weddings, women will buy henna to mix into a paste with which they painstakingly draw floral and geometric designs on their hands and feet. In 'Asir, older women often mix henna with dried black limes to dye their hair black.

Herbal medicines are here, too, and the vendors are informal, traditional apothecaries, dispensing a time-tested and generally inexpensive pharmacopoeia. Umm Ahmad, a herb vendor, says, "We like to use herbs as medicines because they have become part of our heritage. Our ancestors used them and passed them on to us, and we know how useful they are because they really can cure."

At the end of a day's shopping, the task of carrying one's purchases out of the crowded market is no small matter. At the edges of the *suq*, people can be seen loaded down with baskets, bags of coffee, bundles of frankincense and more bags of vegetables, often with a pair of sandals or child's sneakers dangling from a basket-handle. After the jostling crowds and the bargaining—which among regulars creates a strong bond between adversaries—it is the friendliness of the vendors that can be the most memorable experience, the faces that can later be connected in memory to each item purchased. On any day of the week, all depart the *suq*s with echoes of the popular Arabic greeting that is uniquely 'Asiri: "Marhaban alf!" or "A thousand welcomes!"

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Free-lancer Peter Sanders has photographed throughout the Islamic world for more than 25 years. He lives northwest of London.

THE MASTER TOP SPINNERS OF MALAYSIA

White Bean vs. Tiger Cub

WRITTEN AND PHOTOGRAPHED BY ERIC HANSEN

Just before sunset, a hush fell over the crowd as Daud stepped into the clearing. His catch man was waiting for him, and the gentle rustle of coconut fronds was all that disturbed the silence as the spectators' eyes fell to Daud's right hand. He held in that hand a legendary three-kilogram (7-lb) throwing top called Anak Harimau ("Tiger Cub"). Daud's chief rival, Mohammed Ariffin Hussein, had just thrown the great Kacang Puteh ("White Bean"), and in a few moments Daud would make the final throw in what had been a daylong competition between two small rice-farming villages on the east coast of Malaysia.

Daud stood motionless in the fading light as he focused his thoughts on his grip and on his target—a carefully prepared slab of clay five meters (16') away. With the top held just above his right shoulder, he turned his body sideways, hiked his sarong above his knees and spread his legs for balance. It was the position of a martial arts master ready to do battle. He leaned back slightly, lifted the top high in the air, paused, and then rushed forward to unleash it with a powerful throw that lifted him off the ground. In a blur of motion too quick for the untrained eye, the top flew through the air, bounced up from the clay surface and was caught on a wooden paddle by the catch man. It had been a near-perfect throw and pick-up, and an audible gasp rose from the crowd as the top was slid onto its oiled stand. The throw and the catch had been executed in a fraction of a second.

"Ada gigi!"("Now that one has teeth!") I heard a man exclaim; describing the spin on Tiger Cub.

The spectators broke up into smaller groups while Tiger Cub, one of the entries from Kampong Dusong Durian—Durian Orchard Village—was placed next to White Bean, the undisputed champion from Kampong Kayu Besar—Big Wood Village—and

Top-spinner Ismail Bey Chekob from Kampong Kayu Besar (Big Wood Village) is one of 15 throwers on his village team, which competes in a semiformal league throughout Kelantan, Malaysia.
Opposite: *Its hardwood core ringed with a heavy lead "tire," a competition top weighs 2.5 to 3.5 kilos (6–8 lbs) and can spin for as long as two hours.*

the stands on which the other competing tops whirled. For now, there was nothing to do but wait. After one and a half hours, the weaker tops would begin to wobble and fall, and sometime after the moon had lifted into the night sky the last top left standing would be declared the winner. While the tops whirled on their stands, Daud selected a coconut shell and sat down to continue our conversation about *main gasing*—the fine art of Malaysian top-spinning.

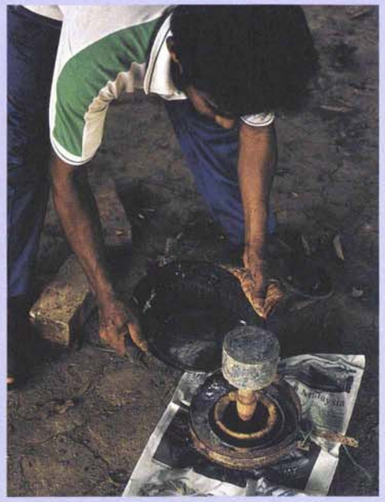
In most countries, top-spinning is not a grown man's sport; but in the villages along the east coast of Malaysia, especially in the state of Kelantan, contests are held throughout the year, and the pastime has developed into a major social, cultural and athletic phenomenon. Approximately 500 men and boys had come from 10 nearby villages to watch local stars such as Daud and Hussein in the competition I observed.

Originally practiced as a way to pass the time during the leisure months when the rice was ripening in the fields, top-spinning eventually became a regional sport, and the statewide top top competition, held in September in Kota Baru, now draws thousands of people from around the country. The event lasts five days and the winners occasionally go on world tours to help promote Malaysian culture. Daud, to my surprise, had thrown tops in London, Berlin, Paris, San Francisco, New York and Los Angeles. He discussed the different forms of public transport in all of these cities and then went on to describe the great excitement he had created in New York when he threw his top in Central Park one Sunday afternoon. Looking at him perched on his coconut, I found it very difficult to imagine Daud in Central Park.

Earlier in the day, vendors had arrived by bicycle or motor scooter and food stalls were now set up in the shade of nearby trees. Each offered a different specialty: crispy, sweet-fleshed watermelons, hot milky tea and coffee, cold soft drinks, freshly crushed sugar-cane juice served with a squeeze of lime, and an assortment of Malay sweets—one of them a flattened oblong disk called *kueh lutut*—knee-cap cake. There were men selling loose tobacco and bundles of dried banana leaf for rolling cigarettes. One man displayed hand-forged grass-cutting knives; another was doing a brisk trade repairing lighters and eyeglass frames. The vendors were as organized as the top-spinning teams, and this loosely knit confederation of small-time operators formed an integral part of the event.

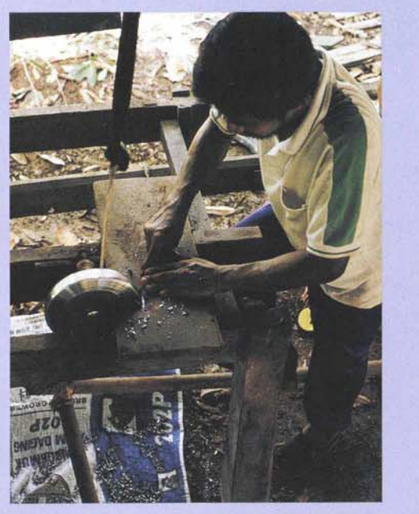
The competition that day was one in a monthly series, and 15 men from each team competed in five rounds of 30 tops each. They started around 11 o'clock in the morning and continued until after nightfall, throwing 150 tops in all. It was the

To craft a Kelantan top, the core disk of hardwood is prepared on an ingeniously devised treadle-powered bow lathe. The cord runs up from the treadle, around the spindle and up to a bicycle innertube fixed overhead. The treadle powers the downstroke and the innertube's elasticity powers the return stroke. The groove around the core's circumference will allow the lead casting to grip the wood firmly.



Molten lead—recycled from retired competition tops and from old automobile batteries—is poured into a mold made of a section of tin can and built around the top's wooden core.

The lead casting, thicker than the top's hardwood disk, is allowed to cool before it goes back to the lathe. The thick wooden spindle will be removed when the lathe-work is done, and replaced with a decoratively tooled, pencil-thin finial made of brass or—on the best tops—of sterling silver.

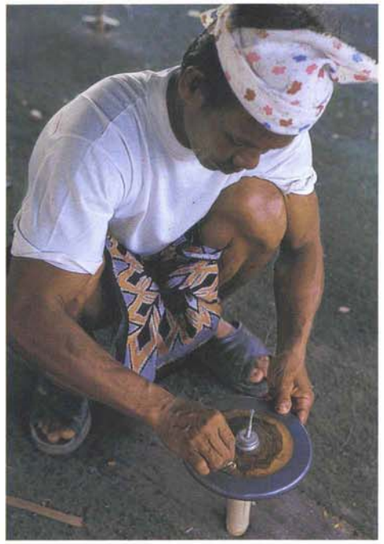


At the lathe again, the maker shapes and balances the lead "tire." A sheet of newspaper below the lathe collects lead shavings for reuse.

middle of the week, and I realized how unusual it was to find a culture and a place where adults could still afford the luxury of spending the day competing with giant tops. But despite the widely publicized regional and state championships, Daud told me, top-spinning is a village affair, and it is at this level of competition that one can best appreciate the social nuances, the athleticism, and the formalized rituals that are at the heart of the art.

After each round, while the 30 tops spun on their stands, lubricated with coconut oil, there was a 90-minute intermission during which the men got down to the serious business of discussing politics and farming, arranging marriages, gossiping, buying and selling tops, making new friends, or visiting with family members. Listening to the conversations going on around me, I realized they were one of the most important features of the day and that, for many of the participants, the top-spinning was secondary: The primary purpose of the gathering was to bring men of all ages together, to nurture village pride and exchange information.

Only a highly skilled craftsman can produce a top that will spin for two hours; those men are rare, and their tops are named: Dey-bet ("Homeboy"), Kachang Puteh ("White Bean"), Hitam Manis ("Sweet Blackie") and Anak Harimau ("Tiger Cub"). The tops, known as *gasing* in Malay, are turned on a foot-powered lathe from a disk of highly figured hardwood, and edged with a thick circumferential "tire" of lead. They measure between 20 and 25 centimeters (9–10") in diameter and about two centimeters (¾") in thickness, and weigh between 2.5 and 3.5 kilos (6–8 lbs). A short cylinder of aluminum or brass protrudes from the upper surface, to which the throwing rope will be attached, and atop this cylinder is a decorative spindle, which can be tapped with a finger to bring the spinning top to vertical. The spindles look like elongated chess pieces; they are made of brass or sterling silver and, on the best tops, are very finely crafted. No betting is allowed, of course, but tops may be bought and sold, and a winning top can command around 500 Malay dollars (approximately $200). A merely average top sells for a fifth of that.



