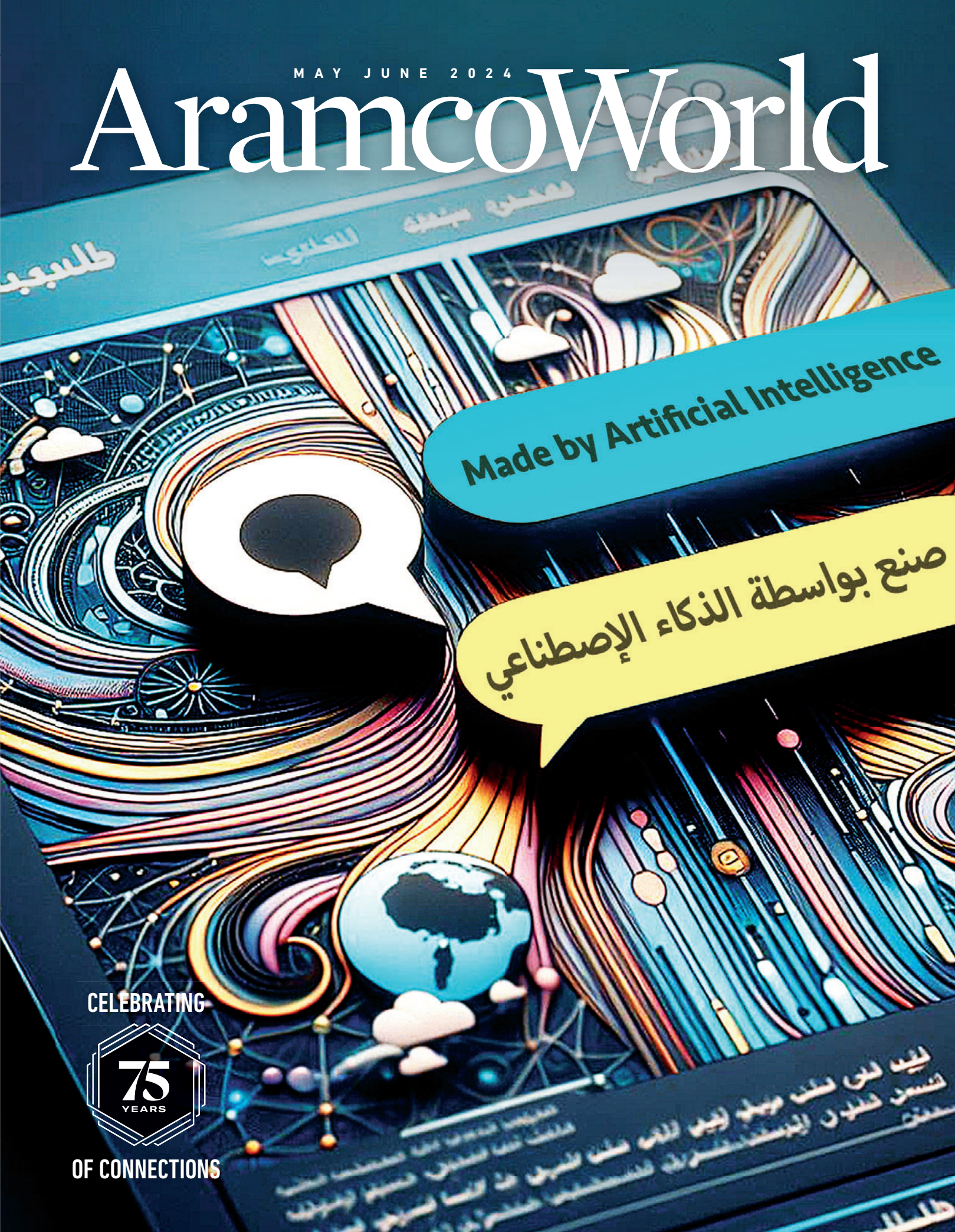
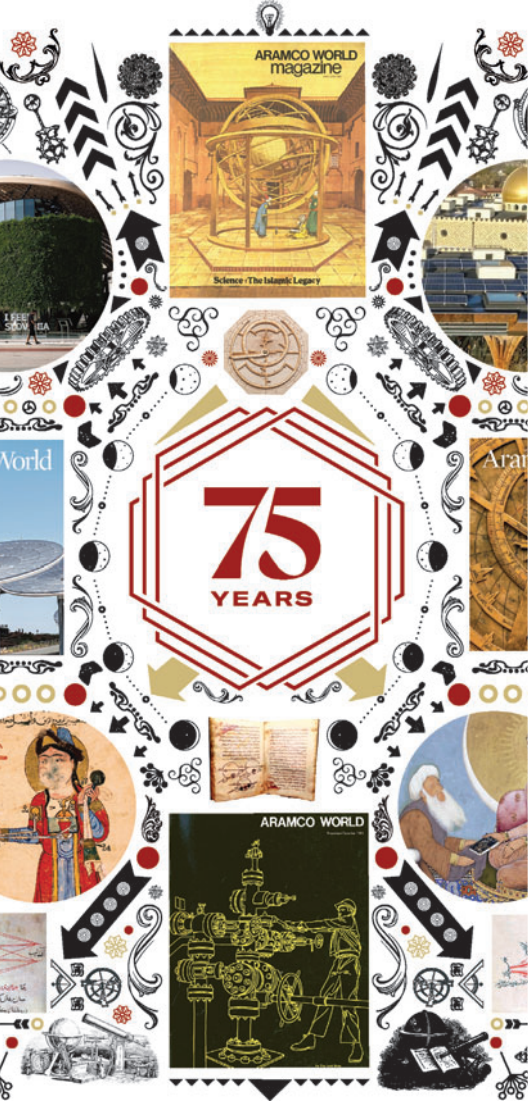
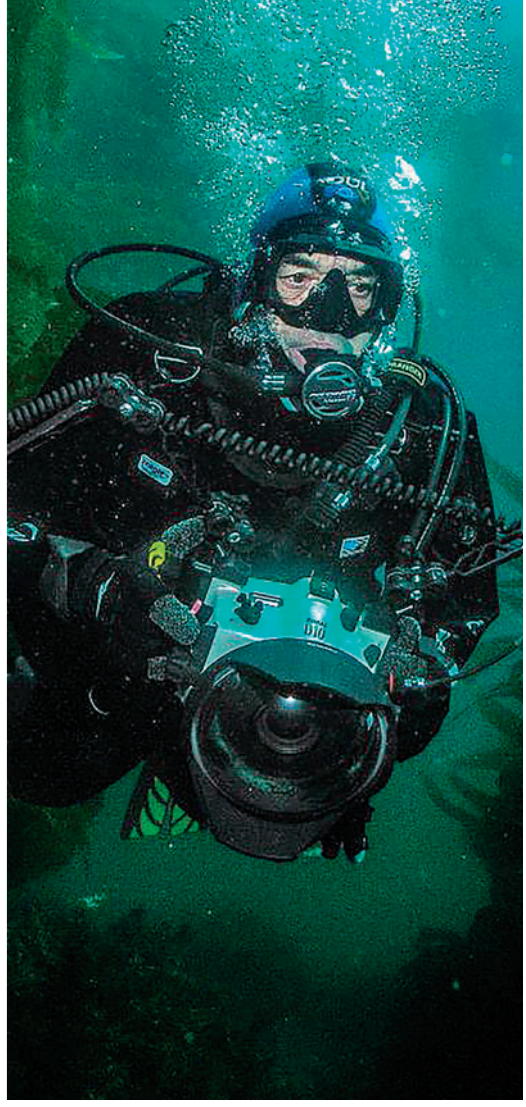
MAY JUNE 2024

