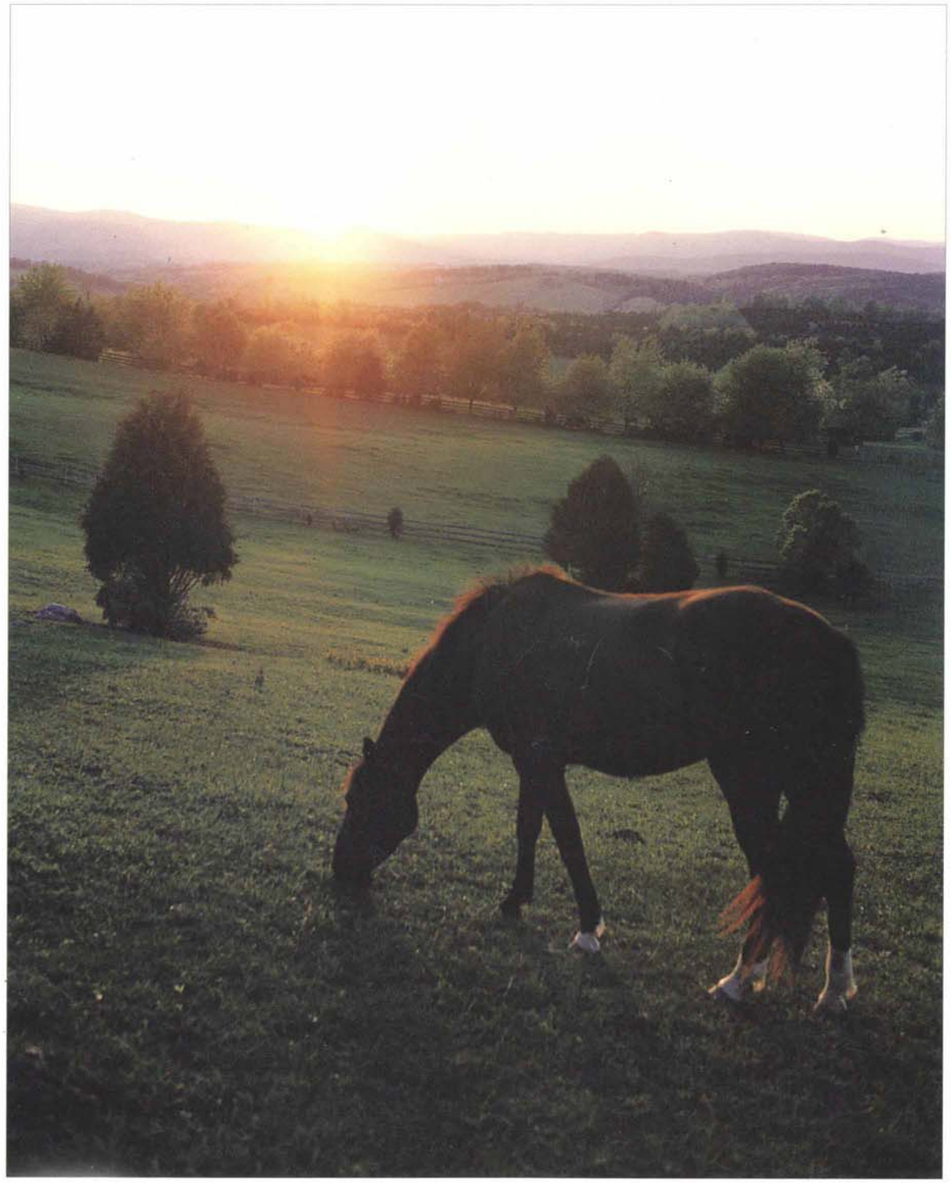

ARAMCO WORLD

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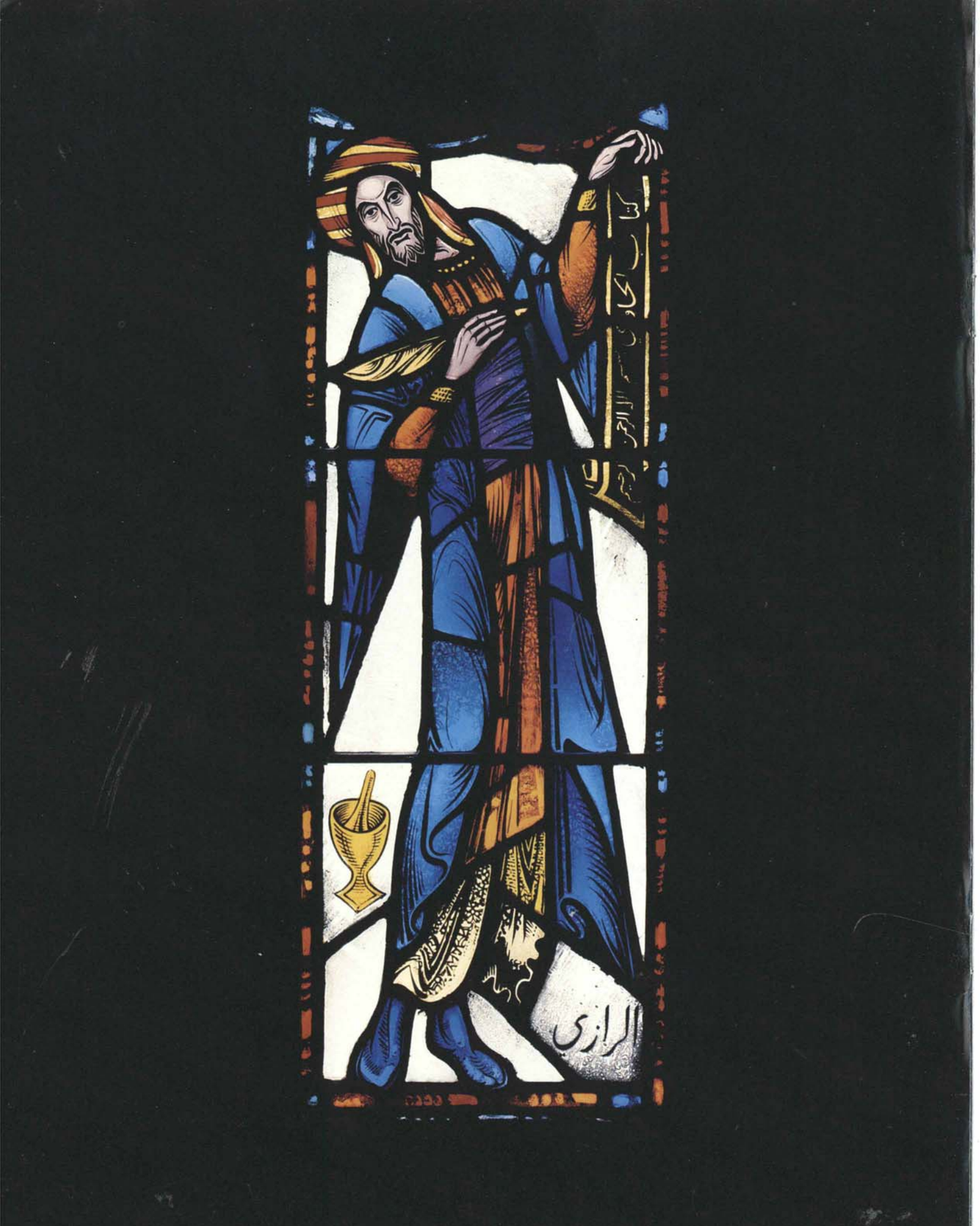
The ARAB ROOTS of EUROPEAN MEDICINE



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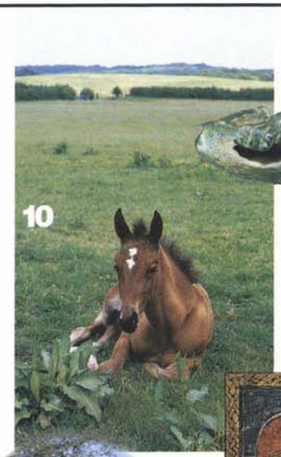

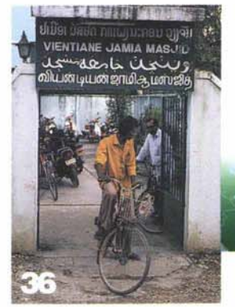

COVER:
As a surgeon with the armies of the Roman emperors Nero and Vespasian, the Greek physician Dioscorides traveled widely, collecting medically useful plants, minerals and animal products. One of his texts, De Materia Medica, *was venerated for 16 centuries as the standard work on pharmacology. It was copied scores of times, and translated from Greek into at least seven other languages. A copy from 1229 includes this imaginary portrait of the great teacher.*

OPPOSITE:
Probably the greatest and most original of all the Muslim physicians of the classic era, al-Razi is commemorated in a stained-glass window at Princeton University. Photo by Denise Applewhite.

BACK COVER:
Virginia's green foothills little resemble the dry plains of Turkmenistan, but the golden Akhal Téké horses, exported for more than 2000 years, seem to adapt well to new surroundings. Photo by John Sikora.

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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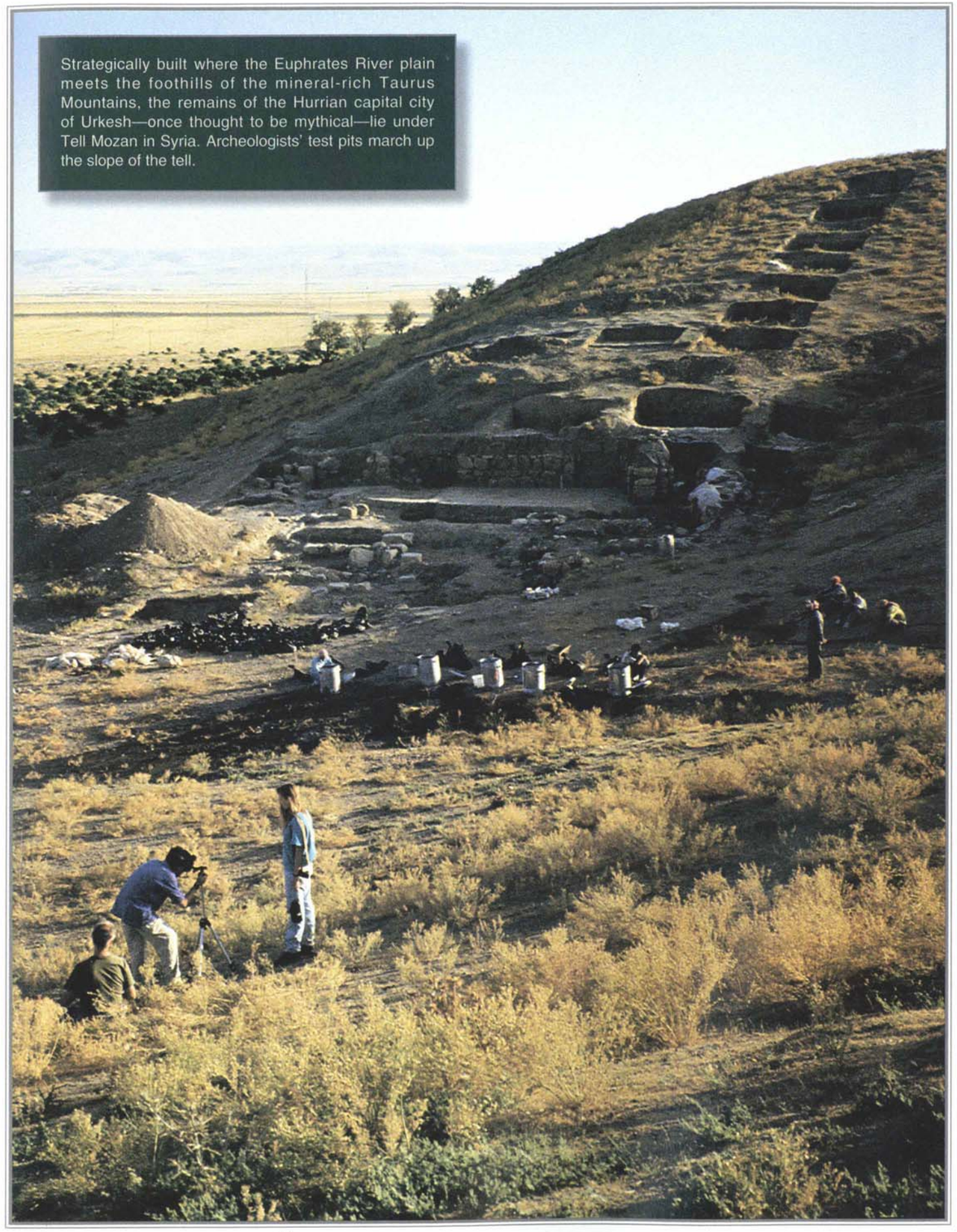
THE KINGDOM OF THE LION

WRITTEN BY PAT & SAMIR TWAIR

SEAL IMPRESSION OF TUPKISH, KING OF URKESH
(ROYAL STOREHOUSE, TELL MOZAN, CA. 2300 BC)

The discoveries of 150 years of scientific archeology have made such peoples as the Sumerians, Babylonians, Assyrians, Akkadians and Hittites into familiar names. Caches of tablets up to 5000 years old found in ruins and in tells—the mounds that dot the Fertile Crescent, layered with the remains of successive settlements—have given an ever more complex and more complete picture of the history of early civilizations. But it was not until the 1920's, when translators of a Hittite tablet found a reference to a people in what is now northeastern Syria, that scholars became aware of the Hurrians. Discoveries and translations since then have shown that the Hurrians were an economic and military force, a people who left their mark on their contemporaries, most notably upon the Hittites.

Strategically built where the Euphrates River plain meets the foothills of the mineral-rich Taurus Mountains, the remains of the Hurrian capital city of Urkesh—once thought to be mythical—lie under Tell Mozan in Syria. Archeologists' test pits march up the slope of the tell.



INTERNATIONAL INSTITUTE FOR MESOPOTAMIAN AREA STUDIES (IIMAS) (2).

Hurrian was one of several third-millennium languages that was written in cuneiform script. The inscription between the two seated figures on this seal impression (right) calls Uqnitum "the wife of Tupkish"—he is referred to as king on other seals—thus confirming her status as queen. Below, she appears with her distinctive hair braid on another seal-impression fragment. At lower right, a stela fragment showing a plowman turning his draft animal at the end of a furrow uses more sophisticated pictorial techniques, says Marilyn Kelly-Buccellati, than did other societies of the late third millennium BC.

SEAL IMPRESSIONS OF UQNITUM, THE WIFE OF TUPKISH

STELA FRAGMENT OF A PLOWMAN

SAMIR TWAIR; OPPOSITE: IIMAS (3)

Now, the discoveries of Giorgio Buccellati and Marilyn Kelly-Buccellati, a husband-and-wife archeological team, have extended knowledge of the Hurrians and their history back hundreds of years. No longer a footnote among ancient peoples, the Hurrians are now a full-fledged and fascinating chapter in Mesopotamian history.

According to cuneiform tablets of the 14th century BC, the Hittites, whose kingdom lay in what is today Turkey, dreaded the approach of Hurrian armies. In Egypt, pharaohs corresponded with Hurrian kings. Court musicians in the Syrian coastal kingdom of Ugarit performed Hurrian compositions. Other tablets tell us that Kumarbi, the chief god of the Hurrian pantheon, ruled from the Hurrian capital city of Urkesh. But after more than 70 fruitless years of searching for its remains, archeologists generally agreed that Urkesh had either been destroyed in antiquity, leaving not a trace, or had never been more than the mythical home of the Hurrian gods.