Just before competition, the upper surface of the top is daubed with a resin called gitah qween, *which will help the throwing rope adhere to that surface just enough to give the top maximum spin as it leaves the thrower's hand.* **Opposite:** *The throwing rope is painstakingly wound onto the top and checked for the correct tension by team members who specialize in this task; when they finish, the top is ready for throwing from a stance demonstrated here by Rosdi bin Ibrahim.*

When the top is hurled, the tapered, five-meter (16-ft) throwing rope, called *raffia*, unwinds to give the top its spin. The top flies through the air and, if all goes well, lands on the smooth clay platform, known as *tanah liat*, which measures approximately a meter (3') square and 20 to 25 centimeters (9–10") high. The instant the top hits the clay surface the catch man scoops it up with a wooden paddle and places it on a hardwood stand called a *chaga*. With luck, a good top will spin on the stand for nearly two hours. A misguided top, heavy and hard-thrown, could easily break a spectator's leg or kill the catch man, yet injuries are rare.

The art of top-spinning, part dance, part discus throw, requires physical strength as well as finesse. With a reasonable amount of practice, most people can get one of these tops to spin, but real skill comes only after years of experience. Thus, though competitors vary in age, a *tukang gasing*, or "master of the top," is usually middle-aged, and when one of them prepares to throw, people fall silent to watch the performance.

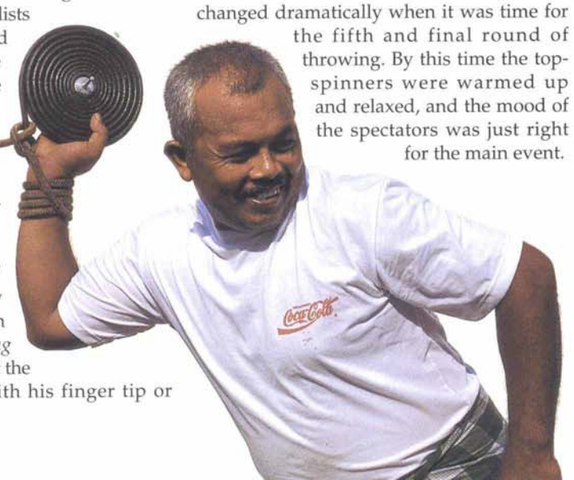
Supporting the *tukang gasing* in competition is a team of up to 40 people. Daud was the captain of the Dusong Durian team, which included 15 throwers, several top makers, top tuners, top polishers, rope winders, a catch man, and a specialist whose sole function was to apply a few drops of oil, with the tip of a feather, to the base of each top as it was carried spinning from the ring.

The actual throwing ring is a flat, grassy area that surrounds the landing platform, typically encircled by fruit trees and coconut palms. To one side there is a shelter where the tops are placed while they spin. Each team sets up its own tarp-shaded work area where the tops are laid out on wooden frames until it is time to prepare them for throwing.

The ritual of preparation involves a tremendous amount of cigarette smoking and talking, and great attention to detail. The older men are good at the delicate job of tuning the tops. They sit in the shade and balance each one by shaving delicate threads of lead from its outer edge with a double-edged razor blade as the top spins on a hand-held base. Fine lead tinsel drapes their fingers. Once patience and skill have finally brought the top into perfect balance, the hardwood spinning tip is burnished with a few careful strokes of a special stone. The top is then handed to a second man who cleans and polishes it with kerosene.

The next step is the application of a honey-colored tree resin, called *gitah qween*. The sap is daubed onto the upper surface of the top with a short stick, and then spread evenly with a scrap of rag. The sap helps the throwing rope stay in place and grip the top as it leaves the thrower's hand. While this is going on, other team members are applying a different type of sap to the throwing rope, using short sections of discarded motorcycle tire to help spread it along the rope's length. No one seems to be in any particular hurry, and it can take an hour or more to prepare the top and the rope for winding.

Strong-armed specialists then wind the tapered throwing rope onto the top. They first tie the looped end of the rope to a tree, then step back to begin the winding process. Starting with the thinner end of the rope pulled taut against the base of the central spindle, they wind it clockwise. When they're done, the *tukang gasing* comes over to test the tension of the rope with his finger tip or knuckle, listening for a particular sound.



When the top is finally ready for throwing, the *tukang gasing* slips the loop of rope over his wrist and grasps the top: Its bottom surface is pressed against the palm of his hand, the spinning point between the tips of his fingers, the edge held between the base of his thumb and his index finger. Because of the weight of the top and the rough surface of the rope, some throwers wear a protective cloth band around their wrist.

On the day I spent with the top-spinners, the early rounds of throwing were conducted with a casual air that bordered on indifference. But, as successive rounds ended, I began to notice discreet sideways glances as the throwers measured the skills and the tops of the other team. The carefree mood of the crowd and the competitors changed dramatically when it was time for the fifth and final round of throwing. By this time the top-spinners were warmed up and relaxed, and the mood of the spectators was just right for the main event.

The most famous tops were unveiled with a nice touch of ceremony and then prepared for the final round. These tops were of higher quality than the ones I had seen previously, their spindles crafted by silversmiths, their beautifully figured wood surfaces polished to perfection. They looked like contemporary high-tech sculpture.

Daud had kept Tiger Cub in a special box for most of the day, wrapped in yellow cloth. "Yellow is the color of royalty in Malaysia, and this will help the top, because only royalty can spin well," he said.

I wasn't sure I followed his reasoning, but there was no doubt that his top was a thing of great beauty. The body of Tiger Cub was an iridescent disk of wood made up of naturally occurring bands of black and gold. The lead edging of this veteran top was patterned with a subtle texture of old battle wounds, which added great character. White Bean, on the other hand was named after a wood that looked like ancient ivory. It too, was an old top, but its upper surface was strangely unmarked by use. I judged them to be worthy opponents.

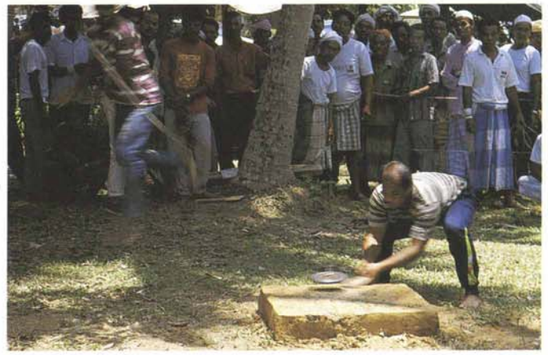
The final round was conducted with great ceremony. In a loud voice, the caller announced the throwers, in order, and when all 30 men had thrown their tops, there was little to do but wait. By the time the moon came up, the tops had been spinning for more than an hour, and not too long after that the first tops began to wobble. One hour and 30 minutes had elapsed since Daud had made the last throw, and spectators were now standing shoulder to shoulder, jostling each other, as more tops began to slow down. Ten minutes later the first top rolled from its stand, and several more followed suit. Tiger Cub and White Bean continued to spin, side by side, and the tension began to build.

Someone called out the time: one hour and 45 minutes. It was certain that White Bean and Tiger Cub would be the last to fall. Each developed a wobble, slow and subtle at first. As they began to lose momentum and balance, the spectators crowded in tightly to cheer on their favorites. By one hour and 51 minutes all the other tops had fallen. White Bean and Tiger Cub were barely turning, but they seemed to be held upright by some force beyond physics. On previous occasions, both tops had lasted past the two-hour mark, but it was unlikely that this contest would last that long. Both tops were ready to fall—but which one would go first?

Then it happened. The mighty White Bean fell over on its stand, but continued to whirl on its edge without falling to the ground. Moments later Tiger Cub did the same. White Bean completed a few revolutions before coming to a halt and Tiger Cub followed suit perhaps 30 seconds later. Was this a victory for Tiger Cub, I wondered?

From the tone of the conversations that burst out at that moment, I couldn't be sure. White Bean had been thrown just before Tiger Cub, and because it was unclear precisely how much time had elapsed between the throws, it was also unclear which top had actually spun longer. To my way to thinking, the contest had ended in a perfect tie, but I was a stranger, unswayed by village loyalty. For the rest of the spectators, neutrality was not an option, and the question of which top was the better remained deliciously unanswered.

The talk would go on for hours, days, or weeks—or possibly months or years. I needed to stretch my legs and, as I walked off into the tropical night, the excited voices gradually faded in the distance. No doubt Tiger Cub and White Bean would meet again, and next time they might be balanced by different men, or perhaps more attention would be devoted to smoothing the spinning point. But until that time, there was also no doubt that the supporters of White Bean and Tiger Cub would each claim total victory.



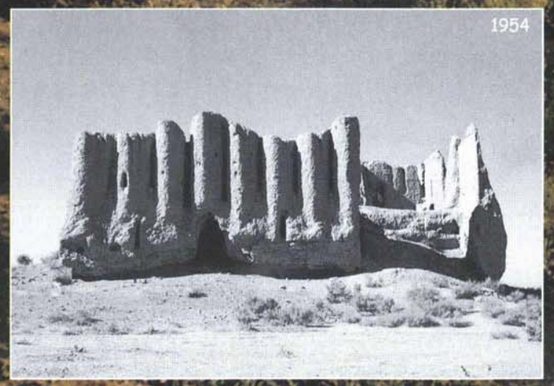
Top: *Team members and spectators have time to socialize while the painstaking work of preparing the tops goes on. In foreground and at right, tops are gently spun on handheld stands and receive their final tuning with a razor-blade.* **Center:** *Throwing a top so that it lands on the meter-square clay landing platform is a feat in itself. The catch man, at right, scoops up the top with a paddle and transfers it to a stand,* **above,** *where another team member uses a feather to apply a drop of coconut oil to its burnished wooden spinning tip.* **Opposite:** *The best spinners are called* tukang gasing, *"masters of the top," and their throws—usually toward the end of the day—can bring silence to an otherwise lively crowd.*

Eric Hansen is the author of Stranger in the Forest: On Foot Across Borneo *and* Motoring with Mohammed: Journeys to Yemen and the Red Sea. *He lives in Sacramento, California.*

OASIS
OF TURQUOISE AND RAVENS

Written by Jane Waldron Grutz — Photographs courtesy of the International Merv Project

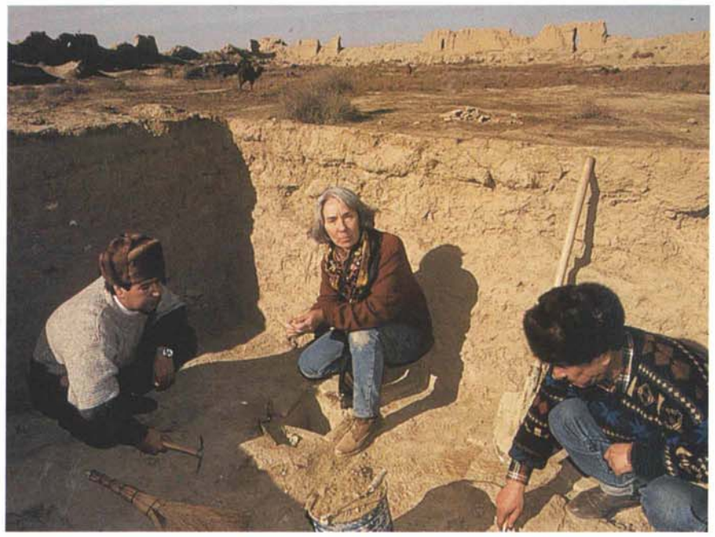
So prominent was the mausoleum of Sanjar the Great, sultan of the Seljuq Empire, and its turquoise dome so magnificent, that one 13th-century geographer claimed that Silk Road caravans could spot it while they were still a full day's march away across the southern Kara Kum Desert.