AramcoWorld



CELEBRATING 75 YEARS OF CONNECTIONS





75 YEARS

AramcoWorld

MAY / JUNE 2024 | VOL. 75, NO. 3

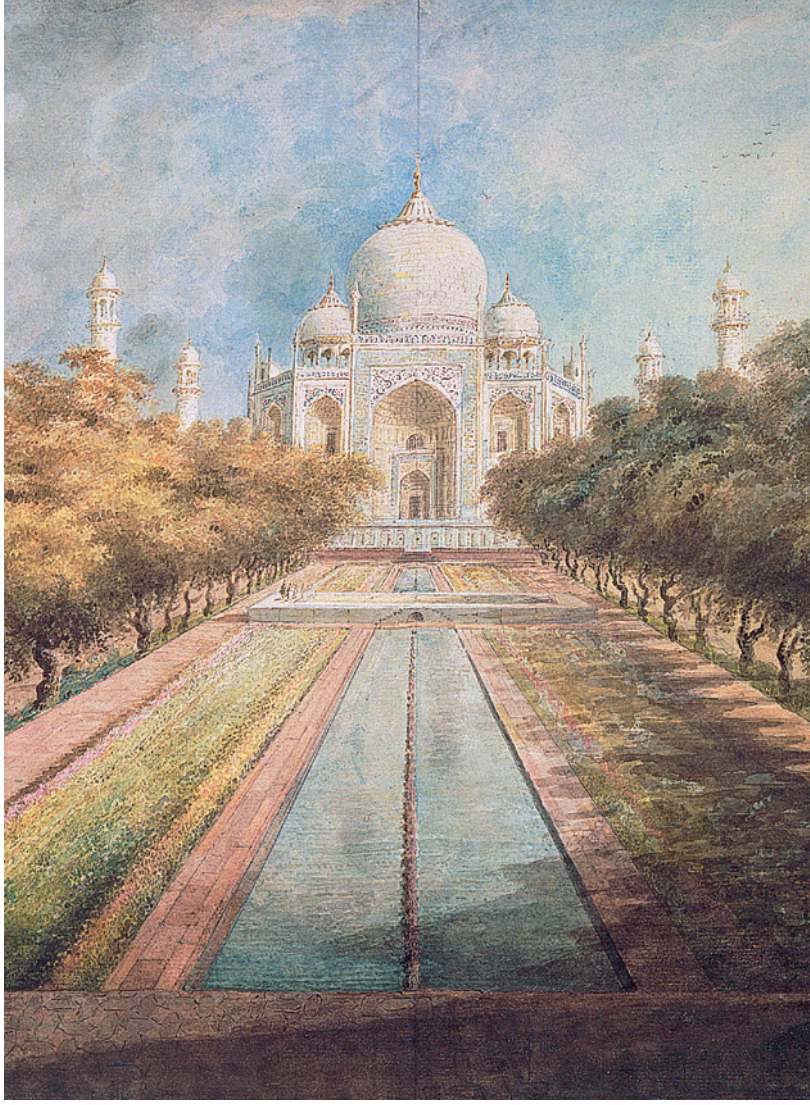
aramcoworld.com

2 FIRSTLOOK 4 FLAVORS

We distribute *AramcoWorld* in print and online to increase cross-cultural understanding by broadening knowledge of the histories, cultures and geography of the Arab and Muslim worlds and their global connections.

FRONT COVER With instructions from the editor, artificial intelligence generated the image on the cover of this issue of *AramcoWorld*.

BACK COVER In the village of Laza, along the Transcaucasian Trail, a girl holds tskan, a traditional meat pie.



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aramco

Arabs In America: Native Sons

March/April 1975

Photographed by Robert Azzi

In 1975 *AramcoWorld* dedicated an entire issue to celebrating the lives of Arab Americans and their impact—from renowned heart surgeon Michael DeBakey to White House correspondent Helen Thomas to entertainer and St. Jude Children's Research Hospital founder Danny Thomas.

AramcoWorld deployed Robert Azzi, an Arab American himself, to tell the story through his photography.

"There were so many existing stereotypes over what Arabs and Muslims and Middle Easterners look like, how they lived, how they educated their children, what their lifestyles are," Azzi said.

In this picture, Azzi simply posed George Coury and his wife, Amelia, by the side of their pool in Coral Gables, Florida. George had worked up from brokerage assistant to the first Arab American member of the New York Stock Exchange.

"I think what I'm saying in this picture [is] these people are just like you and me—the same ambitions, the same considerations, the same courtesy, the same hospitality," Azzi said.

"It reflected who they were, I thought, as people. It's easy to show people behind a desk as being a successful businessman, but it doesn't show about how they perceive themselves as being part of a community or part of a society.

"And here they have the American dream."

AramcoWorld

Discover more in our FirstLook section by linking here.

Date, Orange and Olive Oil Cake With Salted White Chocolate Ice Cream

Recipe by Shane Delia

Photograph by Rob Palmer

The palm groves of Morrocco are breathtaking. Miles of trees producing some of the most high-quality dates I have ever seen.

On my travels, some Bedouin men showed me that if you warm dates in olive oil before placing them in a tangine, it helps bring out the flavor of the caramel in the date. This got me to thinking and led to this recipe.

(Serves 8)

Salted White Chocolate Ice Cream

Generous ¾ cup (175 grams) superfine sugar

500 grams white chocolate melting wafers (for chocolate chips)

8 egg yolks

4 cups (1 liter) whipping cream

Pinch of sea salt

Date, Orange and Olive Oil Cake

½ cup (50 grams) panko breadcrumbs

1 ⅓ cups (180 grams) almond meal

1 ⅓ cups (220 grams) sugar

1 teaspoon ras el hanout, a North African spice mix that comprises a variety of spices such as cardamom and cumin. Available at specialty Middle Eastern grocery stores and supermarkets, as well as online.

