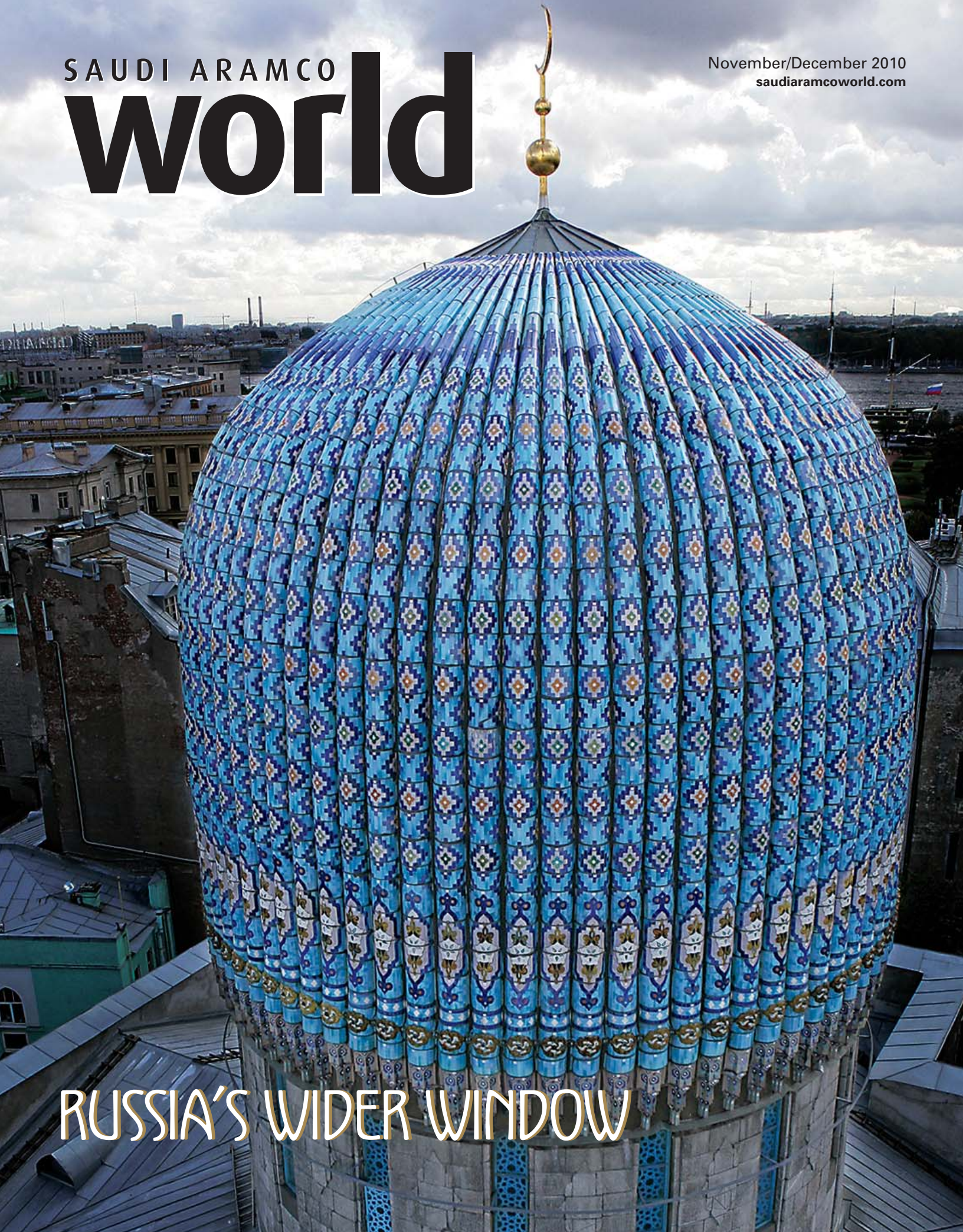
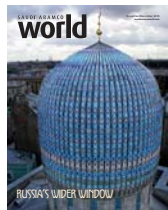


SAUDI ARAMCO **World**

November/December 2010
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RUSSIA'S WIDER WINDOW





The fluted, azure-tiled dome atop the St. Petersburg Cathedral Mosque has accented the skyline of Russia's former imperial capital for 100 years. The mosque remains a religious and social center for the city's half million to one million Muslims. Photo by Ergun Çağatay.

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Back Cover



Copying historic Turkish arabesque patterns, artist Grace McCommond paints a dome in the Bakewell Ottoman Garden at the Missouri Botanical Gardens, where architecture harmonizes with some 60 species of plants. Photo by Jakob M. Berr.

Saudi Aramco, the oil company born as an international enterprise more than seventy-five years ago, distributes *Saudi Aramco World* to increase cross-cultural understanding. The magazine's goal is to broaden knowledge of the cultures, history and geography of the Arab and Muslim worlds and their connections with the West. *Saudi Aramco World* is distributed without charge, upon request, to a limited number of interested readers.



2 An Ottoman Garden Grows in St. Louis

Written by Philippa Scott

Photographed by Jakob M. Berr

From tulips to gazebos, much about modern gardens has roots in Ottoman Turkey, where the Bakewell family of St. Louis, too, has a distant ancestor linked—if legend is to be fully believed—to the court of the sultan. That link inspired the family's bequest of a public, historic Ottoman garden.

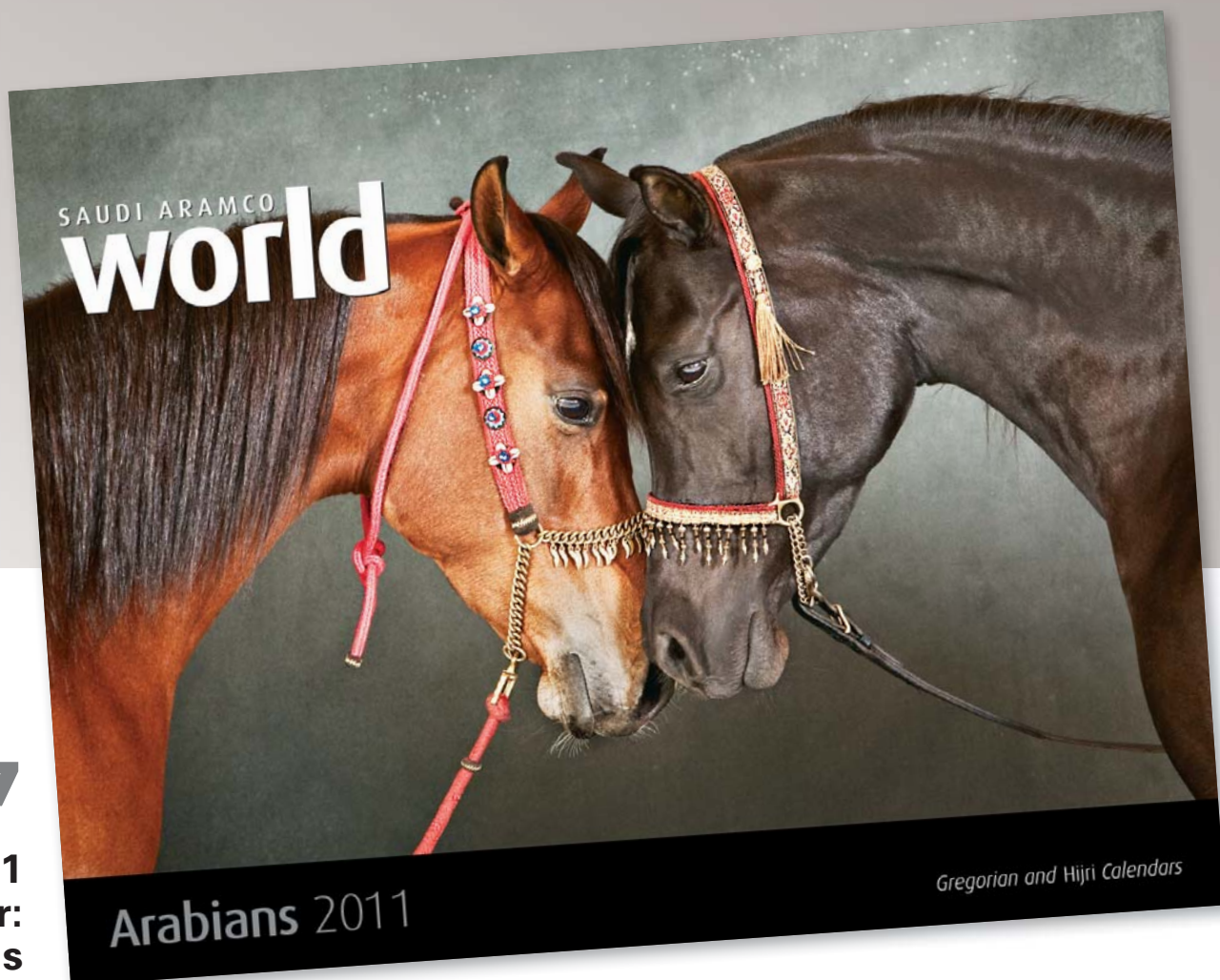
12 Fire in the Nubian Sky

Written by Ann Chandler

Photographs courtesy of
Peter Jenniskens, SETI Institute /
NASA Ames

In 2008, astronomers for the first time tracked an asteroid from space to its spectacular demise in the atmosphere over northern Sudan, where students from Khartoum University have recovered nearly 300 fragments—the only meteorites ever found from a known source in space.





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2011 Calendar: Arabians

Articles by Peter Harrigan and Paul Lunde
Photographed by Tariq Dajani

A mare from Saudi Arabia comes face-to-face with a Russian-bred Arabian mare in Riyadh. Heirs to the beauty and stamina that made them favorites among Bedouins, kings and cavalries—and a foundation of the Thoroughbred horse—Arabians today are a global breed whose power to enchant endures.



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Russia's Wider Window

Written by Sheldon Chad
Photographed by Ergun Çağatay

With a history as dramatic as Russia's own, the St. Petersburg Cathedral Mosque stands among the landmark buildings of the capital founded by Peter the Great. A century after the laying of its cornerstone, it's a lively hub amid a fast-growing, multi-ethnic population.

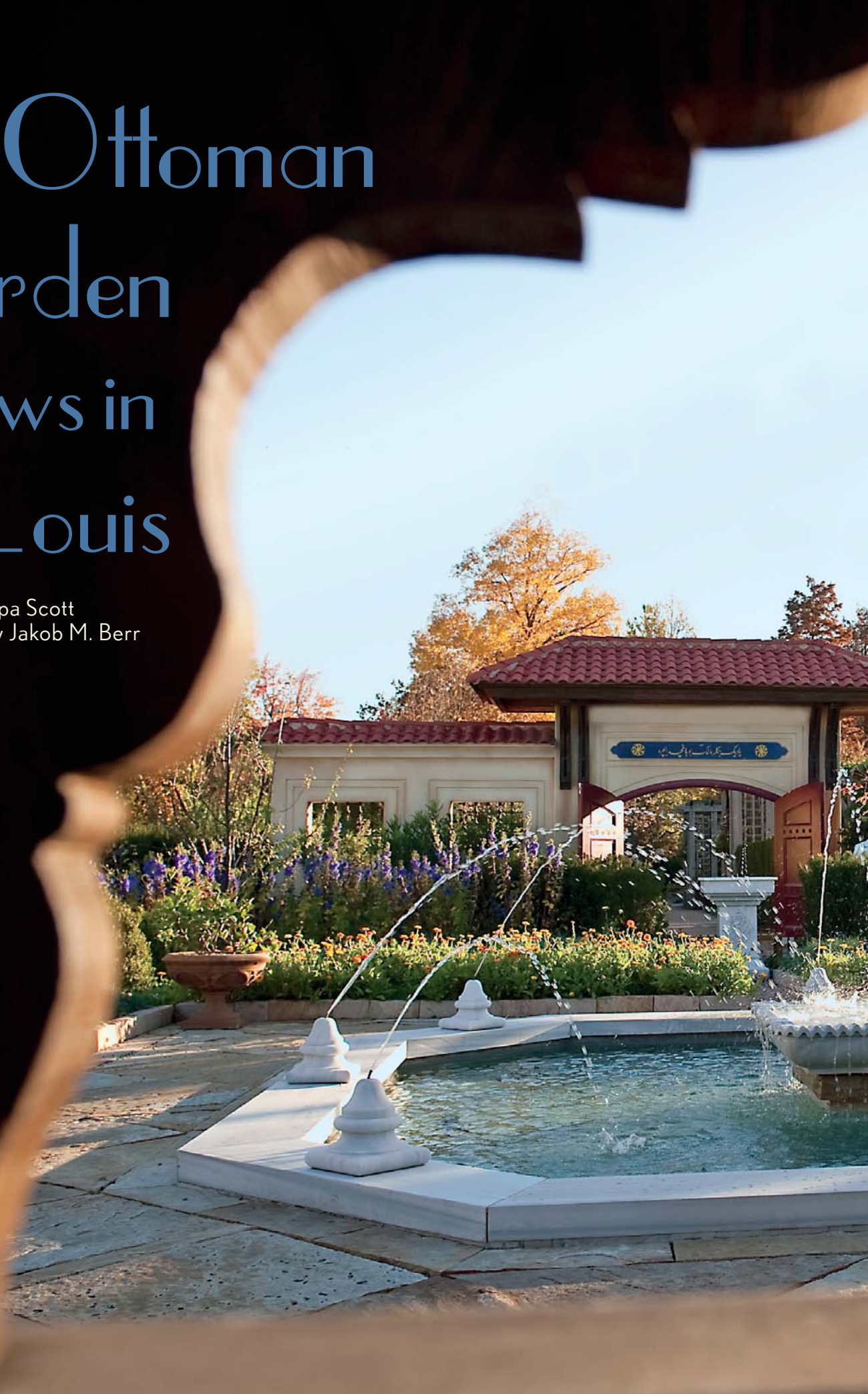



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An Ottoman Garden Grows in St. Louis

Written by Philippa Scott
Photographed by Jakob M. Berr





There is something about a walled garden that suggests a world set apart, special and secret. Enclosed, inward-looking, the walled garden lends itself to poetic imagery and metaphors for the spiritual world: Here is a safe place for introspection.

Birdsong, the sight and sounds of water, the sweet smells of flowers—all have powerful and beneficial effects on our minds and emotions: The garden offers us its haven.

Gardens, like nature, are never static. They change not only with weather and seasons, but also with the vagaries of human tastes and fashions from age to age and place to place. From the 17th to the 19th century, some of the world's most renowned gardens were created by the Ottomans in Turkey.

Paintings, manuscripts, palace records, travelers' descriptions and merchants' account books all provide much information about them. Travelers especially marveled at the Ottomans' love of gardens, remarking that, at court, to be presented with a choice bloom was deemed a high compliment, and the flower itself was worthy to be worn with, or instead of, a turban jewel. Visitors described the abundance of flowers in the Ottoman market gardens, and one source warned that selling tulip bulbs anywhere but in the capital, or exporting too many, were offences punishable by exile.

When he died in December 1993, Edward L. Bakewell, Jr. of St. Louis, Missouri left funds to his heirs to create in his name a public garden within the city's Missouri Botanical Garden. In planning to carry out his wishes, his sons Ted and Anderson remembered their father's fascination with a family legend that connected them to the Ottoman world, rekindled by his

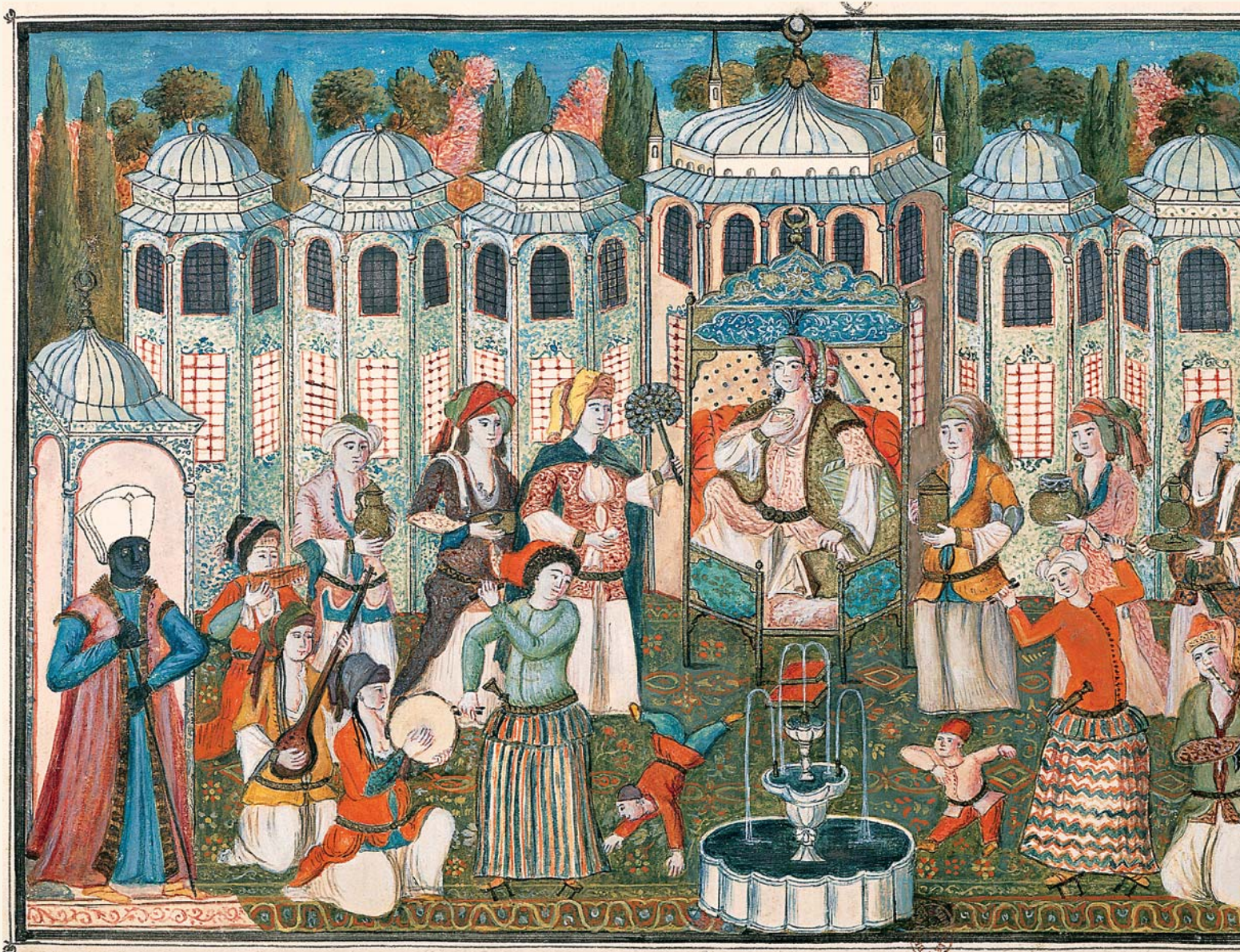
At court, to be presented with
a choice bloom was deemed
a high compliment.

visit to Istanbul many years ago. They felt that this offered both a fitting theme for their father's bequest as well as a practical complement to the Botanical Garden's existing horticulture.