The International Merv Project, which builds upon half a century of Soviet and Turkmen excavations, is directed by Georgina Herrmann, ***below.*** ***Opposite page:*** *The 12th-century mausoleum of Sultan Sanjar, whose walls and dome were once sheathed in decorative tiles, overlooked a cosmopolitan capital that was an important trade depot on the Silk Roads.*

Though its beautiful tiles are long since gone, the mausoleum's wind-weathered dome still dominates the desolate, ruined city of Merv. Sustained for more than 2500 years by the alluvial soil of the Murghab River delta, Merv, little remembered today, was already a strategic commercial center, known to traders from Constantinople to Xian, when it fell with the rest of the Achaemenian empire to Alexander the Great in 330 BC.

Thirteen centuries later, under the Seljuq sultans Malik-Shah (1072–1092) and Sanjar the Great



(1118–1157), Merv became one of the largest and most cosmopolitan cities in the world, the eastern capital of the Seljuqs, a Turkic tribe whose rule ran from Central Asia westward to Anatolia and southwest into Arabia from roughly the 10th to the early 13th century. For 200 years this Silk Road trading city rivaled Damascus, Baghdad and even Cairo with its caravansaries, fine residences, endlessly varied workshops—and, above all, its libraries.

It was claimed that just one of the two libraries in Merv's Friday mosque held 12,000 volumes, and there were six other libraries of similar size in the city. These libraries attracted the mathematician and astronomer (and poet) 'Umar al-Khayyam, who compiled his astronomical tables, the so-called Jalal al-Din Calendar, in the famed Merv Observatory. It was in Merv's world-famous libraries too that the scholar Yaqut al-Hamawi spent three years collecting material for a detailed geographical dictionary.

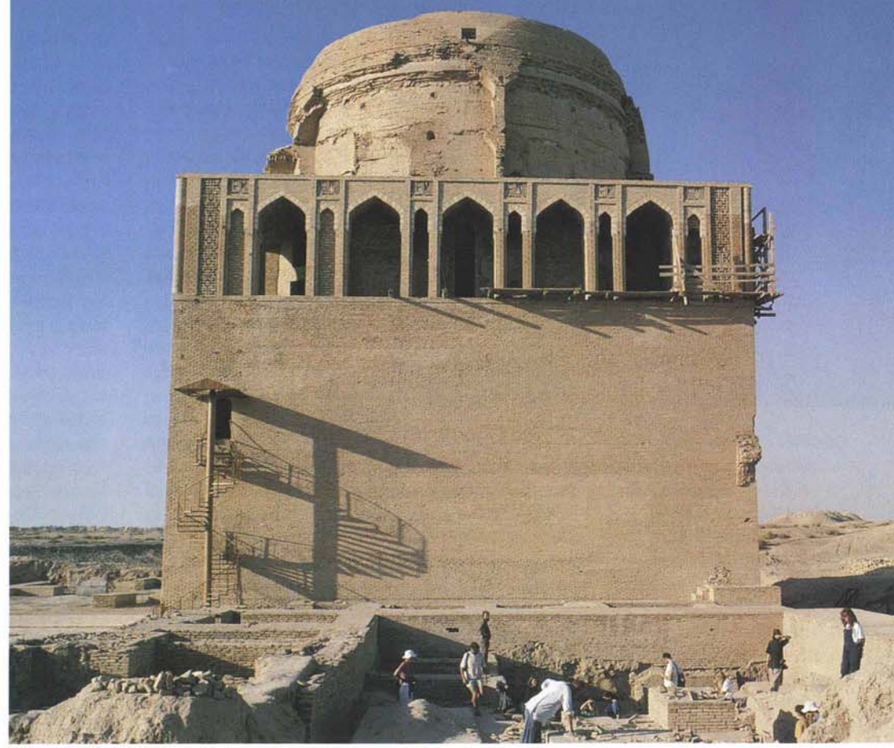
"Verily, but for the Mongols I would have stayed and lived and died there. Hardly could I tear myself away," al-Hamawi later wrote. But he was wise to leave Merv when he did, for one of history's tidal waves was approaching from the East.

Between 1220 and 1223, the Mongols attacked Merv three times. Historical sources vary enormously in their calculations of the death toll, claiming from 1.3 million to nine million people dead. Although archeologists today believe the population of Merv could not have exceeded one million at the time, and have clear evidence the city continued to be inhabited after the attacks, the loss of life was in any case appalling. Ruined too was the city's extensive irrigation system, which, with few survivors left to rebuild or maintain it, caused the great city to be gradually abandoned.

The early 13th-century scholar 'Izz al-Din ibn al-Athir, author of *al-Kamil (History of the World)*, called the Mongol invasion "a great disaster, the like of which neither day nor night had brought forth before." The Persian governor and historian 'Ala al-Din al-Juwayni, who served a Mongol prince in the late 13th century, wrote that "the city which had been embellished by great men of the world became the haunt of hyenas and beasts of prey." Al-Hamawi, revisiting the city after the disaster, claimed that its splendid palaces and other buildings "were effaced from the earth as lines of writing are effaced from paper, and these abodes became a dwelling for the owl and the raven."

Only in the 15th century did Merv again revive somewhat, when in 1409 the Timurid ruler Shah Rukh, heir to Tamerlane and, more distantly, to the same Genghis Khan who had destroyed the city, set about building a new city a few kilometers south of the ruined Seljuq capital. Although the Timurid rulers favored Bukhara, Samarkand and Herat, Merv remained significant because it was the only oasis between the Kopet Mountains of Iran and the Amu Darya, or Oxus River, and its value as a trading and agricultural center was largely a matter of geographical, not political, fact.

For a time this Timurid city, known today as Abdullah Khan Kala, grew and prospered, but it never approached the significance of its predecessors. As maritime trade began to supplant Silk Road traffic in the 16th and 17th centuries, Merv declined like a modern small town bypassed by a new highway. In the late 18th century its dam was breached during regional strife and its agriculture ruined, and it was largely abandoned by the time Russia took control of the region in 1884. (See *Aramco World*, January/February 1997.)



Today, Turkmenistan's third-largest city, Mary, sits some 30 kilometers (18 mi) away, and a smaller city, Bairam Ali, nestles close to the ancient sites of Merv. As it was almost 2500 years ago, the region is known for its irrigated cotton fields. The population of the delta-in-the-desert is now about one million, roughly the same as it was on the eve of the Mongol invasion 775 years ago.

"Nowhere else in all Central Asia are ruins so abundant or so vast," wrote American geologist Raphael Pumpelly, who learned of the site from Russian expeditions of the 1880's and who himself led an expedition there in 1904. Merv is indeed Central Asia's most extensive archeological site, and investigating it is one of the biggest jobs in all of archeology. In the 1930's, Soviet teams began the first of more than half a century of surveys, excavations and conservation work, all of which laid a foundation for the more intensive, more technologically advanced multinational archeology that has been under way since 1991 under the auspices of the International Merv Project, or IMP.

Established in 1991, the IMP has team members from Turkmenistan, Russia, Great Britain, France and the United States; its institutional collaborators include the Southern Turkmen Multidisciplinary Expedition (known by its Russian acronym, YuTAKE) of the Academy of Sciences of Turkmenistan, University College London (UCL) and, from 1998, the British Museum. The team members work under a triumvirate of directors: Kakamurad Kurbansakhatov of YuTAKE, St. John Simpson of the British Museum, and Georgina Herrmann of UCL, who since 1992 has served as overall director.

In a sense, Merv is truly Herrmann's project.

It was she, after all, who secured much of the initial funding from seven public institutions in Great Britain; it was she who encouraged private companies to provide expertise and equipment for the essential mapping and surveying of the 1000-hectare (2470-acre) site—a vast area in which to conduct archeology—and it was she who worked out many significant methodological details. Professor David Stronach of the University of California at Berkeley, former director of the British Institute of Persian Studies, calls the IMP "one of the most innovative and important [projects] carried out on any point along the ancient Silk Road."

In 1996, Herrmann won a Rolex Award for Enterprise, which drew public attention to her work and provided prize money that helped fund the 1997 IMP season. Nonetheless, "we do everything on less than a shoestring," says Herrmann, who also teaches several classes each year. "No one works full-time for IMP, and some of our best people are doctoral students simply because there is so little funding available."

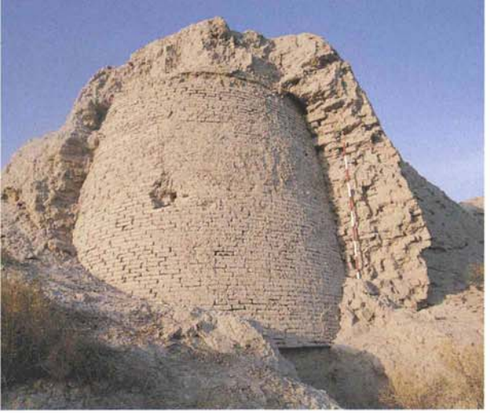
For years, Herrmann, who holds a doctorate from Oxford and is presently Reader in Western Asiatic Archaeology at UCL, knew about Merv only from occasional publications by her Soviet coun-

Previous spread: *The Little Kyz Kala, foreground, and the Great Kyz Kala—shown here looking northeast toward the Sultan Sanjar mausoleum on the horizon—are among the buildings that remain of Merv's four ruined cities. Known as* köshks, *the structures date from the Seljuq era, and their purpose remains obscure. Their rapid deterioration, however, is all too clear: Two photographs of the east face of the Little Kyz Kala* ***(insets)****—one taken in 1954 and the other in 1992—show the effects of the Soviet-built Kara Kum Canal. Completed in the 1950's, the canal has raised the water table throughout the Murghab River delta. The rising water undermines and dissolves mud-brick walls and encourages the spread of tamarisk scrub that obscures informative surface details. As a result, says Herrmann, work at Merv "really is 'rescue archeology.'"*

Lusterware shard showing a Mongol face; 13th c.

Small ceramic head; Sasanian, 6–7th c.