1 teaspoon baking powder

4 eggs

1 cup (250 milliliters) olive oil

Zest of 1 lemon

Zest of 1 orange

2 ½ tablespoons lemon juice

1/3 cup (80 milliliters) orange juice

6 medjool dates, pitted

1 cinnamon stick

8-10 cardamom pods

2 star anise

Salted White Chocolate Ice Cream

Put the sugar and 1 cup (250 milliliters) of water in a saucepan over low heat to dissolve. Add the white chocolate and mix until smooth. Remove from the heat and set aside to cool.

Using an electric stand mixer with a paddle attachment, beat the egg yolks at moderate-high speed until thick and pale, then add to the cooled chocolate.

Whip the cream to stiff peaks in the mixer with the whisk attachment.

Fold the chocolate into the cream using a spatula. Season with salt to taste.

Pour the mixture into a container and freeze for 2-3 hours.

Date Orange and Olive Oil Cake

Mix the breadcrumbs, almond meal, 1 cup of the sugar, the ras el hanout and baking powder together in a bowl.

Whisk the eggs together in a bowl with the olive oil. Add the zests and stir to combine. Fold the egg mixture into the breadcrumb mixture until just combined.

Line a 21-centimeter-by-11-centimeter loaf pan with parchment paper and pour in the mixture. Place the cake in a cold oven and turn on to 170 degrees Celsius (340 degrees Fahrenheit). Bake for 45 minutes or until the cake is golden, and cooked when tested with a skewer.

Put the remaining ingredients with the remaining 1/3 cup of sugar in a saucepan over high heat. Bring to a boil, then reduce the heat and simmer for a few minutes. Remove from the heat.

Remove the cake from the oven and pierce all over with a wooden skewer. Drizzle over the spiced syrup and leave for a few minutes to soak up the syrup.

To Serve

Remove the salted white chocolate ice cream from the freezer and leave to soften slightly. Cut the cake into slices and serve warm or cold with the ice cream.

Shane Delia is the star of the television show *Shane Delia's Spice Journey* and the chef and owner of Maha restaurant and Biggie Smalls Kebab Shop. He is based in Melbourne, Australia. His Lebanese wife, Maha, is the inspiration and namesake of his restaurant. Together they have two children, a daughter, Jayda, and a son, Jude. This is his second book.

MATT RUSSELL

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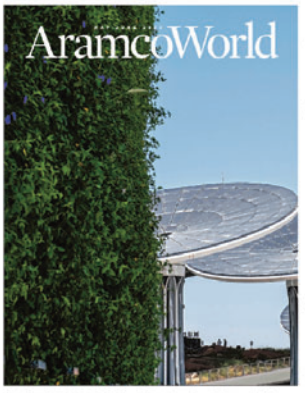
East/West: A Culinary Journey Through Malta, Lebanon, Iran, Turkey, Morocco, and Andalusia

Shane Delia.
Interlink Books, 2017.
interlinkbooks.com


ARAMCO WORLD
magazine
Science : The Islamic Legacy

75 YEARS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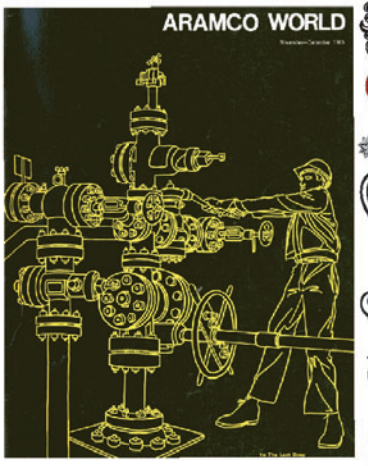
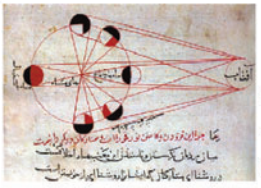

ARAMCO WORLD



Reflections of KNOWLEDGE

How Future Innovation Builds on Past Discovery

Written by J. TREVOR WILLIAMS | *Illustrated by* RYAN HUDDLE

As we celebrate our 75th anniversary this year, AramcoWorld *is publishing a six-part series that reflects on the connections and impact the magazine has generated over the decades.* AramcoWorld*'s approach to intercultural bridge-building has been integral to its mission since its founding.*

In this issue we are reflecting on stories about innovation. Over the decades the magazine has produced numerous features, ranging from historical discoveries and early science to modern infrastructure and technology. In the third of the series, we hear from the writers who have examined the importance of innovations of our past and present to help us understand the intrinsic connections between the old and the new. —AramcoWorld *editorial team*

Lee Lawrence remembers when she was first awestruck by the astrolabe, an exquisite medieval device for star mapping that aided astronomers, travelers and, later, Muslims orienting their prayers toward Makkah.

Meandering through the Institut du Monde Arabe, in Paris, Lawrence, a freelance writer, focused on art and religion, and a longtime *AramcoWorld* contributor, stumbled upon the glinting gold instruments encased in plexiglass.

Watching a video, she was baffled by the blend of simplicity, complexity and personalization in a tool whose first iterations were crafted more than 2,000 years ago.

"I thought, 'I get it,' but then the video ended, and I thought, 'I don't remember a thing,'" Lawrence says. "It was like reading [Stephen] Hawking: You can follow it as you read it; then you put down the book, and you think, 'Well, what was that again?'"

In 2019, *AramcoWorld* editors gave her the space to get acquainted in a rare first-person article (complete with her video and an in-depth comic strip) tracking her journey to make an astrolabe and put it to use with the help of a Harvard astronomer. That was not a new topic but nevertheless an important one for *AramcoWorld*, as it had published "The Astrolabe: A User's Guide" in 2007 and highlighted the navigating tool numerous times in the past.

It was one of many stories in which Lawrence, who has just wrapped up a series on innovation for the magazine, would observe that progress is less of a steady march and more of a winding path.

In its 75-year history, *AramcoWorld* has always sought to surface current scholars, experts and institutions pushing the boundaries of present-day knowledge while paying homage to historical figures and writings that paved their way.

The sensibility was present even in its earliest days when the magazine remained inwardly focused and still highlighted the processes behind finding and extracting oil. A 1964 issue offers a glimpse at how the magazine balanced the modern with the distant past: A profile of a Saudi driller is followed by stories on chemistry equipment still in use after 3,500 years and traditional oil-lamp designs that have endured across the centuries.

Over the decades the articles have delved into the Islamic origins of medicine, modern pharmacies and hospitals, challenging long-accepted narratives through in-depth historical examinations. An example in the 2020s was "Disease Detectives of Lebanon," where the magazine highlighted those finding cures for infectious diseases while dealing with the COVID-19 outbreak.

In a world that increasingly revels in the new, glorifying risk-taking entrepreneurs and technologists, Lawrence says it's helpful to remember that their work sits on top of more prosaic discoveries now seen simply as infrastructure.

"Building on work and knowledge that came before is not a linear process, and innovation often comes from questioning aspects of that received knowledge," Lawrence says.