The legend had endured through the family's maternal line, which counts among its ancestors Marie Marthe Aimée Dubucq de Rivéry, who lived in

the late 18th and early 19th centuries and—if the story is to be believed—became not only a wife of an Ottoman sultan, but also the mother of another. (See "The Legend of Aimée," opposite.) Because of this, the Bakewell Ottoman Garden, dedicated in May 2008, was inspired by descriptions and images of gardens from this era.

Depicting a late 17th-century Ottoman garden party hosted by the Queen Mother (*Valide Sultan*) for Madame Girardin, wife of the French ambassador, paintings such as this provide valuable insight into Ottoman garden design. Previous spread: As in historic Ottoman gardens, at the center of the Bakewell Ottoman Garden is a shallow pool (*havuz*), with a fountain.



Together with the Missouri Botanical Garden's Japanese and Chinese gardens, the Ottoman Garden enables the Botanical Garden to present experiences in both Far Eastern and Near Eastern gardens, in addition to its American and European traditions.

In Istanbul, the first three decades of the 18th century, under the reign of Ahmet III, became known as the "Tulip Era." Tulip festivals grew in popularity, and the influence of French rococo spread through the decorative arts and architecture, a result of the sultan's embassy to the French court at Versailles. Called *lâle* in Turkish, tulips are the most famous Turkish flower, long popular as a design motif in textiles, ceramics, paintings and even architecture. In Ottoman calligraphy, the word *Allah* was often written in the shape of a tulip. At the zenith of their horticultural art, the florists of the Ottoman court bred delicately colored tulips with long, slender petals and an elongated almond shape, and these refined flowers earned display singly, each in its own long-necked vase.

Europeans were fascinated by this new flower from the East, which they first classed as a sort of red lily. There are several claims regarding the tulip's introduction to European gardens. When extraordinary streaked tulips first appeared in Dutch gardens, the result was "tulipmania," and the Dutch turned the Ottoman love of flowers into an obsession in which fortunes were made and lost. (There was no way of telling whether a tulip bulb would result in a single-color bloom or a far more valuable one with color breaks. We now know that *Potyvirus* creates the streaked, feathered appearance, and today's tulips have been extensively hybridized to make the most of this effect.) A school of Dutch flower painting developed, and portraits of these new flowers themselves became symbols of wealth. To the Dutch, the flowers resembled the exotic sea shells, minerals and marbles that wealthy collectors sought to display in the "cabinets of wonders" popular at the time.

The creation of an Ottoman garden in Missouri is possible because of the general similarity of St. Louis's climate to that of northwestern Anatolia, especially the cities of Bursa, Istanbul and Edirne. Each was at one time the capital of the Ottoman Empire, and each had extensive imperial gardens, as well as scores of others that provided places of intimate association with nature



LEFT: BIBLIOTHÈQUE NATIONALE / GIRAUDON / BRIDGEMAN ART LIBRARY; RIGHT: TOPKAPI PALACE MUSEUM / GIRAUDON / BRIDGEMAN ART LIBRARY

The Legend of Aimée



Born in the French Caribbean colony of Martinique, the young woman whose full name was Marie Marthe Aimée Dubucq de Rivéry was the daughter of a wealthy plantation owner. Like others of her class, including her cousin Marie Joséphe Rose Tascher de la Pagerie (later to become the Empress Josephine), she was sent to complete her education in France, at the convent of the Dames de la Visitation in the port city of Nantes in about 1776.

This engraving of Aimée is said to have been made from a miniature painted shortly before she sailed for France. Under her portrait the engraver inscribed "Devenue Sultane Validé, Mère de Mahmoud II." ("Became Queen Mother, Mother of Mahmud II").

On her voyage home from France to Martinique in 1788, Aimée's ship encountered a storm, and worse: pirates are said to have kidnapped her and taken her to Algiers. There, the local Ottoman ruler apparently decided to seek favor with Sultan Abdulhamid I

by shipping the beautiful Aimée as a gift to the court in Istanbul.

There, in the imperial harem, Aimée was, by custom, given a new name, and it is said that she became Nakshidil—which is the name of the woman who bore the future Sultan Mahmut II. (He concluded the Ottoman Empire's first treaty with the United States in 1830.)

Although historians point out that Aimée was still a schoolgirl in France in the year Mahmut was born, yet the woman who raised Mahmut after his real mother's death was indeed of French language and culture; she opened up harem life, taught Mahmut French and influenced the dispatch of the first Ottoman embassy to France. Whether this woman was Aimée, or whether Aimée actually perished at sea, the story was politically useful at the time, and its romance has inspired several novels and films that play on its orientalist themes of shipwreck, piracy, sultans, harems and palace intrigue.



and family within the confines of domestic complexes.

Both Istanbul and St. Louis lie at approximately 40 degrees latitude, although Istanbul enjoys milder Mediterranean weather, while St. Louis endures a more extreme continental climate. Although many of the same plants will flourish in each, a few substitutions had to be made for the Bakewell garden. For example, the Mediterranean cypress (*Cupressus sempervirens*) does not flourish in continental climates, and so, to achieve an Ottoman “alley” or arboreal passageway, Jason Delaney, Missouri Botanical Garden’s senior horticulturist, planted a row of red cedar along the pathway, unified, in the Ottoman manner, by rosemary between and at the bases of the trees.

Covering some 1000 square meters (¼ acre), and designed around a traditional Ottoman reflecting pool, the Bakewell garden is a window into the gardens and gardening practices that evolved across the Islamic world. From its inception, this has been the heart of the Bakewell Ottoman Garden project, and the garden’s educational focus fosters understanding of Turkish history during an era when many now-familiar plants, shrubs, trees and flowering bulbs were first introduced to the West. Not only plants, but some familiar garden and park architecture also has Ottoman origins: Bandstands in many a park, including Henry Shaw’s gazebos in St. Louis, New York’s Central Park and London’s Hyde Park, all owe their designs to Turkish garden kiosks (*köşks*), which in turn derive from tents and pavilions. The 18th-century European fashion for *turqueries* included garden follies in the form of Ottomanesque tents and tented “smoking rooms” with Ottoman-style divan seating. Still today, throughout even rural Anatolia, simple kiosks—small, raised, roofed structures, open-sided, built of stone and wood—offer any passing shepherd or wanderer a place to rest, enjoy a view or picnic.

Istanbul was built on the hills of what is today the European side of the city. The other shore marks the beginning of Asia, and between these flows the Bosphorus, whose waters allow ships



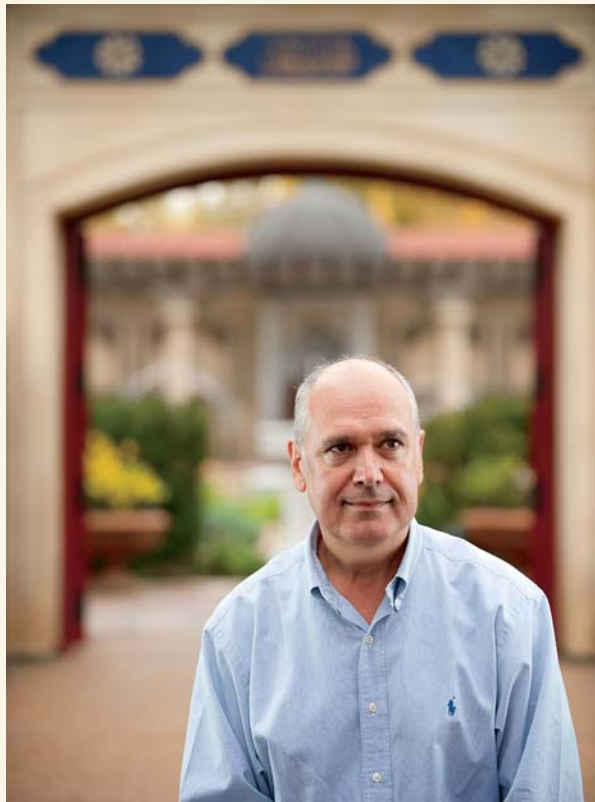
The garden fosters understanding of an era when many now-familiar plants, shrubs, trees and flowering bulbs were introduced from Turkey to the West.

Right: An Ottoman miniature by Lokman, from the late 16th century, shows a council of ministers in an elaborate palace garden.





Left: The inscription above the garden's entrance translates, "Praise to the Benefactor, praise." Below: The garden's St. Louis-based lead architect, Fazil Sütçü, was born and educated in Turkey. Lower: The garden's Ottoman sundial is calibrated to show Islamic prayer times.



from the Mediterranean and beyond to sail via the Marmara Sea to the Black Sea. The Byzantine city was in disrepair long before 23-year-old Sultan Mehmet the Conqueror besieged and captured it in 1453. Travelers describe scenes of sad desolation, and even the Great Palace, built when Constantine first founded his city, lay in ruins. Once resplendent,

with palaces, villas and terraced gardens sloping down the hillsides to the Bosphorus shore, and market gardens inside the city walls, it never recovered from its sacking and occupation in 1204 by the Fourth Crusade, spearheaded by the Venetians. After 1453, the Ottoman Empire lasted some 500 years until 1923, when the modern Republic of Turkey was established.

The last contemporary historian of medieval Byzantium, Michael Critobulus, tells us that, in the course of Mehmet's rebuilding, "Around the palace he laid out a circle of large and beautiful gardens, burgeoning with various fine plants, bringing forth fruits in season, with abundant streams, cold, clear and good to drink, studded with beautiful groves and meadows, resounding and chattering with flocks of singing birds that were also good to eat, pasturing herds of animals both domesticated and wild."

A portrait of Mehmet by Sibilzade Ahmet, now in the Topkapı Palace collection, depicts him not as a warrior or a ruler, but peaceably seated, delicately inhaling the scent of the rose he holds in his hand.

All Islamic gardens share an underlying theme of Paradise, nourished by the River of Life. Thus in a garden, a fountain and pool symbolize the pool in Paradise into which the celestial rivers flow. The basic elements—an open pavilion, a geometric layout and a water system that both nourished the garden and produced sound—were all familiar to most peoples of the greater Middle East. The climate of Anatolia did not demand the same rigorous irrigation practices

as, for example, Iran. There the *qanat* system of underground water channels developed, which was well suited to the formal garden, with four sections divided by straight water courses; nonetheless, in certain parts of Anatolia settled by Seljuk Turks, who arrived by way of Iran, the influence of this type of garden may be traced to that country.

Ottoman gardens developed in roughly three categories: those dominated by a pavilion and closely associated with water; those geometrically laid out, usually around a fountain; and informal gardens that emulated nature with minimal

human contrivance, or natural situations discreetly adapted to enhance human enjoyment.

An ideal Ottoman garden, given the space to do so, would incorporate each of these aspects. The Ottomans and their Turkic cousins, the Timurids, harking back to their nomadic ancestry, cherished no less the informal, natural-style garden. These often shared elements with game parks, and in the larger ones, gazelles, rabbits, birds and other creatures were hunted, and archery was practiced. Ottoman paintings show gazelles and rabbits—the original lawn mowers—cropping the grass in gardens that combine fruit trees, flowers grown alongside vegetables, shade trees and the



The garden is designed to harmonize relationships among flora, architecture, color, light, scent and sound. Frescos, top, use motifs taken from Ottoman manuscripts. The crescent-shaped finials atop both the pavilion's copper dome (top right) and the *kuşevi* (birdhouse, above right) open upward to evoke tulip petals. Above: A detail of one of the garden's main doors highlights the rich red ochre, or "Ottoman rose," that was the royal color of the Ottomans.



Ottoman garden designers used geometry, water, architecture and both formal and informal plantings to adapt each garden to its setting.

ubiquitous cypresses that stretch skyward like slender Ottoman minarets. Meandering paths led to benches and other places for repose, and where these seemed appropriate—for instance, next to a palace, pavilion, road or canal—more formal, well-ordered plots of flowers, shrubs and trees were planted. Sometimes a vine-covered pergola provided shade. If the space was enclosed with a trellis, this was most frequently painted in red ochre, or “Ottoman rose.” Whereas purple had been the royal color of the Byzantines, it was red that held significance for the Turks, even before their conquest of the city they nicknamed “the Red Apple.” Constantine’s great Church of Holy Wisdom, Hagia Sophia, was converted into a

mosque and painted in red ochre, as were many of the wooden water-side mansions, or *yalıs*, built along the Bosphorus, some of which can still be seen today.

In capturing Byzantine territories, the Ottomans also inherited Byzantine gardening customs, which had in turn developed from the classical world of Greece and Rome. Conversely, in Renaissance Italy, gardens that attempted to recreate classical tastes ended up sharing much in common with Ottoman gardens. In this way, Byzantium provided a connection among such different cultures and periods as ancient Greece and Rome, Persia and the world of Islam, as well as serving as a bridge between late antiquity and the Renaissance.

Although it has been argued that much of the Renaissance built upon the splendors of the Islamic East, history is rarely so simple, as the arts of the Renaissance would not have been possible without the Chinese technologies, such as silk and papermaking, introduced to the West by way of Muslim cultures along the Silk Roads.

The Ottoman regard for gardens and flowers ultimately extended far beyond the garden walls. The great buildings of Sinan, the most renowned architect of the Ottoman era, are decidedly Ottoman not only in their form but also in their decorations, which rely often on floral motifs. Similarly, flowers shimmer on tiled surfaces on the walls of mosques, palaces and public baths; huge tulips undulate on caftans of silk and gold; steel armor and horse trappings gleam with damascened blossoms. Foreigners remarked, in letters home, on the Turks’ love of flowers. Several varieties of narcissus (*nergis*) are native to Ottoman lands, and these, as well as roses (*gül*), carnations and pinks (*karanfil*), hyacinth (*simbül*) and almond blossom (*badem*), came to comprise the Ottomans’ “four-flower” motif in the mid-16th century.

Under the hand-painted dome sits a wooden “throne,” carved in Turkey for the garden, based on historic designs of seats that were easily transportable for use at events held in gardens.



The entrance to the Bakewell Ottoman Garden is through double doors surmounted by a gabled terra-cotta roof. Beneath this are panels of specially made Iznik tiles bearing calligraphic inscriptions. Facing the approaching visitor, Ottoman script proclaims *Al hamd li wali al hamd*, "Praise to the Benefactor, praise." Then, as the visitor completes a visit and approaches the gateway to leave, the interior panel offers the last line of a contemporary poem by Turkish musician and writer Kudsi Ergüner, which translates, "The Benefactor awaits the reach of your memory within the garden."

Facing the entrance stands an Ottoman sundial whose calibrations also indicate Islamic prayer times. Beyond this, a shallow reflecting pool, or *havuz*, has a central fountain and small jets of water along its edge. Many old Ottoman houses were built with special rooms known as *havuz odası*, literally "pool room," in which a large raised pool in the center was surrounded by divans along the walls. This is, of course, a pleasant and practical form of natural air conditioning.

To the right stands a pedestal fountain (*çeşme*), which invites visitors to rinse their hands in its cool water. Similarly, on the back wall of the raised patio, opposite the entrance, a wall fountain (*selsebil*) adds further soft tinkling sounds as water drops from its tiers. All were made for the Bakewell garden by Turkish craftsmen using Turkish marble. It was the custom in Turkey for people to be greeted on arrival and blessed on departure with water, and in Ottoman times, every house and garden had fountains at entrances and exits.

Opposite the garden's entrance, in the spirit of a kiosk or pavilion, stands a covered, raised, paved patio with a wooden grape arbor (*çardak*). Its roof has a copper-topped central dome, intricately



For all their later influence on the West, Ottoman gardens themselves had been much influenced by both Byzantine gardens and gardens from other Islamic lands—notably Persia, where this miniature shows a walled garden in the 15th century.

painted inside. Outside, it is surmounted by a brass finial (*alem*), in this instance not a crescent, which is reserved for mosques, but a stylized tulip. From here, the visitor looks down on the reflecting pool and across to the entrance, viewing the garden from a raised perspective.