Then, in the summers of 1992 and 1993, their seventh and eighth seasons of digging at Tell Mozan in northeastern Syria, the Buccellatis found seal impressions that, after painstaking study, confirmed that the mound was in fact the site of ancient Urkesh. More than 650 impressions of stone cylinder seals, rolled onto vessels and jars to identify their owners more than 4300 years ago, provided abundant clues. Carbon dating further confirmed that the Hurrians were thriving around 2200 BC, nearly a thousand years earlier than experts had understood that they were a regional power. Though finding Urkesh has been compared to finding the Mount Olympus of Greek mythology, it is in fact more revealing, because Urkesh was also the Hurrians' political and economic capital.

"The importance of the discovery of Urkesh can hardly be overstated," says Piotr Steinkeller, professor of Near Eastern Languages at Harvard University. "It dramatically revises the picture of the historical geography of Mesopotamia."

Gernot Wilhelm, professor of oriental philology at Würzburg University in Bavaria, president of the German Oriental Society and the world's foremost authority on the Hurrian language, agrees that it is "beyond doubt" that Tell Mozan is indeed Urkesh. "After nearly 30 years of research on the Hurrian language and history I appreciate very much that the Hurrians now enjoy the wider attention they deserve," he says. "The discovery of Urkesh gives us good hope of solving the mystery of the Hurrians' origins and determining when they appeared in the Fertile Crescent."

When the Buccellatis began excavating in Syria in 1976, finding the lost Hurrian capital was not their goal. They worked at Terqa, a second-millennium BC site, and then at Qraya, a fourth-millennium site on the Euphrates River. In 1982 they went north toward the Turkish and Iraqi borders to study Mesopotamian remains in the region that, in ancient times, was the Fertile Crescent's gateway to copper and tin mines in the Taurus and Zagros Mountains.

Giorgio Buccellati began his archeological career in 1962 studying epigraphy at the site, in Iraq, of the Sumerian and Babylonian city of Nippur. Today he is one of the foremost experts in Akkadian, one of the languages of ancient Mesopotamia. A former professor of the ancient Near East at the University of California at Los Angeles (UCLA), he is also founding director of the UCLA Institute of Archeology. Marilyn Kelly-Buccellati has taught art history at California State University–Los Angeles for more than two decades. They are the coauthors of the chapter on Urkesh in *The Oxford Encyclopedia of Archaeology in the Near East*.

Buccellati explains that Tell Mozan is a spectacularly large mound, rising 27 meters high (90') and covering 120 hectares (300 acres). "It is remarkable a tell of that size hasn't been excavated," he says.

The reason, he explains, is that British archeologist Sir Max Mallowan visited Tell Mozan for two days in 1937 while searching for prehistoric sites. He had three test trenches dug, but decided against a full-scale excavation. He mistook shards from the site for Roman ware, which led him to believe that the older layers he sought lay farther beneath the surface than they actually do.

When Marilyn Kelly-Buccellati and Giorgio Buccellati found these pottery shards near the surface of Tell Mozan, they concluded that the metallic finish linked the shards not to the Roman era, as Sir Max Mallowan had concluded 60 years ago, but to the third millennium BC. "It is remarkable a tell of that size hasn't been excavated," says Buccellati.

"The pottery recovered at Tell Mozan is very sophisticated, and does somewhat resemble certain Roman pottery," says Kelly-Buccellati. "No other sites excavated at that time had yielded this type, so it's not surprising that Mallowan associated it with Roman ware."

Mallowan's wife, mystery writer Agatha Christie, wrote in her memoir *Come Tell Me How You Live* that she was much relieved when her husband decided against excavating Tell Mozan, because of the mosquitoes and the lack of accommodation in Amuda, the nearest town. (See *Aramco World*, July/August 1990.)

"Three Tells compete for the honor of our attention," she wrote. "Tell Hamdun,...Tell Chagar Bazar, and a third, Tell Mozan. This is much the largest of the three, and a lot depends on whether there will be much Roman deposit to dig through." But later she added: "Tell Mozan has been reluctantly erased from our list of possibles. There are several levels of Roman occupation and though the periods we want to dig are there underneath, it would take several seasons—that is to say, more time and money than we can afford."

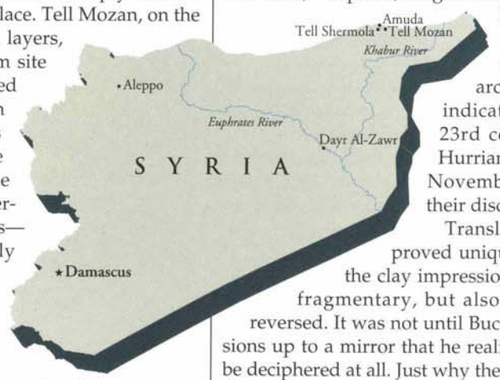
Still, after digging at Chagar Bazar, Mallowan remained intrigued by Tell Mozan. "There was yet another important [cultural] element" in the area, he wrote in *Mallowan's Memoirs*, and "I have sometimes wondered if the massive and obviously rich mound of Mozan...is not an echo of it."

Nearly five decades later, the Buccellatis picnicked on Tell Mozan. Though the ubiquitous pottery shards had a metallic cast that, in the 1930's, was considered diagnostic for Roman manufacture, the Buccellatis nonetheless concluded that the shards belonged not to the Roman period but to the third millennium BC. There would be no Roman layers to dig through.

Since Mallowan, another hint had emerged that suggested that Urkesh was more than mythological. Two small bronze lions, each inscribed in cuneiform with the oldest known Hurrian inscriptions and probably from the third millennium BC, had been sold at Amuda in 1948; ultimately, the Louvre and the Metropolitan Museum of Art acquired them. The text on each lion translates, "The king of Urkesh built the temple of the lion."

Though the lions had been sold in the marketplace of Amuda, there are no traces of third- or second-millennium occupation in Tell Shermola, the mound nearest Amuda. The Buccellatis reasoned that experts had mistakenly concluded that Tell Shermola was the origin of the lions simply because of its proximity to the Amuda marketplace. Tell Mozan, on the other hand, had no recent occupation layers, and it was the closest third-millennium site to Amuda. Villagers occasionally buried their dead in it, and it could have been during a burial that the bronze lions had been found. They would then have been sold at the nearest market. The Buccellatis became certain—at least certain enough to organize digging teams—that massive Tell Mozan was not only the source of the lions, but was in fact also Urkesh.

This, says Steinkeller, has proved "a brilliant hypothesis."



During the nine excavation seasons they have spent at Tell Mozan since 1983, the Buccellati team first demarcated an outer defense wall and a building, nine by 16 meters (29 x 51'), that they believe to be a temple. A stone ramp leads up to the interior, which is surfaced with a thick, cement-like pavement. Because there is no evidence of a drainage system, architects presume that the building had a roof; because there is no evidence of columns or post-holes, engineers have concluded that it was a pitched roof. The building's foundations are of roughly hewn limestone blocks, from which mud-brick walls probably once rose. A large stone block with a depression in its center appears to have been an altar, and it is this feature, more than any other, that supports the Buccellatis' assertion that the building was in fact a temple.

The Buccellatis have found evidence of four phases of the building's life. The earliest was destroyed by fire, and the resulting debris was piled in the back of the building. Amid the debris deposits was a small limestone statue of a lion, stylistically similar to the well-known bronze lions. The stone lion's mane, like the bronze ones', is depicted using deeply incised, irregular patterns, and the deeply cut eyes may have been inlaid. Kelly-Buccellati points out that—also like the two bronze lions—this limestone figure is more realistic in its representation than other mid–third-millennium lion representations from the south. Because they found the lion in the altar area, the Buccellatis named the building "The Temple of the Lion"—and perhaps it will indeed prove to be the temple referred to in the inscriptions on the bronze lions found in 1948. But though they had named the building, the Buccellatis still could not name the city in which it stood.

At any new Mesopotamian site, an archeologist's fondest hope is to uncover an archive: tablets or seals that will, in translation, positively identify the site and throw light on its history. In 1992 and 1993, the Buccellatis opened a structure near the city gate that they now believe was a storehouse. Here they found some 650 fragmentary impressions in clay of stone seals. It would have made their work far easier, explains Kelly-Buccellati, if they had found the seals themselves; as it was, the impressions had to be gingerly removed, photographed and drawn. Disappointingly, nearly all had been broken when the containers they sealed had been opened, or they had been partly crushed by human feet on the storeroom floor.

But when they found among those seal impressions one that read, "Tupkish, king of Urkesh," they felt vindicated. At last, they had the name of a Hurrian king linked with the name of the city, and the archaic script of the impression indicated he had lived around the 23rd century BC—well before any Hurrian rulers previously known. In November of 1995, they announced their discovery of Urkesh.

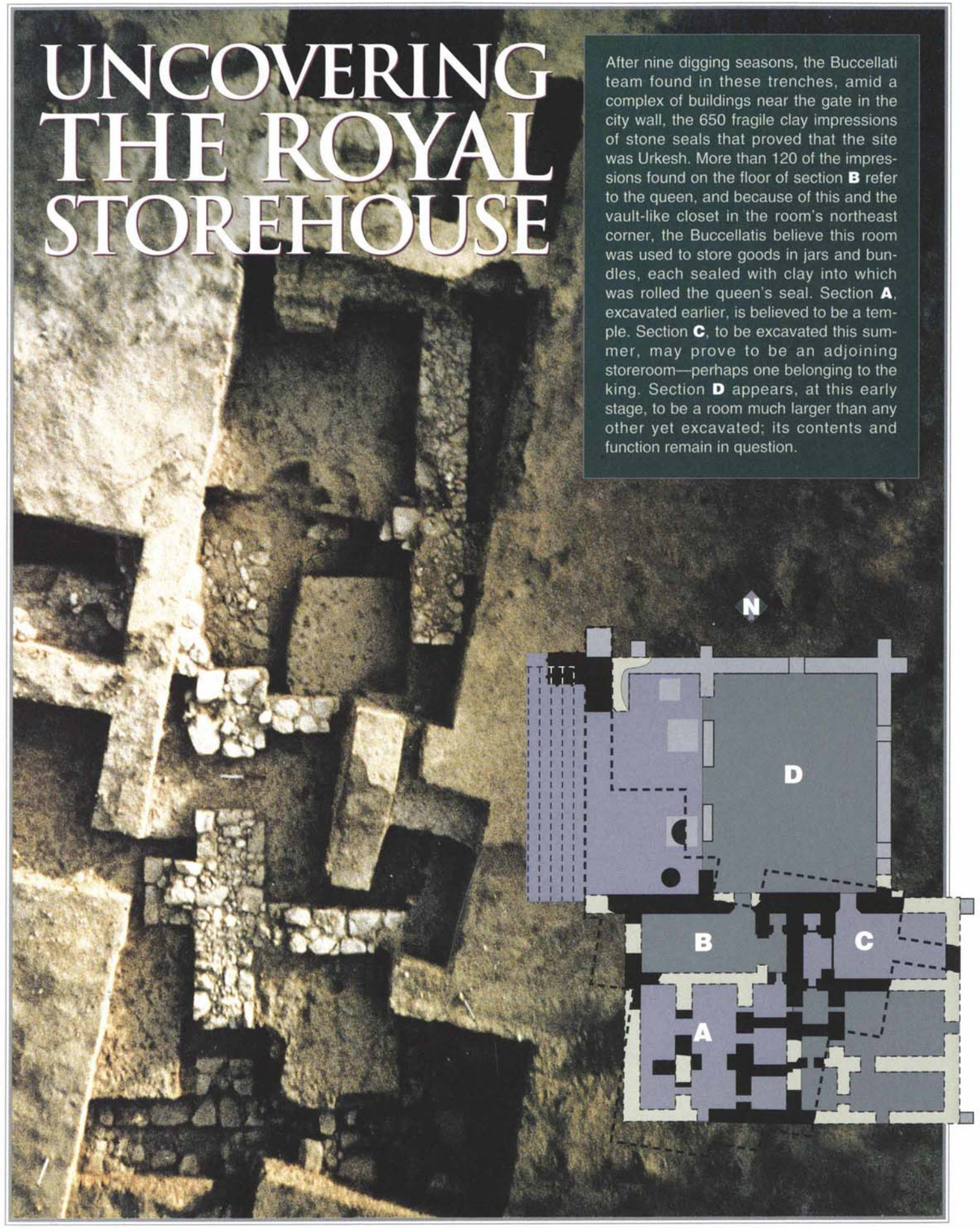
Translation of the seal inscriptions proved uniquely vexing, not only because the clay impressions are extremely delicate and fragmentary, but also because the script is often reversed. It was not until Buccellati held one of the impressions up to a mirror that he realized that the cuneiform could be deciphered at all. Just why the Hurrians at Urkesh produced their seals in reverse—unlike almost every other Mesopotamian cylinder seal for millennia—is, Buccellati says, "the million-dollar question. This is very odd, and, precisely because it is unique to Urkesh, it is important."

From the beginning of the third millennium, cuneiform was the script that the Sumerians, Akkadians and Hurrians used to write their different languages, just as Arabic script is used to write Arabic, Persian and Urdu today, or Roman letters to write languages as different as English, Turkish and Portuguese. It is largely cuneiform texts, recovered and translated progressively since the 19th century, that form the basis for the ever-growing body of knowledge about ancient civilizations.

Dr. Mirjo Salvini, director of the Institute of Mycenean and Aegean-Anatolian Studies in Rome, explains that the Hurrians began to appear after 2500 BC in the vast fertile area among the foothills of the eastern Taurus and the Zagros mountains. Their earliest history, he writes, is known from historical accounts of the Sumerian-Semitic civilizations and the documents of local political entities of the area. Although both appear in Sumerian-Akkadian cuneiform, "at a very early date the Hurrians began to write their historical records also in their own language,"

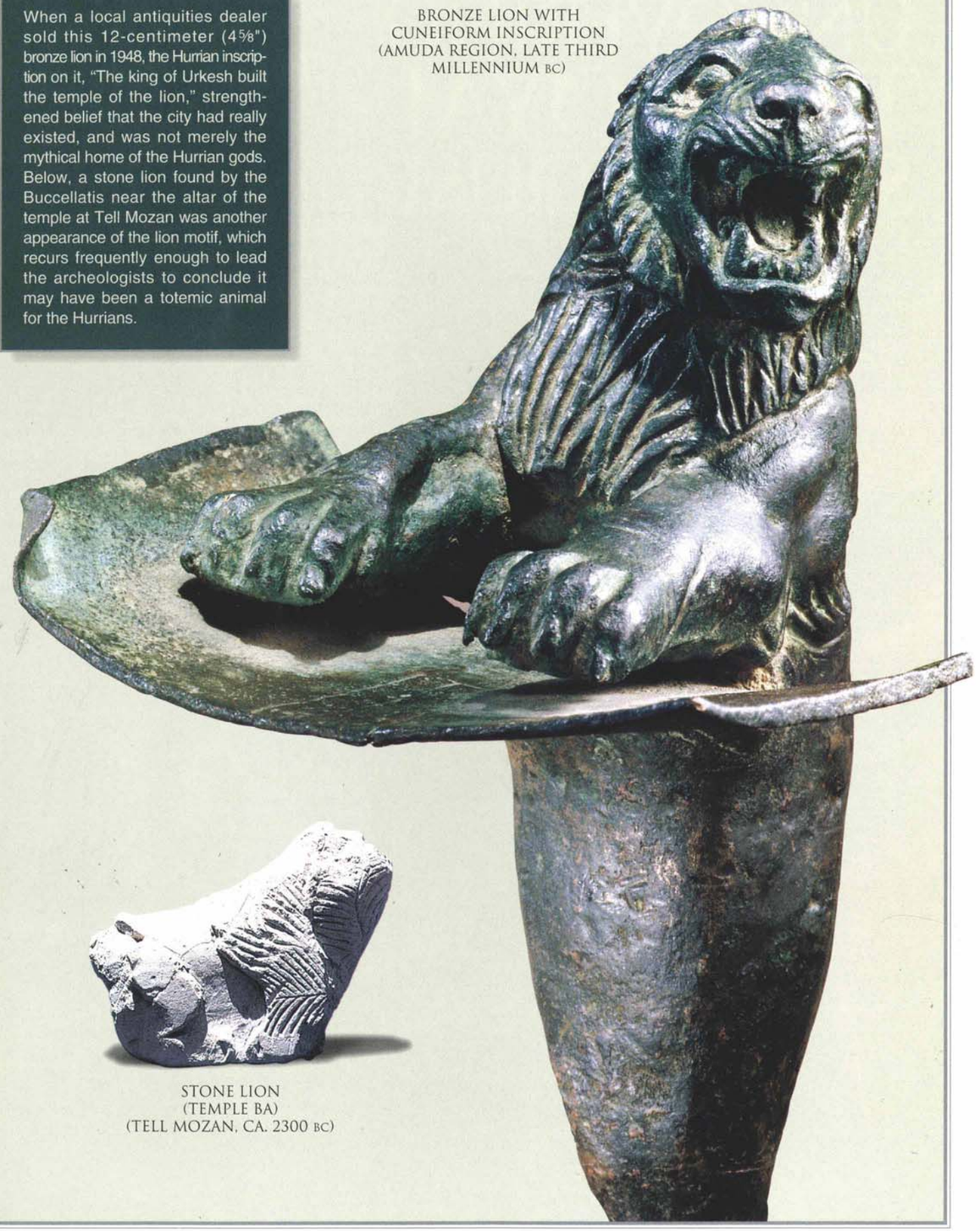
UNCOVERING THE ROYAL STOREHOUSE

After nine digging seasons, the Buccellati team found in these trenches, amid a complex of buildings near the gate in the city wall, the 650 fragile clay impressions of stone seals that proved that the site was Urkesh. More than 120 of the impressions found on the floor of section **B** refer to the queen, and because of this and the vault-like closet in the room's northeast corner, the Buccellatis believe this room was used to store goods in jars and bundles, each sealed with clay into which was rolled the queen's seal. Section **A**, excavated earlier, is believed to be a temple. Section **C**, to be excavated this summer, may prove to be an adjoining storeroom—perhaps one belonging to the king. Section **D** appears, at this early stage, to be a room much larger than any other yet excavated; its contents and function remain in question.