Her work has often delved into topics that seem mundane but reveal complex histories that, in many cases, are still being written. Her exploration of kohl, the ancient Egyptian eyeliner, showed how the pharaohs were ahead of their time despite lacking the clarity of molecular chemistry.

Lawrence has also looked at how discoveries of far-off galaxies using today's most advanced telescopes would have appealed to Muslim astronomers of antiquity, like Ibn al-Haytham, who used mathematics and observation to question whether light emanated from the eyes. His theory that it actually worked the opposite way changed how later generations saw the world.

Most recently, Lawrence examined how art historians and preservationists are reexamining the intentions of those who carved reliefs into the mountains of Iraq as many as 2,500 years ago.

"One of my mantras in researching is that nothing is ever wasted; if you look

Lee Lawrence

ABOVE Writer Lee Lawrence, right, guides her stepdaughter, Isa, as she sights along the astrolabe's alidade to calculate the height of the arch at Grand Army Plaza in Brooklyn, N.Y. **BOTTOM, LEFT TO RIGHT** A May/June 1964 story highlights how chemistry got its start in the Middle East 3,500 years ago; in the same issue the cover story focused on training drilling engineers with innovations in drilling; and *AramcoWorld* dedicated its entire May/June 1982 issue to "Science: The Islamic Legacy," including chapters on "Science in the Golden Age" and "Science in al-Andalus." The May/June 1997 cover story "The Arab Roots of European Medicine" tells how scientific and medical practices from the East illuminated the European Dark Ages.

down in history, this knowledge isn't wasted—it turns into something else," Lawrence says.

For Alok Kumar, co-author of "A History of Science in World Cultures: Voices of Knowledge," institutional knowledge is analogous to human memory—an essential element that disseminates through culture and scientific knowledge.

"Intellect in the absence of memory is not enough for a human being to function," he says, and "learning is always cumulative—the more you know, the easier it becomes to learn things."

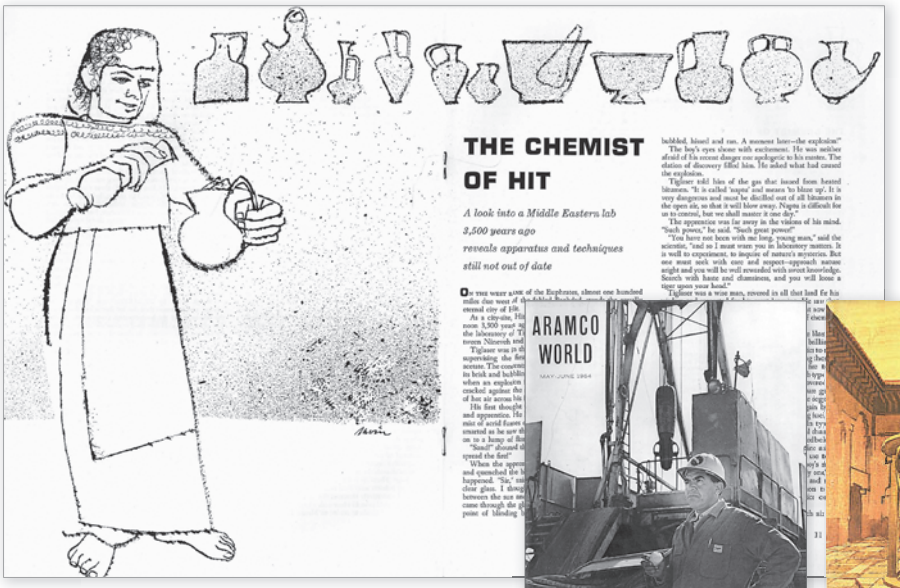
The same is true across time and geography, where cultures have not only passed down knowledge among their own but have often shared their methods for making sense of the world with other tribes and peoples through movement and commerce.

"Every time we get involved in a trade, we share the best that we have, and we want to get the best that the other culture has," Kumar says.

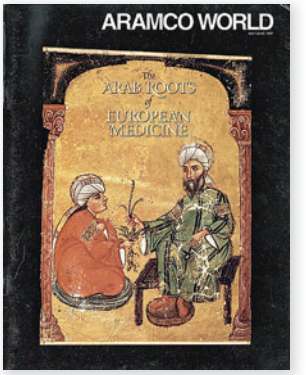
When one traces back far enough, many of the mathematical innovations credited to the Islamic Golden Age between the eighth and 12th centuries are a product of such exchange, Kumar wrote in a 2017 article for *AramcoWorld*, "Islamic Science's India Connection." The concept of zero and algebraic formulas originated under Islamic rule, but only after being translated by various scholars into Arabic and Persian from Sanskrit.

"The science revolution was a result of the mathematical revolution that happened in India and traveled to the Middle East. We never talk about that," he says.

This is one example of why it is important to revisit the origin stories of transformative innovations, Kumar adds. When fresh research in art, history and archeology emerges, new narratives have a chance to sprout. That's where *AramcoWorld*, a publication Kumar has read for more than four decades, has played a key role, he says. It has helped bring to light connections between past and modern worlds with clarity and esthetic appeal that academic journals don't often possess, he says.


THE CHEMIST OF HIT

A look into a Middle Eastern lab 3,500 years ago reveals apparatus and techniques still not out of date



Upon reflection, travel writer and longtime *AramcoWorld* contributor Matthew Teller says most of his stories in some way have illustrated a blend of traditional methods and cutting-edge solutions.

His first contribution 15 years ago focused on four countries' collaborative efforts to bring Arabian (white) oryx, a type of antelope, back from the edge of extinction.

The past and present, Teller has discovered time and again, exist on a continuum where traditional solutions, painstakingly developed and passed down over generations in one geography, can now be augmented by the compendium of knowledge instantly accessible via the internet.

Visiting 10 oryx sanctuaries across four countries was just one situation in which Teller witnessed how environmental awareness was manifesting in the Islamic world to dramatic effect. In Riyadh in 2010, he profiled the restoration of Wadi Hanifah, a valley that had become a dumping ground in the modern capital city.

"They turned it around. It's now this green ribbon winding through the middle of Riyadh," Teller said.

In a 2020 story on the installation of solar arrays on mosques, Teller witnessed how longtime institutions in Islamic communities in the United Kingdom, Jordan, Morocco, Indonesia and beyond were becoming outposts in today's fight against changing climate.

"Seeing how communities based at mosques, big and small, shared goals for renewable energy solutions in different contexts across the world helped me understand the importance of that cross-fertilization of ideas between tradition and advanced technology," says Teller.

Alan Mammoser, who writes about energy and utilities in the Middle East out of Dubai, has observed in *AramcoWorld*'s pages how the region embraces futurism without throwing out principles that have stood the test of time.

Mammoser traveled in 2017 for *AramcoWorld* to Masdar City, an Abu Dhabi development that constituted an early attempt to carve out a carbon-neutral community—all in an emirate whose wealth is almost entirely predicated on petroleum.