Several stone birdhouses invite feathered visitors to rest and linger, and at the back of the covered arbor, to either side of the wall fountain, painted panels, with floral designs copied from Ottoman manuscripts, decorate the wall. Ottoman interiors were often decorated with painted scenes, murals of flowers, like these, or views of

pomegranate, jasmine and lemon, so that they can be taken indoors in winter, just as in Ottoman gardens tender plants wintered inside the *limonluk*, or conservatory, which was also used for forcing spring bulbs. The garden's size dictates certain limitations, and so columnar fruit trees have been planted here, their upright growths echoing the cedar alley that flanks the walkway opposite. The plants will mature, growing and spreading; the architectural elements will mellow; and season to season, the garden will whisper its perennial invitation: *The Benefactor awaits the reach of your memory within the garden.* 🌿



It was the custom
in Turkey for people to be
greeted on arrival and
blessed on departure with water.

terraced gardens with kiosks, seascapes, imaginary scenes or versions of what might in fact be seen outside.

Under the dome, in front of the gently dripping wall fountain and at the top of the patio steps, stands a wooden throne with gilded details, which is quickly appreciated by visitors who enjoy being photographed “like a sultan.” This too was handcrafted in Turkey, where wooden thrones such as these were transportable items, set out in kiosks and pavilions, along with rugs and pillows, so the sultan and members of the court could enjoy music and poetry, picnics and feasting in comfort outdoors.

Many of the flower species commonly known to Ottomans are recognized today in subspecies or hybridized forms, and the garden includes plants known to be the closest to their Ottoman varieties. Huge “Ali Baba” earthenware pots are planted with tender shrubs,

Plantings mix trees, shrubs, herbs and flowers to create a naturalistic appearance adapted to St. Louis’s climate. Below: Leaving the garden, visitors pass under the inscription that translates, “The Benefactor awaits the reach of your memory within the garden.”



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The Bakewell Ottoman Garden. Nurhan Atasoy and Philippa Scott. 2010, Missouri Botanical Garden, 978-0-615-39205-9, \$14.95, www.gardengateshop.org.



www.mobot.org

A photograph of a meteor's dust train in the Nubian Sky. The sky is a deep purple and blue, with a bright, glowing trail of light and dust stretching across the middle. The foreground shows the dark, silhouetted outlines of desert hills or mountains.

Fire in the Nubian Sky

About 40 minutes after the meteor's explosions, Mohamed Elhassan Abdelatif Mahir took this photograph in Wadi Halfa using his mobile phone. The cloud is what astronomers call the meteor's "dust train."



Written by Ann Chandler
Photographs courtesy of Peter Jenniskens,
SETI Institute / NASA Ames

Jarred awake by a thunderous explosion, Abdel Moneim Magzoub sat bolt upright in his sleeping cot on the porch of Station 6, the railway stop in northern Sudan where he worked as an attendant. It was just before dawn on October 7, 2008. His heart pounding, he woke in time to see a fireball careening through the sky and explode a second time, leaving a glowing cloud. He had no idea what he had just seen.



Eyewitness to the explosion of 2008 TC3, station attendant Abdel Moneim Magzoub points out the altitude of the fireball to Muawia Shaddad of the University of Khartoum.

MOHAMED ELHASSAN ABDELATIF MAHIR / COURTESY MUAWIA SHADDAD AND PETER JENNISKENS

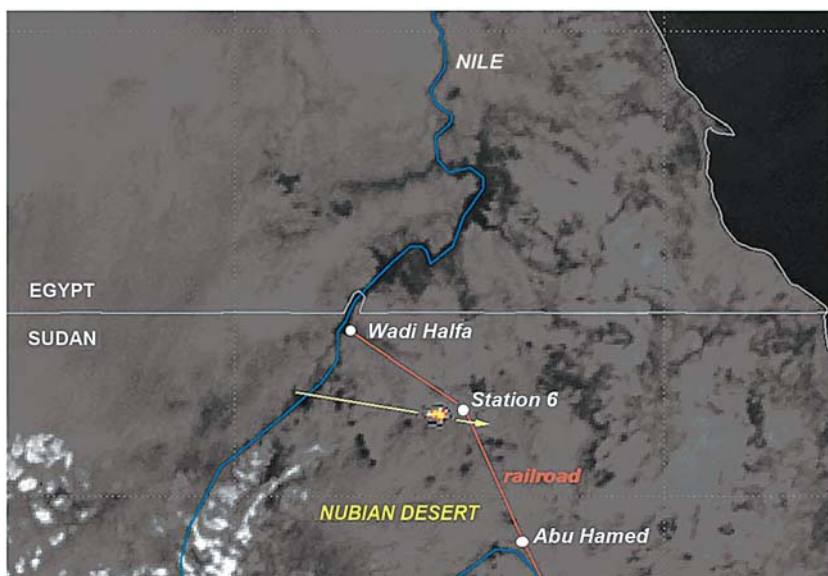


Some 45 students and staff of the University of Khartoum, led by physicist Muawia Shaddad (top row, sixth from right) and guided by astronomer Peter Jenniskens, made several trips to the area to search for fragments of the asteroid. Right: Imaging from Meteosat 8 caught the location of the fireball west of Almahata Sitta (Station 6). The arrow shows its direction of travel from entry into the atmosphere, its explosion and its dispersal.

Astronomer Richard Kowalski, monitoring the night skies from the summit of Mount Lemmon, near Tucson, Arizona, less than 24 hours before, knew exactly what Magzoub saw. Kowalski tracks asteroids. He had monitored the white blip that crossed his screen at 6:39 that morning and forwarded its coordinates to the Minor Planet Center (MPC) in Cambridge, Massachusetts.

In California, astronomer Steve Chesley was getting his kids off to school around 7:30 a.m. when a call from MPC director Tim Spahr sent him hustling to his office at the Jet Propulsion Laboratory (JPL) in Pasadena: A “potentially hazardous asteroid” was headed for Earth. Chesley’s job was to estimate where and when it would strike. “We were able to confirm that it was a small asteroid, no more than a few meters in diameter,” says Chesley, who had run through this scenario with his colleagues many times before—but always only hypothetically.

Spahr also called Lindley Johnson, program executive at Near Earth Object



Observations in Washington, D.C. “We’ve got one,” Spahr told him.

“How big is it?” Johnson immediately wanted to know.

Within an hour, Chesley and colleagues Paul Chodas and Don Yeoman had calculated that the asteroid, named 2008 TC₃, would enter Earth’s atmosphere over the Nubian Desert in northern Sudan, where the local time would be 5:46 a.m. It would track a roughly west-to-east course, some

100 kilometers (62 mi) south of the Egyptian border. That prediction was passed back to the MPC, forwarded to the headquarters of the National Aeronautics and Space Administration (NASA) and circulated to networks of astronomers around the world.

In the early morning hours of October 7, Captain Ron de Poorter was at the controls of KLM flight 591, passing

Students lined up to search the desert floor for meteorites, right. Two hours later Mohammed Alameen, lower, sighted an unusual-looking black rock—the first of what now total 280 meteorites recovered to date.

over the desert of eastern Chad en route from Johannesburg to Amsterdam. A few weeks from retirement, he was anticipating his next motorcycle safari in South Africa when he received a radio transmission that had originated with Jacob Kuiper, an amateur meteor astronomer and aviation meteorologist at the Royal Netherlands Meteorological Institute. Following Kuiper's advice, as the early signs of sunrise were appearing, de Poorter and his copilot dimmed the cockpit lights and looked to the northeast. At exactly 02:45:40 Universal Coordinated Time, he says, a pulsating red-and-yellow light glowed on the horizon for about five seconds. "It looked like distant artillery or rocket fire," says de Poorter, who called it "a very nice retirement gift."

At JPL, Chesley and his colleagues were thrilled. "It was the perfect test of our system," says Chesley. "The prediction was accurate."

Jenniskens, an expert on meteor showers, knew that the chances of finding fragments of the meteor were slim at best.

Traveling at more than 12.4 kilometers per second (28,000 mph), 2008 TC₃'s collision with Earth's atmosphere produced three explosions. The second one, at 37 kilometers (23 miles) altitude, was estimated to be equal to the pressure of about one kiloton of TNT. (The first and third explosions, at 42 and 35 kilometers up, respectively, were smaller.) Too high to cause damage on the ground, the explosions turned most of the asteroid's mass into a giant dust cloud, while the surviving fragments fell over some 210 square kilometers (81 sq mi) of barren desert.

At the Search for Extra Terrestrial Intelligence (SETI) Institute in California, Peter Jenniskens, an expert on meteor showers, knew that the chances of finding fragments of the meteor were slim at best. But if eyewitnesses had seen parts of it continue deeper into the atmosphere, then that, he reasoned, could lead to the recovery of fragments—meteorites.



He contacted the University of Khartoum in Sudan, where he made the acquaintance of Muawia Shaddad, an astronomer in the department of physics. Shaddad then located Abdel Moneim Magzoub, the attendant in Station 6, as well as two other eyewitnesses, one of whom had taken photos of the dust cloud on his cell phone.

Jenniskens flew to Khartoum in December 2008, where he joined Shaddad in collecting observations from eyewitnesses in hopes of deter-

mining how deep the remains might have penetrated. At the university, more than 40 enthusiastic students and staff responded to Shaddad's call for volunteers to join in a search. Saadia Elsir, a doctoral student in meteorology who teaches at Sudan's Juba University, was a member of the organizing committee. "I was eager to get involved," says Saadia, who eventually found a dozen meteorites and has co-authored a paper on the recovery.

Following a 14-hour drive from the capital, the searchers arrived at Station 6, an isolated railway

station, truck stop and teahouse. There, they split into groups and lined up 20 meters (65') apart. They began to comb the open desert along the meteorites' predicted path, with instructions to call out if they sighted any small black rocks.

Physics student Hiba tag Elsir was near fellow student Mohammed Alameen when she heard him shout, "I found one!" Having heard a few false alarms already, Jenniskens had his doubts, but after a close look,



"I knew right away that it was a meteorite that had recently fallen," he says. He joined the students in a spontaneous celebration of the find. "It was a rich, black color, and it had the thin, glassy surface that forms as a result of melting and solidifying."

Gamely putting up with flat tires, sandstorms and getting stuck in the sand, subsequent search expeditions have recovered more than 600 meteorites from 2008 TC₃. Nonetheless, these comprise but a fraction of the asteroid's original estimated 88-ton weight. Nada Mohamed Agabna, a graduate student in physics at the University of Khartoum, found her first two fragments on the second expedition. "It makes you feel so happy to actually hold something that came from outer space," says Nada, who later helped out on two more expeditions. (On one trip, even the bus driver found a fragment.)

"Every find brings another adrenalin rush," says Jenniskens, who was lucky to find the biggest of the lot—a piece that weighed 379 grams (13 1/3 oz). The smallest fragment recovered weighed 0.3 grams, or 1/100th of an ounce.

Detailed studies of the meteorites, which have been collectively named Almahata Sitta (from the Arabic for "Station 6"), carry significant implications for space research, and they promise to shed light on our early solar system 4.5 billion years ago. In particular, scientists are finding their geological composition intriguing.

At Stanford University, Hassan Sabbah and graduate student Amy Morrow, who research oil composition, have found in the meteorites evidence of polycyclic aromatic hydrocarbons (PAHs), which on Earth are commonly produced through incomplete combustion of fossil fuels. Does this mean asteroids might have something in common with Earth's fossil fuels?

"That's what we want to find out," says Sabbah. "How to relate PAHs in space to those on Earth."

"These meteorites fell in the best region possible," says Morrow, who found several fragments herself. "There's a very low risk of contamination out there."



Above: With each meteorite wrapped in aluminum foil to prevent contamination, Jenniskens catalogued each one in preparation for study. Left: This meteorite was the 15th found by the group. It was photographed in its landing spot before recovery.

environment and even include pieces of other asteroids.

The retrieval and study of the Almahata Sitta meteorites now offers further insight into asteroid formation. For the first time, a meteorite on Earth can be linked to its asteroid source. "For the more than 40,000 meteorites already in our collection, we know general origin only, nothing specific," says Jenniskens.


"So this is like a low-cost space mission," he says with enthusiasm. "For the first time, we have collected a sample from a celestial body that we knew as an asteroid in space." 🌐



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2008 TC₃, it turns out, is a rare asteroid known as an "F-type," which comprises less than four percent of the asteroid belt that lies mostly between the orbits of Mars and Jupiter. The meteorite fragments of 2008 TC₃ are classified as ureilite, and these are more rare still—they make up only 0.6 percent of recorded meteorite falls. Along with the amino acids and various minerals they contain, the unusually porous samples from 2008 TC₃ are beginning to reveal a fascinating history.

"From what we can decipher," says NASA scientist Michael Zolensky, "the original asteroid only partially melted, was blasted apart by an impact with some other asteroid or comet, and then reassembled into a second-generation asteroid." Zolensky says the meteorites probably came from the asteroid's surface, because many show evidence of interactions with the space

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<http://asima.seti.org/2008TC3/>

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Arabians 2011

Gregorian and Hijri Calendars

"Drinkers of the Wind"

WRITTEN BY PETER HARRIGAN CALENDAR PHOTOGRAPHS BY TARIQ DAJANI

The Arabian horse has inspired poets, writers and artists for centuries. The Arabic *qasida* written by the famed Imru' al-Qays 15 centuries ago still conjures both the iconic form and the distinctive movement of the breed.

"The two great features, possibly, that a novice would notice quickest in the Arabian horse, is the forehead, or *jibbeh*, which cannot be too prominent, and the other is the tail set high and carried in an arch," wrote Homer Davenport, one of the earliest importers to America of desert-bred (*asil*) Arabians. "Nature, when she made the Arabian, made no mistake, and man has not yet been able to spoil him."

Bedouin lore speaks of how the first "drinkers of the wind" were formed from a handful of south wind, and indeed the precise origins of Arabians are shrouded in both legend and uncertain science. Some equine geneticists argue the breed came out of Central Asia, from where confederations of nomads migrated over the steppes into the Fertile Crescent. Others argue it came from Turkic bloodlines, descended from the Turkmen and Akhal Teke. Others place its origins around the Caspian Sea, and there are other theories too of domestication of proto-Arabian horses in the

monsoon-touched southwestern Arabian Peninsula.

There is broad consensus, however, on what built the Arabian's traits: adaptation over 3000 or more years to extreme conditions and a nomadic Bedouin way of life; a long process of selection, by both nature and humans, based on survival and performance; and an enduring insistence on bloodline purity. The breed's intelligence, says international Arabian horse judge Peter Upton, "owes much to the long history as close companion of man in war and peace."

The leading guardians of the Arabians were the tribes of Najd, the central desert ranges of Arabia. There, the horses were carefully bred and kept alongside camels, for in such a climate, the Arabian cannot survive without human care and camels that can provide milk in the absence of water.

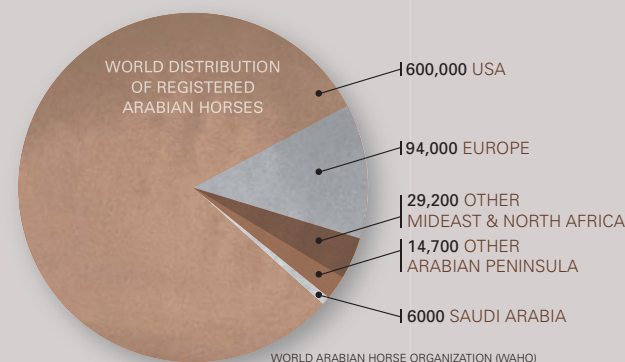
The long era of an isolated gene pool, however, drew to a close with the spread of Islam and growth in trade, which also brought the Arabian recognition far beyond its origins and had a lasting influence on other breeds.

After the coming of Islam in the seventh century, the asil horse was held in the highest esteem from Egypt to India and Europe. Everywhere, cavalry required light, swift horses endowed with stamina, nimbleness, an even temperament, longevity and fertility. Because the Arabian developed as a singular breed, it was above all considered an "improver," able to reliably pass on qualities to successive generations. This lured Europeans beyond the trading centers of the Levant and into Arabia, where Bedouins were understandably reluctant (and at times staunchly unwilling) to part with top horses. But rewards for those travelers who could return with an Arabian stallion or—better yet—a broodmare were great, for such prizes brought with them priceless genetic templates of strategic significance.

Arabian stallion depots, state breeding centers and royal stud farms spread across Europe, where the growing popularity of orientalism added fashion to the breed's appeal. Leaders of tribes and rulers including 'Abd al-'Aziz Al Sa'ud, the Sharif of Makkah and the Al Khalifa of Bahrain all sent gifts of Arabians to monarchs in Europe, and many of the descendants of these horses have been preserved to this day.

In England and America, sport, not strategy, drove demand for Arabians. Between 1684 and 1730, three now-famous Arabians landed in England and changed equine history: the Byerley Turk, the Darley Arabian and the Godolphin Arabian. Bred with native stock, these became the founding fathers of the Thoroughbred. Bulle Rock, a son of the Darley Arabian,

Very swift he is, like the toy spinner a boy will whirl,
Plying it with his nimble hands by the knotted thread.
His flanks are the flanks of a fawn, his legs are like an ostrich's.
The springy trot of a wolf he has, the fox's gallop. —Imru' al-Qays



arrived in Virginia from Britain in 1730, the first Thoroughbred to land on American soil. The supreme racing steed had been developed.

Today, more than 90 percent of pure-bred Arabians—some 750,000 horses—are raised outside the Middle East. Of those, some 80 percent are in the United States.

With these demographics, the breed that now serves as a powerful cultural symbol of Arabia will continue to give pleasure to all who are fortunate enough to witness its grace, beauty, patience, poise and dance-like movement. 🌍



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Tariq Dajani (www.tariqdajani.com) is a freelance photographer based in Amman, Jordan. He has exhibited in more than a dozen galleries since 2007. He is also an avid rider.