TOP LEFT: ROLEX AWARDS FOR ENTERPRISE



Located on a plain lacking natural defenses, each of the four cities of Merv relied on massive walls for security. The first walls around the Seljuq city of Sultan Kala were hollow, but at some time before the Mongol invasion they were filled in and sheathed in ceramic-reinforced mud brick along their entire 14.5-kilometer (9-mi) length.

terparts, who worked inside what was then a closed Soviet Union. That changed in 1990, when the Soviet state of Turkmenistan, acting in the spirit of *perestroika*, or openness, held an international archeological conference in Mary. There Herrmann met Zamira Usmanova, who had worked with YUTAKE teams at Merv for more than 40 years. She invited Herrmann to visit the site with her.

Herrmann was no stranger to archeological excavations, and her specialty is the Parthian and Sasanian civilizations that ruled Persia and much of Central Asia from the third century BC to the seventh century of our era. Over the years she had visited many of the sites related to those empires, particularly in Iran and Afghanistan.

But Merv was different.

"It was like nothing I'd ever seen before," remembers Herrmann, who says she was overwhelmed not only by the sheer size of Merv, but also by its unique configuration. In most cities that date to antiquity, she explains, the city of one era is built atop the previous one, and each successive layer inevitably obscures much of what lies beneath it. At Merv, however, there are four major city sites, and each dates from a different era, which allows an unusual amount of work to take place close to the surface

The earliest city at Merv is known today by its Persian name, Erk Kala ("Citadel Castle") but it is widely known in historic texts first as Margush, an Old Persian name, and Margiana, a Greek name. A compact, round fortified city, it was founded either by the Medes or by the later Persians, who joined with the Medes in 550 BC to form the Achaemenid empire. The Seleucids, Alexander's successors, founded the second city of Merv, called Gyaur Kala today but built as Antiochia Margiana. The walls of this much larger second city enclosed a rough square of nearly 400 hectares (975 acres) and retained Erk Kala as its citadel along its northern perimeter.

In 238 BC the Seleucids were eclipsed by a nomadic Central Asian tribe, the Parthians, who seized control of a province east of the Caspian Sea and expanded westward to the Euphrates, whose opposite bank was Roman territory. It is the Parthians who are generally credited with initiating the Silk Road trade between China and the West that so enriched the oases, river crossings and other natural stopping points along the way—of which one was Merv: They supplied the emperor of China with "the horses of heaven" (see *Aramco World*, May/June 1997), and in return received silk cloth, which they traded westward.

The Sasanians, an indigenous Persian people from the region of Fars, considered themselves the rightful heirs of the pre-Alexandrine Achaemenids. It took them four centuries to displace the Parthians in Central Asia. In the year 220 of our era, Merv fell to them; they made it a regional headquarters and extended its irrigation system, resulting in increased agricultural productivity, an enlarged population and greatly increased tax revenues.

By the seventh century, however, the Sasanian empire was in decline from Mesopotamia eastward due to the buildup of salts in their fields, brought on by too-efficient reuse of irrigation water—although the IMP has failed to find evidence of such a decline in Merv. By the time the Sasanians met Arab Muslim armies in the seventh century, they were no match. Under the Damascus-based Umayyad caliphate, more than 50,000 Arab families settled in Gyaur Kala, and from there the Arab armies also brought Bukhara and Samarkand into the fold of Islam.

In the eighth century, Merv was ruled by Abu Muslim al-Khurasani, who served the Baghdad-based Abbasid caliphate—though not without tension, as Merv's population continued to grow and its wealth and importance increased to rival Baghdad's own. It was in this era that the population began to expand across the canal that formed the western perimeter of Gyaur Kala to found Sultan Kala. Under Abbasid rule and then under the Seljuqs, over the next several centuries, Sultan Kala grew into the greatest city the region had ever known, called Marv-ash-Shahijan, or "Royal Merv." Then came the Mongols, and devastation....

The Timurid city founded two centuries later to the south of Sultan Kala, Abdullah Khan Kala, was never much larger in area than the original Achaemenid city had been, and its population never exceeded one tenth that of the Seljuq city. It was abandoned when a Bukharan ruler breached its dam in 1785.

The full extent of the Merv archeological site is best understood from the air. Most distinctive is Erk Kala, whose massive walls, though ruinous, still rise an astounding 30 meters (nearly 100'). Marching out from it are the walls of Gyaur Kala, and to the west those of the monochrome, ruin-dotted expanse of Sultan Kala. Although many above-ground monuments remain at least partly intact, mounds and impressions indicate that a far greater wealth of relics—entire buildings, streets, homes, each from a different historic period—lie relatively undisturbed just beneath the soil.

But as an archeological site, Herrmann found, Merv had problems.

Erosion by the constant desert winds had defaced the remaining buildings. Others had been leveled during the years of Soviet rule in order to make more room for cotton fields. Worst of all, the Kara Kum Canal, built by the Soviets in the 1950's to link the Murghab River with the Amu Darya some 180 kilometers (110 mi) distant, has raised the water table of a goodly portion of the Merv oasis. This is rapidly undermining the surviving ruins, which are especially vulnerable because they are made of mud brick. "It really is 'rescue archeology,'" says Hermann, adding that the increased availability of water also encourages the spread of thick tamarisk brush, which can render invisible the frequently subtle surface signs of buried ruins.

In 1990, the government of Turkmenistan took legal steps to curtail urban and agricultural development—the sites are surrounded by modern settlements, and include potentially arable land—by declaring the ancient cities an archeological park. But there was more to be done.

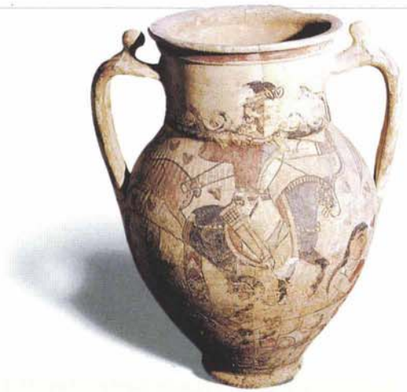
Led by Herrmann and with support from the National Geographic Society in Washington, D.C., the British Academy and the British Museum, the IMP devised a multifaceted plan for the preservation, survey and research of Merv.

One goal, which Herrmann hopes to realize next year, is to have the United Nations Educational, Scientific and Cultural Organization (UNESCO) recognize Merv as a World Heritage Site, which would make it eligible for further funding and would raise its public profile. This greater visibility, the team believes, will do much to save Merv for study by future archeologists, and for the enjoyment of future generations of history-loving travelers.

The ultimate goal of the IMP is to compile a physical, cultural and economic profile of the urban development at Merv over its many years. But with its prospects for long-term funding uncertain, IMP began in 1992 as a three-year program, hoping that its accomplishments during that time would earn it another three years.

The archeologists decided to start with the most accessible material: that from the Sasanian, early Islamic and Seljuq periods through the coming of the Mongols. The first tasks were clearly to identify what might be found most easily, and then to note clearly where it was. This would provide the framework both for future excavation and for UNESCO recognition. In mapping the 1000-hectare (2470-acre) site, the team used geo-rectified satellite imagery, the most advanced system available, which provides a distortion-free, perfectly flat bird's-eye view. These geo-rectified maps were then overlaid with location data collected on the

The ninth-century Furnace Site in Gyaur Kala yielded one of the IMP's most significant finds to date: evidence of steel manufacture by "co-fusion," a method previously known only from descriptions by al-Biruni in the 11th century. In efficiency and sophistication, this method surpassed those used in India a few centuries later, and they predated European steel-making by some 600 years.



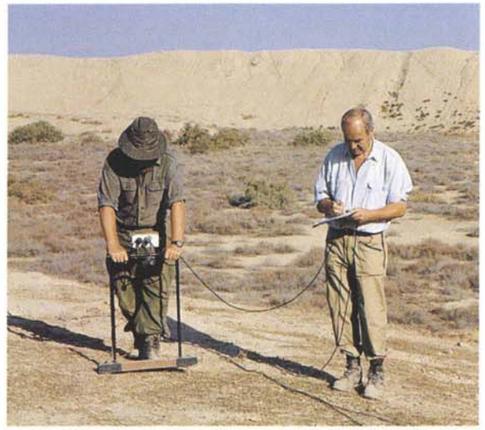
Urn painted with scenes from a man's life; Sasanian, 6th c.

Ostracon with a fragment of a commercial message in Middle Persian; 6th c.

Jar handle re-used as one face of a mold for casting metal ornaments; 6th c.

Coins found on the surface of Erk Kala; 6th and 7th c.

Different materials buried in the earth—stone, wood or metal—cause local changes in the strength of the earth's magnetic field at the surface. A magnetometer can detect such changes, allowing archeologists to trace rough outlines of ruins before deciding which to excavate. At Merv, however, almost all buildings were of mud brick, and their remains are often too similar in composition to the earth in which they lie to be detected magnetically. The IMP has thus relied on the latest in advanced satellite imagery as well as the oldest of archeologists' methods—looking for surface evidence, of which there is an abundance in each major section of Merv.



ground at known ruins using the extremely accurate global positioning system. A geophysical team also searched for buried walls and other structures with a magnetometer, but this, Herrmann explains, did not work well: Merv's cities were all built of mud brick, a material that is hardly distinguishable, magnetically, from the earth it is buried under. "If they had been stone or wood, we would have found much more," she says.

A surface-artifact survey gathered exposed pottery shards and noted other easily apparent indicators of what might lie below the surface. There was a numismatic survey that found numerous coins on the surface, each of which helps in roughly dating sections of the city. Other members of the 25-person field team made photographs and drawings and took measurements of each monument in the oasis. Finally, a bioarcheological survey was undertaken, the first such environmental study ever at a Central Asian site, which is producing insights into the economy and agricultural systems of Merv. (See "A Trail of Seeds," pages 26–27.)

But this was all preliminary to what is always at the heart of a field archeologist's work: excavations. Only by digging could the archeologists hope to uncover material evidence that might show how and why each city first flourished and then, ultimately, became, in al-Hamawi's words, "dwellings for the owl and the raven." It was with this goal in mind that, in 1992, the team began work at an untouched site within the oldest part of the citadel of Erk Kala.

They chose well.

The team had dug barely 20 centimeters (8") down when they began to uncover the first signs of a large Sasanian house that, like many old mud-brick houses, showed signs of multiple remodelings in which walls had been reconfigured to suit the changing needs of the inhabitants. Ceramic shards were abundant, as were low-denomination bronze coins that dated the house to approximately the time of Khusrau I (531–579) and later.

Of particular interest were some 40 ostraca, shards—usually ceramic—on which drafts, notes and similar ephemera were commonly written. Unsurprisingly, most were in Middle Persian, the language of the Sasanians. But one, written on bone, was in the language of the Bactrian empire; another was in Soghdian, the language spoken in Samarkand and Bukhara, cities within the great trading nation of Soghdiana, just across the Amu Darya.