In an explicit nod to traditional building practices, the architects installed a massive metal version of a traditional *barjeel*, or wind tower, on site. Ubiquitous historically, from Shibam's mud-tower cities in Yemen to the streets of old Cairo, *barjeel*s work by capturing

Alok Kumar

Alok Kumar and Scott Montgomery's 2017 story, "Islamic Science's India Connection," provided insight to India's role in advancing the transcivilizational endeavor we today call science.

ISLAMIC SCIENCE'S

India

CONNECTION

Written by

ALOK KUMAR and SCOTT L. MONTGOMERY

From the mid-10th century CE, one of history's great scientific eras began to flourish across Islamic lands.

Like the European Renaissance, it was marked as much by cultural exchange, synthesis and dialog as it was by individual discovery. Connections forged among scholars and scientists of Islamic lands with contemporaries and predecessors beyond their own borders led to an unprecedented pooling of knowledge over generations and continents. The Indus Valley and the wider Indian subcontinent proved to be deep wells of the scholarship that gradually came to be known westward via translation into Arabic as well as Persian. From the observations of philosophers to the calculations of mathematicians, from the models of astronomers to the treatises of physicians, these works helped shape the era that became known as "the golden age of Islamic science" and—much later—our own.

This detail from a 17th-century painting by Mughal court painter Bichitr shows one of the court's many chroniclers, who helped the Mughal elite advance an imperial culture that included scientific concepts developed locally and afar.

In this detail of another 17th-century painting by Bichitr, a devout Muslim practitioner receives the Qu'ran, Islam's holy book, from a seated Jahangir, the fourth Mughal emperor. At lower left, an Ottoman sultan looks on deferentially. The hierarchy reflects not only Jahangir's position, but also his responsibility to advance scholarship.

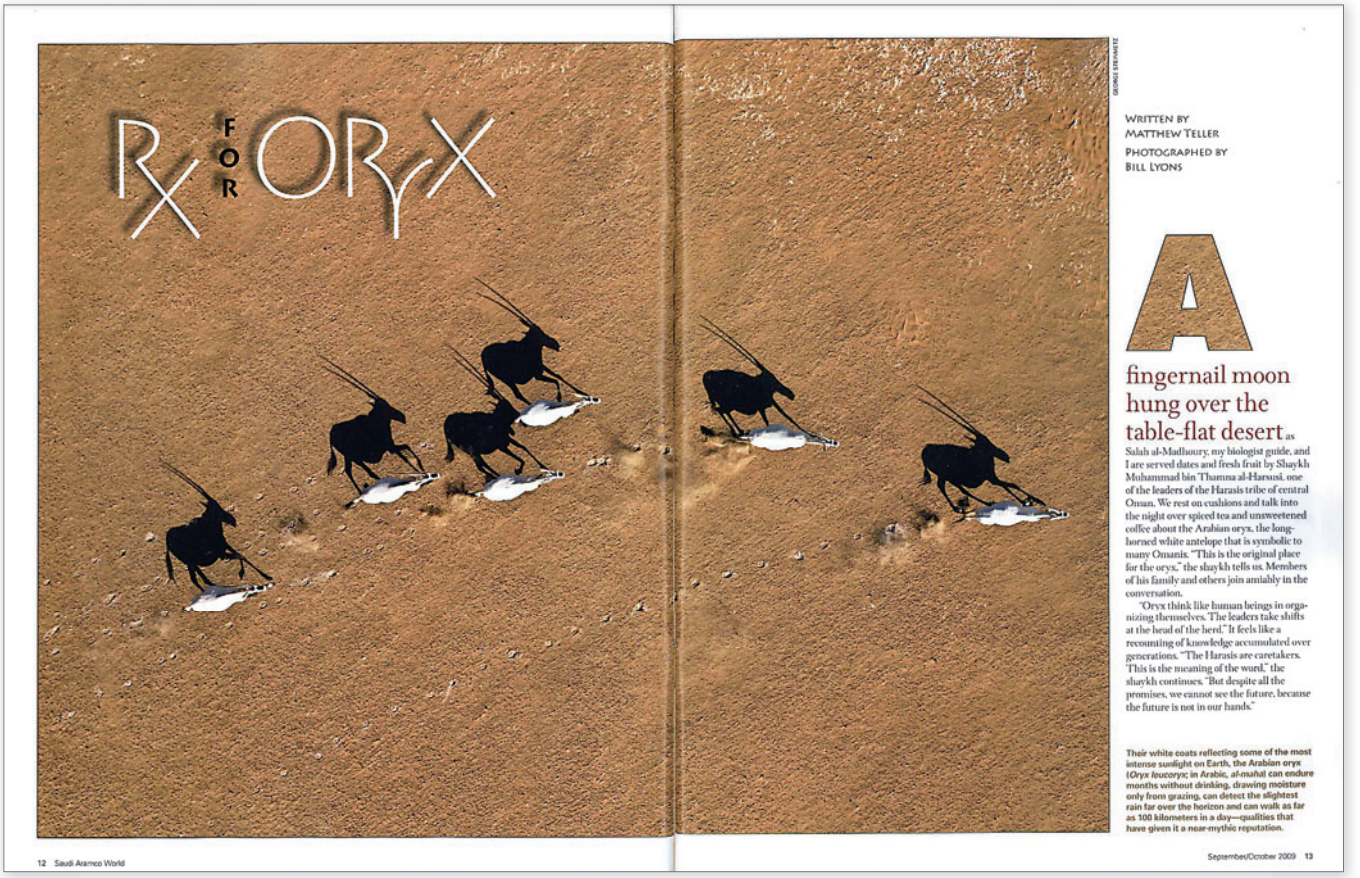
NATURAL PHILOSOPHY

After the Muslim conquest of India, several rulers, including most notably the Mughal emperors of the 16th and early 17th centuries, beginning with Akbar the Great, facilitated translations of Indian literature into Persian and Arabic. Several well-known Indian books such as *Mahabharata*, parts of the *Vedas*, *Yoga-Vasistha*, *Bhagavad-Gita* and *Bhagavata Purana* were thus translated. The most fundamental views contained within these texts express the crux of natural philosophy: a universe in constant transformation, wherein elements are interconnected, sharing in absolute unity and having a sequence of creation. The *Yoga-Vasistha*, for example, a collection of stories and fables nearly 30,000 verses in length, was appreciated for its "realities, diverse morals, and remarkable advice."

Under Dara Shukoh, some 50 major Indian works were translated, among them the *Upanishads*, the pinnacle part of the *Vedas* script, which he considered imbued with the power to make people "imperishable, unsolicitous and eternally liberated." His rendering was later translated into Latin in the 18th century by Anquetil Duperron of France. It was read in turn by the eminent 19th-century German philosopher Arthur Schopenhauer, who was so impressed by the universality of its message that he kept a copy open on a table near his bed.