GUY RHODES / KING ABDULAZIZ ARABIAN HORSE CENTER

Pure-bred desert horses have always been among the most highly prized, and among Arabians, there are five major bloodlines, or strains: Mu'niqi, Saglawi, Obeyah, Hamdani and Kuhaila. All appear above, photographed at the King Abdulaziz Arabian Horse Center (KAAHC). Cover: Hayfaa Dirab, a Saudi desert-bred Bay Mare, comes face-to-face with Bint Fawazah, a Russian Black Mare. Both were brought to the KAAHC as part of its effort to improve the breed worldwide.

About this Calendar

The photographs in this calendar were made possible through the support of the King Abdulaziz Arabian Horse Center (KAAHC) in Dirab, Saudi Arabia. Stabling almost 200 Arabians, the 40-year-old KAAHC is the leading institution for preserving and improving the pure-bred Arabian in its homeland. As a department of the Saudi Ministry of Agriculture, a member of the World Arabian Horse Organization (WAHO) and the only Arabian horse project of the United Nations, the KAAHC issues horse passports, registration certificates and pedigrees; it inserts identifying microchips and maintains the kingdom's stud book. Sami Nohait, director of the KAAHC, highlights the importance of the Arabian to the region: "Arabian horses are the most important animal species in the Middle East."

Patterns of Moon, Patterns of Sun

WRITTEN BY PAUL LUNDE

The *hijri* calendar

In 638 CE, six years after the death of the Prophet Muhammad, Islam's second caliph, 'Umar, recognized the necessity of a calendar to govern the affairs of Muslims. This was first of all a practical matter. Correspondence with military and civilian officials in the newly conquered lands had to be dated. But Persia used a different calendar from Syria, where the caliphate was based; Egypt used yet another. Each of these calendars had a different starting point, or epoch. The Sasanids, the ruling dynasty of Persia, used June 16, 632 CE, the date of the accession of the last Sasanid monarch, Yazdagird III. Syria, which until the Muslim conquest was part of the Byzantine Empire, used a form of the Roman "Julian" calendar, with an epoch of October 1, 312 BCE. Egypt used the Coptic calendar, with an epoch of August 29, 284 CE. Although all were solar calendars, and hence geared to the seasons and containing 365 days, each also had a different system for periodically adding days to compensate for the fact that the true length of the solar year is not 365 but 365.2422 days.

In pre-Islamic Arabia, various other systems of measuring time had been used. In South Arabia, some calendars apparently were lunar, while others were lunisolar, using months based on the phases of the moon but intercalating days outside the lunar cycle to synchronize the calendar with the seasons. On the eve of Islam, the Himyarites appear to have used a calendar based on the Julian form, but with an epoch of 110 BCE. In central Arabia, the course of the year was charted by the position of the stars relative to the horizon at sunset or sunrise, dividing the ecliptic into 28 equal parts corresponding to the location of the moon on each successive night of the month. The names of the months in that calendar have continued in the Islamic calendar to this day and would seem to indicate that, before Islam, some sort of lunisolar calendar was in use, though it is not known to have had an epoch other than memorable local events.

There were two other reasons 'Umar rejected existing solar calendars. The Qur'an, in Chapter 10, Verse 5, states that time should be reckoned by the moon. Not only that, calendars used by the Persians, Syrians and Egyptians were identified with other religions and cultures. He therefore decided to create a calendar specifically for the Muslim community. It would be lunar, and it would have 12 months, each with 29 or 30 days.

This gives the lunar year 354 days, 11 days fewer than the solar year. 'Umar chose as the epoch for the new Muslim calendar the *hijrah*, the emigration of the Prophet Muhammad and 70 Muslims from Makkah to Madinah, where Muslims first attained religious and political autonomy. The *hijrah* thus occurred on 1 Muharram 1 according to the Islamic calendar, which was named "*hijri*" after its epoch. (This date corresponds to July 16, 622 CE on the Gregorian calendar.) Today in the West, it is customary, when writing *hijri* dates, to use the abbreviation AH, which stands for the Latin *anno hegirae*, "year of the *hijrah*."

Because the Islamic lunar calendar is 11 days shorter than the solar, it is therefore not synchronized to the seasons. Its festivals, which fall on the same days of the same lunar months each year, make the round of the seasons every 33 solar years. This 11-day difference between the lunar and the solar year accounts for the difficulty of converting dates from one system to the other.

The Gregorian calendar

The early calendar of the Roman Empire was lunisolar, containing 355 days divided into 12 months beginning on January 1. To keep it more or less in accord with the actual solar year, a month was added every two years. The system for doing so was complex, and cumulative errors gradually misaligned it with the seasons. By 46 BCE, it was some three months out of alignment, and Julius Caesar oversaw its reform. Consulting Greek astronomers in Alexandria,

It is he who made the sun to be a shining glory, and the moon to be a light (of beauty), and measured out stages for her, that ye might know the number of years and the count (of time). —The Qur'an, Chapter 10 ("Yunus"), Verse 5

he created a solar calendar in which one day was added to February every fourth year, effectively compensating for the solar year's length of 365.2422 days. This Julian calendar was used throughout Europe until 1582 CE.

In the Middle Ages, the Christian liturgical calendar was grafted onto the Julian one, and the computation

of lunar festivals like Easter, which falls on the first Sunday after the first full moon after the spring equinox, exercised some of the best minds in Christendom. The use of the epoch 1 CE dates from the sixth century, but did not become common until the 10th.

The Julian year was nonetheless 11 minutes and 14 seconds too long. By the early 16th century, due to the accumulated error, the spring equinox

was falling on March 11 rather than where it should, on March 21. Copernicus, Christophorus Clavius and the physician Aloysius Lilius provided the calculations, and in 1582 Pope Gregory XIII ordered that Thursday, October 4, 1582 would be followed by Friday, October 15, 1582. Most Catholic countries accepted the new "Gregorian" calendar, but it was not adopted in England and the Americas until the 18th century. Its use is now almost universal worldwide. The Gregorian year is nonetheless 25.96 seconds ahead of the solar year, which by the year 4909 will add up to an extra day. 🌐

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Converting Dates

The following equations convert roughly from Gregorian to *hijri* and vice versa. However, the results can be slightly misleading: They tell you only the year in which the other calendar's year *begins*. For example, 2011 Gregorian includes the first 36 days of AH 1433.

$$\text{Gregorian year} = [(32 \times \text{Hijri year}) \div 33] + 622$$

$$\text{Hijri year} = [(\text{Gregorian year} - 622) \times 33] \div 32$$

Alternatively, there are more precise calculators available on the Internet: Try www.rabiah.com/convert/ and www.ori.unizh.ch/hegira.html.



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"The two great features, possibly, that a novice would notice quickest in the Arabian horse, is the forehead ... and ... the tail set high and carried in an arch."

—Homer Davenport, one of the earliest importers to America of desert-bred (asil) Arabians.

Attar Dirab is a five-year-old Grey Stallion of the Kuhhaila Memreih strain. His bloodlines are from Egypt, Russia and Spain.

JANUARY
MUHARRAM — SAFAR 1432

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
1 26	2 27	3 28	4 29	5 1	6 2	7 3
8 4	9 5	10 6	11 7	12 8	13 9	14 10
15 11	16 12	17 13	18 14	19 15	20 16	21 17
22 18	23 19	24 20	25 21	26 22	27 23	28 24
29 25	30 26	31 27				

FEBRUARY
SAFAR — RABI' I 1432

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
			1 28	2 29	3 30	4 1
5 2	6 3	7 4	8 5	9 6	10 7	11 8
12 9	13 10	14 11	15 12	16 13	17 14	18 15
19 16	20 17	21 18	22 19	23 20	24 21	25 22
26 23	27 24	28 25				



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"Next to the camel in importance for the Bedouin is his mare.... The horse and the camel complement each other in the desert—the horse is swift and the camel enduring.... Without the horse, the camels cannot be defended against raiders or retrieved when they are plundered. But without the sweet milk of camels, the horse cannot survive."

—Saad Abdullah Sowayan, Nabati Poetry (University of California Press, 1985)

Bint Khuzamah (Grey) and foal (Bay) are pure Saudi desert-bred from the Kuhaila Um Arqob strain.

MARCH

RABI' I — RABI' II 1432

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
			1 26	2 27	3 28	4 29
5 30	6 1	7 2	8 3	9 4	10 5	11 6
12 7	13 8	14 9	15 10	16 11	17 12	18 13
19 14	20 15	21 16	22 17	23 18	24 19	25 20
26 21	27 22	28 23	29 24	30 25	31 26	

APRIL

RABI' II — JUMADA I 1432

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
						1 27
2 28	3 29	4 30	5 1	6 2	7 3	8 4
9 5	10 6	11 7	12 8	13 9	14 10	15 11
16 12	17 13	18 14	19 15	20 16	21 17	22 18
23 19	24 20	25 21	26 22	27 23	28 24	29 25
30 26						



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"He paws the ground with his fore-feet like the action of one who digs for water. He has full command of himself as soon as his first shortness of breath has passed: we stroke him down, but he will not be still, so eager is his heart."

—Mufaddaliyat: An Anthology of Ancient Arabian Odes, translated by Sir Charles James Lyall and Peter Harrigan

Jawal Dirab is a six-year-old Chestnut Stallion of the strain Sowaiti Al-Firm bred from Russian and Spanish bloodlines.

MAY

JUMADA I — JUMADA II 1432

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
	1 27	2 28	3 29	4 1	5 2	6 3
7 4	8 5	9 6	10 7	11 8	12 9	13 10
14 11	15 12	16 13	17 14	18 15	19 16	20 17
21 18	22 19	23 20	24 21	25 22	26 23	27 24
28 25	29 26	30 27	31 28			

JUNE

JUMADA II — RAJAB 1432

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
				1 29	2 30	3 1
4 2	5 3	6 4	7 5	8 6	9 7	10 8
11 9	12 10	13 11	14 12	15 13	16 14	17 15
18 16	19 17	20 18	21 19	22 20	23 21	24 22
25 23	26 24	27 25	28 26	29 27	30 28	



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"The characteristic hallmarks of the Arabian are its exquisite head, intelligent and singularly gentle look, full eye, sharp thorn-like little ear.... It is a horse of great courage and tenacity, yet kindly and affectionate." —Peter Upton, author and twice president of the Arab Horse Society of Britain
Fadwa Dirab, Shareefeat Dirab and Qaseedat Dirab are Grey Fillies that share European, Russian, Polish and Egyptian descents.

JULY
RAJAB — SHA‘ABAN 1432

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
						1 29
2 1	3 2	4 3	5 4	6 5	7 6	8 7
9 8	10 9	11 10	12 11	13 12	14 13	15 14
16 15	17 16	18 17	19 18	20 19	21 20	22 21
23 22	24 23	25 24	26 25	27 26	28 27	29 28
30 29	31 30					

AUGUST
RAMADAN — SHAWWAL 1432

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
		1 1	2 2	3 3	4 4	5 5
6 6	7 7	8 8	9 9	10 10	11 11	12 12
13 13	14 14	15 15	16 16	17 17	18 18	19 19
20 20	21 21	22 22	23 23	24 24	25 25	26 26
27 27	28 28	29 29	30 1	31 2		



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"First of all, the head should be large, not small.... There should be a great distance from the ears to the eyes, and a great distance from one eye to the other, though not from ear to ear. The forehead, moreover, and the whole region between and just below the eye, should be convex.... There should be nothing fleshy about their prominence, and each bone should be sharply edged." —Lady Anne Blunt, Arabian breeder and author of *A Pilgrimage to Nejd*, 1881.

Razeen Al Thani is an eight-year-old Chestnut Stallion of the strain Hamdani Samri with Egyptian and Russian bloodlines.

SEPTEMBER

SHAWWAL — DHU AL-QA'DAH 1432

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
					1 3	2 4
3 5	4 6	5 7	6 8	7 9	8 10	9 11
10 12	11 13	12 14	13 15	14 16	15 17	16 18
17 19	18 20	19 21	20 22	21 23	22 24	23 25
24 26	25 27	26 28	27 29	28 30	29 1	30 2

OCTOBER

DHU AL-QA'DAH — DHU AL-HIJJAH 1432

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
1 3	2 4	3 5	4 6	5 7	6 8	7 9
8 10	9 11	10 12	11 13	12 14	13 15	14 16
15 17	16 18	17 19	18 20	19 21	20 22	21 23
22 24	23 25	24 26	25 27	26 28	27 29	28 1
29 2	30 3	31 4				



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"The principles of furusiyya, or horsemanship, are closely associated with such noble values as honor, generosity and chivalry. Many elements of our heritage and culture are inextricably linked to the horses, and there is no finer example than that of the founder of our country, King 'Abd al-'Aziz Al Sa'ud, who was the last leader in history to unite a country on horseback."

—HRH Faisal bin Abdullah bin Mohammad Al Sa'ud, Minister of Education

Barq Dirab is a five-year-old Stallion of the Julfa strain bred from Egyptian and Saudi bloodlines.

NOVEMBER

DHU AL-HIJJAH 1432 — MUHARRAM 1433

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
			1 5	2 6	3 7	4 8
5 9	6 10	7 11	8 12	9 13	10 14	11 15
'Id al-Adha						
12 16	13 17	14 18	15 19	16 20	17 21	18 22
19 23	20 24	21 25	22 26	23 27	24 28	25 29
26 1	27 2	28 3	29 4	30 5		

DECEMBER

MUHARRAM — SAFAR 1433

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
					1 6	2 7
3 8	4 9	5 10	6 11	7 12	8 13	9 14
10 15	11 16	12 17	13 18	14 19	15 20	16 21
17 22	18 23	19 24	20 25	21 26	22 27	23 28
24 29	25 30	26 1	27 2	28 3	29 4	30 5
Christmas						
31 6						



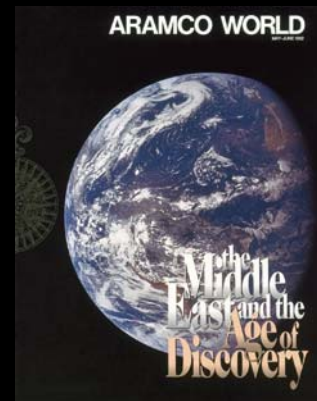
1949



1952



1986



1992



2010

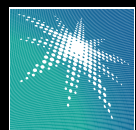
In November 1949, the Arabian American Oil Company (Aramco) launched an interoffice newsletter named *Aramco World*. Over the next two decades, as the number of Americans working with Saudi colleagues in Dhahran grew into the tens of thousands, *Aramco World* grew into a bimonthly educational magazine whose historical, geographical and cultural articles helped the American employees and their families appreciate an unfamiliar land.

The magazine is now published by Aramco Services Company in Houston, Texas on behalf of Saudi Aramco, which succeeded Aramco in 1988 as the national oil company of Saudi Arabia. In 2000, *Aramco World* changed its name to *Saudi Aramco World* to reflect this relationship.

Today, *Saudi Aramco World's* orientation is still toward education, the fostering of cooperation and the building of mutual appreciation between East and West, but for the last four decades the magazine has been aimed primarily at readers outside the company, worldwide, as well as at internal readers. Its articles have spanned the Arab and Muslim worlds, past and present, with special attention to their connections with the cultures of the West.

Subscriptions to *Saudi Aramco World* are available without charge to a limited number of readers. Multiple-copy subscriptions for seminars or classrooms are also available. Subscriptions may be requested at www.saudiaramcoworld.com or as follows: From Saudi Arabia, send to Public Relations, Saudi Aramco, Box 5000, Dhahran 31311; from all other countries, send a signed and dated request by mail to *Saudi Aramco World*, P.O. Box 2106, Houston, Texas 77252, USA, by e-mail to saworld@aramcoservices.com or by fax to +1 (713) 432-5536.

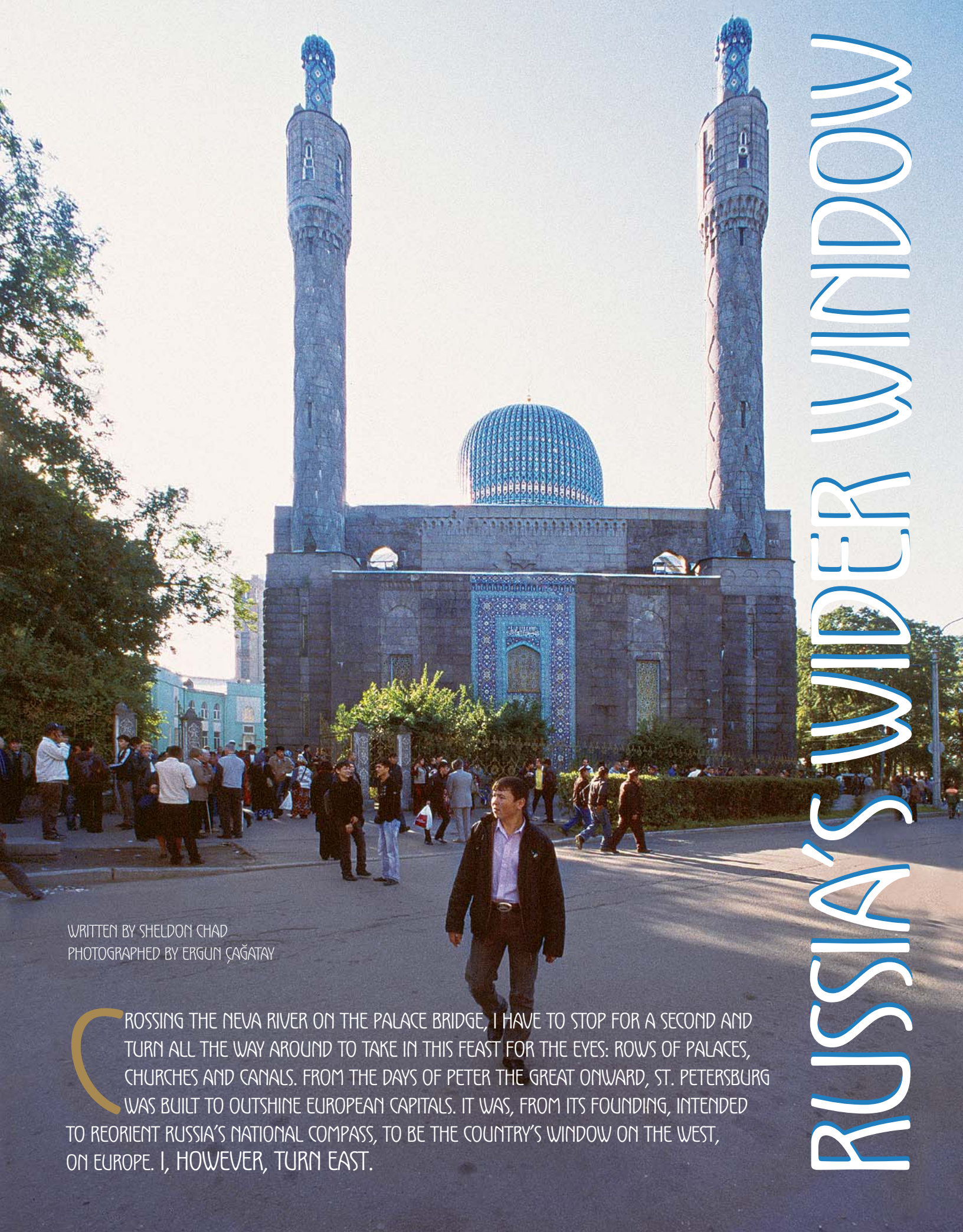
The texts of all back issues of *Aramco World* and *Saudi Aramco World* can be found on our Web site, www.saudiaramcoworld.com, where they are fully indexed, searchable and downloadable. Articles from issues since the end of 2003 include photographs. In addition, many photographs from past issues are available at www.photoarchive.saudiaramcoworld.com, and licensing for approved uses is royalty-free.