According to St. John Simpson, curator of the Western Asiatic Department of the British Museum and director of IMP excavations, this evidence that there were "people in Merv who could read and write Soghdian" strongly reinforced the heretofore unproved assumption that Sasanian Merv and the cities of Soghdiana were close trading partners in the third through seventh centuries.

In 1993, while digging continued at Erk Kala, the IMP opened up two new sites in Gyaur Kala. One was on a large mound in the corner of the city where pottery collected on the surface dated to the fourth and fifth centuries after the birth of Christ, just a little earlier than the Erk Kala site; the other was near the center of Gyaur Kala and, according to surface finds, dated to the ninth and tenth centuries.

The most notable thing about the first site was the architecture.

"The Sasanians nearly always built courtyard houses, similar to what you see in the Middle East today," explains Simpson, "but the houses [there] were freestanding rectangular houses. Every house was separated from every other by straight streets or alleys."

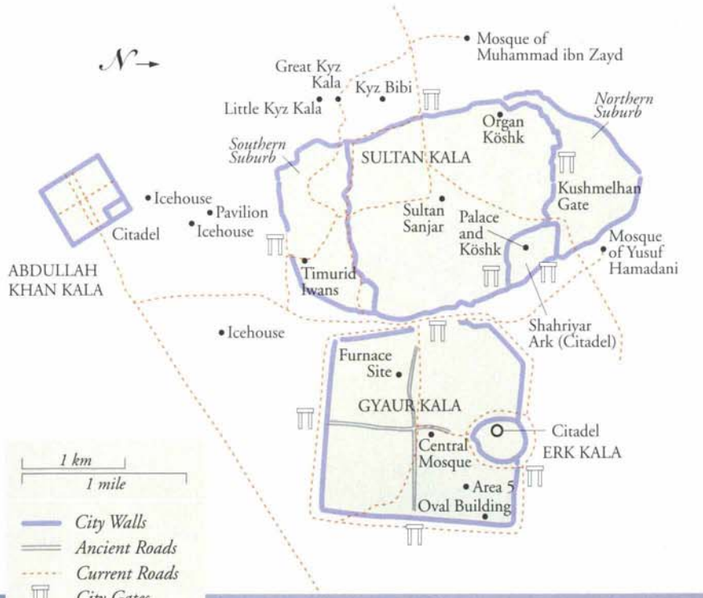
It was possible that these were types of houses mentioned by Du Huan, a Chinese merchant whose description of the city in 765 was based on the decade he spent there as a captive: "The wooden parts of the [buildings] are elaborately carved and the mud parts are painted with pictures," he wrote, describing what Herrmann believes were houses with balconies overhanging the alleys, a feature that was common in other cities, such as Damascus.

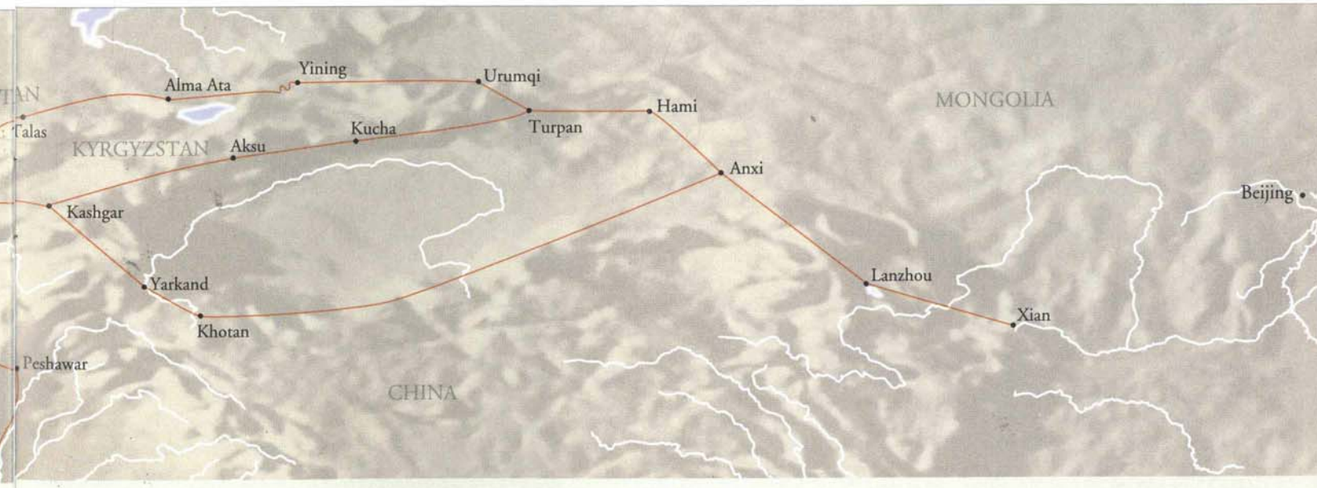
Another interpretation, Simpson points out, might be that these houses of unexpected design belonged to some special group, perhaps a religious minority that lived apart from the rest of the city's population. Although there was no evidence for that in the excavations, historical sources are clear that Zoroastrians, Manicheans, Christians, Jews and Buddhists all lived in Merv at this time.

Only further excavation will illuminate the mystery of the detached houses. Meanwhile, another mystery at what came to be called the Furnace Site has turned into one of the IMP's most significant discoveries: the manufacture of steel.

Evidence had shown that during the late seventh and eighth centuries, Gyaur Kala's population had begun to leave the city and move west across the Razik Canal to what became Sultan Kala. Some of the first to go were the political and economic elite, and Gyaur Kala became an industrial city. Within it, the team found a surface accumulation of vitrified clay crucibles, each only about six centimeters (2⅜") in diameter, a workshop and four furnaces.

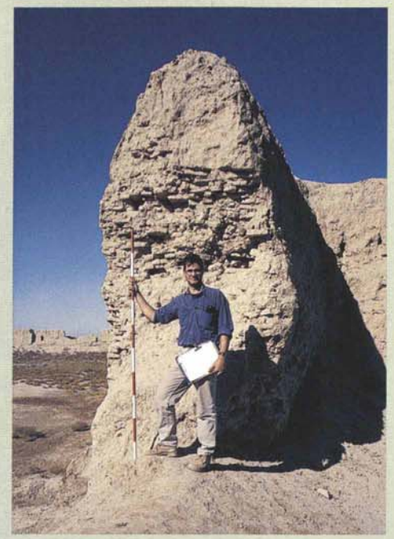
This find showed that the spot had been a metal workshop, but when the crucibles were sent for analysis of the traces of metal in them, the result



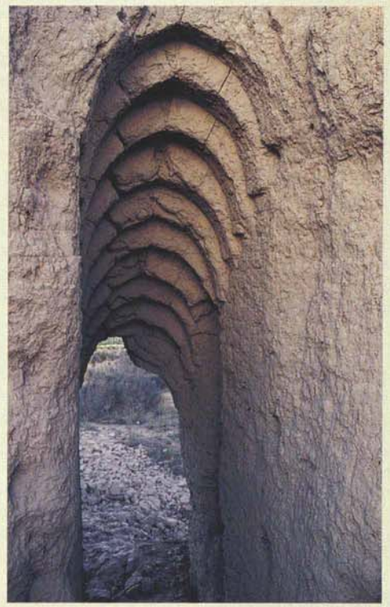


Merv was located at the center of the network of trade routes known as the Silk Roads, above, **which linked dozens of cities and towns from China to the Mediterranean, with connections ranging as far afield as India, Arabia and Scandinavia.** Above: **In this aerial view looking west, the foreshortened square of Gyaur Kala's walls appears just beyond part of the modern town of Bairam Ali; the circular wall of Erk Kala can be seen to the right.** Top: **The four major sites of Merv.**

THE MIGHTY WALLS OF MERV



What new threat precipitated the dramatic change in the architecture of the walls around the Seljuq city of Sultan Kala? To military archeologist Pierre Brun, left, the walls that once rose 15 meters (50') are an enigma. Right: Brun believes the step-vaulting of the many stairways inside Sultan Kala's first walls—which were filled to become the core of the second walls—looked much like these vaults in the Little Kyz Kala.



The coming of the Mongols will always be the most dramatic single event in the history of Merv. It is not certain whether the city's walls, some 2.5 meters (8') thick and 15 meters (50') tall, were built in expectation of the Mongols' attack, but during the Seljuq period, they stood as Merv's best—though ultimately inadequate—defense against invasion. They are also a uniquely well-preserved glimpse into the defensive systems of the Seljuq era.

Pierre Brun, a doctoral student of military archeology who has targeted Merv for his dissertation, and Turkmen archaeologist Akmuhammed Anneav began looking at the walls systematically when they joined the IMP in 1997.

Most city walls of the Islamic period in Central Asia, especially mud-brick walls, have long since disappeared, explains Brun. Either they have eroded away or, more commonly, they have been torn down as cities expanded. Even those walls that stand today are generally accretions of many walls, each one built, repaired and rebuilt over different periods, often spanning centuries or millennia.

The walls of Sultan Kala are different.

"According to the sources," says Brun, "these walls were built by Malik-Shah toward the end of the 11th century." And unless they were rebuilt after the Mongol attacks, then they were in use for only 150 years—"a very short period of time," says Brun.

The remains are "unbelievable," he continues. "There are many details still there, such as the stairs, and the vaulting systems. Those are usually the first things to collapse in a [mud-brick] wall."

But there is more to the walls of Sultan Kala than that.

"They were built in two stages," he explains. The walls built by Malik-Shah were hollow and had slit windows; defenders could operate both from within the walls and from atop them, where they were protected by crenellated battlements.

Some time after they were built, however, the hollow walls were filled in and a "wrapping" of ceramic-reinforced mud brick was overlaid on the walls. The "wrapping" doubled their thickness to five meters (16'). And an extra "pre-wall" afforded the wall itself a measure of additional protection. The interior walkway was replaced by a wider walkway at the top of the new walls.

The solid wall, says Brun, is evidence of a change in defensive strategy. Hollow walls, relatively thin, were designed to defend against an unsophisticated enemy, such as the nomads from the east, or other raiders. By the beginning of the 13th century, however, another type of enemy must have been anticipated, one equipped with towers and catapults to shatter walls, and sappers to undermine them. It was the Mongols who used captured Chinese engineers to build just this type of sophisticated siege equipment.

"People think the Mongols only rode horses and came in shouting," says Brun.

"But no, they were an organized people, very efficient. That's the reason they took so many cities."

Brun admits he is not sure the walls were built with the Mongols in mind, because the Mongols only began the campaign that destroyed Merv in 1220, and until then there is no evidence in the texts that Merv anticipated attack. The project to strengthen the defenses, even in a city as wealthy as Merv, would have taken years.