Much of what Akbar and his successors learned to value, however, had already been observed centuries before. During his years in India in the 11th century, Abu al-Rayan al-Biruni, an all-around erudite from Kath in Central Asia, studied Sanskrit and researched the arts, literature and science. He analyzed metaphysics in Vedic texts and translated a number of them into Arabic, including selections from *Patanjali's Yoga-Sutras*, a philosophical compilation, and the 700-verse *Bhagavad-Gita*. In his own book, *Kitab*

Matthew Teller



ABOVE Matthew Teller's 2009, "RX for Oryx," story showed how innovations in conservation helped preserve the endangered antelope.
TOP Teller's 2020 story, "Green Mosques Generate Positive Energy," spotlighted the innovative conservation efforts of mosques across the globe.

the wind at the top of a dwelling and circulating it down into the living quarters.

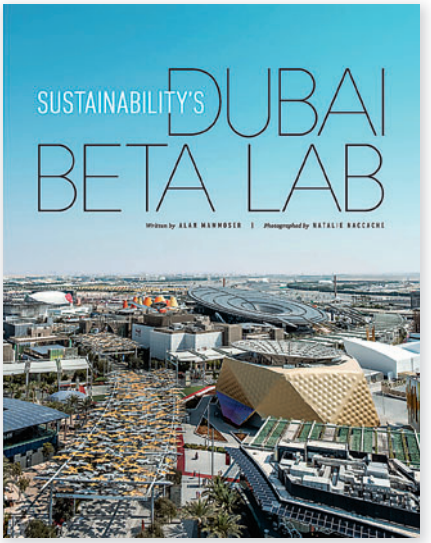
For *AramcoWorld* it has been essential to highlight the innovative architecture in various articles in the past decades as reflected in stories such as "Windmills from Jiddah to Yorkshire" (1980) and "Keeping Cool" (1995).

Masdar's designs also harnessed the sun's rays for photovoltaic energy while incorporating design choices like narrow *sikkak* and latticed *mashrabiya* to keep dwellings and streets cool.

"It's not really a romantic or nostalgic association with the past," Mammoser says of the retention of these elements. "I think it just makes good energy and economic sense. Those traditional design methods still work in this region."

Modern-day developments promising new models of sustainability, like Dubai's Expo City that Mammoser profiled in 2017, show that while it may sound like a paradox, oil-rich economies are pushing the limits on green technology—and not because these countries pine for the days of camel caravans and *dhows* (regional

Alan Mammoser



Alan Mammoser's stories on Masdar City in 2017, **ABOVE**, and the Sustainability District at Expo 2020 Dubai, **LEFT**, addressed global challenges and creative solutions to maximize sustainability in the places where we live and work.

boat) powered by wind. He says renewables are not only clean and economical for locals, but they represent the next frontier of technological development for locales fixed on the future.

Nader El-Bizri, dean of the College of Humanities at the University of Sharjah in the United Arab Emirates, said that modern-day powerhouses like Riyadh, Dubai and Doha conceive themselves as global cities fueled by know-how from around the world, similar to the way centers of Islamic civilization in antiquity, like Damascus, Baghdad and Alexandria, thrived on overland trade, the translation and sharing of ancient texts, and the accumulation of massive libraries that served as nodes of knowledge in their day.

"It is the coming-together of these elements of capital and energy and trade and even some forms of urban politics that allow new cities to emerge," says El-Bizri, an expert on al-Haytham, who helped provide some historical perspective in Lawrence's research on intergalactic telescopes.

Whether building a city or crafting the "analog computer" of the astrolabe out of paper or wood, Lawrence has learned that invention always has a mother—whether necessity or curiosity—no matter where along the historical continuum it lies.

"Nothing is in a vacuum. You go back to who you think is the point of origin, and that person is resting on huge bodies of knowledge."

J. Trevor Williams is a global business journalist based in Atlanta, where he serves as publisher of the online international news site *Global Atlanta* (*globalatlanta.com*). Follow him on X (formerly Twitter) @jtrevorwilliams.

Ryan Huddle is a Boston-based graphic designer and artist whose work appears regularly in the *Boston Globe* and other leading publications.

THE PROMISES AND CHALLENGES OF AI FOR ARABIC

How are artificial intelligence models making generative AI accessible to the Arabic-speaking world of the Middle East and beyond?

Written by REBECCA ANNE PROCTOR
Illustrated by MUJAHID ALMALKI
via AI GENERATOR

Mohammed Moneb Khaled, a researcher in artificial intelligence (AI) in the United Arab Emirates, believes in the power of AI to foster better communication for the Arabic-speaking world.

For his work at the University of Sharjah, Khaled relies on ChatGPT to translate reports from English to standard Arabic and vice versa. But the Arabic language has multiple varieties. As much as the tool is an asset, when he tries to speak a certain Arabic dialect to ChatGPT, the responses, he says, "are not accurate."

Khaled says more needs to be met to incorporate the Arabic language, particularly diverse Arabic dialects, into existing AI models, and that's what he and other researchers hope to achieve.

When OpenAI's ChatGPT launched in 2022, it became a sensation worldwide for its ability to enable users to easily communicate with a machine on a natural humanlike level.

GPT is a type of Large Language Model (LLM) trained on extensive data. It can understand Arabic inquiries and translate them using modern

standard Arabic. But, says Khaled, it falls short in responses. The answers often sound unnatural, and literal translations do not have the same meaning.

While conversational AI tools, such as ChatGPT or the new Google Gemini, can enhance efficiency, customer engagement and communication, many specialists state that AI is lacking when they need to converse in other languages with multiple dialects.

Arabic, spoken by more than 400 million people worldwide, serves as the official language of approximately 22 countries, mainly in the Middle East and Africa, according to the United Nations. It joins Chinese, English, French, Russian and Spanish on the UN's list of official languages used in its work around the world.

There are three main versions of Arabic: Quranic or Classical, Modern Standard and Colloquial, which has two dozen or more dialects. While the actual number of dialects remains disputed, some are similar, and others are difficult to decipher, even for a speaker of Modern Standard Arabic. The most common groups include North African (Maghrabi), Levantine (Syria and Lebanon), Egyptian and the Gulf Arab dialects. Originally from Syria, Khaled converses in three variations of Arabic: Modern Standard for work, and Levantine or Gulf Arabic dialects for everyday conversations. But with an AI tool he runs into hurdles, and his research shows that's a common problem.

"Many business owners throughout the Arabic-speaking world have told me they would prefer to have AI models available in Arabic dialect because they use these dialects more commonly than Modern Standard Arabic to conduct business with their customers," explains Khaled. "Customers prefer to do business in their own dialect."

One issue, says Khaled, is the dominance of English in the AI world, which has led to the rare use of Arabic and other languages. And that has created a problem.