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RUSSIA'S WINDOW

WRITTEN BY SHELDON CHAD
PHOTOGRAPHED BY ERGUN ÇAĞATAY

CROSSING THE NEVA RIVER ON THE PALACE BRIDGE, I HAVE TO STOP FOR A SECOND AND TURN ALL THE WAY AROUND TO TAKE IN THIS FEAST FOR THE EYES: ROWS OF PALACES, CHURCHES AND CANALS. FROM THE DAYS OF PETER THE GREAT ONWARD, ST. PETERSBURG WAS BUILT TO OUTSHINE EUROPEAN CAPITALS. IT WAS, FROM ITS FOUNDING, INTENDED TO REORIENT RUSSIA'S NATIONAL COMPASS, TO BE THE COUNTRY'S WINDOW ON THE WEST, ON EUROPE. I, HOWEVER, TURN EAST.



In front of me are 300 years of remarkable history. Closest is the Peter and Paul Fortress, the kernel from which this imperial city grew, and, within it, the golden-spired Peter and Paul Cathedral, which holds the tombs of the Romanov czars. Farther along is the berthed battle cruiser *Aurora*, which fired the first shot of the 1917 October Revolution. In between rise the mosaic-topped minarets of the Central Asian-style St. Petersburg Cathedral Mosque. Its 49-meter (157') minarets and its tiled azure dome appear to nestle next to the spires of the fortress. It has been 100 years since the mosque's cornerstone was laid—but what a century it has been.

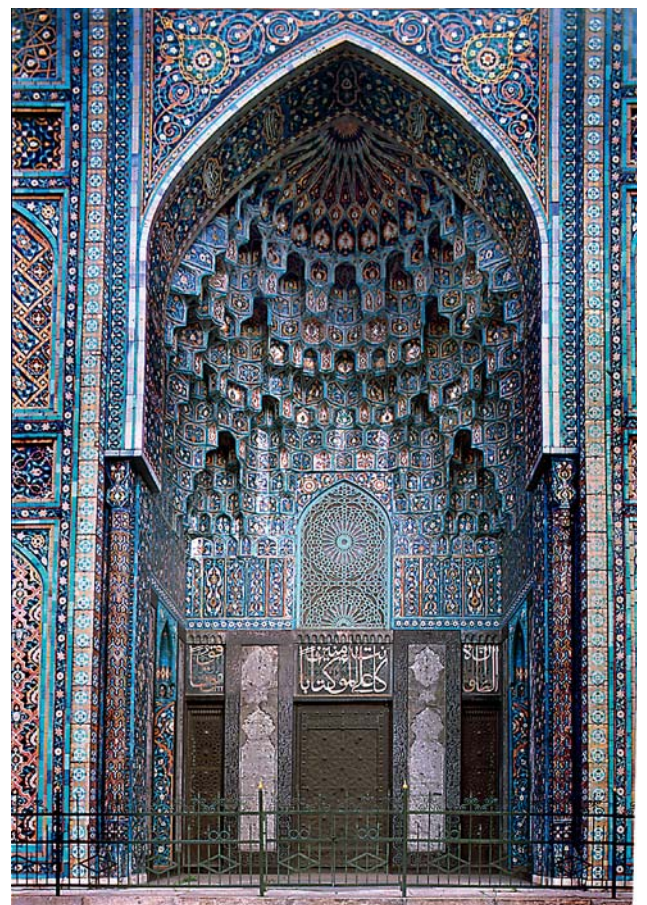
One of the northernmost mosques in the world and, until the 1990's, the largest in Europe (it's now number four, with the top three also in Russia), it serves as a hub for Muslims in St. Petersburg, who are estimated to number between 500,000 and one million in a metropolitan population of some five million.

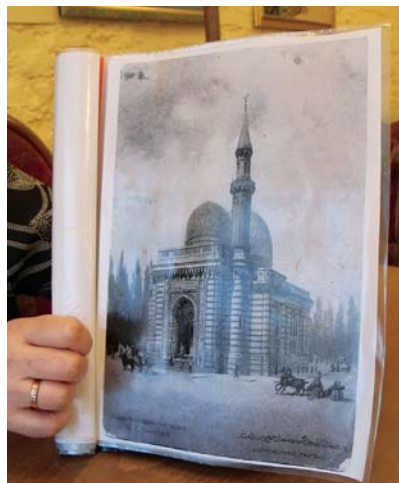
"Russia is a Russian Orthodox country. It

is an Islamic country," says Mikhail Piotrovsky. "Islam is part of our history, and the Islamic population is part of our population.

"My profession is an Arabist," Piotrovsky says. "Being director of the Hermitage [State Museum] is a hobby." He is being modest: He is a scholar, with a reputation as one of the world's most efficient museum managers.

Previous page: **The mosque combines decorative motifs from Central Asia with a main building styled in the Northern Art Nouveau that was popular in Europe during the first years of the 20th century.** Right: **Craftsmen from Central Asia drew on their architectural history to produce the mosque's elaborately decorated portals.**





Far left: **A park separates the mosque from the Neva River and, at far right, the Peter and Paul Cathedral, where the Romanov czars are buried.** Left: **One of several early designs for the mosque, this one, which was not built, dates from 1906.** Below: **Among guests of honor at the laying of the mosque's cornerstone on February 3, 1910, was the Emir of Bukhara (center), who not only bought the land for the mosque, but also convinced Czar Nicolas II that the site near the Romanov tombs, far from being inappropriate, in fact demonstrated Muslims' "loyalty to the Russian Empire."**



"Understanding itself as an empire, Russia had two very important things built in St. Petersburg in the beginning of the 20th century," Piotrovsky continues. "A Buddhist temple and the mosque. So it was, let us say, a historical presence and an imperial understanding of what the capital of an empire is."

"THERE IS NO PANORAMA OF ST. PETERSBURG THAT DOES NOT SHOW TWO MINARETS.... THIS REFLECTS THE COUNTRY ITSELF."

The cupola of the St. Petersburg Mosque is a near-replica of the Gur-e Amir—Tamerlane's tomb—in Samarkand, says Piotrovsky, but the main body of the mosque is built in Northern Art Nouveau, the style popular in St. Petersburg and the Baltic states from the late 1890s to the early years of the 20th century.

"So that's how it comes together: It was a cultural event. It's not just a present or a [public] relations [gesture] to Muslims. It's a cultural situation of Islam being part of Russian culture, traditionally, for many, many years."

Move across the Neva onto Vasilievsky Island to the Kunstkamera, Russia's very first museum, where Peter the Great hoped all Russians would "acquire full knowledge of the world."

"We have a proverb: 'Scratch a Russian, find a Tatar,'" says Efim Rezvan, deputy director of the museum, now called the Peter the Great Museum of Anthropology and Ethnography. Rezvan's finds on the historic 'Uthman Qur'an are celebrated, and he's busy with preparations for a new expedition to Kazakhstan. "Tatar" was the term the Russians coined for all the ethnicities, principally Muslim ones, that descended from the Golden Horde and the Turkic peoples.

"My name is Rezvan, which is 'Rizvan,' and Rizvan is the angel who holds the keys of the Muslim Paradise. As far back as my

family remembers, we are Orthodox Christians, but my surname indicates for sure that one of my ancestors was Muslim of Turkish or Persian origin," he explains. "If you think Rachmaninoff, the composer, reflects the Russian spirit, trace his surname—Rachman. Where did he come from? Muslims! So everybody is in Eurasia, one foot in Europe and one in Asia.

"And we have the same story in St. Petersburg," says Rezvan, "because when Peter the Great decided to establish the new capital, he invited the whole country to build it, and groups of Tatars from the Volga region came here. These were the first Muslims who came to the banks of the River Neva."

It was Peter the Great, says Rezvan,

who "set the stage for the systematic study of the Muslim East." Peter also personally ordered the first Russian version of the Qur'an; it was published in 1716 in St. Petersburg. Six years later, publication of *The System Book or the State of the Muhammedan Religion* required the development of an Arabic typesetting capability. Once that was available, Peter started issuing proclamations in Arabic.

So St. Petersburg's Muslim history—and Russia's related history with Muslims, by way of imperial orders coming from the imperial capital—goes back to the city's beginnings 300 years ago, since when there has been a continuous Tatar presence in the city.

"I think the St. Petersburg Mosque is now one of the symbols of the city," says Rezvan. "There is no panorama of the center of St. Petersburg that does not show two minarets. And this symbol is not only of St. Petersburg. This reflects the country itself, and the dramatic history of the mosque reflects the dramatic history of the country."

On April 23, 1906, the Public Committee for the Construction of the St. Petersburg Mosque held its first meeting. By then there were 15,000 Muslims in St. Petersburg, divided equally between civilians and military personnel.

There had been a checkered history of previous attempts by the Muslims of St. Petersburg to build a mosque as their population grew, but Czar Nicolas II's proclamation of religious freedom on April 17, 1905 gave the project new impetus.

More than 20 years earlier, in one of those attempts, community leaders had started collecting money, but by the time of the czar's proclamation, they had raised just 53,000 imperial rubles. Minutes of the meeting reported, "If we are as successful raising money in the future as we've been in the past 20 years, Muslims will get their mosque no earlier than the next century!" So they needed a new money-raising idea.

Luckily, they also had a new man—their newly chosen chairman, Abd al-Aziz Davletshin.

Davletshin was both a Tatar nobleman

and a czarist general. Later he would head the Asiatic department of the military general staff. Eight years earlier, in 1898, as a staff captain, he had been sent by order of St. Petersburg on an "important Arabian trip"—that is, he was sent on the Hajj, the pilgrimage to Makkah, not as a pilgrim, but as a spy. At the time, Makkah and Madinah were in the hands of the Ottoman Turks. Rezvan, who has written a book in Arabic on Davletshin, says that "his



"My life is in this building, with this building. And I say now it is a ship which will never sink. My main hope is that it will never be closed again."

DJAFAR NASIBULLOVICH PONCHAEV

As many as 23 nationalities, from the length and breadth of the Russian Federation and abroad, gather for congregational prayers in the St. Petersburg Mosque each Friday. Until the 1990's, the mosque was the largest on the European continent; today, it is the fourth largest.



most important idea was that the position of Muslims in Russia was much better than people in the East thought." The upshot was that Russia began giving Muslim pilgrims to Makkah the same rights and the same official help that it extended to Orthodox Christian pilgrims traveling to Jerusalem.

Within two months under Davletshin, the committee received permission from internal affairs minister Pyotr Stolypin to build a mosque, and permission to solicit funds for the purpose not only in St. Petersburg but from all over Russia. Within a few more months, the committee had raised 142,000 rubles and found what they thought was a reasonable, affordable plot of land. But they soon discovered it was too small for a mosque properly oriented toward Makkah. Purchasing the adjoining plot of land could remedy this, but more than doubled the price.

Davletshin called on a friend, Said Abdul Ahad Khan, emir of Bukhara (now in Uzbekistan), who was close to Czar Nicolas II. The emir stepped up and bought both properties on the community's behalf.

A design competition was then announced in an architectural magazine. Out of 45 projects entered, that of Russian architect Nikolai Vasiliev won. His design evoked the famous Samarkand Gur-e Amir, but in St. Petersburg, the outer walls would be built of the Finnish gray granite typical of the city, and the dome would slope more steeply so as not to accumulate heavy snow.

On December 14, 1908, the mosque committee submitted blueprints to the city planning committee, which approved them and sent them on to the Ministry of Internal Affairs. The ministry passed them on to the Academy of Arts, which held approval authority for large civic constructions.

As the committee prepared to break ground in the spring of 1909, anticipating approval, a small newspaper article reported the planning committee's approval of the mosque on the site next to the Peter and Paul Fortress. Tatar historian and tour guide Almira Tagirdzhanova explains that the committee never imagined that having their mosque close to Christian sites would create a backlash.

"The Orthodox church authority was against that land being bought by the Muslims," says Tagirdzhanova. "The Orthodox newspaper *Kolokol* [*The Bell*] wrote that 'if the Muslim 'church' were built, a disaster would befall Russia.' I joke in my excursions, 'Maybe that was what brought about the Revolution!'"

By April 1909, the Internal Affairs Ministry seemed to be sitting on the decision. Stolypin, who was now prime minister, remained mum. Because approval was taking so long, the committee suspended its work plans. At last the decision came from the Academy of Arts: They said no.

The Academy report judged the mosque too large and the land too wide open for it to be built so close to the Peter and Paul Fortress, the Trinity Church and Peter the Great's house. It would, the Academy wrote, "destroy the historical and aesthetic character of this part of the city."

This touched off popular opposition: Another newspaper editorialized, "They would be screaming from the minarets. The call to prayer would disturb other churches around."

Davletshin demanded that Stolypin intercede, and the emir of Bukhara dropped in for a personal visit to the czar. "It's time to start building the mosque, even next to the Peter and Paul Fortress, where the czars are buried," said the emir. "For Muslims to build in that place especially shows their respect for and pride in the royal family and their loyalty to the Russian Empire."

The czar got the message, says Rezvan. "At the turn of the century, after huge Muslim territories were added to the Russian Empire, the authorities decided that a great mosque should be here. St. Petersburg had the prime Orthodox Cathedral, then the Choral Synagogue was the synagogue for all Jews. The Buddhist *datsan* in St. Petersburg was the *datsan* for all Buddhists. The czar had to have in the imperial capital the main temples of all the communities. That's politics."

Stolypin sent the Academy's report back

to the ministry committee—possibly with instructions—which overruled the Academy, saying the mosque committee had acted according to all the rules for any house of prayer, and that, as the land was privately owned, no law existed to prevent construction.

On June 27, 1909, Stolypin met with the czar and received final approval.



"Russia is a Russian Orthodox country. It is an Islamic country. Islam is part of our history, and the Islamic population is part of our population."

MIKHAIL PIOTROVSKY

The morning of February 3, 1910 was gray, with snow on the ground. At the site of the mosque, a make-shift wooden prayer room had been erected with a little cupola on top.

At 11:00, the inauguration ceremony for the new mosque began before an overflow crowd. The emir of Bukhara was present, as were a host of dignitaries from the government, the military and the Muslim party in the Duma, or congress, and the ambassadors from Turkey and Persia.

Akhun Ataulla Bayazitov, writer, scholar and former imam of the military, led the prayer and then gave a speech. "Our mosque is beautiful, but that it

should be beautiful on the outside is not enough. We should pray to [God] that all of us here will achieve beauty on the inside."

Construction was slow, and Russians today often say, "All is divided by the Revolution." The next decade would be the most turbulent in Russia's history: It brought World War I, the 1917 October Revolution and the 1917–1923 civil war. Though the first prayers were held in the unfinished mosque on February 22, 1913, in commemoration of the 300th anniversary of the Romanov Dynasty, construction took a full decade. And when the Cathedral Mosque was officially opened on April 30, 1920, it was just as *gosateism* ("state atheism") was being officially invoked, calling for all things religious to be dismantled. To be a *besbozhnik*



From the city's founding in the early 18th century until the breakup of the Soviet Union in 1989, St. Petersburg's Muslim population never exceeded 50,000. (At the 1910 opening of the mosque, it was about 7300.) Now, however, migrants from former Soviet republics and from elsewhere in the Russian Federation comprise as much as 20 percent of St. Petersburg's population. Among them, many run small businesses such as this grocery store.



"In the practice of Islam, the only public ritual you do is to come to the mosque.... The person who was Communist in public could practice Islam at home and nobody would know about it."

TATIANA STETZKEVICH

("godless person") was among the highest values of a revolution that saw religion as "the opiate of the people."

At the time, the imam, or prayer leader, of the new mosque was Musa Bigi, who served until his arrest in 1923. Bigi at first supported the Bolshevik revolution, but then one of its leaders wrote a book called *The ABC of Communism*. Bigi replied with his own book, *The ABC of Islam*, and was jailed for it. Only the intervention of Turkey's Mustafa Kemal Atatürk saved him, and he later escaped to exile.