IIMAS (2)

When a local antiquities dealer sold this 12-centimeter (4⅝") bronze lion in 1948, the Hurrian inscription on it, "The king of Urkesh built the temple of the lion," strengthened belief that the city had really existed, and was not merely the mythical home of the Hurrian gods. Below, a stone lion found by the Buccellatis near the altar of the temple at Tell Mozan was another appearance of the lion motif, which recurs frequently enough to lead the archeologists to conclude it may have been a totemic animal for the Hurrians.



BRONZE LION WITH CUNEIFORM INSCRIPTION (AMUDA REGION, LATE THIRD MILLENNIUM BC)

STONE LION (TEMPLE BA) (TELL MOZAN, CA. 2300 BC)

BRONZE: METROPOLITAN MUSEUM OF ART; STONE: IIMAS

Salvini notes. "Having entered the cultural sphere of the Mesopotamian civilizations, the Hurrians, from the very start, can be seen to have had a bilingual culture: Sumero-Akkadian and Hurrian. To this picture of the Old Akkadian period must be added the recent discoveries made by Giorgio and Marilyn Kelly Buccellati at Tell Mozan, with the first documents from the archive of 'Tupkish, King of Urkesh.'"

Tupkish, it turns out, is a Hurrian name, whereas his queen's name, Uqnitum, is Akkadian and translates as "lapis-lazuli girl." The Buccellatis hypothesize that this may indicate a cross-cultural royal marriage with political consequences: Was a Hurrian king married to an Akkadian-speaking princess from the south?

So far, the Buccellatis have excavated only one section of the storeroom and have found that, so far, 123 seal impressions either read "Uqnitum, wife of King Tupkish" or otherwise indicate members of the queen's household. The Buccellatis conclude from this that goods belonging to the queen were stored in this area, and that the queen owned property in her own right. "Obviously, she wasn't busy sealing jars in her storeroom," Kelly-Buccellati says. "She had her own servants, and one, the nanny, is even named."

Produce from neighboring farms must have been shipped to the palace, and those goods destined for the queen's larder sealed with her name, much as we might address a package today. The emphasis on naming Uqnitum as the wife of the king leads Kelly-Buccellati to believe that special status was given to the consort of the king, as opposed to the practice in Ugarit, where the king's mother had special status. In fact, the Buccellatis have so far found no mention of a queen-mother, nor any evidence of royal polygamy. Because many of the other seal impressions depict people preparing meals or serving banquets, the archeologists presume that this was a work area, and that the queen's seal stones and her jewelry were stored elsewhere.

Who were the Hurrians? We know that they lived during the third millenium, at the same time as the Sumerians in the south and the Semitic Eblaites to the northwest, explains Buccellati. Linguists believe there are connections between the ancient Hurrian language—which was neither Semitic nor Indo-European—and contemporary Georgian. It is possible that the Hurrians emerged from the Caucasus region and crossed into the Anatolian plateau, a region Kelly-Buccellati calls "the outer Fertile Crescent."

"The Sumerians lived in the arid south and relied on mud-brick architecture, and the Eblaites lived on the plains of the Orontes River," says Buccellati. "The Hurrians at Urkesh had access to metals from the Anatolian mountains and used stone in their architecture." The semi-pitched roof of the Temple of the Lion, he adds, "is common for people of more northern climes."

Buccellati's examination of the themes of Hurrian mythology indicates that they seemed to identify psychologically with the mountains to the north. Kumarbi, the principal deity who lived in Urkesh, had a son, Ullikummi, whose nickname translates as "basalt," who is described as exploding and spreading out over the land: Basalt in fact covers the landscape, likely produced by the now-extinct Kaukab Volcano, whose double-coned caldera lies some 100 kilometers (62 miles) from Tell Mozan. Another myth describes a battle between Ullikummi and Teshub, the lightning deity. Buccellati suggests that this story may preserve a memory of a chaotic time when lightning struck the volcano as it erupted.

The name of another son of Kumarbi is "Silver," which reflects Hurrian metallurgical capabilities, Buccellati believes. In Hurrian myth, Silver searched in vain for his father, who reigned in Urkesh, but was preoccupied in the mountains to the north. Could this be an allusion to the transport to Urkesh of metals mined in the north? Spearpoints, daggers, a scraper and a pin of pure copper, as well as samples of low-tin bronzes and copper alloyed with arsenic, have all been recovered at Tell Mozan.

With an estimated 10,000 to 20,000 people populating Urkesh, a city set astride regional trade and mining routes, the Hurrians must have played an important economic role in the lives of the Sumerians and Eblaites. Urkesh must have prospered handsomely as trade brought gold and silver into its treasury while the fertile river valleys below filled its granaries.

Because there are no signs of cataclysm, nor accounts of devastating war, Buccellati believes that the abandonment of the city around 1500 BC was due either to climate change or depletion of the water table. But as it passed into history, Urkesh lived on in the cultures it influenced.

Historians have already documented the influence of Hurrian deities on the Hittite pantheon. Kelly-Buccellati believes that the Hittites also borrowed their idealization of dynastic succession from the Hurrians. From her study of the seal impressions recovered at Tell Mozan, she has identified traits heretofore unknown in third-millennium art.

"The Hurrians incorporated the names of the people they depicted in their seal impressions," she says. "We assumed this practice began much later. Furthermore, we can observe a clear dynastic succession from the sealings."

Pointing to a seal impression, she notes that the queen—distinguished by her single braid and hair ornament—holds a royal child on her lap while the crown prince—identifiable by his crown—places his hand on the knee of his father, the king. "It is unheard of for art of this period to indicate succession by a specific gesture like this," she stresses.

Kelly-Buccellati's voice rises with enthusiasm as she explains that Hurrian motifs seem to insist on naturalistic depictions of animals. One of her favorites is a stela (see page 4) on which a plowman moves himself forward by pushing on a diagonal with his leg—a new compositional technique, she says, centuries ahead of artists to the south and west.

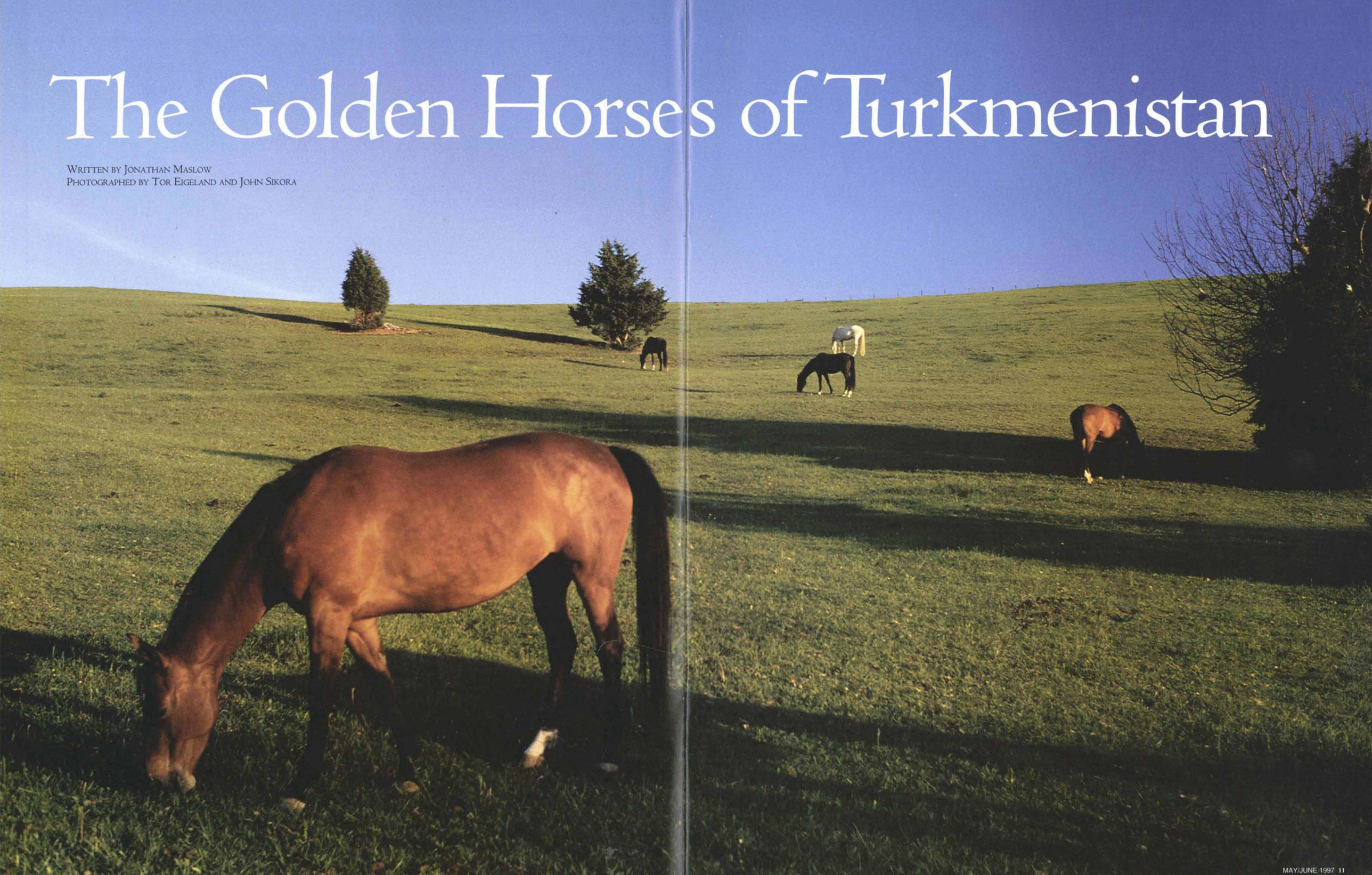
Thanks to the seal impressions, says Buccellati, "the Hurrians now have names, faces. We know what they looked like—we know they existed. The crown prince has a very distinctive face, and it's not a very handsome face, either!"

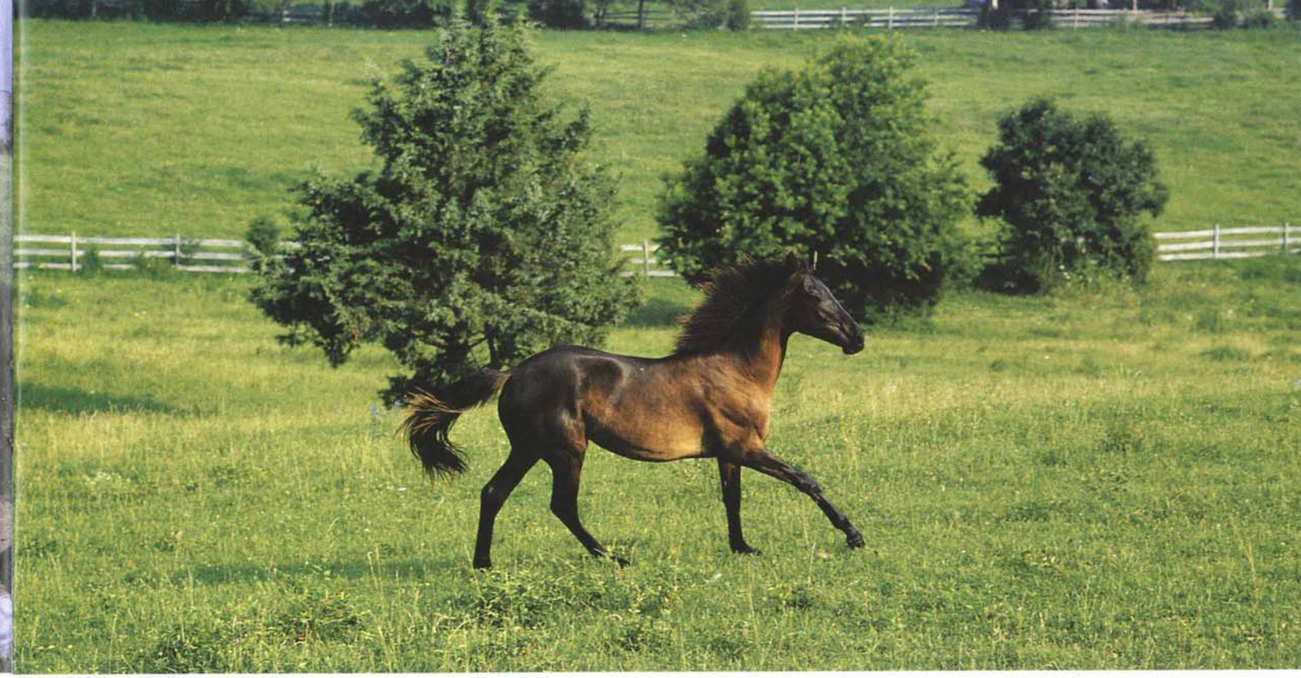
In the coming season, the Buccellatis will dig in a section of the storeroom adjoining the queen's area, where they hope to find the king's storeroom and perhaps more illuminating finds. It remains to be seen whether this hunch will prove as fruitful as their earlier ones, but since only about one percent of Tell Mozan has yet been excavated, there is clearly much still to be learned about this new chapter of early human civilization.

Pat and Samir Twair met in 1977 at the Buccellatis' excavation of Terqa. There, Pat was a UCLA doctoral student in archeology, and Samir was the excavation artist.