"In the realm of AI, Arabic is not getting much attention from the researchers or big companies," says Khaled.

Now, researchers and engineers in the Arab world are trying to change that.

Numerous public and private industries and sectors already require Arabic as a tool for public service.

"This is why AI technologies are now so important and crucial for advancing languages like Arabic," says Ashraf Elnager, professor and vice dean of the College of Computing and Informatics from the University of Sharjah, who is also Khaled's professor. Elnager is working with students and researchers such as Khaled to develop new models and expand their knowledge of Arabic usage in AI.

AI, he explains, "is extremely important for natural language processing in general, and for the Arabic language in particular; AI has the potential to bridge the gap between the Arabic language, the linguistic part of it, and the latest technology that has been emerging over the past four or five years."

Developing advanced AI models today, Elnager notes, allows us to enhance language-processing tools, which can lead to better translation accessibility and integration of Arabic into the digital world.

Rupert Chesman, an AI consultant, and filmmaker based in Sydney who has traveled the region extensively, believes that "machine learning and translation can start to understand the multifaceted nature of the Arabic language."

Chesman says one way to embrace the complexity of the Arabic language would be to document all Arabic movies and television shows with an understanding of Arabic as a language with numerous distinct morphologies and accents. One method would be to use Google Gemini, a new AI model that not only understands text like other LLMs, but also videos and images.

Using this context window, Google showed a sample of a Buster Keaton movie, "Sherlock Jr.," Chesman notes, explaining how Gemini analyzed the 44-minute movie in seconds, understanding the vision, nuance and some humor.

"Imagine if Gemini was exposed to Egyptian movies, Saudi television or books in Morocco. It would be able to build a strong knowledge of the incredibly multifaceted nature of Arabic and Arab culture, to understand not only the linguistic nuances that occur but also the importance of cultural nuance at the same time," he enthuses. "Maybe it would be an opportunity to understand that Arabic is not so Modern Standard after all."

> "Making AI accessible to as many users around the world will level the playing field of an emergent tool to give everybody access from a language barrier standpoint to one of the most revolutionary tools that humans have invented."
>
> —JEFF SHUPACK

INNOVATION ACCESSIBLE TO ALL

Researchers in the field of generative AI believe that it is vital that Large Language Models are developed for languages other than English to ensure that innovation is accessible to everyone.

"Making AI accessible to as many users around the world will level the playing field of an emergent tool to give everybody access from a language-barrier standpoint to one of the most revolutionary tools that humans have invented," says Jeff Shupack, a specialist in digital transformation and expert in AI who is based in San Francisco.

"Making it accessible in local syntax, local dialects and local languages really levels that playing field," he adds.

However, as Chesman states, LLMs are only as good as the data provided to them.

With LLMs, written Arabic will often lose much of its cultural subtext because the models do not include accents and are written in a more "standard" way for a "standard" audience, explains Chesman. To improve the accuracy and accessibility of AI in Arabic, it is vital, he says, "that diverse audio and video samples are used to ensure that the geographic and cultural location of

The imagery in this story and on the cover was created by artists working from an AI art generator. Human intervention was necessary to enhance the images and text within them.

the language being transcribed is clear to the model."

One major advancement took place in Abu Dhabi, the capital of the UAE, in August 2023 with the launch of Jais, an open-source bilingual Arabic-English model developed by Inception, a unit of Abu Dhabi AI company G42, Mohammed bin Zayed University of Artificial Intelligence (MBZUAI) and Silicon Valley-based Cerebras Systems. Jais is now available for download on a machine-learning platform called Hugging Face.

Dubbed the world's most significant and most accurate open Arabic LLM, Jais is designed to support and bring the Arabic language into the mainstream of this space. Today, according to Jais' creators, Arabic accounts for just 1 percent of total global online content.

Developing an Arabic LLM has enabled Arabic speakers and organizations to use transformative services like ChatGPT and Gemini.

"Jais makes generative AI accessible to the Arabic-speaking world," professor Preslav Nakov, department chair and professor of natural language processing (NLP) at MBZUAI, explains. He emphasized that through Jais the depth and heritage of Arabic, with all its intricacies and complexities, can find its voice within the rapidly expanding AI landscape.

"It helps bridge the gap between computers and their understanding of the complexities of Arabic," Nakov adds.

> "If not addressed, the situation has the potential to create a winner-takes-all scenario, with the most widely spoken languages being well served by LLMs (Large Language Models) while lesser-spoken languages are neglected."
>
> —YASER AL-ONAIZAN

PRESERVATION OF ARABIC

In a world that increasingly relies on AI for all aspects of life, training AI models in specific languages is key not only to access a greater public and improve business and communication but also to reach a populace where English is not always spoken.

Jais, Nakov explains, has been designed to have a more accurate understanding of the culture and the context in the region, in contrast to most US-centric models.

"Jais could also help to increase the volume and the diversity

of Arabic content available online, including educational resources on various topics, including technology, culture, science and lifestyle, and texts translated from other languages, including news articles, blog posts and subtitles," he adds.

Models are continually being enhanced. An updated version of Jais, called Jais 30B, was launched in November 2023 and was completed in January 2024. It is the newest and most proficient version of the open-source Arabic LLM, featuring 30 billion parameters, offering a rich, nuanced, generative AI experience for Arabic speakers worldwide.

LLMs can help preserve languages, not just Arabic, in many ways: They can assist in understanding and translation, helping to bridge communication gaps between Arabic and other languages, and they can aid in the preservation and documentation of Arabic by analyzing and understanding historical texts, literature and cultural artifacts.

In Saudi Arabia, one of the main strategic objectives of the National Center for Artificial Intelligence, explains Yaser Al-Onaizan, the head of NCAI, is to develop and operationalize AI solutions to accelerate their adoption in Saudi Arabia.

NCAI is the innovation arm of the Saudi Data and Artificial Intelligence Authority. "One of its main focuses is nationally strategic Arabic Language AI products and services while investing heavily in building Arabic-focused reusable foundational pre-trained models for language and speech, namely ALLaM and SauTech," explains Al-Onaizan. "Developing these solutions locally ensures the preservation of culture and identity, data sovereignty and real technology transfer."

While much progress has been made in developing and enhancing Arabic AI models, challenges remain. One is the complexity of Arabic. "It is extremely challenging compared to other languages, simply due to its many dialects, variants, and rich morphology," says Elnager. "The number of researchers in this area is minimal. One big obstacle is also computational resources."

With LLMs becoming more widely used across most sectors, there is a risk that they could inadvertently accelerate the decline of smaller, underrepresented languages, notes Nakov.

"If not addressed, the situation has the potential to create a winner-takes-all scenario, with the most widely spoken languages being well served by LLMs while lesser-spoken languages are neglected," he adds. "The significance of models such as Jais could potentially extend beyond Arabic and help to preserve other languages in the region that are closely related to Arabic, such as Aramaic, Mehri, Shahri, Hobyot and Harsusi, and Amharic in Ethiopia."