The mosque was still open in 1924, when Lenin died and Petrograd—as the city had been called since World War I—was renamed Leningrad, but the congregation had dwindled to a few, and the government rented out storage space in the building for potatoes,

FROM THE 1917 REVOLUTION TO THE MID-1950'S, THE MOSQUE WAS VARIOUSLY CLOSED, RENTED OUT FOR STORAGE, USED BY THE HERMITAGE, OR BOMBED.

fruits and vegetables and even tombstones. Muslims complained that the humidity of the produce was destroying the building. In

1936, the mosque was put on notice that it would be closed if the congregation did not repair the damage, especially the deteriorating mosaics, but it was impossible at the time to find the money to comply. Year after year the Russian authorities called for "immediate" restoration until, in 1940, the city decided to close the mosque and do the restorations itself. The outbreak of World War II changed that plan.

Tatiana Stetzkevich, now 82, remembers her childhood in Leningrad in the 1930's. "We had a janitor who was a Tatar. He got married and the celebration went on for three days.



"The Orthodox church authority was against that land being bought by the Muslims. The Orthodox newspaper *Kolokol* wrote that 'if the Muslim "church" were built, a disaster would befall Russia.' I joke in my excursions, 'Maybe that was what brought about the Revolution!'"

ALMIRA TAGIRDZHANOVA

During that time his bride was sitting on pillows, her face covered. All the people in our housing block celebrated with them, Russians, Germans, Poles, Swedes."

Stetzkevich is the curator of eastern religions at the Museum of the History of Religions, which from 1932 until 1989 (and when she joined in 1954) was known as the Museum of Religion and Atheism. Like all Russians her age, she lived through "the difficult Soviet times."

During World War II, while still a young girl, Stetzkevich survived the infamous 872 days of the Nazi siege of Leningrad, during which more than 1,500,000 civilians starved. She shows me the medal she received for working at a factory eight hours a day, seven days a week. It reads:

FOR OUR SOVIET PATRIOTISM
FOR THE DEFENDERS OF LENINGRAD
1942

Stetzkevich, who is not Muslim, speaks about the Muslims' role at that time in a film she narrated, "Faith During the Siege." "Muslims could still practice all the rituals at home," Stetzkevich says, "but because of hunger, they didn't fast during Ramadan or feast on Kurban Bayram [*Id al-Adha*]."

"When people died, they would still try to bury them with all the rituals in the Muslim cemetery, but as the numbers swelled and their strength gave out, they would just be buried in mass graves. When it became

difficult even to bring the bodies to the cemetery, they brought them to hospitals, brought children to their school or kindergarten. Not just Muslims. Everybody did.

"The very difficult time was the beginning of the siege when the Germans bombed all the storehouses and would sink any ships coming to try to break the blockade. When finally they did break it, by trucks going over the 'Road of Life' [the ice route across frozen Lake Ladoga], it became easier. In '42 and '43, Muslims again

could come together to pray."

Through the entire Soviet period, says Stetzkevich, "It's my own opinion that Muslims, more than followers of other religions, retained their religious traditions. In the practice of Islam, the only public ritual you do is to come to the mosque; everything else you can practice at home. The person who was Communist in public could practice Islam at home and nobody would know about it.

"It was, somehow, easier to be a Muslim," she adds. "The main focus of the Soviets' ideological war was against Christianity in general, especially evangelical Protestants and Orthodox," she says. "In the museum, Islam wasn't even shown, and there was no propaganda against Islam."

The war and its toll of more than 20 million dead somewhat moderated the Soviet repression of religion. Returning Muslim war veterans petitioned for a place to pray in Leningrad. In 1949 alone, they wrote more than 20 letters, but that same year, the mosque was given over to the Hermitage as a place to exhibit the museum's oriental collections. Muslims then asked to buy a former Polish cathedral, but managed to secure only a portion of the cemetery for burial rites. In 1953, they again asked for the mosque to be returned to them,

because it was still being used only for storage. Historian Tagirdzhanova cites an internal document by a city official that sums up the sentiment at the time: "I don't see any reason to give the mosque back to the Muslims because the mosque is located in the center of the city and next to the Kirov Museum and the Museum of the Revolution [in the Peter and Paul Fortress]." The note also reported, however, that from spring to fall, Muslims by the hundreds prayed outdoors, next to the mosque.

"Grandfather came to the closed mosque. He was to open it and organize the Muslim community of Leningrad," says Gumer Isaev, director of the St. Petersburg Center for Modern Middle East Studies and grandson of Mufti Abd-ul-Bari Isaev, who served as *mufti* (leader) of the St. Petersburg Mosque from 1955 to 1973.

In 1929, as a young man, Mufti Isaev was imprisoned in the anti-Muslim backlash of the time, and he spent two years in a *gulag*. During World War II, he was wounded in the battle of Stalingrad.

In 1955, Isaev recounts, Indian statesman Jawaharlal Nehru visited Russia and spent



"The czar had to have in the imperial capital the main temples of all the communities. That's politics."

EFIM REZVAN

two days in Leningrad. Having seen the blue cupola of the mosque from his motorcade and recognizing its similarity to the one he had seen in Samarkand, he asked to visit it, but was told it was closed.

The following March, the Supreme Soviet issued an order to the Ministry of

very complicated and not easy to be a mufti under the Soviets.” As a result, Gumer’s father, Gali Isaev, grew up to become a communications engineer for the Buran space shuttle program in Kazakhstan in the 1980’s.

“Father was not very religious. But we were trying not to forget that my

future would be connected with the Muslim world,” he says. “My dream is to write a book about Grandfather, together with my father, about the period of his work here in Leningrad. There is no information about the first steps, about how the mosque was opened in 1956. We have many documents and papers written by Grandfather, but they are all written in Arabic script in the Tatar language.”

(Before the revolution, Tatar was written using Arabic characters, but in the 1930’s, the alphabet used was changed, first to Latin and then to Cyrillic, the same letters used for Russian.)

“My father speaks Tatar but he can’t read Arabic. And I can read Arabic but I have poor knowledge of Tatar. So only together can we translate.”



Left: These days, the full prayer hall each Friday gives few hints of the decades during which *gosateism*, or “state atheism,” deterred worship not only at the mosque, but also at religious institutions of all kinds throughout the Soviet Union. Lower: Outside the mosque, Mufti Ponchaev leads prayers for a funeral. Between World War II and 1956, Muslims were frequently buried near a former Polish cathedral.

Religion and Culture that, to accommodate international delegations visiting the Soviet Union, all help should be given to the new imam

Isaev. His task was to restore and reconsecrate the mosque; the near-dormant Muslim community too had to be reintegrated and recentered on the mosque.

Indonesian President Sukarno was invited to visit the city in October 1956. “The just-opened Leningrad mosque was added to his itinerary,” says Isaev. “The mosque was used to show that there was Islam in Russia. It was a very important ideological point.”

Particularly because Mufti Isaev coordinated Islamic activity for all of Russia from 1973 to 1980, the Isaev family’s own generational stories say much about spiritual life from the latter half of the Soviet period to today.

“Father said that Grandfather didn’t want him to follow his path. He said that it’s

IN 1956, THE SOVIETS ALLOWED THE MOSQUE TO RE-OPEN, AND THEY USED IT TO SHOW VISITING HEADS OF STATE THAT THERE WAS ISLAM IN THE USSR.

grandfather was a mufti, so we were not quite so assimilated here in Leningrad,” says Isaev.

The mufti died when Gumer was only four, but he left Gumer a legacy. “After his death,” says Gumer, an Arabic-language magazine “came for many years to our flat. I asked Father what is written here, and he told me, ‘In the future you will study Arabic, and you’ll read these magazines and will know what is written there.’”

“My father wanted me to follow the way of Grandfather. He wanted, I think, that my



“For 35 years I have been the head of the mosque. That is a third of the mosque’s life and half of my own life,” says Mufti Djafar Nasibullovich Ponchaev, 70, whose leadership at the mosque followed Isaev’s and bridges the end of the Soviet era, the period of *pere-stroika*, and today’s Russian Federation.

When Ponchaev, who was born in Penza in Siberia, some 1600 kilometers (1000 mi)



Restored in recent decades by volunteers and donors who included Christians and Jews, the St. Petersburg Mosque has become a social as well as spiritual center for the city's Muslims.



east of St. Petersburg, started his studies in Bukhara, it was in what was then the lone *madrassa*, or Islamic school, in the whole of the Soviet Union.

Explaining Muslim life in the Soviet Union, Ponchaev says, "The official version in this country was that religion doesn't exist. Islam either." But in fact, back in 1971 in Bukhara, the Soviet Union held a celebration of Muhammad al-Bukhari, the famous

poet, Ponchaev says. There were delegations from Muslim countries and all parts of the Soviet Union. "The representative of Saudi Arabia saw more local Muslims than he expected, in spite of such suppression and in spite of real difficulty for religious people," he says.

"He was really touched. When he spoke, it brought tears to his eyes."

After 1975, during Leonid Brezhnev's time, "control was eased," says Ponchaev.

When Ponchaev took charge of the mosque in the 1980's, much of the tile from the dome had fallen onto the roof, damaging both it and the ceiling below.

"St. Petersburg had as its first vice president of city administration Mikhail Filonof.

He is Russian. He is Christian. He is Communist," says Ponchaev. "One early morning in summertime, I was sitting here, and he came and spoke to me." Filonof informed Ponchaev that, later that morning, there would be a meeting at which it would be decided to close the mosque permanently. Filonof then inspected the mosque and afterward told Ponchaev, "If you dropped a bomb on it, it would probably survive; your ancestors built it well."

Then Filonof said, "In this meeting, everybody will be in agreement to close the mosque. I will give you the last word, and you should say, 'I thank you very much. I really appreciate what you're doing. I take full responsibility for whatever will happen to the mosque should it *not* be closed.' And then I will immediately adjourn the meeting." The fix, Ponchaev realized, was in.

"Imagine," says Ponchaev, still a bit baffled after all these years, "He's from the city administration, and in that period it was not in his interest to help me. Christian. Communist. Atheist."

Петроградъ. Магометанская мечеть.
Petrograd. Mosquée Mouhamedaine.

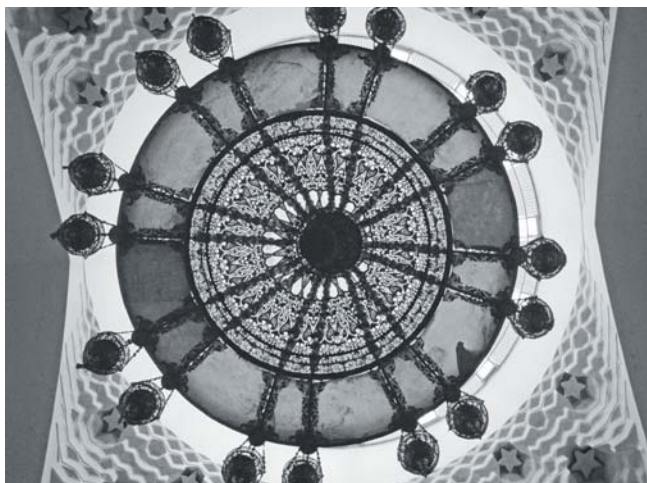


Ponchaev did as he had been told, Filonof adjourned the meeting, and once again, the mosque was saved. Today, a plaque beside the building extols the contributions of government—Russian leader Vladimir Putin is mentioned along with former St. Petersburg mayor Anatoly Sobchak—and private donors, including both Christians and Jews who contributed to the mosque's most recent renovation, completed in 2003.

"This is how the beauty of the mosque works to help us," says Ponchaev, adding, "Thank God, we have ordinary people giving just to maintain the building." In addition to the monetary donors, he says, hundreds of men and women of all ages worked without recognition to maintain the mosque and make it functional again. Coming in on their days off, they removed garbage, cleaned the building, made repairs and brought gifts of carpets.

"My life is in this building, with this building," says Ponchaev. "And I say now it is a ship which will never sink. My main hope is that it will never be closed again."

He has a new young assistant, Imam Tahsin Nalın, from Istanbul. Nalın teaches Arabic and the Qur'an to some 30 students and, in return, they teach him Russian.



Above: A postcard captioned in both Russian and French shows the mosque shortly before the 1917 October Revolution, indicating that even in its earliest years, the mosque was regarded among the city's landmarks. Left: The mosque's chandelier hints at the blending of Islamic and Art Nouveau design. Opposite: Men socialize on the grounds of the mosque on Friday after prayers.

Step out of the Gorkovskaya metro station at Friday prayer time and you feel as though you're in a crowd going to a sporting event, as hundreds and hundreds of people walk the couple of hundred meters to the mosque. Over the treetops, the sky-blue mosaic of the minarets and the turquoise cupola sparkle in the sun. As you enter the gates of the mosque, there are already Uzbek and Tajik women selling savory baked *samsas* and cigarettes. Behind you is St. Petersburg, but with the Central Asian-style mosque in front of you,

its façades decorated in verses from the Qur'an in Arabic calligraphy, you can be forgiven for feeling far, far to the east.

At the Friday prayers, I see quickly that the purpose of this building was not only to be beautiful, though it is that. Packed with 1500 to 2000 people, it is fulfilling its original promise as a center for the religious life of the city.

The blue mosaic *mihrab*, or prayer niche, is bathed in blue light. Blue on blue, it is glorious. I see the lofty interior—the columns of green marble, the large dome, daylit now,



filled with a chandelier inscribed with verses of the Qur'an. The assistant imam leading the prayers has a honeyed voice, and among the prayerful there is another beauty that mesmerizes more than the building does: the faces. Twenty-three nationalities, from the length and breadth of Russia and abroad, who have all come to St. Petersburg, many in the last 20 years as immigrants from the former Soviet republics, all pray here as one with the descendants of their "Tatar" predecessors, as they have always done in St. Petersburg. The spoken words are in Arabic, Russian and Tatar. The hats are traditional Tatar square-sided ones and the white *kadis* (skullcaps) worn by those who have been to Makkah on the Hajj. But again, my eyes return to the faces—Uzbek, Afghan, Ingushetian, Asian; from the

Pacific, Europe, the Arctic, the Black Sea; Russian faces, African faces, Pakistani faces and even Arab faces. In those faces, more than anywhere else, it seems that Akhun Bayazitov's prayer at the mosque's founding a century ago is being answered: "Our mosque is ... beautiful on the outside. ... We should pray to [God] that all of us here will achieve beauty on the inside."

St. Petersburg is no longer a window on Europe alone, but a window on a far wider world. 🌐



"My grandfather said that it's very complicated to be a mufti under the Soviets.... My dream is to write a book about him."

GUMER ISAEV



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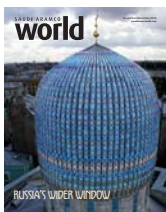


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Related articles from past issues can be found on our Web site, www.saudiaramco.world.com. Click on "indexes," then on the cover of the issue indicated below.

Manuscripts from St. Petersburg: N/D 95
Muslims in the USSR: J/F 90



FOR STUDENTS

We hope this two-page guide will help sharpen your reading skills and deepen your understanding of this issue's articles.

FOR TEACHERS

We encourage reproduction and adaptation of these ideas, freely and without further permission from *Saudi Aramco World*, by teachers at any level, whether working in a classroom or through home study.

—THE EDITORS

Curriculum Alignments

To see alignments with national standards for all articles in this issue, click "Curriculum Alignments" at www.saudiaramco-world.com.

Professional Development Workshops

The Middle East Policy Council, an independent, non-partisan educational organization, offers free Professional Development Workshops to help K–12 educators understand the geographical, political and human complexities of the region and to provide valuable teaching resources. MEPC will design a workshop to give your school, organization or conference innovative tools and strategies for teaching about the Middle East and Islam. For information, e-mail Barbara Petzen at bpetzen@mepec.org with your name, school or organization, phone number, and subject and grade taught. MEPC has also developed a companion website, TeachMiddleEast.org, with background essays and lesson plans.

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CLASS ACTIVITIES

In this issue, *Saudi Aramco World* includes a calendar. But unlike most calendars, this one shows two distinct but related ways of measuring time: The Gregorian calendar for 2011, and the *hijri* calendar for 1432–1433. The Classroom Guide takes this once-a-year opportunity to organize lessons around the theme Measuring Time. It aims to engage students in an exploration of these two calendars, and of calendars in general.

Theme: *Measuring Time*

Do you ever think about your calendar? Not just what you might mark on it—due dates, doctor appointments, birthdays, social events—but about the calendar itself? In the activities that follow, you'll step into the world of calendars, the world in which we decide how we measure time.

Why do people use calendars?

Let's start the exploration of calendars with your experience and the experiences of those around you. Take a calendar inventory. Jot down notes to answer these questions: Do you have your own copy of a calendar? If so, what kinds of things do you keep track of on it? Is it a paper calendar or an electronic calendar? (If you have more than one, what are the differences among them?) Do you keep it with you all the time? If you have a calendar, write a few sentences about what you use it for, what it would be like if you lost it, and whether or not you really need it. If you don't have a calendar, write a few sentences about that. Can you imagine a situation in your life when a calendar might be useful? What would that be, and how would a calendar help?

Next, expand your inquiry and look at how other people use (or don't use) calendars. With a small group of your classmates, use the questions you answered about your calendar use as the basis for a calendar survey. The goal of your survey is to find out the calendar habits of people you know. For starters, you'll want to discover who does and who doesn't use a calendar. That means your survey should include a place to gather data about the people filling it out. At the very least you'll probably want to know their age and occupation. Then you'll want to discover what they use the calendar for—work, school, social events, holidays and so on. How often do they consult their calendar? What would happen if they lost it? You think of more questions. Bring your survey to a class discussion in which groups share their survey questions. Have the teacher write the questions on the board. Out of the class's efforts, make one

survey form that everyone can use.