The Golden Horses of Turkmenistan

WRITTEN BY JONATHAN MASLOW
PHOTOGRAPHED BY TOR EIGELAND AND JOHN SIKORA





The raw simplicity of the racecourse in Ashgabat, Turkmenistan belies the rich history of the Akhal Téké horses that run there, the oldest—and one of the most coveted—of breeds. Previous spread: Akhal Tékés graze on the Virginia farm of Phil and Margot Case, who are among the handful of breeders who have brought the Akhal Téké to the United States and Europe.

The hippodrome in Ashgabat, capital of Turkmenistan, is anything but prepossessing: a bare concrete grandstand stretched against the monochrome buff horizon, without even a roof to protect race-watchers from the searing sun of the Kara Kum Desert. The track itself is a dusty sand oval, watered down between races by a surplus Soviet tank truck. At the far end are plain concrete sheds, and between them, brown *kibitka*s, the tent dwellings of the Central Asian nomads, now used as quarters for trainers and jockeys. Stableboys sprawl napping on rusty bedsprings just outside the stable doors.

But when those doors are flung open before race time, and the Akhal Téké horses trot out toward the starting gate, the starkness of desert life is dispelled as if by a flowering tree. Beautiful beyond compare, valuable beyond measure, with their shining golden coats and matchless endurance, Akhal Téké horses are the defining icon of Turkmen culture. Perhaps the oldest pure-blooded horse extant, horses of the Akhal Téké type have been bred in the trans-Caspian region of Central Asia for several thousand years, though not always under the name Akhal Téké, and not always by the Turkmens.

MODERN TURKMENISTAN, WITH ITS POPULATION of roughly four million and its economy based largely on cotton and natural gas, was once among the republics of the Soviet Union. In older texts, it is known as Turkmenia. For thousands of years before the 1879 Russian occupation, the territory was populated by nomadic tribes and pastoral clans, struggling interminably to graze their herds in the valley of the Amu Darya, Central Asia's longest river, and amid the foothills of the Kopet Mountains that now separate Turkmenistan from Afghanistan and Iran.

The Akhal Téké's development is bound up with the history of this tough, unforgiving land. Starting about 10,000 BC, the Central Asian climate began drying out. The stocky horses of the steppe grasslands adapted to the changing conditions, developing svelte frames, more modest food and water requirements, longer necks that enabled them to see predators farther away on the open plains, and coloration that offered camouflage in the glaring tan landscape. As the rains failed, the rivers that watered the steppe shriveled, the inland seas shrank, and the steppe became progressively more arid. Settled agrarian peoples were forced into nomadism, often as horse-mounted warriors. Descriptions and carvings dating to the third and second millennia BC testify that they rode a slim horse with a high head, golden in color and capable of great endurance.

In the fourth century BC, when Alexander the Great reached Margiana–literally then the "margin" of the known world–near present-day Mary in southern Turkmenistan, he met fierce resistance from nomadic Sacae and Massagetae, tribes that already employed the stiff saddle and were skilled in cavalry tactics. Before him, in the fifth century BC, Herodotus had written of the Scythians, a nomadic power that in Herodotus's time dominated much of the region north of the Black Sea, "Their country," he said, "is the back of a horse."

THE EARLY NOMADS, OF NECESSITY, DEVELOPED their knowledge of horse-breeding. Russian archeologists have found Scythian war-horses almost perfectly preserved in frozen barrow tombs in the Altay Mountains; they show that as early as 500 BC the nomads were selecting for tall, "dry," fast horses, similar in all respects to the Akhal Téké. These war-horses of Central Asia became famous throughout the ancient world, and were known variously—depending on time and place—as Median, Bactrian, Sogdian, Hyrcanian, Chorasmian, or Parthian. A Chinese emperor of the second century BC sent a party to Central Asia to bring back what the Chinese called "the horses of heaven" or the "thousand-*li*" horses, so called because they could run a thousand *li* without tiring and, according to the Chinese account, sweated blood.

More than a millennium later, probably to fight Genghis Khan and the Mongols, the Islamic khanates of Khiva and Khwarizm, now in modern Uzbekistan, looked westward to hire mercenary Oguz cavalry, Turkic in language, culture and horsemanship. When Marco Polo traveled the Silk Road through modern Turkmenistan on his way to Cathay, he wrote on the first page of his famous *Travels* of his encounter with "Turcomans," who were, he said, "a primitive people speaking a barbarous language," but who deserved praise for both their carpets and their "good Turcoman horses."

IN THE 19TH CENTURY, THE NOMADIC TURKMENS were one of the last ethnic groups to be incorporated into the Russian Empire. Before the Russian revolution of 1917, almost every Turkmen family owned one or two horses. Mostly desert warriors and their descendants who subsisted in a harsh environment, the Turkmens depended on their horses for transport and battle, and indeed, at times, for companionship as well. The common Turkmen tethered his horse to his tent, hand-fed it bread soaked in mutton-fat to keep its coat glossy, and rode it continually in pursuit of a living, whether in the cavalry for a khan, as a small independent trader, or as a bandit preying on the Silk Road caravans.

Turkmen breeders keep their horses' manes short, a practice the Cases do not follow with Karjera, above, or their other Akhal Tékés. Two of the three foundation studs of the Thoroughbred breed, developed in the 18th century, were probably Akhal Tékés. Below, an Akhal Téké foal practices its leggy stride.

JONATHAN MASLOW; PREVIOUS SPREAD: JOHN SIKORA
TOP: JOHN SIKORA; RIGHT: TOR EIGELAND

Metallic Bronze & Old Gold

One of the most detailed descriptions that we have of the Akhal-Téké horse in its indigenous habitat dates from the 1882 memoirs of Henri Moser, a Swiss citizen living in St. Petersburg. He visited Central Asia several times and was much impressed by the horses he saw there. (See Aramco World, *January/February 1985.) He wrote:*

THE TURKMEN HORSES HAVE ACQUIRED the highest reputation, even beyond the frontiers of Central Asia. Already in the time of Alexander the Great the horses of Sogdiana were famous. Marco Polo said that their hooves were so hard that they did not need shoes. [Indeed, Akhal Tekes are rarely shod today].

Over the centuries their blood has been renewed from outside at times; thus Timur, wishing to improve it, distributed 5000 Arabian mares to the Turkmen, and in the nineteenth century Nasr al-Din gave them 500. Nevertheless, the Téké resembles the English thoroughbred rather than the Arabian horse; tall, clean cut, with slender legs, narrow-chested, he has a long thin neck, very prominent withers, and a large and sometimes disproportionately heavy head, with the hindquarters comparatively light. The high tail carriage of the Arabian is completely lacking here; the Téké has sloping quarters which means that the tail does not fall gracefully. On the other hand the eyes are remarkably large.

There are no horse breeding farms among the Tékés; the horse is brought up among the tents or houses, and only the mares follow the flocks and herds of the shepherds to pasture; they are very little ridden, being used only to transport riders for short distances. The stallion, brought up amongst human dwellings, is gentle toward his rider, and extremely intelligent.

A Turkmen proverb says "To turn a colt into a horse, the owner becomes a dog" [i.e., the owner makes sacrifices]. But the curry comb and brush are unknown; grooming is here reduced to its most basic expression. Armed with his knife, the Turkmen scrapes the horse's coat in the direction of the hair, from front to back, and then polishes it with the sleeve of his robe or a piece of felt. The colt is covered night and day with pieces of felt whose number is increased with his age. Two or three felts, shaped like a saddle blanket, cover the withers of the adult horses, usually pitted with the scars of ancient wounds, and are only lifted up with the greatest care; the Téké maintains that air and light are harmful to this delicate part of the spine.

Upon these felt blankets is placed the horn and wooden saddle, with no panels, and a very long pommel. The first blanket, a multi-colored mixture of silk and cotton, covers the horse from the base of the neck to the quarters, going over the saddle and crossing on his chest; a second, larger, felt blanket covers him from the ears to the base of the tail, and finally a third, usually white and richly embroidered, completes his accoutrement. There are five openings in all these, for the saddle pommel, the stir-

rup leathers, and the girth which goes around the circumference of this vast envelope, which is only removed for important races; the rest of the time, summer and winter alike, day and night, the desert courser remains under his warm coverings. The Tékés say that "the fat of our horses must melt." Indeed, they have only muscles. On account of all these coverings, the skin and the hair are finer than in any other horse. The shining coat has unbelievable colors, metallic bronze and old gold, which have an astonishing effect in the sunlight.

THE TÉKÉS UNDERSTAND HORSE TRAINING very well; whilst developing the animal's action, they manage to reduce his food, and particularly the water, to an unbelievable minimum; dried lucerne [alfalfa] is replaced by chopped straw, and our oats by barley flour mixed with mutton fat.

When the horse is unsaddled, the blankets are kept in place by a girth which goes four times around the body: the first in the place where we girth the horse, and the second crossing under the belly below the kidneys. Thus clothed, the horse is fastened with a long rope or chain near the entrance of his owner's dwelling. On account of the continual rubbing of the blankets against the neck, the mane grows sparsely, or not at all, and is cut back with scissors where it does appear. The Téké leaves only the forelock to develop naturally; the tail is long, but not very thick. The curb bit is unknown; a thin snaffle is used, and neither spurs nor a crop, useless anyway because of the blankets covering his mount. The tiny whip he carries is only a toy.

He rides with loose reins, leaving his horse quite free; with his naturally elegant head carriage the horse chooses his way with remarkable instinct through the rugged mountain passes. Perched high up on the saddle, the blankets oblige the rider to keep his legs wide apart and straight, with the feet thrust into the stirrups. At a gallop the rider stands up in his stirrups, the body leaning forward. The Téké horse has only two gaits, the gallop, and a walk which becomes a pace or a single foot running walk. At this gait the Turkmen make their long journeys of eight days, about 200 versts [about 200 kilometers, or 120 miles] per day, staying in the saddle for 20 hours out of the 24.

Since he is never beaten, this animal is extremely gentle with humans, although fierce with his own kind; when a stallion manages to break loose he gets into terrible fights, extremely dangerous for anyone who may be near. It is useless to try and separate them if the owner is not present; he, on the other hand, can, with a simple "Dour, dour," ("gently, gently") usually manage to calm his steed, where a stranger might break his neck.

When a woman marries, she brings as a dowry a certain number of felt blankets that she has made and embroidered herself. Amongst them there has to be a very fine cover for the saddle of her husband's horse.

—Rosalind Mazzawi

TOR EIGELAND (2); OPPOSITE: COURTESY ALI SARDAR

Summer and winter, the Turkmen covered his precious steed with a felt blanket, which in winter kept off howling winds and in summer protected against stinging flies. On top of that he put a stiff saddle, a pillow and a silk cover, and then draped his horse in necklaces studded with turquoise and carmine, stones which were believed to protect the rider against evil spirits–of which there were plenty to imagine in the vast Kara Kum Desert.

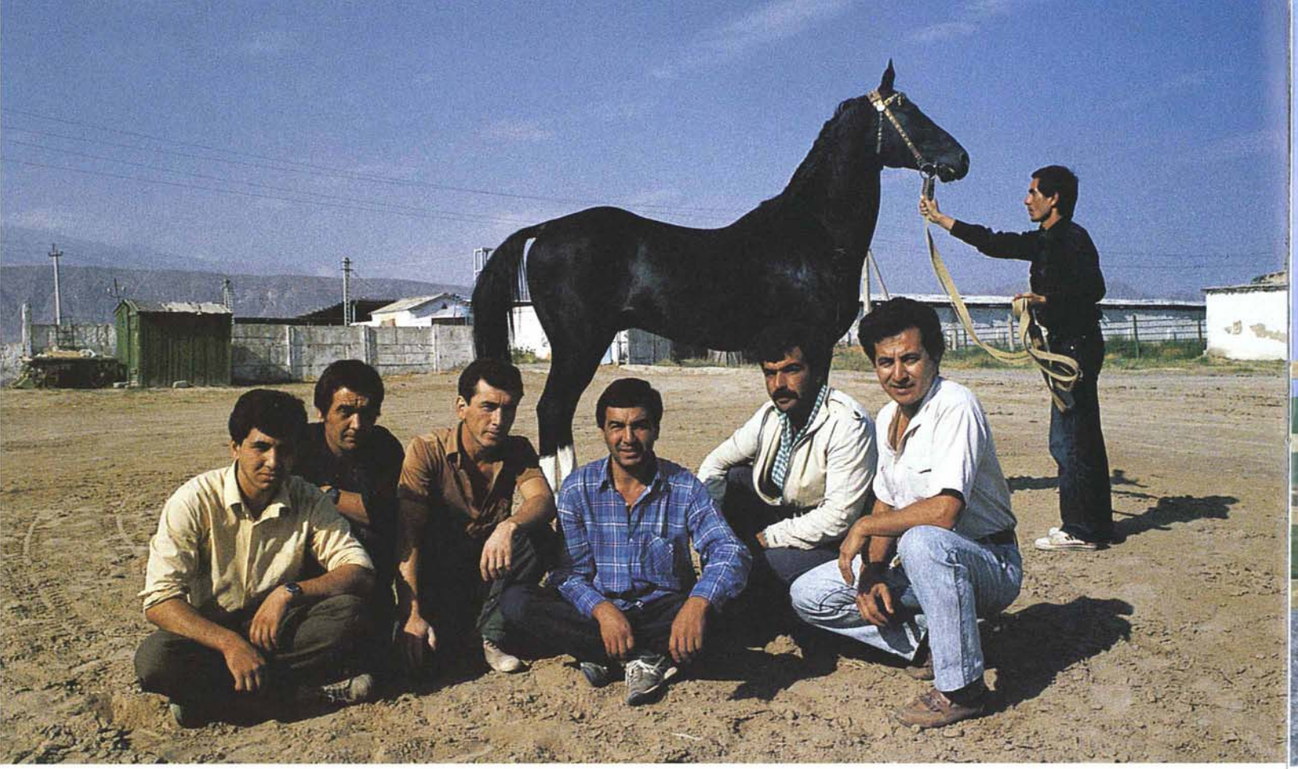
After the Russian conquest, Cossacks occupying the trans-Caspian region recognized the special qualities in the Turkmen horses. They found the best ones among the Téké tribe, the largest Turkmen group, which occupied the area of the Akhal oasis, near present-day Ashgabat. The Russians set up the first stud farm there in 1897, and at that time registered the Akhal Téké breed.

Although the Soviet era brought an end to civil strife among khans and tribal warlords, it brought misfortune to the Turkmen horses. In the years following the 1918 collectivization of livestock, one million Turkmen voted with their feet to retain ownership of their sheep and horses: They crossed the borders into Iran and Afghanistan. At the same time that the state-run stud farm was elevating Akhal Téké breeding to a scientific practice, individual Turkmen were loosing their own horses in the desert rather than submit to collectivization.

In the summer of 1935, a group of Turkmens took the bold step of riding Akhal Tékés from Ashgabat all the way to Moscow to demonstrate to Stalin the capabilities of their horses. They covered some 3000 kilometers (1860 miles), dramatically illustrating both the endurance of the breed and their own pride in it. At the end of World War II, Soviet Marshal Georgy Zhukov rode a white Akhal Téké stallion in the Moscow victory parade. In 1960, the most famous horse in Soviet equestrian competition at the Rome Olympics was Absent, an Akhal Téké who there won his first of many Olympic gold medals in dressage.

Although Soviet leaders presented Akhal Tékés as diplomatic gifts, and Akhal Tékés

Breeder Marina Orloff-Davidoff (top) feeds two of her Akhal Téké mares by hand, after the practice of Turkmen nomads. Both mares are in foal. Above, Emma Frost grooms the sleepy-eyed stallion Karpat. Opposite: After a race, a Turkmen breeder swaddles his horse in felt blankets, washing and drying it away from harmful light and air.