To investigate further, Brun and Anneav will excavate sections of the walls this fall, and date the ceramic shards that were mixed into the mud brick to give it extra strength. The pair will also collect seeds found in the mud brick, which can then be carbon dated.

"That will not give us a very precise date," says Brun, "but at least it will tell us whether or not the second walls were built at the end of the 12th century."

"One thing we do know," he says. "The walls are a well-preserved time capsule, and that makes them something unique."

was astonishing. The tiny droplets were neither wrought iron nor cast iron—both products were well known—but hard-to-manufacture steel. And not just any steel, but Damascus steel, known from early manuscripts as "watered steel," an unusually workable, durable type highly prized in the Islamic period and since. Steel-making at Merv apparently predated widespread knowledge of the craft in India and Syria by several centuries, and predated European steel by some six centuries.

According to the evidence at the Furnace Site, the ninth-century method used at Merv was probably "co-fusion," more complex and more efficient than the methods later used in India. It involves heating pieces of wrought iron, which has no carbon in it, with pieces of cast iron, which is carbon-rich, to some 1200 degrees (2200°F). The cast iron melts; the wrought iron softens but does not melt. As the 11th-century scholar al-Biruni described it, the two metals "do not mix completely but on the contrary are separate in their parts from one another...." Some of the carbon in the molten cast iron diffuses into the softened wrought iron, producing steel. "This," said al-Biruni, "is called damask," suitable for making the famous Damascus swords. If the metals melt together entirely, he wrote, the resulting steel "is good for files and the like."

With this discovery to spur them on, the IMP team began a new excavation in the Shahriyar Ark, the "royal citadel" of Sultan Kala, in 1995. This had been built at the time of Sultan Sanjar, and some of the larger buildings are still standing in part. Among them are the ruins of a late Seljuq or early Mongol palace and several *köshk*s, a type of building unique to Merv and constructed with huge semicircular engaged pilasters in the walls that give them a corrugated appearance. The largest of the remaining *köshk*s measures 42 by 37 meters (150 x 120'), and the smallest of them is a single room. Amid these there are remnants of several other smaller buildings as well.

To limit the focus of the excavations in Sultan Kala, the team began work at a small structure—quickly found to have been a house—built toward the end of the Seljuq period. Like most domestic sites, including the Sasanian house at Erk Kala, this Seljuq building had been reused several times. What made it interesting, however, was that with each reuse, the renovation appeared to have become shabbier. The hearths had been relined, but with broken bricks. Pottery that dated from Seljuq times had been reused, but in a badly broken state. The prosperity for which the Seljuqs were famous seemed to have been fading.

According to Simpson, it is likely that such "recycling" of materials occurred after the Mongol catastrophe, during a time when the Seljuq aristocracy that had once occupied the citadel—and which likely built the original structure—was gone, and in their place were beleaguered survivors, eking out a living without the benefit of the city's once extensive agricultural system.

They might even have been refugees from the hinterlands, part of the 10,000 people who are estimated to have maintained the irrigation systems before the Mongols.

"With the manpower and administration needed to maintain the irrigation system gone, the canals would have clogged up, and those who survived would have been forced to move to the core of the oasis," says Simpson. The survivors would have had water, he

*In the Seljuq era and again in Timurid times, several icehouses were built in "suburbs" outside the city walls. With thick mud-brick walls **(below)** to insulate the interior from the desert sun, they could hold a winter's harvest of mountain snow well into the hottest summer. **Left:** St. John Simpson of the British Museum and numismatic archeologist Richard Hobbs examine a lump of iron slag.*

Fragment of an urn; Seljuq, 12th c.

Celadon fragment imported from China; 12th to 14th c.

It was Turkmen archeologist Zamira Usmanova, now a member of the IMP, who introduced Herrmann to the site at which Usmanova had spent more than 40 years. One of her largest projects was the cutting of an archeological trench in the enormous wall of Erk Kala ***(inside back cover)****. The wall still rises more than 30 meters (100') high and surrounds Merv's first city, which dates back to the sixth century BC.*

adds, even if the Mongols indeed destroyed the dam that lay south of the city, as the Islamic texts universally suggest, because Sultan Kala is near one of the deep old courses of the Murghab River. Unable to rebuild, Simpson suggests, the survivors "just reused things. That's what we're finding."

Simpson also points out that the team is finding no evidence that the Mongols actually destroyed the city itself. Whatever number of people they in fact killed, they appear to have left most of the buildings intact. Did they occupy the city later themselves? If they did, the fact is largely overlooked by the textual sources that have come down to us today—but there is evidence that the city had a governor and minted its own coins at some time between the Mongol destruction and the arrival of the Timurids. To further complicate the picture, a small, collapsed Buddhist temple has been discovered, which also dates to the Mongol period, confirming Eastern influence in the city during an era when the texts suggest all was desolation.

The findings at Merv have so far generated as many questions as answers. But even with the third three-year program set to begin this fall, Herrmann and the IMP team know they may never compile a history of Merv that feels complete.

Instead, Herrmann explains, the IMP has tried "to start the learning process" by establishing guidelines that can help future archeological research, whether by the IMP or other expeditions.

"At Merv," she says, "there is work for many lifetimes." ⊕

Jane Waldron Grutz is a former staff writer for Saudi Aramco who lives in Houston. Since retiring, she has volunteered on archeological digs at several Middle Eastern sites.

International Merv Project photographs by Pierre Brun; F.B. Flood; Mike Halliwell; Georgina Herrmann and St. John Simpson.

Bowls imported from Kashan, Iran, 13th c.

A Trail of Seeds

Some are more than 1000 years old. Some are just one tiny jiggle away from turning into dust. But seeds from Merv, and other preserved organic materials, are beginning to tell archeobotanist Sheila Boardman stories about the agricultural economy of the once-thriving city.

The material contains clues, for example, about which crops were grown, and when. After four seasons of excavation and laboratory examination, seeds are also beginning to tell the University of Sheffield doctoral student the true extent of the Mongol cataclysm, whether Sasanian Merv declined along with declining Sasanian prosperity elsewhere, and the role of steel manufacture in the economy. Together with other IMP archeologists, she is learning where some of Merv's crop plants originated, and which crops were exported to which places at which times—all information that opens new windows on the past that were largely closed until recently.

Archeobotany, explains Boardman, has been around for a long time, "but it's a much more rigorous discipline now than even 10 years ago. It's gone from counting the numbers of impressions of seeds on clay pots to doing a lot of microscope work on piles of refuse to try and understand the relationships among different crops."

A full collection of seeds from all periods is difficult to come by. Only those that were burned (thus carbonized) or petrified (mineralized), or that have left phytoliths (the tiny silica structures unique to each plant type) can be analyzed. So far, Boardman has gathered her samples from hearths, refuse heaps and dung heaps—"It's not very glamorous work," she says—at both IMP sites and at several Turkmen and Russian-Italian sites in the region. She does not pick seeds out of the dust and earth on the site, she explains.

The cultivation of cotton began in the complex of irrigated fields surrounding Merv as early as the fifth century, and its abundance has been crucial to the economic success of the region ever since.

Rather, she bottles what her practiced eye tells her are likely to prove productive samples. Back in Sheffield, she separates the organic material by floating it out on water, after which it is dried and prepared for microscopy.

To date Boardman has good samples for the Sasanian period (roughly the fifth through the seventh centuries), and for the ninth century, near the end of the early Islamic period. She is beginning to collect samples from around the time of the Mongol invasion.

Already, she has found a surprise: Cotton, which archeologists consider a cash crop, because it supported the export-oriented textile industry, was under cultivation in Merv by the fifth century of our era, some 200 years before it is mentioned in any text.

"Cotton was the way people in this region began to use agriculture not just for subsistence, but to produce salable products," she says. "Merv was famous in the Islamic era for its textiles, and this shows that cotton production didn't start then, with the Arabs, but had been around for at least a couple of centuries before the Arab invasion. What we still don't know," she adds, "is just how far the growth of cotton extended back into the Sasanian period."

She is also finding that, throughout the Sasanian period, Merv grew cereals, fruits and pulses such as beans. She has good evidence for barley and wheat, too, but so far none for rice. She has established that during the long spring season the farmers of Merv grew cereals, and during the short summer season they turned to cotton and to melons and/or cucumbers—it is almost impossible, she says, to distinguish those two seeds.

"Most of the cereals and pulses common in the West today originated in the Near East," explains Boardman, "and it's generally believed that apricot, pistachio, cucumber, apple and a whole range of spices originated in central Asia as well."

But what is not well understood is exactly where they originated and how they spread. Tracing the movement of plant genera from one area to another is very difficult archeology: It can only be done by comparing crop patterns from many places and times. Because no environmental studies like Boardman's have been done at any other dig in Central Asia, Merv is becoming a benchmark site for tracing crop diffusion into, out of and within the region. But reaching conclusions, cautions Boardman, will take time and many more samples.

One problem that intrigues Boardman now is the matter of Sasanian soil salination. For years, says Boardman, archeologists of the region hypothesized that the contraction and apparent impoverishment of Sasanian communities in the years prior to the Islamic era—the Sasanian decline—was due to gradual salination of the soil: Salt accumulated in the soil thanks to high evaporation rates in the hot desert sun, and reuse of water for irrigation made "flushing" the salt out of the soil impossible. But at Merv, she adds, "there was never any physical evidence for this contraction."

Boardman suspects that there was no contraction at Merv, or, if there was, it was not caused by salination. Her first evidence is coming through comparisons among samples of wheat and weeds.

"Wheat is very sensitive to changes in water quality," she says. "It will not appear in depleted or salinated soils. Certain types of weeds, on the other hand, will thrive." What she has found so far is that wheat was one of the primary crops at Merv throughout the Sasanian period. Salination, therefore, was probably not a problem there.

In time, she will apply the same "wheat-and-weed test" to samples from the period of the Mongol invasion, which will give her an indication of the extent to which Merv's agricultural economy was affected. That will be a useful indicator of the extent of the destruction. Using data from her samples, she expects to postulate whether or not enough people were left living at Merv after the invasion to tend enough of the vast irrigation system to enable them to grow a few crops.

But to form a more complete picture of what happened after the Mongol destruction—or, indeed, at any time in the history of Merv—bioarcheology involves more than seeds. Charcoal and animal bones, too, can be analyzed.

Thus Boardman also collects charcoal from hearths, furnaces, and areas of destruction, and sends it for analysis to archeological wood anatomist Rowena Gale at the Royal Botanical Society in London. From Boardman's samples, Gale hopes to piece together what types of trees—especially fruit trees—were grown at Merv, starting with the Sasanian and Seljuq periods.