Then distribute the survey to the people in your household and have them fill it out. Also notice if there's a household calendar (maybe posted on the refrigerator?) that has different household members' commitments marked on it. If your household has such a calendar, fill out a survey form about it. Make some notes about how it differs from the calendars that individuals keep.

Bring your findings back to the class, and tally them. As a class, look for patterns. For example, do you notice any correlation between people's ages and their using or not using a calendar? Any correlation between people's occupations and their using or not using a calendar? Is there a particular group for whom calendars are very important, people who would despair without their calendars? Use the survey data to generate class answers to this question: Why do people use calendars?

What do you need to know to understand calendars?

Vocabulary

Step back for a moment from your survey data and look at a bigger picture—at what's behind a calendar. Read "Patterns of Moon, Patterns of Sun." As you read, highlight or circle calendar-related or time-related words that you don't know. When you're done reading, pair up with another student to define the words. Are there any that you can figure out from the context? If so, write what you think the definition is, then check a dictionary to see if you're right. As you write definitions for the words, go back to the article and reread the sentences, using your definitions instead of the vocabulary words. Once you've done that, you're ready to move on to the next part of the activity.

The Physical Reality

"Patterns of Moon, Patterns of Sun" talks about lunar calendars and solar calendars. To help you understand what each type of calendar measures, try this activity: Clear a large space in the classroom. Assign one person the role of the sun, another the role of the moon, and a third the role of Earth. Then assign each of four students to play the first day of each season: spring, summer, autumn, winter. Make signs for all these people that identify their roles. Signs should be big enough for people anywhere in the room to be able to read. The "characters" can hold their signs or wear them. Have the sun stand in the center of the room, with the four seasons at right angles from each other around the sun, as far away from the sun as space permits.

JANUARY MUHARRAM—SAFAR 1432							FEBRUARY SAFAR—RABI' 1432						
Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
1 26	2 27	3 28	4 29	5 1	6 2	7 3				1 28	2 29	3 30	4 1
8 4	9 5	10 6	11 7	12 8	13 9	14 10	5 2	6 3	7 4	8 5	9 6	10 7	11 8
15 11	16 12	17 13	18 14	19 15	20 16	21 17	12 9	13 10	14 11	15 12	16 13	17 14	18 15
22 18	23 19	24 20	25 21	26 22	27 23	28 24	19 16	20 17	21 18	22 19	23 20	24 21	25 22
29 25	30 26	31 27					26 23	27 24	28 25				

Begin the movement of the system, one part at a time. For starters, have the earth stand still, and have the moon walk slowly around it to simulate the moon revolving around the earth. When the moon has circled the earth once, stop. What period of time have you just symbolically enacted? From what you've read (and your prior knowledge), what does what you've just done have to do with a lunar calendar?

Now, to keep it simple, have the moon take a break so you can focus on the solar calendar. Have the earth walk slowly around the sun. Stop briefly at each of the four dates that mark the start of the seasons. Then keep going until the earth has made a full circle around the sun. What, then, is a solar year?

Now put the pieces together. As the earth circles the sun, have the moon circle the earth. Each time the moon make a complete circle around the earth, have the moon call out: "The moon has circled the earth." According to the article, how many times should the moon circle the earth in the time it takes the earth to circle the sun? In other words, how many lunar months are in a solar year?

Why do different societies measure time in different ways?

Now that you've got a sense of the basic physical reality behind calendars, return to

"Patterns of Moon, Patterns of Sun." The article reports that certain societies use lunar calendars, while others use solar, and some use a combination of the two. Why is the hijri calendar lunar? Why do you think the Gregorian calendar is a combination of the two (lunisolar)? Can you think of any benefits that one type of calendar would have over the other? If so, why do you think different societies choose one type of calendar over another?

Another aspect of measuring time that different groups do in different ways involves the epoch—or starting point—of the calendar system. Find and highlight the parts of the article that explain different starting points. Based on what you've read, what generalization can you make? Complete the following prompt to answer the question. "Societies choose the starting point for their calendars based on ____."

Why keep track of more than one system of measuring time? What are the benefits and drawbacks of doing so?

When you look at the 2011/1432–1433 calendar in *Saudi Aramco World*, you can see two different calendar systems—Gregorian and hijri—presented together. Look at the calendar's primary organization. Which calendar system is given primacy? How can you tell? Why do you think that is the case, rather than the other way around?

Certainly this calendar is a bit more complicated than calendars with one system only. Why, then, bother keeping track of two systems of measuring time on one calendar? Write a short statement explaining some of the benefits of this.

Think about other things that are measured using more than one system. For example, look at a box of cereal. What is the primary unit for measuring weight? What other unit of measuring weight is also used? During one day, look for other places where two different units of measure are used side by side. Bring in examples to share with your classmates. In each case, why do you think two systems are used? How do your hypothesized reasons compare to the reasons that the hijri calendar differs from the Gregorian calendar?

How would you measure time if you created your own personal calendar?

Now have some fun putting together what you've learned.

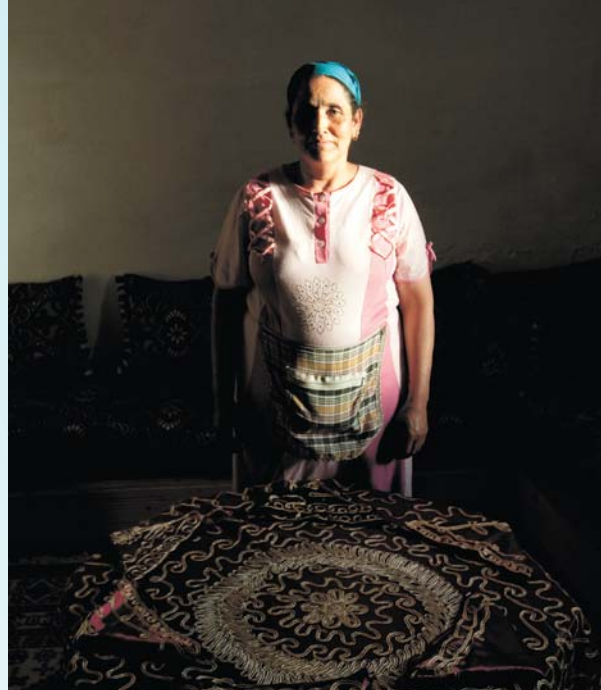
Make your own calendar, based on your own way of measuring time. To start at the beginning, when would your calendar's epoch begin? Why would you choose that for a starting point? Then, when would a year start? Why? Would you break up the year? Why or why not? If so, how? What name would you give to your calendar system? Who else would find your system useful? Explain your thinking in a paragraph.

Then make your own calendar, using the *Saudi Aramco World* calendar as your model. Download or make a 2011 calendar (or a *hijri* one) and graft onto it your calendar, just the way the *Saudi Aramco World* grafted the Gregorian and *hijri* systems. Make your calendar something you could hang on the wall, with pictures, perhaps even a theme, just like the one you see here. Introduce your calendar with a short article, similar to "Patterns of Moon, Patterns of Sun," in which you explain the historical origins of your calendar, why it measures time the way it does, how it compares to the Gregorian and *hijri* calendars (as well as any others you wish to include), and what you believe to be the benefits of using your calendar. You can also write a short essay, similar to "Drinkers of the Wind," in which you explain the visual imagery you've chosen for your calendar.

Untangling Threads: *Female*

Artisans in Morocco's Rug Weaving Industry documents the environment and the culture of women weavers who have recently begun to participate in local and global markets, specifically focusing on artisans from three rural weaving communities: Ain Leuh, Aït Hamza and Taznakht. Though their carpets are generally sold for large sums, the female artisans have typically received a very small percentage of the profits, a fact which has perpetuated the cycle of poverty and child labor in rural Morocco. The weaving cooperatives documented in this exhibition are now promoting their products and making direct sales rather than relying on middlemen; these photographs highlight the faces behind the production and the market forces that bring these woven artworks to the world. Synchronicity Fine Arts, **New York**, December 1 through January 8.

Weaver Fadma Mahamedet lives in the village of Aït Tilit in central Morocco. She is a member of the Aït Hamza weaving cooperative.



CURRENT **November**

Arabia, an IMAX 3-D film shot at more than 20 locations across Saudi Arabia, provides a vivid portrait of the history, culture and religion of the Arabian Peninsula. The movie mixes scenes of modern-day life in the kingdom with images of its natural and built heritage, and looks into the future through the eyes of young Saudis. Actress Helen Mirren narrates, but the film's real voice is Hamzah Jamjoon, a Jiddawi film student at Chicago's DePaul University. He sets out with a film crew to explore his Arabian identity, diving in the Red Sea, flying over dune and oasis towns, riding camels with the Bedouin and exploring Madain Salih, the 2000-year-old Nabataean town famous for its huge sandstone tombs. Viewers also join three million Muslims making the pilgrimage to Makkah with another Saudi, Ni'mah Ismail Nawwab. A photographic companion book, *Arabia: In Search of the Golden Ages*, is available. Now playing at **Texas State History Museum, Austin**; Museum of Science, **Boston**; **Detroit Science Center**; **Canadian Museum of Civilization, Hull**; Papalote Children's Museum, **Mexico City**; Museum of Science and Industry, **Tampa, Florida**; Hemisfèric, City of Arts and Sciences, **Valencia, Spain**; AFM IMAX, Istiniye Park, **Istanbul**; AFM IMAX, Ankamall, Akköprü, **Ankara, Turkey**; Cinestar IMAX Sony Center, **Berlin**. Continues through December 31 at Marbles Kids Museum, **Raleigh, North Carolina**; through May 2011 at **Louisville [Kentucky] Science Center**; through June 2011 at Auto & Technik Museum, **Sinsheim, Germany**; through July 23 at Scientific Center, **Salmiya, Kuwait**. Opens January, 2011 at **Montreal Science Center**; January 29 at Discovery Place, **Charlotte, North Carolina**; February 18 at National Museum of Natural History, **Washington, D.C.**; April 11 at Keong Emas IMAX Theatre, **Jakarta, Indonesia**.

Current **December**

The Qur'an in its 1400th Year displays for the first time a selection of 50 calligraphic copies and partial copies of the Qur'an from the museum's 250,000-page "Damascus Documents" collection, including the oldest known copies of parts of the holy book, dating from the year 875, and others written on antelope hide. The collection was brought to Istanbul when the Umayyad Mosque in Damascus burned down at the end of the 19th century. Museum of Turkish and Islamic Art, **Istanbul**, through December 1.

Desert Jewels: North African Jewelry and Photography from the Xavier Guerrand-Hermès Collection combines previously unexhibited North African jewelry and late 19th- and early 20th-century photographs. Jewelry designers and makers used silver, coral, amber, coins and semiprecious stones to create wedding necklaces, hair ornaments, bracelets, rings, earrings and fibulae, which show the common elements of North African societies as well as local variations in materials and motifs. North African jewelry came to the attention of western collectors only in the 19th century, and important photographers of the day visited the region and photographed landscapes, architecture, markets and people adorned in their jewels. **Philadelphia Museum of Art**, through December 5.

Weavers' Stories From Island Southeast Asia lets weavers and batik artists speak for themselves in videos recorded at eight sites in Indonesia, Malaysia, the Philippines and East Timor. A panoply of human emotions and experiences—determination, longing, dream inspiration, theft, war and more—emerges from the stories of these remarkable women. The videos are accompanied by textiles created by each of the featured artisans. Fowler Museum at **UCLA, Los Angeles**, through December 5.

Nini Towok's Spinning Wheel: Cloth and the Cycle of Life in Kerek, Java explores the multiple meanings of the beautiful rustic textiles from Kerek, the last place in Java where batik is still produced on handwoven cotton cloth and where a full range of handwoven textiles still supports a remarkable system of interrelated beliefs and practices. Nini Towok is the Javanese goddess who cultivates cotton in the heavens and sends her yarn to Earth in the form of moonbeams. Fine examples of these rarely seen cloths illustrate the various techniques, patterns and color combinations, and the exhibition concludes with a series of 17 outfits, each specific to a particular individual according to sex, age, social status, occupation and place of residence. Fowler Museum at **UCLA, Los Angeles**, through December 5.

Vanishing Traditions is an ethnographic collection of minority Chinese costumes and adornment. Warren Design Museum, University of **California, Davis**, through December 5.

Traces of the Calligrapher: Islamic Calligraphy in Practice, c. 1600–1900 and Writing the Word of God: Calligraphy and the Qur'an celebrate the rich religious and artistic tradition of calligraphy, or "beautiful writing," the most esteemed of the Islamic visual arts. The works of calligraphy—from practice alphabets to elaborately finished manuscripts—serve as traces of individuals, belief systems and cultures, and the costly and exotic materials lavished on writing instruments document the international trade of the period,

from 1600 to 1900, and create a rich material legacy that fuses esthetics and piety. Some 150 objects and works convey the elegance of the esteemed art form and reveal the skills of the many artisans—calligraphers, papermakers, gold beaters, illuminators, bookbinders and metalworkers, to name a few—involved in the creation of the tools, the calligraphies and the manuscript folios. **Traces of the Calligrapher** maps the practice of the calligrapher from the 17th through the 19th centuries through examples of calligraphy and through the tools of the trade. The objects in the exhibition come from Iran, Turkey and India and include reed pens, penknives and *maktas* (used to hold the pen while it is cut) in addition to inkwells, scissors, burnishers, storage boxes and writing tables. **Writing the Word of God** is devoted to key developments of the Islamic scripts of distinct cultural areas, from Spain and North Africa to greater Iran and from the seventh to the 15th centuries. A selection of approximately 20 folios from now-dispersed copies of the Qur'an from various regions will illustrate the rich variety and system of scripts. Carlos Museum, Emory University, **Atlanta**, through December 5.

My Father's House: The Architecture of Cultural Heritage approaches the subject of cultural identity from the inside out, using large-scale photography, audiovisual media and film to examine how the built environment reflects the people, the community, the society and the nations of the Gulf states and the Arabian Peninsula. Featuring work by five emerging Middle Eastern artists and three UK photographers, the exhibition encourages discussion about the development of the built environment and ways to ensure that it truly reflects personal and community identity. Brunei Gallery, SOAS, **London**, through December 11.

Escaping War: Photographs Taken by Refugee Children in Uganda and Jordan exhibits images made by children who have traditionally been the subjects, not the creators, of documentary photography. In Photo Camps in Uganda and Jordan, internationally known photographers

Ed Kashi and Reza taught the children how to describe their worlds and create self-portraits, and to use the images as a means of coping with their past and continuing traumas. Brunei Gallery, SOAS, **London**, through December 11.

The Dhow: *Mastery of the Monsoon* includes models, photographs and videos of the graceful wooden ships that plied the Indian Ocean and the waters of East Africa, Arabia, Iran and India for centuries. Dhows carried people—passengers, slaves, pilgrims—and cargoes ranging from timber and goats to pepper, gold and incense, and were used in fishing and pearl-diving. Also on display are actual examples of the smaller Indian Ocean boats, a pearl-trader's chest, pearling paraphernalia and dhow-building equipment. Opening event September 16, 6:30 p.m. Iais Building, University of **Exeter [uk]**, through December 17.

Treasures of the World: *Jewellery of India Under the Grand Moguls* includes pieces that exemplify the artistic sophistication and technical finesse of Indian craftsmen in the age of the Mughals, especially during the 16th, 17th and 18th centuries. The Indian Subcontinent, rich in gems, is home to the most highly developed range of the jeweled arts of any nation on earth. Some of the remarkable pieces on view here belonged to a succession of Mughal emperors; all demonstrate the mastery of the Indian jewelry artists, whose materials typically were gold, rubies, emeralds, diamonds and pearls. The objects on display are from the personal collection of Sheikh Nasser and Sheikh Hussah al-Sabah of Kuwait, the most significant collectors of Indian jeweled arts currently active. Islamic Arts Museum **Malaysia, Kuala Lumpur**, through December 30.

Current **January**

Mind and Matter: *The Amazing Story of the Archimedes Palimpsest* examines the history of how knowledge has been and is being recorded—a history full of triumphs and disasters, from the invention of movable type to the destruction of great libraries—a story the Archimedes Palimpsest uniquely exemplifies. From the birth of its texts in the cradle of western civilization to their obliteration on April 14, 1229, in Jerusalem to their astonishing recovery in Baltimore 700 years later, the Archimedes Palimpsest is an iconic example of the epic and perilous journey that every record makes. Walters Art Museum, **Baltimore**, through January 1.

Painting the Modern in India features seven renowned painters who came of age at the height of the movement to free India from British rule. To liberate themselves from a position at the margins of an art world shaped by the colonial establishment, they organized path-breaking associations and pioneered new approaches to painting, repositioning their own art practices internationally and in relation to the 5000-year history of art in India. These artists created hybrid styles that are an under-appreciated component of 20th-century art history. Peabody Essex Museum, **Salem, Massachusetts**, through January 1.

Secrets of the Silk Road features more than 150 objects relating to the people and cultures of the Silk Road during its

early period. The exhibition's "secret" is that many of the exhibits predate the known Silk Road by almost 2000 years and reflect a much more global population than previously realized. The legendary trade route linked Xian, then the capital of China, in the East to such Mediterranean cities as Rome and Baghdad. Exhibits include a travel permit from the year 732; a deed for a female slave; an impeccably preserved female mummy with European features dating from between 3100 and 700 BCE; the stylish boots of a Silk Road traveler from between 206 BCE and 420 CE; and exquisite jewelry from the same time period. Such finds along the Silk Road have helped historians better understand the settlement of ancient East Central Asia and have opened a window to understanding the very early exchange of important technologies, life-improving inventions and ideas and customs. **Houston** Museum of Natural Science, through January 2.