The world's largest Akhal Téké breeding program is in Ashgabat (above), where the state registry now counts more than 3000 purebred horses, up from a low of only 1000 in the 1950's. Today, herds of mares and foals roam the unfenced steppe (right), and since Turkmenistan's independence in 1991, private ownership of Akhal Téké horses is also on the rise, after steep declines in the Soviet years. Traditionally, the long-pommeled wood-and-horn saddle, without panels, is placed on one or two felt saddle-blankets (right) and topped with a thin, embroidered felt blanket and a cushion. Larger blankets that cover the horse from ears to tail are folded back for riding (far right), but are rarely removed.

TOP, CENTER: JONATHAN MASLOW; BOTTOM LEFT, RIGHT: COURTESY ALI SARDAR

TOR EIGELAND (2)

sold for tens of thousands of dollars to international buyers at the Moscow horse auctions, the total population of Akhal Tékés declined steadily. In the 1950's, a decade when the Soviets made heroes of tractor drivers and sent many draft animals to the sausage factory, the breed was in real danger of extinction. In the time of Alexander the Great, the Parthians had sent 20,000 horses each year as tribute to Persia; Parthian herds must therefore have numbered at least 50,000, perhaps as many as 100,000. But by the twilight of the Soviet era, there were fewer than 1000 pedigreed Akhal Téké horses in Turkmenistan.

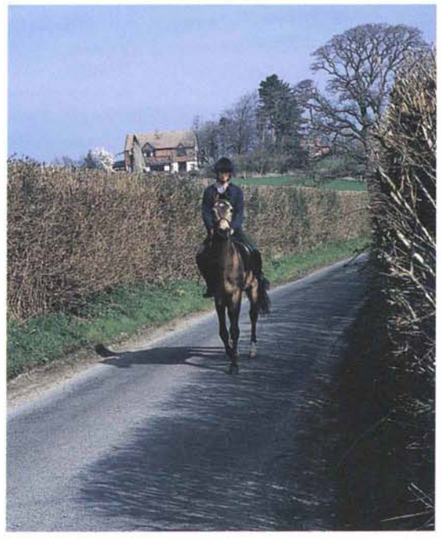
SINCE TURKMENISTAN'S INDEPENDENCE IN 1991, increasing the herd has been a formal goal of government policy, says Bazarbay Meredov, deputy chief of the Atlaree, the Turkmen State Horse Company. At current count, he notes, there are 3100 Akhal Tékés, with 110 registered stallions and 300 one-year-olds. There are 15 new private stud farms, and each has between 20 and 80 Akhal Tékés. And, he adds, many more Turkmens are once again keeping a horse or two privately.

Meredov also cites export restrictions designed to help ensure the breed's future. "As of now, only stallions two to 10 years old may leave the country," he says. "All foreigners interested in buying an Akhal Téké in Turkmenistan should send a representative to us and do business through the Atlaree."

Those who make the journey will find, whether viewed in the Ashgabat hippodrome or at a breeder's stable, a horse radically different from the stout, shaggy ponies that are the common mental picture of Central Asian horses–an image that dates back to the mounts the Mongols rode as they conquered their way westward as far as Palestine.

In fact, nothing could be further from the lean, long-legged, lustrous Akhal Tékés, many of which stand 15 or 16 hands high. With its dry musculature, sparse mane and veins bulging under its thin, fine, shimmering coat, the Akhal Téké looks like nothing so much as the early generations of English Thoroughbred. This, too, is no coincidence. Two of the three Thoroughbred foundation studs were Turkmen horses: the

At the Orloff-Davidoff farm, Karpat, who was born in Central Asia, has grown into a skilled jumper. Below, Karpat and Emma Frost walk down a well-hedged Sussex lane.



The Western Outposts

Written by Rosalind Mazzawi

In 1993 President Saparmurad Niazov of Turkmenistan gave Akhal Téké horses to Prime Minister John Major of Great Britain and President François Mittérand of France. Neither of these statesmen rode, and so Maksat was sent to the Household Cavalry training depot at Melton Mowbray, in the English Midlands, and Gendjim vanished into competent but concealed care in France, and was treated more or less as a state secret. Various rumors swirled around his elegant golden head–including that of his non-existence–until it transpired that he was to be ridden by a member of the president's family, after preparation by a well-known trainer, Alexandre Gros.

I was privileged to visit horse and trainer near Paris, and even in the teeming rain that day I could admire Gendjim's eagerness to please his rider, and his natural tendency to show off. Gros said that Gendjim had arrived in France after a difficult journey, terrified of everyone and everything, and with cuts and bruises on his legs. A successful race horse in Turkmenistan, he had been taught only how to run. Now he is calm, collected and polite to visitors–at least in the presence of Gros–and shows a definite talent for jumping.

There are few other Akhal Tékés in France: Two were recently imported from Turkmenistan by two young businessmen, who now hope to make the breed better known in France and in Europe.

In England, however, there is a flourishing Akhal Téké Society based in Cornwall. At present there are 12 purebred and eight part-bred Akhal Tékés in the country, in addition to the famous Maksat. Of these, a stallion, Karpat, and three mares, Zarnitza, Kunzita, and Morganita, belong to Marina Orloff-Davidoff of Sussex. They were imported from Italy, but originate from Kazakhstan and from Daghestan, in the Caucasus.

Orloff-Davidoff intends to preserve and encourage the breed as much as possible, and does not wish to cross her Akhal Tékés with other types of horse. Zarnitza will compete in endurance rides, as she has already done successfully in Italy, and Karpat shows promise as a jumper.

It is in Germany, however, that the breed is best established in Europe. Early this year, there were about 180 Akhal-Tékés in that country. At the Equitana horse show in Essen I met Sabine Töpfer-Gebert, who owns two splendid stallions: Elgun, a true gold with black mane, tail, and legs, and Kara Burgut ("Black Eagle"), who is all black. Töpfer-Gebert's husband drives a four-in-hand drawn by three golden and one black Akhal Téké geldings.

It was Töpfer-Gebert who introduced me to Paul Koffler, who has a pack of hounds and eight Akhal Tékés that he has developed as hunt horses. They hunt wild boar and deer and also do drag hunting, which is more like a steeplechase or cross-country course. Koffler favors the Akhal Tékés because they are handsome, courageous and sure-footed, and have incredible stamina. Their exotic origin also helps to recommend them!

In the US, Margot and Phil Case are the leading and–with the late Eberhard Sprandel–the country's foundation breeders of Akhal Téké horses. They run the US Akhal Téké registry, and keep 46 horses on their Virginia farm. Margot has been involved with horses since childhood, and when she married Phil, a paper-company executive, her enthusiasm was contagious. They have lived in various countries to which Phil's work took him, notably Italy, Switzerland, and South Africa.

When they heard about Akhal Téké horses as a rare and exotic breed in danger of disappearance, they determined to do what they could to preserve them. They purchased three at the annual horse sales in Moscow in 1979 and had them shipped to the Netherlands for the necessary quarantine, under the guardianship of Robbie den Hartog, well known as the "middleman" for Arabian and other high-end horses traded among Russia, Europe and the United States. Unfortunately, one horse died in the Netherlands, and thus the remaining two were joined a year later by a gold Akhal Téké, Senetir, who is still the senior stallion at the farm. He sired Kashman and Sengar, both spectacular horses.

The Cases also own Arik, a dark bay who has an unusual ability to pass on his exact coloring to his offspring, and Melekush USA, a golden dun with double-folded eyelids. These are a breed characteristic that makes the horse look sleepy–an impression belied by the fire beneath the surface! He was imported *in utero* from Russia in 1983. An extraordinary mare, Oliva, born in 1974, joined the herd in 1981, and she bore a colt foal, Svengali, in June 1995.

Until 1990, the only other sizable Akhal Téké breeders in the country were the Sprandel brothers, Eberhard and Hans, who worked a large farm in Colorado. In the years following Eberhard's death in 1987, most of the horses were sold. From the Sprandel farm the Cases purchased a stallion, Marakan, and three mares, one of whom, Givan, was the grand-daughter of Absent, the winner of the gold medal for dressage at the 1960 Olympic Games.

But Hans Sprandel retained four stallions and two mares, and in 1994 he donated them to the Nez Percé tribe of Idaho for an interesting experiment. The Nez Percés are the original breeders of the Appaloosa horse, and his donation enabled the tribe to cross their Appaloosa mares with the Akhal Téké stallions. Appaloosas, selectively bred for their color for 250 years, descend from the Andalusian cavalry mounts brought to the New World by the Spaniards, and the feral American mustang, which has the same origin but which learned to live, often very sparsely, on the Great Plains and in the Rocky Mountains. The Nez Percés captured and redomesticated the mustangs, mixed in the blood of the Andalusian horses, and developed the "leopard" and "blanket" types of Appaloosa, respectively white with black spots, and sorrel or bay with a white star pattern on rump and hindquarters. Most Appaloosas are round-rumped, with sparse manes and tails, vertically striped hooves, and mottled skin around eyes and noses; they are on the whole "curved" horses, whereas the Akhal Tékés are angular, like greyhounds, with tucked-up bellies and long necks. The cross between the two breeds has produced more than 40 horses to date, all either spotted Akhal-Tékés or angular, athletic Appaloosas.

The Nez Percé program, directed by Rudy Shebala, hopes to produce a new, hardy race of horses that are both sizable and docile, and can be employed on trail rides, one of the fastest-growing recreational activities in the western US. A fixed type will not become apparent until the fourth generation, in two decades' time, but it nonetheless seems that the two breeds are compatible. Shebala plans to call the new breed "the Nez Percé horse."

Thanks to this small but dedicated band of breeders, the number of Akhal Tékés grows each year, not only in Central Asia, but also in the West. As more people come to appreciate the qualities of the golden horses, the breed will no longer be in danger of disappearing.

Rosalind Mazzawi, who lived in the Middle East for two decades, worked as an equestrian journalist for the French magazine Plaisirs Equestres.

JOHN SIKORA; OPPOSITE: TOR EIGELAND (2)

Byerly Turk and the Darley Arabian. The latter was purchased in Aleppo, Syria in 1717, but it was bred by Turkmen nomads on the Iranian plateau. Some of the brood mares in the royal stables of Charles II, whence the English Thoroughbred came, were also Turkmen dams.

BUT IT IS FROM THE RIDER'S POINT OF VIEW that the singularity of the Akhal Téké becomes most vivid. Its long neck and high legs make you feel that your saddle is somehow on the second floor. The Akhal Téké's "loose" shoulder gives it a characteristically smooth trot that combines a high step with a long stride.

And when the Akhal Téké tucks its head into its neck and goes into high gear, it can gallop full-tilt for hours like a four-legged locomotive, all while giving the impression that it is aware of its unique place in desert creation.

Foals Yantar and Burian play in Orloff-Davidoff's field. Along the roads near the farm (below), it is clearly horse country–but the tubby pony on the standard British road sign is hardly similiar to the long-necked, high-legged Akhal-Téké.

Opposite: In Virginia's late-afternoon sun, Kashman's light coat shimmers with the characteristic golden sheen that has captured the imagination of riders and rulers for more than 2000 years.

Jonathan Maslow is an author, journalist and filmmaker. His book on Turkmenistan, Sacred Horses, *was published by Random House in 1994.*

Photographer Tor Eigeland, a long-time contributer to Aramco World, *lives in France with his wife and daughter.*

Freelance photographer John Sikora lives in Bucks County, Pennsylvania and is at work on a series of postcards on the county.

Wel knew he the olde Esculapius
And Deyscorides and eek Rufus
Olde Ypocras, Haly and Galeyn,
Serapion, Razi and Avycen,
Averrois, Damascien and Constantyn,
Bernard and Gatesden and Gilbertyn.

The ARAB ROOTS of EUROPEAN MEDICINE

— *Written by* David W. Tschanz —

In the "General Prologue" of *The Canterbury Tales*, Geoffrey Chaucer identifies the authorities used by his "Doctour of Physic" in the six lines quoted above. The list includes four Arab physicians: Jesu Haly (Ibn 'Isa), Razi (Al-Razi, or Rhazes), Avycen (Ibn Sina, or Avicenna) and Averrois (Ibn Rushd, or Averroes). These four did not make Chaucer's list only to add an exotic flavor to his late-14th-century poetry. Chaucer cited them because they were regarded as among the great medical authorities of the ancient world and the European Middle Ages, physicians whose textbooks were used in European medical schools, and would be for centuries to come. First collecting, then translating, then augmenting and finally codifying the classical Greco-Roman heritage that Europe had lost, Arab physicians of the eighth to eleventh century laid the foundations of the institutions and the science of modern medicine.

Nine Greek physicians are named and portrayed on one of the opening pages of an Arabic medical manuscript written in the region of Mosul, in present-day Iraq, between 1220 and 1250. The text, an "antidotarium," first outlines the thought of the great second-century Greek physician Galen on antidotes to snakebite, then continues with an original discussion of a number of other antidotes, their preparation, dosage and method of use. Galen's portrait is at the bottom left of the page.

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DIAGRAM AND CAPTION ADAPTED FROM *THE CREST OF THE PEACOCK: NON-EUROPEAN ROOTS OF MATHEMATICS* BY GEORGE GHEVERGHESE JOSEPH (PENGUIN BOOKS/I.B. TAURIS). © 1991. USED BY PERMISSION OF PENGUIN BOOKS LTD.

After the collapse of the western Roman empire in the fifth century, Europe lost touch with much of its intellectual heritage. Of Greek science, all that remained were Pliny's *Encyclopedia* and Boethius's treatises on logic and mathematics; the Latin library was so limited that European theologians found it nearly impossible to expand their knowledge of their own scriptures.

The center of Europe's new world view became the church, which exerted profound new influences in medicine. Because Christianity emphasized compassion and care for the sick, monastic orders ran fine hospitals—but they did not function as hospitals do today. They were simply places to take seriously ill people, where they were expected to either recover or die as God willed. There were no learned physicians to attend them, only kindly monks who dispensed comfort and the sacraments, but not medicines.

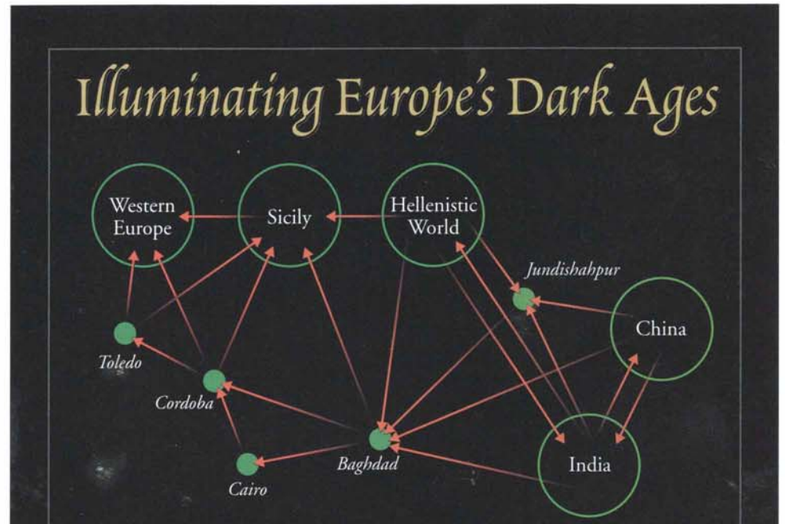
Because the Christian church viewed care of the soul as far more important than care of the body, medical treatment and even physical cleanliness were little valued, and mortification of the flesh was seen as a sign of saintliness. In time, nearly all Europeans came to look upon illness as a condition caused by supernatural forces, which might take the form of diabolical possession. Hence, cures could only be effected by religious means. Every malady had a patron saint to whom prayers were directed by the patient, family, friends and the community. Upper respiratory infections were warded off by a blessing of the throat with crossed candles on the feast of Saint Blaise. Saint Roch became the patron of plague victims. Saint Nicaise was the source of protection against smallpox. Kings, regarded as divinely appointed, were believed to be able to cure scrofula and skin diseases, among other maladies, with the "royal touch."