She has already found that juniper and pistachio twigs fueled the steel furnaces at Gyaur Kala. (Pistachio is one of the few woods that burn at a temperature high enough to make steel.) Since, even in ancient times, pistachio probably grew only in the mountain foothills some 200 kilometers (125 mi) west of Merv, the wood had to be carried in from that distance. That would make it relatively expensive. Thus the ability of the steelmakers of the Seljuq capital to procure pistachio wood is further testament both to the city's wealth and to the relative value of its steel industry.

It is little findings like this that, piece by painstaking piece, connect the economy of Merv with what is known about its political and physical history.

"It seems to be coming together rather well so far," says Boardman. "But," she cautions, "there's still so much more work to do."

Canada's Pioneer Mosque

Written by Andrea W. Lorenz

The story of the Al Rashid Mosque begins in 1882, when Canada's first Arab immigrant arrived...

Canada's first mosque was built on the religious faith and pioneering spirit of a handful of prairie women. From its founding in 1938 to its preservation as a historic building in 1992, the Al Rashid Mosque in Edmonton, Alberta has been a source of pride for Canada's Muslim community and a place where tradition could be nurtured and celebrated. The story begins with the arrival of the first Arab immigrants in about 1882.

Most of them came from Ottoman Syria; many were young men fleeing conscription into the Ottoman army. Most were Christians, but a few were Muslims; most settled in the east, but a few headed west. Many became peddlers, and some of them reached the most remote outposts of what was then Canada's western frontier.

"The Syrian peddler was something of an institution in most Western settlements," wrote Gilbert Johnson. "Sometimes on foot, with a pack on his back and a case of trinkets and smallwares in his hand, but more often with a horse and a light wagon in summer, or with a sleigh in winter, he travelled the prairie trails on more or less regular routes.... His arrival often provided a welcome relief from the monotony of pioneer life."

For the peddlers, life was often no less lonely. For many, their goal was simply to earn enough money to marry, settle down and start a family. This was the case for Salim Sha'aban, who was born an Ottoman subject in 1880, landed in New York as a 20-year-old and made his way to Iowa in 1908. He peddled goods from his back until he had earned enough to buy a horse, and in 1910 returned to Lebanon to find a bride. Two years later, deciding that opportunities might be greater in Canada, he left his wife and their first child behind and set out for Alberta. Near Endiang, a trading post about 290 kilometers (180 mi) southeast of Edmonton, he built his family a homestead, and then sent for his wife and son.

For the young Arab woman who landed, tired and bewildered, at the port of Montreal, a long train trip across the prairies still lay ahead, followed by more travel by horse and wagon. The railway link to Edmonton had been completed in 1904, and agricultural settlement existed only in a band 50 kilometers (30 miles) wide on each side of the single railway line. Beyond that, the great prairies were still the land of the Cree, Assinaboine and Blackfoot. The winters could hardly have been less welcoming: One 1907 blizzard drove the mercury down to 48 degrees below zero (-55°F). Yet Larry Shaben, Sha'aban's grandson and a leader of today's Alberta Muslim community, recalls that his grandmother, who lived to be 99, was "fiercely passionate" about Canada, and called it "a wonderful country."

By the late 1920's, a handful of Muslim families were scattered throughout Alberta, earning their livings as fur traders, mink ranchers and shopkeepers. Shaben, now in his 60's, recalls that when he was growing up in Endiang there was only one other Muslim family in town, and his grandparents "knew every Muslim in Alberta."

In 1931, the Census of Canada registered 645 Muslims among 10,070 Canadians of Arab origin, most of them living in the eastern provinces of Ontario and Quebec. Yet the few scattered about the vast Canadian West became close-knit despite distances. Gradually, and often out of concern for maintaining their faith among their children, families began to migrate in toward Edmonton, and soon there were about 20 Muslim families in town.

Lila Fahlman, founder of the Canadian Council of Muslim Women (CCMW) in 1982 and now in her 70's, was a teenager in the early 30's, when the Muslim families began to discuss the idea of constructing a mosque. She explains that it was Hilwi Hamdon, a woman whose vibrant personality "could win anyone over," who catalyzed the effort. Hilwi and her friends approached the city's mayor, John Fry, for a plot of land. "You don't have any money to build a mosque," he pointed out. "We'll get the money," they replied.

Fry agreed to give them the land if they could come up with construction money. They needed $5000, a hefty sum to raise in the depths of the Depression. They went from shop to shop along Jasper Avenue, Edmonton's main street. Whether the shop owners were Jewish, Christian or Muslim, the women asked for support from them all. "It was a very cooperative community then," recalls Lila, and so Canada's first mosque came to be built with contributions from members of all three monotheistic faiths.

Of course, no builder in the area had ever seen a mosque, let alone built one. Nonetheless, the women chose a Ukrainian-Canadian builder named Mike Drewoth and told him, "We want a place to pray." After some discussion Drewoth set about building the best mosque he could: one main room, lofty arched windows, two little rooms for ablutions, an insulated basement for social gatherings and two hexagonal minarets, each with an onion-shaped silver dome topped with a crescent moon. Although it clearly resembled a Russian Orthodox church, the community was elated with its new mosque and members enthusiastically donated carpets and lamps.

COURTESY OF LILA FAHLMAN

COURTESY OF KAREN HAMDON

On December 12, 1938, the Al Rashid mosque was officially opened by Mayor Fry and I. F. Shaker, a Christian Arab who was mayor of Hanna, Alberta. Guests included the renowned Pakistani interpreter of the Qur'an, Abdullah Yusuf Ali. "It is significant that people of many faiths are sitting friendly together," said Fry.

Over the next three decades, the little mosque became a center of community activity for Arabs of all faiths. Weddings, funerals and 'id ceremonies were performed in the main hall. The basement was the scene of teas and covered-dish suppers. Mothers and fathers would keep an eye out for possible marriage partners for their own children, and the young people who had known only the prairies of Canada would catch a glimpse of how life had tasted and sounded in their parents' Middle Eastern villages.

The mosque had its share of controversy, too. In the early days, the women prayed in the main room behind the men, but one day a green curtain appeared, dividing the room in two. It was a source of much debate, says Fahlman. "Some wanted it open, others wanted it closed," she recalls. In the end, the curtain stayed.

After World War II, Arab immigrants flocked to Canada—nearly 50,000 between 1946 and 1975. A much larger percentage than before was Muslim. By 1980, Edmonton's Muslim community numbered nearly 16,000, overflowing the Al Rashid Mosque. It was time to build something larger, and in 1982, the doors of the old mosque were closed. For the next 10 years it stood empty and unused on its lot next to the Royal Alexandra Hospital.

With the 1980's oil boom, Edmonton's population soared and, in 1988, the hospital moved to expand its parking lot. The mosque faced imminent demolition, and Edmonton's Muslims considered how they might preserve what was now, half a century after its construction, a historic building. A fund-raising committee was formed, but couldn't come up with enough money. Then Lila Fahlman approached the CCMW, then based in Edmonton, and urged the group to take the lead in saving the mosque. Among the CCMW members were Karen and Evelyn Hamdon, the granddaughter and grandniece, respectively, of Hilwi Hamdon, and Mahmuda Ali, the granddaughter of Mary Saddy, one of Hilwi's original group of friends. "The mosque had a real emotional connection for us," says Karen, whose aunt and uncle were the first couple to be married in it. The group decided to mount its own campaign.

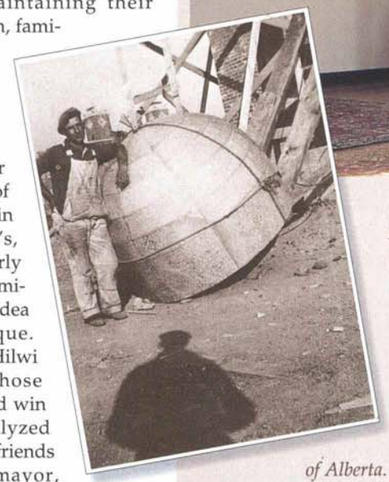
Raising $75,000 to transport the mosque to the city's historical park—the women's first excursion into fund-raising—was only part of the challenge. The rest was to persuade the city's leaders to allow the mosque to be placed there. Edmonton of the late 1980's was no longer a close-knit prairie outpost. "There was definitely some ... how can I put this politely? ... resistance to moving the mosque," recalls Karen. Opponents argued that it was not a "heritage" building, and one writer warned in the *Edmonton Journal* that "Fort Edmonton Park could be forced to accept an historical intruder."

But in 1991, after three years of fund-raising and petitions, the day finally came when the roof of the Al Rashid Mosque was removed and the building lifted gently off its foundations and onto Lupul's Movers' big flatbed truck. On a moonlit night, the little mosque rolled quietly through Edmonton's sleeping streets and down through the river valley to its new home in the park. Mahmuda Ali and Karen Hamdon followed it in their car, sharing a thermos of coffee, determined to see the mosque safely to its destination.

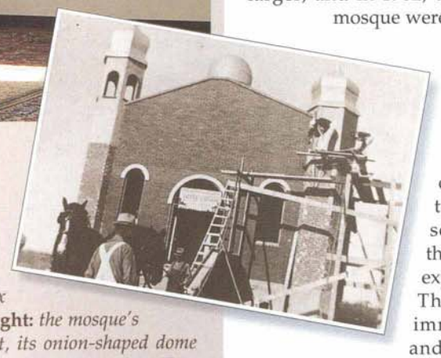
For almost a year it sat open to the Alberta sky, pigeons nesting among its roof beams, while the CCMW members raised yet more money for its restoration. They needed to get the roof in place before another winter set in.

On May 28, 1992, the newly restored Al Rashid Mosque was officially opened in an emotional ceremony. City leaders paid tribute to the determination of the women who built it and to their descendants who saved it. Today, the mosque stands proudly beside Alberta's historic churches as a symbol of the Muslim strand in Canada's pioneer heritage.

"Now that the mosque is here," says Soraya Hafez, the CCMW's president at the time, "it says that *we* are here."