The World of Khubilai Khan: *Chinese Art in the Yuan Dynasty* highlights new art forms and styles that arose in China as a result of the nation's unification under Khubilai Khan's Yuan Dynasty and the influx of craftsmen it attracted from all over the vast Mongol empire—with reverberations reaching as far as Italian art of the 14th century. This exhibition covers the period from 1215, the year of Khubilai's birth, to 1368, the year of the fall of the dynasty, and features paintings, sculpture, gold and silver, textiles, ceramics, lacquer and other religious and secular decorative arts. Metropolitan Museum of Art, **New York**, through January 2.

Cleopatra: *The Search for the Last Queen of Egypt.* The world of Cleopatra, lost to the sea and sand for nearly 2000 years, resurfaces in this new exhibition displaying some 250 artifacts associated with the queen. After an introductory film, visitors are transported to the ruins of ancient Alexandria, where Franck Goddio leads an underwater excavation to recover artifacts from Cleopatra's empire. They continue to the city of Canopus, also now submerged, which was both a religious center and a decadent playground, and Heracleion, where every new pharaoh, including Cleopatra, was crowned. Visitors then journey into the ancient city of Alexandria, where Cleopatra's palace once stood, and see the only known example of what scientists believe to be Cleopatra's own handwriting on a papyrus document. At the temple complex at Taposiris Magna, about 30 miles west of Alexandria, Zahi Hawass is leading a search for the tomb of Cleopatra and Marc Antony. The exhibition's final gallery is devoted to images of Cleopatra through the years in art and popular culture. Franklin Institute, **Philadelphia**, through January 2.

From Delacroix to Kandinsky: *Orientalism in Europe* presents an overview of an art movement that spread across Europe between about 1798 and 1914, mixing the growing practical knowledge of the Middle East brought about by broader and easier travel with the exotic and erotic fantasy that came of an inability to incorporate the new-found world into the travelers' existing world view. The result was scenes of lions and horses, veiled and nude temptresses, textured and colorful

handicrafts and other artistic output that has become clichéd and thus perhaps worthy of re-evaluation. Musées Royaux des Beaux-Arts de **Belgique, Brussels**, through January 9.

To Live Forever: *Egyptian Treasures from the Brooklyn Museum* uses some 120 pieces of jewelry, statues, coffins and vessels dating from 3600 BCE to 400 CE to illustrate the range of strategies and preparations that the ancient Egyptians developed to defeat death and to achieve success in the afterlife. The exhibition explores the belief that death was an enemy that could be vanquished, a primary cultural tenet of ancient Egyptian civilization, and explains the process of mummification, the economics and rituals of memorials, the contents of the tomb, the funeral accessories—differentiated by the class of the deceased—and the idealized afterlife. Exhibits include the vividly painted coffin of a mayor of Thebes, mummies, stone statues, gold jewelry, amulets and canopic jars. **San Antonio [Texas]** Museum of Art, through January 9.

To Dye For: *A World Saturated in Color* features more than 50 textiles and costumes from Africa, Asia and the Americas, showcasing objects from diverse cultures and historical periods, including a tie-dyed mantle from the Wari-Nasca culture of pre-Hispanic Peru (500–900 CE), a paste-resist Mongolian felt rug from the 15th to 17th century and a group of stitch-resist dyed 20th-century kerchiefs from the Dida people of the Ivory Coast. These historical pieces are contrasted with artworks from contemporary Bay Area artists. The exhibition highlights such recent acquisitions as a pair of ikat-woven, early 20th-century women's skirts from the Iban people of Sarawak and two exquisite hand-painted and mordant-dyed Indian trade cloths used as heirloom cloths by the Toraja peoples of Sulawesi, Indonesia. De Young Museum, **San Francisco**, through January 9.

Tutankhamun: The Golden King and the Great Pharaohs is [another] extensive exhibition of more than 140 treasures from the tomb of the celebrated pharaoh and other sites. It includes his golden sandals, created specifically for the afterlife and found on his feet when his mummy was unwrapped; one of the gold canopic coffinettes, inlaid with jewels, that contained his mummified internal organs; and a three-meter figure depicting Tutankhamun as a young man, which originally may have stood at his mortuary temple. Providing context and additional information are 75 objects from other tombs in the Valley of the Kings, including objects related to Khefren (Cheops), Hatshepsut and Psusennes I. **Denver [Colorado]** Art Museum, through January 9.

Epic of the Persian Kings: *The Art of Ferdowsi's Shahnameh* explores the monumental artistic legacy of one of the world's greatest literary epics: the 1000-year-old Persian Book of Kings, or *Shahnameh*. Completed by the poet Ferdowsi in the year 1010, this vast narrative poem recounting the "Iranian version" of the history of the world is an icon of Persian culture, inspiring some of the world's most exquisite manuscripts. To mark the passing of a millennium since its completion,

the exhibition brings together nearly 100 paintings from these lavishly illustrated manuscripts spanning 800 years. The *Shahnameh* is Iran's national epic, a vast narrative that mixes royal history with the mythical and supernatural, from the creation of the world and the first men through to the fall of the Persian Empire to the Arabs in the seventh century. Twice as long as the *Iliad* and *Odyssey* put together, and only finished after 35 years, it is the longest poem ever written by a single author. Fitzwilliam Museum, **Cambridge [uk]**, through January 9.

Romantic Interludes: *Women in Firdawsi's Shahnama* marks the poem's 1000th anniversary by displaying paintings that illuminate the stories of a number of resourceful and colorful female characters. The *Shahnama*, often called the "national epic" of Iran, was completed around the year 1010 by the Persian poet Abu'l Qasim Firdawsi. A vast and complex poem, it opens with the creation of the world and concludes with the Muslim conquest of Iran in the mid-seventh century, thus comprising myth, legend and history. Its 45,000 lines are filled with a rich panoply of characters—kings, queens, princes, princesses, heroes, lovers, warriors, villains and magical creatures. Museum of Fine Arts **Boston**, through January 16.

Current **February**

Roads to Arabia: *Archaeological Treasures from the Kingdom of Saudi Arabia.* The study of archeological remains only really began in Saudi Arabia in the 1970's, yet brought a wealth of unsuspected treasures to light: temples, palaces adorned with frescoes, monumental sculpture, silver dishes and precious jewelry left in tombs. The exhibition, organized as a series of points along trade and pilgrimage routes, focuses on the region's rich history as a major center of commercial and cultural exchange, provides both chronological and geographical information about the discoveries made during recent excavations and emphasizes the important role played by this region as a trading center during the past 6000 years. Over 300 works—sculptures, ceramics, jewelry, frescoes—are on display, dating from antiquity to the beginning of the modern period; the majority have never before been exhibited. Caixa Forum, **Barcelona**, through February 15; thereafter Pergamon Museum, **Berlin**.

The Aura of Alif: *The Art of Writing in Islam* presents the contextual and symbolic intentions of writing in religion, magic and poetry. Ranging from the early period of Islam to the 21st century, the exhibition presents beautiful works, from the art of the ruling elite to folk art and everyday esthetics, written on surfaces including not only parchment, papyrus and paper but also ceramics, metal, stone, wood, leather and textiles, and demonstrates that writing is the key to understanding differing Muslim cultures. Staatliches Museum für Völkerkunde, **Munich**, through February 20.

Current **March**

Visible Language: *Inventions of Writing in the Ancient Middle East and Beyond* presents the newest research on the invention of writing. Artifacts, some never before exhibited in the United States, reveal the origins of

writing in Mesopotamia and Egypt as well as the other two independent writing systems of China and Meso-America. Among the objects are examples of the earliest pictographic tablets from Uruk (Iraq) and bone tags with the earliest Egyptian hieroglyphs. The exhibit addresses how the cuneiform writing of Sumer was adapted to write many other languages, the invention of the alphabet in the Sinai and the variety of scripts used to write ancient Egyptian. It also explores how technology is being used to study early writing systems, with CT-scanning of token balls to study the tokens sealed within, digital removal of clay envelopes from clay tablets to reveal the text inside and the use of FMR photography to create high definition images. Catalog. Oriental Institute Museum, **Chicago**, through March 6.

Egyptian Magic displays amulets, scarabs, magical images and writing, magic knives and wands, pictures of deities and spells on papyrus to outline the magical world of the ancient Egyptians. Magic, inextricably connected with their religion, was an everyday matter to the Egyptians, who believed they could influence anything with magic. They attempted to gain the gods' favor by making sacrifices or wearing good-luck charms to steer the little things of daily life in the right direction. Priests performed intricate temple rituals for the protection of the whole land and people. Magic was present 24 hours a day, on every street corner, and Egyptian magical practices influenced many other cultures. Rijksmuseum van Oudheden, **Leiden, Netherlands**, through March 13.

Well-Dressed Afghanistan: *Men's and Women's Clothing from Afghanistan* includes more than 30 outfits, plus other garments and accessories, for men, women and children. The materials, designs and colors the Afghans use in their clothing reflect the central and strategic location of their country, but each of the main ethnic groups, with its own way of life and its own history, has its own traditional dress as well. Some of these garments are relatively plain; others are decorated with woven, dyed and embroidered patterns in bright colors. Some are made of silk, others of heavy felt. The exhibition also includes an unusual outfit for *buzkashi*, the aggressive polo-like game played by Afghan men, and a series of photographs by Dutch photographer Hans Stakelbeek. Textile Research

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Colors of the Oasis: Central Asian Ikats.

Nineteenth-century Central Asian ikats are distinguished by bold, original designs using vibrant colors and are prized for their great beauty. They derive their name from the technique used to create them, wherein bundled warps—and sometimes also the wefts—are bound and dyed several times before weaving, resulting in eye-catching designs in dazzling colors. Today the influence of ikat designs can be seen in contemporary fashion and home décor. This exhibition features a selection of the Central Asian ikats given to the museum by collector Murad Megalli, on view for the first time. Textile Museum, **Washington, D.C.**, through March 13.

This robe, or *munisak*, was woven in Uzbekistan, probably in Samarkand or the Fergana valley, in the second half of the 19th century. Successive stretches of the warps were bundled and tightly wrapped with thread to protect them from dye in a complex and labor-intensive pre-weaving process involving multiple dye baths.

Center, **Leiden, Netherlands**, through March 23.

Current April

Shahnama: 1000 Years of the Persian Book of Kings displays 33 paintings and objects from the 14th to 16th centuries to celebrate the *Shahnama*, Iran's national epic and one of the world's greatest literary masterpieces, completed in about 1010 by the poet Firdawsi. Intricately detailed and sumptuously painted images of kings, heroes and mythological creatures will be on view, as the *Shahnama* recounts the myths, legends and "history" of Iran from the beginning of time to the Arab conquest in the seventh century. Sackler Gallery, **Washington, D.C.**, through April 17.

Current May and later

Georg Schweinfurth: Pioneer of Textile Archaeology and African Explorer began excavations at Arsinoë (Egypt) at the beginning of the 1880's and, within two short years, unearthed around 450 textile fragments from late antiquity, as well as complete items of clothing and headdresses, blankets and cushions. While it was customary for other excavators at the time to cut out the ornamental features of textiles and discard the rest, thus destroying the objects' cultural-historical context, Schweinfurth preserved the items as completely as he could. Some 30 archeological textiles are on display, spanning the entire spectrum of clothing and used fabrics from late antiquity. In addition, the exhibition uses several of Schweinfurth's ancient Egyptian finds as well as manuscripts, drawings and printed books to trace the

explorer's biography and examine the full range of his diverse research. Bode-Museum, **Berlin**, through June 19.

Coming November

Haremhab, The General Who Became King focuses on the famous life-sized statue that shows Haremhab as a scribe and thus an administrator and wise man. The exhibition examines the historical and art-historical significance of the statue and of its subject: a royal scribe and general of the army under Tutankhamun who eventually became king himself, reigning between ca. 1323 and 1309 BCE. The last king of the 18th Dynasty, Haremhab instituted laws that secured the rights of civilians and curbed the power of the army. The display will feature some 40 additional objects in various media—wall reliefs, works on papyrus, statuettes and garment fragments. Metropolitan Museum of Art, **New York**, from November 10.

Heroes and Kings of the Shahnama shows folios of the famous text from each of the Library's 25 copies, produced in Iran and India between the 14th and 19th centuries. The *Shahnama*, or *Book of Kings*, is the Iranian national epic, relating the glorious, often gory, feats of the heroes and kings of pre-Islamic Iran. Compiled in written form in the 11th century by the poet Firdawsi, these tales have been popular both inside and beyond Iran for more than a millennium. While many tell of dragons and *divs*, others, such as stories of Alexander the Great, derive from recorded history. The exhibition celebrates the 1000th anniversary of Firdawsi's completion of the text in the

year 1010. Fully illustrated catalogue. Chester Beatty Library, **Dublin**, November 19 through March 20.

Fakes, Forgeries and Mysteries highlights mistakes and discoveries regarding the attribution, authenticity and value of works in the museum's collection, and includes some 50 paintings, sculptures, photographs, prints, drawings and decorative arts from—or thought to be from—European, African, American, Asian, Islamic and ancient Near Eastern cultures. The exhibition displays works whose attribution has changed, known forgeries and ongoing "mysteries." **Detroit** Institute of Arts, November 21 through April 10.

Ivory From Ceylon: Art, Luxury and Diplomacy in the Renaissance features fine 16th-century ivory carvings from Sri Lanka commissioned for the Portuguese court. These objects bridge Asia and Europe, illustrating the high quality of Sinhalese craftsmanship and symbolizing Luso-Sinhalese relations at the height of the Portuguese maritime empire. As exotic showpieces, the ivory caskets, combs and fans represent the reach and power of the Lisbon court and qualify as some of the most important "cabinet of wonders" pieces collected by Portuguese and other European rulers in the Renaissance. They are compared with later 16th- and 17th-century Sinhalese writing desks, caskets, mortars and powder horns and an oratory/shrine, along with rare examples of Sinhalese rock crystal, hardstones and jewelry. Rietberg Museum, **Zurich, Switzerland**, November 28 through March 13.

Coming **December**
Captured Hearts: *The Lure of Courtly Lucknow.* A cosmopolitan Indo-Islamic-European capital, Lucknow was the 18th- and 19th-century cultural successor of the resplendent Mughal Empire. It fostered some of the most vibrant artistic expression of its day in a variety of media, and represented a rare intersection of eastern and western artistic traditions. The exhibition features album paintings, historical and religious manuscripts, textiles, period photographs, metalwork, glassware and jewelry that offer proof of a rich and dynamic culture. **Los Angeles County Museum of Art, December 12 through March 6.**

Coming **January**
Orientalism in Europe: *From Delacroix to Kandinsky* includes some 150 paintings and sculptures that reveal western artists' multifaceted approach to the Islamic Orient, Northern Africa and the Near East. Beginning with Napoleon's military campaign in Egypt (1798–1799), which unleashed "Egyptomania" throughout Europe, the exhibition continues to early 20th-century modernism. Masterpieces by Ingres, Delacroix, Gérôme, Renoir, Klee, Kandinsky, Sargent and Matisse present orientalism as a significant theme across styles, artistic convictions and national borders, and also address orientalism's social, political, ethnic and religious aspects. **Kunst-halle der Hypo-Kulturstiftung, Munich, January 28 through May 1.**

Coming **March**
Jean-Léon Gérôme, the first major retrospective in 30 years to focus on the work of the 19th-century French orientalist painter and sculptor, displays a carefully selected group of some 70 works that cast new light on Gérôme's oeuvre on the basis of research undertaken in recent decades. The exhibition will consider Gérôme's theatrical concept of history and mythological painting (his preferred genres), his use of a realistic idiom and the interest in detail evident in his orientalist works (based on highly detailed sketches made during his numerous trips, as well as on photographs), and his use of polychrome in his sculptures. The exhibition will also look at the artist's use of illusionism and *trompe l'oeil*, revealing the links between his paintings and new media of that time such as photography. It will also be shown at the Musée d'Orsay, Paris, and the J. Paul Getty Museum, Los Angeles. **Museo Thyssen-Bornemisza, Madrid, March 1 through May 22.**

In Search of Biblical Lands: *From Jerusalem to Jordan in Nineteenth-Century Photography.* In the 1800's, travelers came to the eastern margins of the Mediterranean and encountered a landscape at once forbidding and monotonous. Propelled by a connection to the Old and New Testaments of the Bible and encouraged by texts recently discovered in Egypt and Assyria, explorers, excavators and entrepreneurs came to photograph places hitherto only imagined. This exhibition presents images of the region known variously as Palestine, western Syria, the Transjordan Plateau and the Holy Land. Subjects range from architectural sites and strata to evocative geography and scenes of pastoral life. **Getty Villa, Malibu, California, March 2 through September 12.**

PERMANENT
Molten Color: *Glassmaking in Antiquity* features more than 180 ancient glass objects, including works from Mesopotamia, Egypt, the Greek world and the Roman Empire. The exhibition spans the entire period of ancient glass production, from its origins in Mesopotamia in about 2500 BCE to Byzantine and Islamic glass of the eleventh century, and includes a variety of ancient glass-making techniques, such as casting,

core-forming, mosaic, inflation, mold blowing, cameo carving, incising and cutting, all still used today. **Getty Villa, Malibu, California.**

The Saudi Aramco Exhibit relates the heritage of Arab-Islamic scientists and scholars of the past to the technology of today's petroleum exploration, production and transportation, set against the background of the natural history of Saudi Arabia. **Dhahran, Saudi Arabia.**

Information is correct at press time, but please reconfirm dates and times before traveling. Most institutions listed have further information available at their Web sites. Readers are welcome to submit information eight weeks in advance for possible inclusion in this listing. Some listings have been kindly provided to us by *Canvas*, the art and culture magazine for the Middle East and the Arab world.

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