With the study of disease and of patients neglected, licensed medicine as an independent craft virtually vanished. Those physicians who endured were mostly connected with monasteries and abbeys. But even for them, the generally accepted goal was less to discover causes, or even to heal, than to study the writings of other physicians and comment on their work. In the middle of the seventh century, the Catholic church banned surgery by monks, because it constituted a danger to their souls. Since nearly all of the surgeons of that era were clerics, the decree effectively ended the practice of surgery in Europe.

At roughly the same time, another civilization was rising in the east. The coming of Islam, also in the seventh century (See *Aramco World*, November/December 1991), led to a hundred years of continuous geographical expansion and an unprecedented era of ferment in all branches of learning. The Arabs rapidly melded the various cultures of the Islamic domain, and Arabic—the language of the Qur'an—became the universal language. By the 10th century a single language linked peoples from the Rann of Kutch to the south of France, and Arabic became to the East what Latin and Greek had been to the West—the language of literature, the arts and sciences, and the common tongue of the educated.

Medicine was the first of the Greek sciences to be studied in depth by Islamic scholars. After Plato's Academy was closed in 529, some of its scholars found refuge at the university at Jundishahpur, the old Sassanid capital of Persia, which had also sheltered excommunicated Nestorian Christian scholars—among them physicians—in 431. Persia became part of the Islamic world in 636, and Arab rulers supported the medical school at Jundishahpur; for the next 200 years it was the greatest center of medical teaching in the Islamic world. There, Islamic physicians first familiarized themselves with the works of Hippocrates, Galen and other Greek physicians. At the same time, they were also exposed to the medical knowledge of Byzantium, Persia, India and China.

Recognizing the importance of translating Greek works into Arabic to make them more widely available, the Abbasid caliphs Harun al-Rashid (786–809) and his son, al-Ma'mun (813–833) established a translation bureau in Baghdad, the Bayt al-Hikmah, or House of Wisdom, and sent embassies to collect Greek scientific works in the Byzantine Empire. (See *Aramco World*, May/June 1982.) This ushered in the first era in Islamic medicine, whose effects we feel today: the period of translation and compilation.



Scientific knowledge that originated in India, China and the Hellenistic world was sought out by Arab and Muslim scholars and then translated, refined, synthesized and augmented at different centers of learning, starting at Jundishahpur in Persia around the sixth century—even before the coming of Islam—and then moving to Baghdad, Cairo, and finally Toledo and Cordoba, from where the knowledge spread to Western Europe. The patronage of the caliphs made considerable resources available for this work.

De Materia Medica *was a seminal work by the first-century Greek physician and pharmacologist Pedanios Dioscorides. Its descriptions, many illustrated, of nearly 600 medically useful plants and its discussion of some 1000 simple drugs made it the leading pharmacological text of the Islamic world and Europe for 16 centuries. In a 13th-century Ottoman copy of the manuscript, from the library of Sultan Ahmet III, a frontispiece shows Dioscorides handing a plant—and the knowledge it represents—to a student.*

The Caliphs' Researches

Fourteenth-century historian and political scientist Ibn Khaldun wrote about the intellectual curiosity that helped to preserve Greek learning.

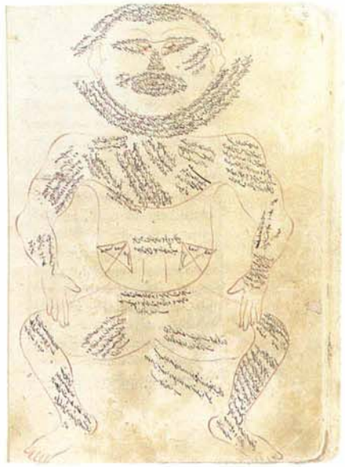
When the Byzantine emperors conquered Syria, the scientific works of the Greeks were still in existence. Then God brought Islam, and the Muslims won their remarkable victories, conquering the Byzantines as well as all other nations. At first, the Muslims were simple, and did not cultivate learning, but as time went on and the Muslim dynasty flourished, the Muslims developed an urban culture which surpassed that of any other nation.

They began to wish to study the various branches of philosophy, of whose existence they knew from their contact with bishops and priests among their Christian subjects. In any case, man has always had a penchant for intellectual speculation. The caliph al-Mansur therefore sent an embassy to the Byzantine emperor, asking him to send him translations of books on mathematics. The emperor sent him Euclid's *Elements* and some works on physics.

Muslim scholars studied these books, and their desire to obtain others was whetted. When al-Ma'mun, who had some scientific knowledge, assumed the caliphate, he wished to do something to further the progress of science. For that purpose, he sent ambassadors and translators to the Byzantine empire, in order to search out works on the Greek sciences and have them translated into Arabic. As a result of these efforts, a great deal of material was gathered and preserved.

The most important of the translators was Hunayn ibn Ishaq al-'Ibadi (809–73), who was reputed to have been paid for his manuscripts by an equal weight of gold. He and his team of translators rendered the entire body of Greek medical texts, including all the works of Galen, Oribasius, Paul of Aegin, Hippocrates and the *Materia Medica* of Dioscorides, into Arabic by the end of the ninth century. These translations established the foundations of a uniquely Arab medicine.

Muslim medical practice largely accepted Galen's premise of humors, which held that the human body was made up of the same four elements that comprise the world—earth, air, fire and water. These elements could be mixed in various proportions, and the differing mixtures gave rise to the different temperaments and "humors." When the body's humors were correctly balanced, a person was healthy. Sickness was due not to supernatural forces but to humoral imbalance, and such imbalance could be corrected by the doctor's healing arts.



Muslim physicians therefore came to look upon medicine as the science by which the dispositions of the human body could be discerned, and to see its goal as the preservation of health and, if health should be lost, assistance in recovering it. They viewed themselves as practitioners of the dual art of healing and the maintenance of health.

Even before the period of translation closed, advances were made in other health-related fields. Harun al-Rashid established the first hospital, in the modern sense of the term, at Baghdad about 805. Within a decade or two, 34 more hospitals had sprung up throughout the Islamic world, and the number grew each year.

These hospitals, or *bimaristans*, bore little resemblance to their European counterparts. The sick saw the *bimaristan* as a place where they could be treated and perhaps cured by physicians, and the physicians saw the *bimaristan* as an institution devoted to the promotion of health, the cure of disease and the expansion and dissemination of medical knowledge. Medical schools and libraries were attached to the larger hospitals, and senior physicians taught students, who were in turn expected to apply in the men's and women's wards what they had learned in the lecture hall. Hospitals set examinations for their students, and issued diplomas. By the 11th century, there were even traveling clinics, staffed by the hospitals, that brought medical care to those too distant or too sick to come to the hospitals themselves. The *bimaristan* was, in short, the cradle of Arab medicine and the prototype upon which the modern hospital is based.

Like the hospital, the institution of the pharmacy, too, was an Islamic development. Islam teaches that "God has provided a remedy for every illness," and that Muslims should search for those remedies and use them with skill and compassion. One of the first pharmacological treatises was composed by Jabir ibn Hayyan (ca. 776), who is considered the father of Arab alchemy. The Arab pharmacopoeia of the time was extensive, and gave descriptions of the geographical origin, physical properties and methods of application of everything found useful in the cure of disease. Arab pharmacists, or *saydalani*, introduced a large number of new drugs to clinical practice, including senna, camphor, sandalwood, musk, myrrh, cassia, tamarind, nutmeg, cloves, aconite, ambergris and mercury. The *saydalani* also developed syrups and juleps—the words came from Arabic and Persian, respectively—and pleasant solvents such as rose water and orange-blossom water as means of administering drugs. They were familiar with the anesthetic effects of Indian hemp and henbane, both when taken in liquids and inhaled.

By the time of al-Ma'mun's caliphate, pharmacy was a profession practiced by

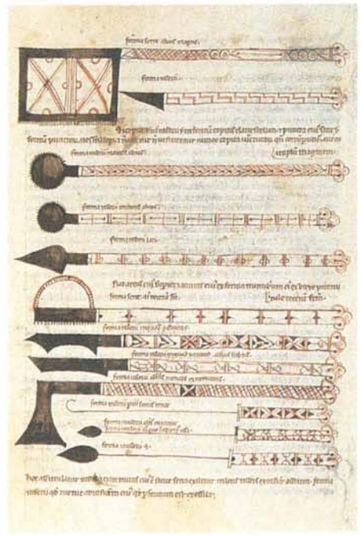
Seeds of Silene gallica *(top left), called* hashishat al-thubban, *or flyweed, in Arabic, were effective in a snakebite antidote, according to Dioscorides. Above, Persian notations detail the human muscle system in Mansur ibn Ilyas's late–14th-century* Tashrih-i Badan-i Insan (The Anatomy of the Human Body). *Opposite, an early–15th-century Persian copy of the opening page of Book Four of Ibn Sina's 11th-century* Canon of Medicine, *parts of which remained in the syllabi of European medical schools well into the 19th century.*

TOP: BODLEIAN LIBRARY; CENTER: BIBLIOTHÈQUE NATIONALE DE FRANCE; OPPOSITE: NATIONAL LIBRARY OF MEDICINE

highly skilled specialists. Pharmacists were required to pass examinations and be licensed, and were then monitored by the state. At the start of the ninth century, the first private apothecary shops opened in Baghdad. Pharmaceutical preparations were manufactured and distributed commercially, then dispensed by physicians and pharmacists in a variety of forms—ointments, pills, elixirs, confections, tinctures, suppositories and inhalants.

The blossoming of original thought in Arab medicine began as the ninth century drew to a close. The first major work appeared when Abu Bakr Muhammad ibn Zakariya Al-Razi (ca. 841–926) turned his attention to medicine.

Al-Razi, known to the West as Rhazes, was born in Persia in the town of Rayy, near Tehran. After a youth spent as a musician, mathematician and alchemist, Al-Razi went to Baghdad to take up the study of medicine at the age of 40. Completing his studies, he returned to Rayy and assumed the directorship of its hospital. His reputation grew rapidly and within a few years he was selected to be the director of a new hospital to be built in Baghdad. He approached the question of where to put the new facility by hanging pieces of meat in various sections of the city and checking the rate at which they spoiled. He then ordered the hospital built at the site where the meat showed the least putrefaction.



Al-Razi is regarded as Islamic medicine's greatest clinician and its most original thinker. A prolific writer, he turned out some 237 books, about half of which dealt with medicine. His treatise *The Diseases of Children* has led some historians to regard him as the father of pediatrics. He was the first to identify hay fever and its cause. His work on kidney stones is still considered a classic. In addition, he was instrumental in the introduction of mercurial ointments to treat scabies. Al-Razi advocated reliance on observation rather than on received authority; he was a strong proponent of experimental medicine and the beneficial use of previously tested medicinal plants and other drugs. A leader in the fight against quacks and charlatans—and author of a book exposing their methods—he called for high professional standards for practitioners. He also insisted on continuing education for already licensed physicians. Al-Razi was the first to emphasize the value of mutual trust and consultation among skilled physicians in the treatment of patients, a rare practice at that time.

Following his term as hospital director in Baghdad, he returned to Rayy where he taught the healing arts in the local hospital, and he continued to write. His first major work was a 10-part treatise entitled *Al-Kitab al-Mansuri,* so called after the ruler of Rayy, Mansur ibn Ishaq. In it, he discussed such varied subjects as general medical theories and definitions; diet and drugs and their effect on the human body; mother and child care, skin disease, oral hygiene, climatology and the effect of the environment on health; epidemiology and toxicology.

Al-Razi also prepared *Al-Judari wa al Hasbah,* the first treatise ever written on smallpox and measles. In a masterful demonstration of clinical observation (see column at right), Al-Razi became the first to distinguish the two diseases from each other. At the same time, he provided still-valid guidelines for the sound treatment of both.

His most esteemed work was a medical encyclopedia in 25 books, *Al-Kitab al-Hawi,* or *The Comprehensive Work,* the *Liber Continens* of al-Razi's later Latin translators. Al-Razi spent a lifetime collecting data for the book, which he intended as a summary

Opposite: An illustration in The Surgeon's Tract, *an Ottoman text written by Sharaf al-Din in about 1465, indicates where on the scalp incisions should be made. Surgical instruments are shown in detail in a 13th-century Latin translation of* The Method *(center), a 30-part medical text written by Islam's greatest medieval surgeon, Abu al-Qasim, who practiced in 10th-century Córdoba. Top: Mandrake* (Mandragora officinalis; al-luffah *in Arabic), was described in the 10th century by Al-Biruni as a useful soporific.*

TOP: BODLEIAN LIBRARY; CENTER AND OPPOSITE: BIBLIOTHÈQUE NATIONALE DE FRANCE

A Physician Observes

In* Al-Judari wa al-Hasbah, *Al-Razi distinguished smallpox from measles for the first time in medical history. This passage shows his skill as a medical observer, a competence on which he placed great importance.

The eruption of the smallpox is preceded by a continued fever, pain in the back, itching in the nose and terrors in the sleep. These are the more peculiar symptoms of its approach, especially a pain in the back with fever; then also a pricking which the patient feels all over his body; a fullness of the face, which at times comes and goes; an inflamed color, and vehement redness in both cheeks; a redness of both the eyes, heaviness of the whole body; great uneasiness, the symptoms of which are stretching and yawning; a pain in the throat and chest, with slight difficulty in breathing and cough; a dryness of the breath, thick spittle and hoarseness of the voice; pain and heaviness of the head; inquietude, nausea and anxiety; (with this difference that the inquietude, nausea and anxiety are more frequent in the measles than in the smallpox; while on the other hand, the pain in the back is more peculiar to the smallpox than to the measles;) heat of the whole body; an inflamed colon, and shining redness, and especially an intense redness of the gums.

Testing New Medicines

In his voluminous writings, Ibn Sina laid out the following rules for testing the effectiveness of a new drug or medication. These principles still form the basis of modern clinical drug trials.

1. **The drug must be free from any extraneous accidental quality.**
2. **It must be used on a simple, not a composite, disease.**
3. **The drug must be tested with two contrary types of diseases, because sometimes a drug cures one disease by its essential qualities and another by its accidental ones.**
4. **The quality of the drug must correspond to the strength of the disease. For example, there are some drugs whose heat is less than the coldness of certain diseases, so that they would have no effect on them.**
5. **The time of action must be observed, so that essence and accident are not confused.**
6. **The effect of the drug must be seen to occur constantly or in many cases, for if this did not happen, it was an accidental effect.**
7. **The experimentation must be done with the human body, for testing a drug on a lion or a horse might not prove anything about its effect on man.**

of all the medical knowledge of his time, augmented by his own experience and observations. In *Al-Hawi*, Al-Razi emphasized the need for physicians to pay careful attention to what the patients' histories told them, rather than merely consulting the authorities of the past. In a series of diagnosed case histories entitled "Illustrative Accounts of Patients," Al-Razi demonstrated this important tenet. One patient, who lived in a malarial district, suffered from intermittent chills and fever that had been diagnosed as malaria, but nonetheless seemed incurable. Al-Razi was asked to examine him. Upon noting pus in the urine, he diagnosed an infected kidney, and he treated the patient successfully with diuretics.

Al-Razi's clinical skill was matched by his understanding of human nature, particularly as demonstrated in the attitudes of patients. In a series of short monographs on the doctor-patient relationship, he described principles that are still taught a millennium later: Doctors and patients need to establish a mutual bond of trust, he wrote; positive comments from doctors encourage patients, make them feel better and speed their recovery; and, he warned, changing from one doctor to another wastes patients' health, wealth and time.