CONSTRUCTION PHOTOS: THELMA DREWOTH (3)



PREVIOUS SPREAD AND ABOVE: ROB WILLCOX

Now open to the public as a historic building, the Al-Rashid Mosque was used for worship from 1938 until 1982. Today, there are half a dozen mosques in Edmonton, capital of Alberta. Hilwi Hamdon, **top left,** *who had come to Canada as a 16-year-old bride, organized the fundraising drive that enabled the community to build its first mosque. The builder was Mike Drewoth, a Ukrainian immigrant, shown* **above left** *leaning on the mosque's dome. Like most people in Edmonton in the 1930's, he had never seen a mosque, and the building thus reflected the architectural vocabulary of the time and Drewoth's own Russian Orthodox heritage.* **Above right:** *the mosque's right-hand minaret, its onion-shaped dome already in place, under construction.* **Top right:** *Ameen Ganem, Lila Fahlman's brother, was the mosque's first teacher of Arabic and religion—and an award-winning violinist.* **Previous spread:** *The mosque now stands with other historical buildings in Fort Edmonton Park, where it was moved in 1992.* **Inset:** *A Model-T Ford carries scaffolding timbers in its rumble-seat during construction of the mosque's twin hexagonal minarets.*

Andrea W. Lorenz is a staff writer for Oilweek *in Calgary. She has a master's degree in Arabic studies from the American University in Cairo.*

Events & Exhibitions

Splendors of Ancient Egypt: *Egyptian Art from the Collection of the Pelizaeus-Museum* contains more than 200 pieces, each carefully labeled, explained and arranged both chronologically and topically amid architectural replicas. Catalogue. **Portland [Oregon] Art Museum**, through August 16.

King of the World: *A Mughal Manuscript from the Royal Library, Windsor Castle* exhibits the *Padshahnamah*, or "History of the Emperor," the rarely exhibited illustrated work chronicling a decade of the reign of 17th-century emperor Shah Jahan, builder of the Taj Mahal. Catalogue. Kimbell Art Museum, **Fort Worth, Texas**, through August 23; **Indianapolis [Indiana]** Museum of Art, September 6 through November 29.

A Thousand Years of Knitting presents outstanding knitted objects from Fatamid Egypt to the present day. Arabs are credited with transmitting knitting to Europe, but it is not known where the technique first developed. Catalogue (Spanish and Catalan). Museu de **Mataro**, Portugal, through August 30.

Fatimid Treasures of Cairo uses 250 objects to explore daily life among commoners and nobles under the North African dynasty that founded Cairo in 969. Institut du Monde Arabe, **Paris**, through August 31.

Martha Flandrin examines the impact of sojourns in Morocco on the French painter, who died in 1987. Old Bishop's Palace, **Beauvais, France**, through August 31.

Woven World: *Ikats from Sumba* displays 60 resist-dye fabrics from the Indonesian island renowned for their production. Catalogue. Museum voor Volkenkunde, **Rotterdam**, through September 6.

Ikat: *Splendid Silks from Central Asia from the Guido Goldman Collection* highlights the brilliant Central Asian textiles made by repeated binding and dyeing of unwoven threads. Sackler Gallery, **Washington, D.C.**, through September 7.

Teaching About the Arab World and Islam is the theme of teacher workshops cosponsored by the Middle East Policy Council in Washington, D.C., and conducted by Arab World And Islamic Resources and School Services (AWAIR) of Berkeley, California. Sites and dates include: **Dallas, Texas**, September 19-21; **Cape Cod, Massachusetts**, October 10; **Cincinnati, Ohio**, October 16-17; **Gurnee, Illinois**, November 11; **Anaheim, California**, November 20-21. For details, call (202) 296-6767 or (510) 704-0517.

The Black Pharaohs: *Kingdoms of the Nile* focuses on ancient Nubia, which lies in present-day Egypt and northern Sudan. Reiss-Museum, **Mannheim, Germany**, through September 20.

Viewing the Past: *Ethnoarchaeology among the Marsh Arabs of Southern Iraq* is a lecture by Edward Ochsenschlager, Professor Emeritus of Brooklyn College, at the University of **Pennsylvania** Museum of Archaeology and Anthropology, **Philadelphia**, 6:00 p.m., September 22.

Searching for Ancient Egypt displays 125 funereal objects, pieces from royal trousseaus and architectural elements. Joslyn Art Museum, **Omaha, Nebraska**, through September 30.

Through the Eyes of Isis uses images of the ancient goddess to follow the image of Egypt in the West. Musée Dechelette, **Roanne, France**, through September.

Flying Carpet is a survey of carpets and their representations, from new Afghan work with motifs of war back to Dutch paintings depicting Oriental carpets. Museum Boijmans van Beuningen, **Rotterdam**, through October 25.

Antinoe: *A Hundred Years After* shows more than a thousand examples of tunics, mantles, belts and textiles from the Coptic archeological site. Palazzo Medici Riccardi, **Florence**, through November 1.

Roman Glass: *Reflections on Cultural Change* examines the diversity of glassware from the mid-first century BC to the early seventh century, as well as influences upon it. Catalogue; to order phone (215) 898-4124. University of **Pennsylvania** Museum of Archaeology and Anthropology, **Philadelphia**, through November.

Magic Carpets: *Selections from the Brooklyn Museum Collection* displays seven 16th- and 17th-century carpets from diverse traditions. The Brooklyn Museum, **New York**, through fall.

Masterworks of Indian Painting II displays a new selection of Mughal and Rajput masterpieces from the 16th to 19th century. Freer Gallery, **Washington, D.C.**, through January 10.

From the Looms of India: *Textiles from the Permanent Collection* surveys Indian weaving from the 17th to the 19th centuries, including samples of techniques from which English has taken the words calico, bandanna, dungaree, gingham, chintz, khaki and jodhpur. The **Virginia** Museum of Fine Arts, **Richmond**, through March 1.

Arts of the Islamic World uses 55 works from the ninth to the 19th centuries to survey the scope and principal characteristics of this global artistic tradition. Freer Gallery, **Washington, D.C.**, indefinitely.

The New Amarna Galleries: *Egyptian Art 1353-1295 BC* have been open for nearly two years with displays of Egyptian works in purple quartzite, yellow jasper, ivory, alabaster, gold and glass. The Metropolitan Museum of Art, **New York**, permanent.

The Raymond and Beverly Sackler Gallery of the Ancient Levant comprises three new rooms that present the history of the area now defined by Western Syria, Lebanon, Jordan, Israel and the Palestinian territories from Neolithic times to the sixth century BC. The British Museum, **London**, permanent.

Within the Middle East: *Textiles, Dress and Ornament* is a rich collection of material spanning the ninth to the 20th centuries, including brocades, printed cotton, silk pile, calligraphy and painting. The Royal Museum of Scotland, **Edinburgh**, permanent.

The Saudi 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.**

Planetary symbols in gold and silver inlay decorate a 14th-century box from Syria or Egypt.

The Appearance of the Skies: *Astronomy and Astrology in the Muslim World.* "The science of the appearance of the skies" blossomed in the Muslim world between the eighth and the 15th centuries. Including astronomy and astrology, without distinction, this science was linked both to the requirements of Islam—the canonical times of prayer are defined astronomically—and to the tradition of travel in the Islamic world, which made geography and navigation important. Based on the knowledge of the Greeks, the Arabs' own research produced not only important astronomical texts but also instruments of great sophistication and beauty, such as solar quadrants, astrolabes and celestial spheres. The exhibition's three parts cover astronomy's origins, astrology, and astronomy as a separate science; they include instruments, texts, and items with astrological decoration. Catalogue 120F; films. Musée du Louvre (Richelieu), **Paris,** through September 21.

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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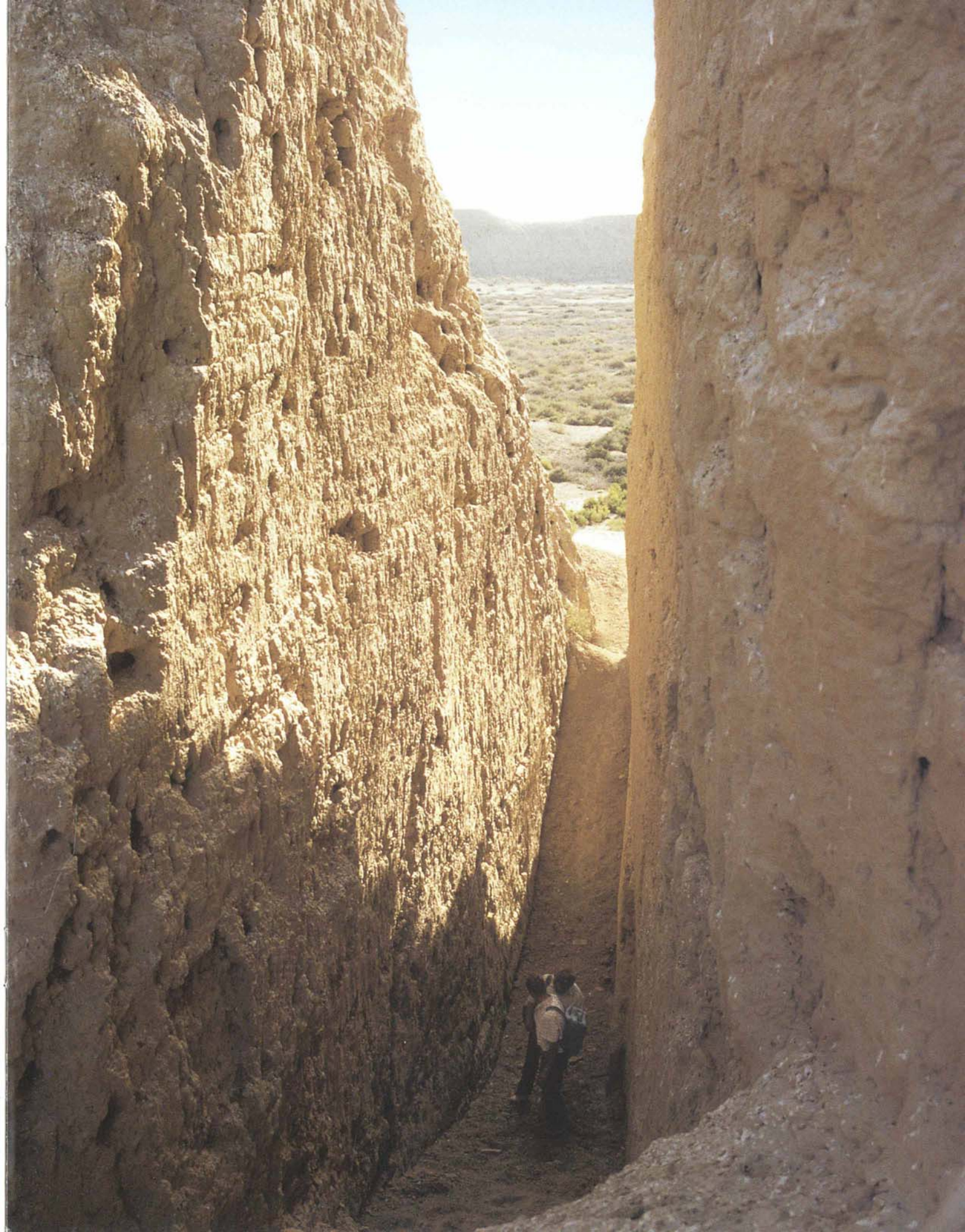

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