Not long after Al-Razi's death, Abu 'Ali al-Husayn ibn 'Abd Allah ibn Sina (980–1037) was born in Bukhara, in what today is Uzbekistan. Later translators Latinized his name to Avicenna. It is hard to describe Ibn Sina in anything other than superlatives. He was to the Arab world what Aristotle was to Greece, Leonardo da Vinci to the Renaissance and Goethe to Germany. His preeminence embraced not only medicine, but also the fields of philosophy, science, music, poetry and statecraft. His contemporaries called him "the prince of physicians."

Ibn Sina's life was in fact the stuff of legend. The son of a tax collector, he was so precocious that he had completely memorized the Qur'an by age 10. Then he studied law, mathematics, physics, and philosophy. Confronted by a difficult problem in Aristotle's *Metaphysics*, Ibn Sina re-read the book 40 times in his successful search for a solution. At 16 he turned to the study of medicine, which he said he found "not difficult." By 18, his fame as a physician was so great that he was summoned to treat the Samanid prince Nuh ibn Mansur. His success with that patient won him access to the Samanid royal library, one of the greatest of Bukhara's many storehouses of learning.

At 20, Ibn Sina was appointed court physician, and twice served as vizier, to Shams al-Dawlah, the Buyid prince of Hamadan, in western Persia. His remaining years were crowded with adventure and hard work, yet he somehow found time to write 20 books on theology, metaphysics, astronomy, philology and poetry and 20 more on medicine—including *Kitab al-Shifa'*, or *The Book of Healing*, a medical and philosophical encyclopedia.

His supreme work, however, is the monumental *Al-Qanun fi al-Tibb, The Canon of Medicine*. Over one million words long, it was nothing less than a codification of all existing medical knowledge. Summarizing the Hippocratic and Galenic traditions, describing Syro-Arab and Indo-Persian practice and including notes on his own observations, Ibn Sina strove to fit each bit of anatomy, physiology, diagnosis and treatment into its proper niche.

The Canon stressed the importance of diet and the influence of climate and environment on health. It included discussions

This depiction of mandrake before flowering (top) appeared in an Arabic version of De Materia Medica *titled* Khawass al-Ashjar (The Properties of Plants)*, translated in Baghdad in 1240. Above, an anatomy lesson at the medical school at Montpellier—one of Europe's earliest—from de Chauliac's 1363* Grande Chirurgie. *Opposite: In this illustration from 1320, a lecturer reads from a book labeled "Avicenum," the Latin form of Ibn Sina's name, while an assistant prepares a compound with mortar and pestle.*

TOP: BODLEIAN LIBRARY; CENTER: ART RESOURCE/MUSÉE ATGER; OPPOSITE: BIBLIOTHÈQUE NATIONALE DE FRANCE

of rabies, hydrocele, breast cancer, tumors, labor and poisons and their treatment. Ibn Sina differentiated meningitis from the meningismus of other acute diseases; and described chronic nephritis, facial paralysis, ulcer of the stomach and the various types of hepatitis and their causes. He also expounded the dilation and contraction of the pupils and their diagnostic value, described the six motor muscles of the eye and discussed the functions of the tear ducts, and he noted the contagious nature of some diseases, which he attributed to "traces" left in the air by a sick person.

The Canon also included a description of some 760 medicinal plants and the drugs that could be derived from them. At the same time Ibn Sina laid out the basic rules of clinical drug trials, principles that are still followed today. (See page 28.)

Not surprisingly, *The Canon* rapidly became the standard medical reference work of the Islamic world. Nizami-i Arudi of Samarkand spoke for generations of physicians when he wrote, in the early 12th century, "From him who manages the first volume [of *The Canon*], nothing will be hidden concerning the general theory and principles of medicine." *The Canon* was used as a reference, a teaching guide and a medical textbook until well into the 19th century, longer than any other medical work.

During the 10th century, when Arab astronomical texts were first translated in Catalonia, Europe began to reap the intellectual riches of the Arabs and, in so doing, to seek out its own classical heritage. The medical works of Galen and Hippocrates returned to the West by way of the Middle East and North Africa, recovered through Latin translations of what had become the Arab medical classics. Through the intellectual ferment of the Islamic present, Europe recovered some of its past.

The two main translators of classical material from Arabic into Latin were Constantinus (also known as Leo) Africanus (1020–1087), who worked at Salerno and in the cloister of Monte Cassino, and Gerard of Cremona (1140–1187), who worked in Toledo. It was no accident that both translators lived in the Arab-Christian transition zone, where the two cultures fructified each other. And it was no coincidence that Salerno, Europe's first great medical faculty of the Middle Ages, was close to Arab Sicily, nor that the second, Montpellier, was founded in 1221 in southern France, near the Andalusian border.

Ibn Sina's *Canon* made its first appearance in Europe by the end of the 12th century, and its impact was dramatic. Copied and recopied, it quickly became the standard European medical reference work. In the last 30 years of the 15th century, just before the European invention of printing, it was issued in 16 editions; in the century that followed more than 20 further editions were printed. From the 12th to the 17th century, its *materia medica* was the pharmacopoeia of Europe, and as late as 1537 *The Canon* was still a required textbook at the University of Vienna.

Translations of Al-Razi's *Al-Kitab al-Hawi* and other works followed rapidly. Printed while printing was still in its infancy, all of Al-Razi's works gained widespread acceptance. The ninth book of *Al-Kitab al-Mansuri* ("Concerning Diseases from the Head to the Foot") remained part of the medical curriculum at the University of Tübingen until the end of the 15th century.

Contemporary Europeans regarded Ibn Sina and Al-Razi as the greatest authorities on medical matters, and portraits of both men still adorn the great hall of the School of Medicine at the University of Paris. In *The Inferno*, Dante placed Ibn Sina side by side with antiquity's two greatest physicians, Hippocrates and Galen. Roger Bacon consulted Ibn Sina to further his own inquiries into vision.

But it was not only Al-Razi and Ibn Sina who influenced Europe. Translations of more than 400 Arab authors, writing on such varied topics as ophthalmology, surgery, pharmaceuticals, child care and public health, deeply influenced the rebirth of European science.

Despite their belief in now superseded theories such as humors and miasmas, the medicine of Ibn Sina, Al-Razi and their contemporaries is the basis of much of what we take for granted today.

It was those Arab physicians who made accurate diagnoses of plague, diphtheria, leprosy, rabies, diabetes, gout, cancer and epilepsy. Ibn Sina's theory of infection by "traces" led to the introduction of quarantine as a means of limiting the spread of infectious diseases. Arab doctors laid down the principles of clinical investigation and drug trials, and they uncovered the secret of sight. They mastered operations for hernia and cataract, filled teeth with gold leaf and prescribed spectacles for defective eyesight. And they passed on rules of health, diet and hygiene that are still largely valid today.

Thus the Islamic world not only provided a slender but ultimately successful line of transmission for the medical knowledge of ancient Greece and the Hellenic world, it also corrected and enormously expanded that knowledge before passing it on to a Europe that had abandoned observation, experimentation and the very concept of earthly progress centuries before. Physicians of different languages and religions had cooperated in building a sturdy structure whose outlines are still visible in the medical practices of our own time.

When this mural of a pharmacy (opposite) was painted in late 15th-century Italy, more than 600 years had passed since the first private apothecary opened in Baghdad. At the Benedictine monastery at Monte Cassino in the 10th century, the Middle Eastern traveler Leo Africanus translated Arab medical texts and supervised a hospital run on Arab principles. Between that time and the Renaissance, European hospitals like the one above, from an undated Italian manuscript, were increasingly modeled on the Arab bimaristan.

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FLYING HIGH

WRITTEN BY EDMUND MIDURA

When the Soviet Union collapsed at the end of 1991, sixteen new nations appeared where the Union of Soviet Socialist Republics had stood before. Among them were five Muslim republics and one whose population was just under 50 percent Muslim; five of the six were achieving independence for the first time. Five new flags and one old one eventually joined the banners that wave over the nations of the Islamic world. (See *Aramco World*, March-April 1978.)

Becoming a nation-state in the modern meaning of the term is a gigantic and complex undertaking that some countries achieve over decades—as Saudi Arabia did—or over centuries, as in the case of China. Others find nationhood suddenly thrust upon them, and that's the way it was for Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan in the early 1990's. The will to nationhood was there—and had long been there—but its reality found those countries unready in some practical ways.

One of those ways was the existence of a national flag. That apparently superficial trapping of modern statehood can nonetheless serve an important function in the building of a nation,

expressing the unity, common ideals and self-identity of the people. Of the six new nations, only Azerbaijan was ready for that.

It took until the end of 1992 for all of these new Muslim states to officially adopt national flags. It was a turbulent and confusing period, and vexillologists owe a debt of gratitude to the Flag Research Center of Winchester, Massachusetts, the world's leading authority on flags, for chronicling those developments in Central Asia and the Caspian region.

Czarist Russia conquered the Turkic peoples of Central Asia during the 18th and 19th centuries, organizing the area into several entities to keep the peoples divided and dependent. (See *Aramco World*, January/February 1997.) The overthrow of Czar Nicholas in 1917 loosened the Russians' grip on some parts of the empire, but hardly at all on Central Asia. Azerbaijan broke free, with the other Caucasian states of Armenia and Georgia. But Soviet Russia wanted its own empire, and by 1920 the Red Army had reconquered the Caucasus, and Azerbaijan's brief nationhood was extinguished. (The stories are told in the novel *Ali and Nino* and the French-Georgian film "A Chef in Love.") Under the Soviets the Muslim areas were first organized as "autonomous regions" and then as full-fledged component republics of the USSR. Those territorial divisions of the 1920's and 1930's became the boundaries of the Central Asian nations that emerged in the 1990's.

Each of the republics of the Soviet Union was given a "national" flag, all of them variations on the red all-union banner bearing a gold star, hammer and sickle in the top corner at the staff. The republics were distinguished from one another by stripes and ornamentations on the red banner in colors that had local significance. Azerbaijan, Kazakhstan and Uzbekistan each had a blue stripe on their Soviet-republic flags. Turkmenistan had two blue stripes, Kyrgyzstan two blue and one white stripe, and Tajikistan a green and a white stripe.

In the new nations' earliest days, those were the only flags available, and they continued to be flown for varying periods. Tajikistan hung on to its Soviet-era flag for about a year, and was the last to adopt its own new standard.

Azerbaijan started loosening its ties to the Soviet Union in 1990 and was the first of the Muslim states to declare independence, on August 30, 1991. Kyrgyzstan and Uzbekistan declared themselves free the following day. Tajikistan followed in September, Turkmenistan in October and Kazakhstan in December.

Azerbaijan, which had briefly existed as an independent state from 1918 to 1920, had already readopted the national flag of the first republic on February 5, 1991, almost six months before it officially broke free again. The use of that flag, which had appeared on Azerbaijan's first postage stamps in 1919, had been revived in 1989 as a symbol of nationalism when Azerbaijanis and Armenians clashed over the territory of Nogorno Karabakh. (See *Aramco World*, January/February 1990.)

Azerbaijan

Thus Azerbaijan's flag is the only one of this group to have a history. It has three horizontal stripes, blue over red over green, with a white crescent and an eight-pointed star centered on the red stripe. The design goes back to the banner of a political party of 1917, whose slogan was "Turkify, Islamicize, Europeanize!" The blue, a traditional Turkic color, represented the Turkic peoples, the green represented Islam and the red the adoption of European methods, by which modernization and progress were to be brought to Azerbaijan. The star and crescent are a traditional symbol of Muslim nations in general and the Ottomans in particular. Azerbaijan's star was given eight points to represent the eight Turkic peoples.

After Kyrgyzstan and Uzbekistan declared their independence, the Uzbeks took a month to settle on a new flag and the Kyrgyz six months. In those countries, as well as in Turkmenistan, Kazakhstan and Tajikistan, no flags could at first be found except the old Soviet-republic flags. Dozens, in some cases hundreds, of design proposals were put forth; there was much jockeying by different interests; many flags were unofficially flown; and, finally, a design specified by the new government, or chosen in a competition, was adopted.

Uzbekistan

Uzbekistan—land of the fabled cites of Khiva, Bukhara and Samarkand—officially adopted a flag design full of symbolism on September 30, 1991. It has three horizontal stripes, blue over white over green. The stripes are separated by two very narrow bands of red called fimbriations, from the Latin word for a border or fringe. On the blue stripe, starting at the staff, are a white crescent and twelve stars, with the latter uniquely arranged in three tiers of three, four, and five stars. The blue is said to represent fundamental sources of life—such as water—and is the color of the 14th-century Turkic leader Timur (Tamerlane). Peace and purity are represented by the white, Islam and new life by the green, and the life force by the red of the fimbriations. The new moon stands for the rebirth of the nation, and the twelve stars represent the months of the calendar and the signs of the zodiac. In addition, their number symbolizes the multiplication of the four "elements"—air, earth, fire, water—by the three levels of existence—heaven, earth and the between.

Kyrgyzstan

Kyrgyzstan's flag was adopted on March 3, 1992 and shows a combination of esoteric and practical symbols. On a field of red—traditional color of the Kyrgyz—is centered a yellow sun with 40 rays, representing the 40 tribes led by the ancient national hero, Manas, who united them to form the Kyrgyz nation. (See *Aramco World*, May/June 1996.) Centered on the sun is a red circle containing two crossed sets of three curved lines, a stylized representation of the opening at the peak of a *yurta*—the traditional circular tent of skins used by the nomads of Central Asia and Mongolia. The sun symbolizes light, nobility and eternity to the Kyrgyz. This flag is of particular interest because on the obverse, or front, side the rays of the sun curve in a counter-clockwise direction, while on the reverse of the flag the rays curve clockwise.

Tajikistan

Tajikistan was the next republic to declare its secession from the Soviet Union, but was the last to adopt its own national flag, largely because of a tragic period of instability and conflict that came with nationhood. The Tajiks elected Rakhman Nabiyev, their previous Communist ruler, as president in November 1991, but he was ousted the following year and civil war ensued. Tajikistan's Soviet-republic flag was retained as the national flag by Nabiyev's government until it was finally replaced by the design adopted on November 24, 1992. That flag has three horizontal stripes of red over white over green, with the white stripe being broader than the other two. Centered on the white stripe is a gold crown with seven stars above it. This device is said to represent the "state sovereignty of Tajikistan; the unbreakable union of workers, peasants and intellectual classes of the nation; and friendship and brotherhood among all nationalities." Represented in the white and green of the flag's colors are two important agricultural crops of Tajikistan, cotton and grapes.

Turkmenistan

The flag of Turkmenistan is the world's only national flag bearing design elements from Oriental carpets. However, since weaving rugs is such an ancient and important traditional industry for the Turkmens, that shouldn't be surprising. In a design attributed to Gogorkuu Keneshinin, the Turkmenistan flag has a green overall field crossed by a broad, vertical claret band near the staff. On this band are five different black, white and orange *guls*—symmetrical designs used on rugs—associated with five of the nation's tribes, the Tekhe, Yomut, Sayk, Salor and Ersari. *Guls* were represented on the arms of the Turkmen Soviet Socialist Republic as far back as the 1920's. To the right of the top of the band are a white crescent moon and five stars representing the regions of Akhal, Balkan, Doshkhovez, Lebap, and Mary.

Kazakhstan

Across the vast steppelands of Kazakhstan, the largest of the new nations, Muslims and the Kazakhs themselves together make up only a plurality of the population.

Chosen in a competition, the Kazakh flag emphasizes peace and beauty. It was adopted on June 4, 1992, based on a design by Shaken Niyazbekov. On a sky-blue field symbolizing the "endless sky" over the steppes is centered a golden sun with 32 gold rays. Below it soars a golden eagle of the steppes, symbol of the Kazakh people's love of freedom and their aspirations. The sky-blue field of the flag also stands for peace, unity and well-being. Placed vertically at the staff is a gold "national ornamentation," an abstract graphic design.

How long these new banners will fly, no one can know. For some peoples, national flags seem to come and go. For others, the flag endures for centuries. What is sure is that, no matter how brief its tenure may be, a national flag is a symbol suffused with emotion—pride in and love for the common heritage shared with the other inhabitants of the nation. The Islamic world has welcomed six such new symbols to its family of proudly flying banners.

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The Crescent in Laos

ISLAM IN VIENTIANE

Written by Andrew Forbes
Photographed by Stephenie Hollyman

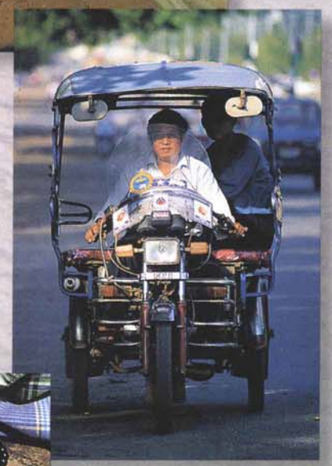
Using flat nets stretched wide by springy bamboo poles, two of the several hundred Cham Muslims who fled Cambodia for Laos in the 1970's fish the shallows of the Mekong River for catfish, carp, serpentfish and sheatfish. Insets: A girl plays before Friday prayers outside Vientiane's second mosque, the Masjid Al-Azhar. In a city market, a Cham woman crushes sugar cane to sell the fresh juice to passers-by. After breakfast at his wife's noodle shop, Ratif, a Buddhist convert to Islam who attends the Azhar mosque, begins another day driving one of Vientiane's ubiquitous tuk-tuk *taxis. On a stone seat, a* misbaha, *a string of prayer beads, rests next to a sarong, the printed cloth worn by both men and women in much of Southeast Asia.*

Although civilization in land-locked Laos is likely more than 6000 years old, the country remains little-known outside Southeast Asia. It is only in recent years that this overwhelmingly Buddhist land, roughly the size of England and layered with fading veneers of both French colonialism and communism, has begun to open, gradually, to outsiders. Its capital, Vientiane, is also home to one of Southeast Asia's smallest Muslim communities.

Living within national borders drawn by the French at the end of the 19th century, roughly half of Laos's population of four million is ethnic Lao, known locally as Lao Lum, close kin to the inhabitants of adjacent Northeast Thailand. These are the people of the Mekong Valley lowlands who are the majorities both in Vientiane and in Luang Prabang, the pre-colonial royal capital, and who have also traditionally dominated Lao government and society.

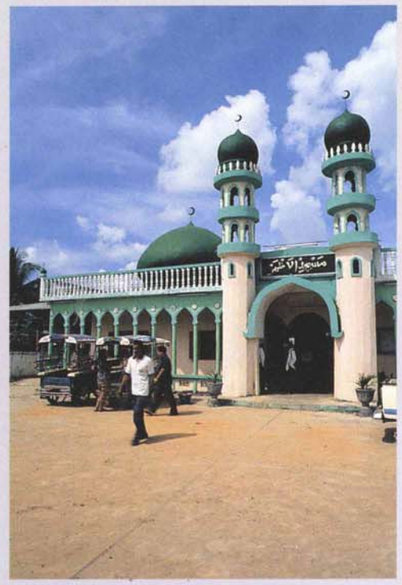
The remaining half of the population falls into three groups distinguished, among other ways, by the altitudes of their home regions. An estimated 20 percent are Lao Tai, who live in the hills and cultivate dry rice, as opposed to the irrigated paddy-rice culture of the lowland Lao Lum. In the hills are also the Lao Theung, the "approaching-the-top-of-the-mountain" Lao, a loose affiliation of mostly Mon-Khmer people who constitute another 15 to 20 percent of Laos's population. Finally, on remote, often misty mountainsides above 1000 meters' altitude (3300 feet), there live the Lao Sung, the "High Lao" people, who are related to the Hmong and Mien of northern Thailand. There too live scatterings of Akha, Lisu and Lahu peoples.

In Laos, as in neighboring Thailand, Burma and Southwest China, much of the trade through the mountains has traditionally been carried on by Chinese Muslims from China's adjacent province of Yunnan. These pioneering caravaneers, known to the Lao as Chin Haw, once drove mule trains south as far as Luang Prabang and beyond. Today, a few Chin Haw Muslims can be found occasionally in the high country of Laos, where they often continue to serve as middlemen in the trade between lowlanders and hill people.



MAIN PHOTO: SUGAR CANE AND BEADS: DAVID HENLEY/CRESCENT PRESS AGENCY

The Azhar Mosque, below, locally called "Masjid Cambodia," serves the 45 Cambodian Cham Muslim families of Vientiane. Opposite: A group of kaeng reua *(racing boat) teams sets out for evening practice onto the Mekong River. Insets: A Cham family at home on Friday after prayers. Vientiane's Lan Xang ("One Million Elephants") Boulevard terminates at the Presidential Palace. Imam Haje Moulavi Kamarudeen Noori, originally from Madras, has served at Jama' Masjid, Vientiane's oldest mosque, since 1961. A chalkboard at*



Jama' Masjid shows the day's prayer-times in Lao and Arabic but also in Tamil and English, languages which reflect the presence of numbers of Pakistani and south Indian Muslims in the city.

Inside back cover: *Guavas take center stage at a Vientiane market stall run by a Cham Muslim family. Other produce available includes carrots, tamarillos, chayotes (mirlitons), corn, cherimoyas (custard apples), limes, chilis, potatoes and onions.*

But nearly all 500 or so Laotian Muslims live in the capital, Vientiane, and there they attend one of two mosques. The oldest and best known of these is the Jama' Masjid, or Congregational Mosque, which sits in a prestigious central neighborhood just behind the Nam Phu Fountain. The building is constructed in a local adaptation of Mughal style, but the minaret is small, like those of most South Asian mosques. At ground level is a large communal kitchen, and above it is the main prayer room. Throughout the mosque, signs appear in four languages—Lao, Arabic, English and Tamil.

This latter South Indian script is a reminder that, in crossing the Mekong from Thailand, the traveler crosses not only one of the great rivers of Asia, but also a great cultural divide imposed by European colonialism. Vientiane's Jama' Masjid, like the surrounding city and Laos itself, was once part of French Indo-China. The Tamil presence has roots in Pondicherry, France's former toehold on the southeast coast of the Indian subcontinent. Because travel was easier within the French colonial region than across the divide between the French and British spheres, Tamil Muslims found their way to Vientiane by way of Saigon, where the mosques also display signs in the looping Tamil script.

But on Fridays, when the congregational prayers are held, the atmosphere is clearly South Asian, with no evidence of French influence. Local Muslims, speaking Lao but often unmistakably of subcontinental ancestry, mix with traveling Pathans and Bengalis. Still other congregants are descended from legionnaires, originally recruited in then-French North Africa and posted to Vientiane, who married locally and stayed on.

Other regulars at the mosque include diplomats from the embassies of Malaysia, Indonesia and Palestine, and staffers of international agencies.

Most of Vientiane's Muslim families make their livings trading in textiles, fishing and butchering, and in import-export concerns and restaurants. The latter reflect the diverse heritage of the community: In addition to several good South Indian Muslim restaurants, it is also not difficult to find others that serve couscous, kebabs and spicy *merguez* lamb sausage, all of them familiar flavors in North Africa. Muslims are a very noticeable presence in the textile sections of Vientiane's several markets, especially in the Talat Sao, or Morning Market.

Few Muslims live in the smaller towns and settlements beyond Vientiane. Some say there is a small mosque in Sayaburi, on the west bank of the Mekong not far from Nan, but Sayaburi has been closed to outsiders for many years. Only now, as the restrictions on internal travel within Laos are gradually lifted, is it once again becoming accessible. When asked about the presence of Muslims elsewhere in the country, an elderly Muslim of Vientiane shook his head sadly and replied, in an intriguing hybrid of Arabic and Lao, *"kaffir mot"* — "all unbelievers."

Yet this is not entirely the case. Just outside the predominantly South Asian circle of the Jama' Masjid, another Muslim community has taken root. The Azhar Mosque—known locally as "Masjid Cambodia" for its congregation of Cambodian Chams—is tucked away in a corner of Chantabouli, a working-class district northwest of Vientiane's center. The Cham community here (See *Aramco World*, March/April 1993) is small, comprising only about 200 people in 45 families, and all have arrived since 1975 as refugees from the Khmer Rouge regime. They brought with them a strong sense of identity, as well as their own language, which is why they built their own mosque beginning in 1976.

In Cambodia, most had been living in fishing villages along the banks of the Mekong above Phnom Penh, where they had lived for the better part of a millennium. But from the day the Khmer Rouge seized power in 1975, mosques were torn down and the Chams were forbidden to worship or to speak their own language. Seventy percent of Cambodia's 400,000 Chams either starved to death or were killed outright, and those who survived did so either by concealing their identity or by undertaking traumatic journeys into exile.

The eyes of Musa Abubakr, the dignified, aging imam of the Azhar Mosque, fill with involuntary tears as he recalls the death by starvation of nearly all his family. Since his arrival in Vientiane, however, he has built up a flourishing spare-parts business along one of Chantabouli's main roads. "Remember," he says, "we're Lao Muslims now." And so saying he testifies both to the hospitality of the Lao people and to the Chams' own hope that their times of trial have come to an end on the quiet streets of Vientiane.

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New York-based free-lancer Stephenie Hollyman is cofounder of a multimedia news service. Her book on the Dogons of West Africa will be published by Abrams.

MAIN PHOTO, OPPOSITE: DAVID HENLEY/CRESCENT PRESS AGENCY

Events & Exhibitions

Stockholm Orient Festival presents classical and popular music, dance, lectures and a food bazaar for four days under the Nordic "Midsummer Sky." June 12-15; for more information fax (46-8) 702-1599.

The Mosque is a two-hour workshop for children aged 10 to 13 that teaches the principles of traditional mosque architecture through models and a guided gallery visit. Musée du Louvre, **Paris**, 2:45 p.m. June 18, July 11 and August 29.

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 AWAIR, Arab World and Islamic Resources and School Services of Berkeley, California. Sites and dates include: **Columbus, Ohio**, June 20; **Woodbridge, Virginia**, June 25; **Rockville, Maryland**, June 26; **Columbia, Missouri**, August 20; **De Pere, Wisconsin**, September 20; **Humboldt, California**, October 11. For details, call (202) 296-6767 or (510) 704-0517.

Crowning Achievements: *African Arts of Dressing the Head* surveys forms and colors in hairstyles throughout Africa from ancient Egypt to the present. High Museum of Art, **Atlanta**, through June 22.

The Glory of Byzantium highlights the middle period of the Byzantine Empire (9th to 13th century) with works from Constantinople and other regions that had profound influence throughout Western Europe, the Middle East and the Caucasus. Metropolitan Museum of Art, **New York**, through July 6.

The Dunya Festival: More than 300 performers from cultures around the world present music, storytelling and poetry in open-air performances on 13 stages in the city's streets and parks. Organized by the Museum voor Volkenkunde, **Rotterdam**, July 7 and 8.

Indian Court Painting: *16th—19th Centuries*. The first of three exhibits marking the 50th anniversary of Indian independence traces the interconnections among diverse traditions. Metropolitan Museum of Art, **New York**, through July 6.

Looping and Knitting: *A History* shows the distinct origins of the two techniques and traces their roles from the earliest knitted Egyptian socks of the 12th to 15th centuries. Textile Museum, **Washington, D.C.**, through July 27.

The Afghan Folio: *Photographs by Luke Powell* exhibits 32 dye-transfer color prints of images made in the years just prior to the Soviet occupation. University of **Pennsylvania** Museum, **Philadelphia**, through August 23.

Following the Stars: *Images of the Zodiac in Islamic Art* features 20 artifacts–metal, ceramics and illustrated manuscripts–that highlight the period from the 12th to the 15th century, when the scientific discipline of astrology influenced artistic design. Metropolitan Museum of Art, **New York**, through August 31.

From Palace to Parlor: *Islamic Textiles Inspire Avant Garde Design* shows the Turkish, Indian, Persian and Spanish antecedents of the work of 19th-century English designer William Morris and others in the arts and crafts movement. Textile Museum, **Washington, D.C.**, through August 31.

Shadows of God on Earth: *Arts of the Ottoman, Safavid and Mughal Dynasties* explores themes of kingship and court life, as well as cultural interaction, among the three last and greatest Islamic dynasties. Sackler Museum, **Boston**, through August 31.

The Greeks of the West chronicles the expansion and influence of Greek culture between the second and first millennia BC. National Museum of Anthropology, **Mexico City**, through August.

King of the World: *A Mughal Manuscript from the Royal Library, Windsor Castle* exhibits 44 pages from the Padshahnama, or "History of the Emperor," the rarely exhibited illustrated manuscript chronicling a decade in the reign of 17th-century emperor Shah-Jahan, builder of the Taj Mahal. Sackler Gallery, **Washington, D.C.**, through October 13.

Ancient Mesopotamia: *The Royal Tombs of Ur* tells the story of the excavations at Ur, in present-day Iraq, and displays artifacts from the renowned Royal Cemetery collection. University of **Pennsylvania** Museum, **Philadelphia**, through Fall.

The Gods of War: *Sacred Imagery and the Decoration of Arms and Armor* includes artifacts from the Middle East to India and Japan. Metropolitan Museum of Art, **New York**, through November.

Striking Tents: *Central Asian Nomad Felts from Kyrgyzstan* concentrates on the boldly colored and patterned floor coverings that insulate the traditional *yurta*. Museum of Mankind, **London**, through December 31.

The Bathhouse: *The Culture of the Bath in East and West* tells the history of the public bathhouse in both the Islamic Middle East and in the Netherlands. Museum voor Volkenkunde, **Rotterdam**, through January 4.

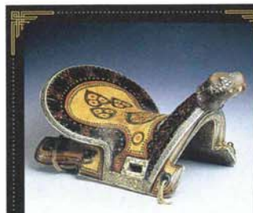
The Jewel and the Rose: *Art for Shah-Jahan*. 23 paintings, textiles and objects exemplify the artistic blossoming that occurred under India's fifth Mughal emperor, builder of the Taj Mahal. Sackler Gallery, **Washington, D.C.**, through February.

The Story of Writing traces writing from cuneiform and hieroglyphs to the invention of the alphabet and its use throughout the Old World. **The Ancient Egyptians** displays history, religion, art, daily life and death through the collection of the Fourth Duke of Northumberland. **Arts and Crafts of Islam** displays metalwork, ceramics, Mughal jade-carving and other crafts. The Oriental Museum, University of **Durham**, England, semi-permanent.

Byzantine and Medieval Galleries feature some 150 artworks from the eastern Mediterranean and Europe, including fine gold jewelry, sculpture, tapestries and lamps. **Virginia** Museum of Fine Arts, **Richmond**, permanent.

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

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.**



Laquer-painted decoration and incised-ivory inlay enrich a 19th-century wooden saddle from Bukhara.

2000 Years of the Silk Road: *Treasures from Uzbekistan* presents the rich culture that flourished at the crossroads of the ancient highway system that linked Asia and Europe. For more than two millennia, people from throughout the known world passed through what is today one of Central Asia's newest nations. Amid this stream of travelers were artists and craftsmen whose ideas and techniques were often assimilated locally, so that widely diverse influences appear in the artistic history of Uzbekistan. The exhibition contains more than 300 objects, from elaborate horse trappings and other nomadic arts to manuscripts, ceramics, metalwork and textiles, including a rare collection of 19th-century *ikat*-woven silk cloaks and several *suzanis*, silk and cotton hangings. Notable also are the wood panels carved in 14th-century Samarkand, and the gold jewelry depicting the Chinese watchtowers that once guarded the eastern reaches of the Silk Roads. The exhibit also includes photographs of daily life in Uzbekistan up to the present day. Museum voor Volkenkunde, **Rotterdam**, through August 10.

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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