Another challenge is that Arabic is constantly changing.

"As the language evolves, the [grammatical] rules become more complex and sometimes outdated," explains Al-Onaizan. "Therefore, it makes sense to develop the ability to learn these rules or patterns of language from the data directly."

Khaled says he is working on research that will train AI to operate in diverse Arabic dialects and make responses more accurate.

"A CEO of a company in the United Arab Emirates asked me if ChatGPT can type in Emirati dialect and that it would be beneficial for his customers," quips Khaled. "Another Sudanese man said it would be so beneficial to have a type for the Sudanese dialect. Beyond ChatGPT, it would also be worthwhile for the Arabic-speaking world to have Alexa in Arabic."

While AI in Arabic is still in its beginning phases, developments across the region, complemented by eager students like Khaled and professors like Elnager, are spurring this much-needed revolution.

Rebecca Anne Proctor is an independent journalist, editor and broadcaster based between Dubai and Rome. She is a former editor-in-chief of *Harper's Bazaar Art* and *Harper's Bazaar Interiors*. **Mujahid Almalki**, originally from Muscat, Oman, is both a photographer and an artist who is the founder of Sard. Sard is a visual art project that harnesses the power of artificial intelligence to tell stories about the Arabic world.

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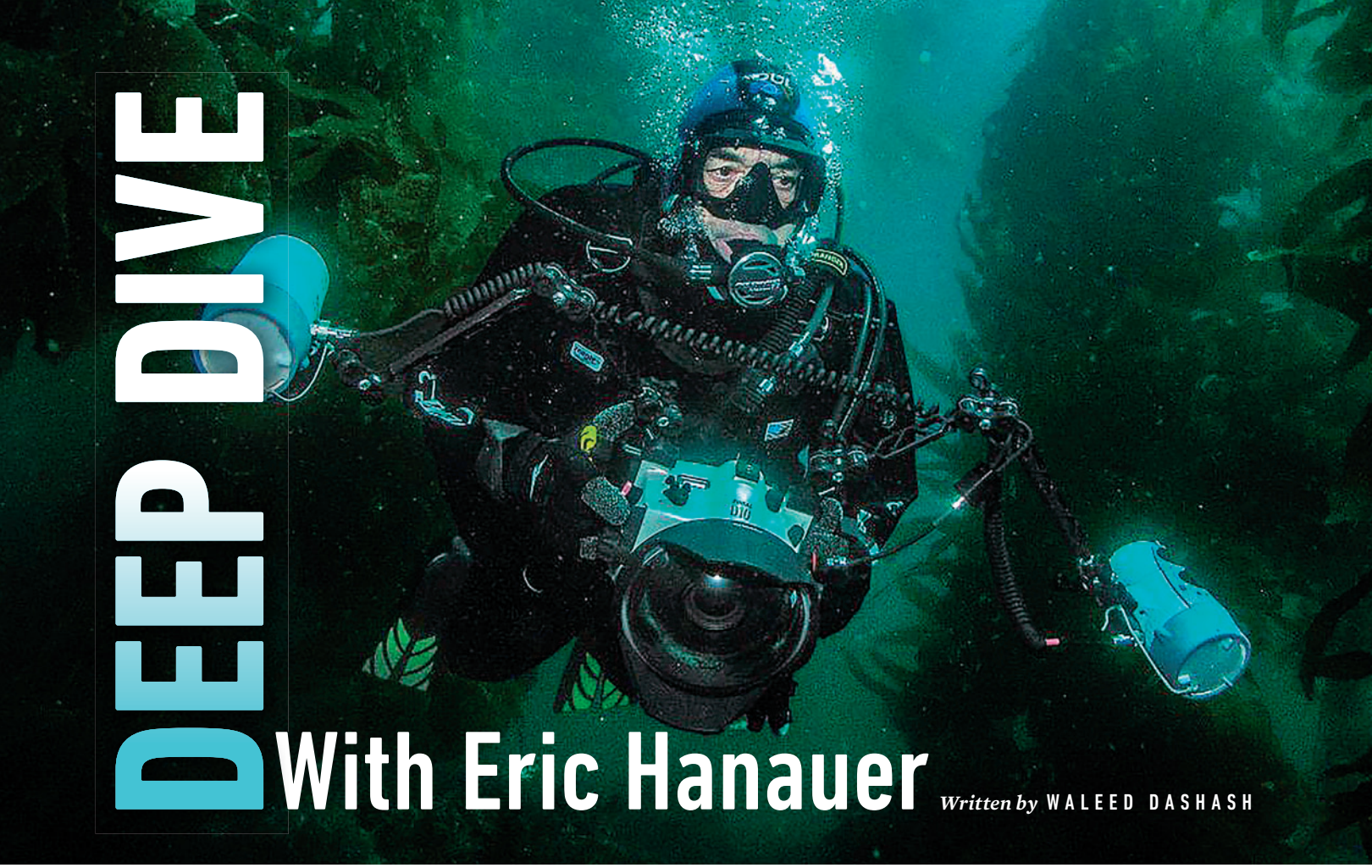

DEEP DIVE With Eric Hanauer

Written by WALEED DASHASH

The Brothers Islands lie in the Red Sea, about an even-hour fisherman's boat ride offshore from mainland Egypt. Eric Hanauer made the trip to write about and photograph the islands' most prominent feature for his first *AramcoWorld* story, titled "The Lighthouse of The Brothers," which was published in the September/October 1984 issue. Five years later, Hanauer's familiarity with the Red Sea landed him another assignment with *AramcoWorld*, only this time he needed different equipment. "Egypt's Underwater World" required the scuba gear, wetsuit and camera that he'd been using to engage readers of a prominent diving magazine. The story's publication in the May/June 1989 issue of *AramcoWorld* exposed the underwater photojournalist's work to an entirely new audience.

From his home in California, Hanauer reflected on the early days of his four-plus-decade career as an underwater photographer and writer.

What came first: diver, photographer, writer or journalist?

I started shooting pictures when I was a preteen. I had an old point-and-shoot camera and started shooting then. Then I started diving in 1959, became an instructor, and since I was shooting pictures on land, the natural thing was to shoot underwater. In those days the reason people were diving was to kill things, to shoot fish, catch lobsters, and eventually environmental consciousness took over. Actually, it takes a lot more skill to shoot a good picture of a marine animal than to kill it because you could kill it from 2 meters away, and to get a good photograph you have to be pretty close.

It was a greater challenge to come back with good photographs, especially in the film days when you had only 36 images and you couldn't see what you shot until after you got home. It was a greater challenge than shooting fish.

Definitely, I was a writer first. At that time in the diving community, you had to do both [writing and photography]. I was fortunate to have very hard English teachers in elementary school and high school. I didn't appreciate them at the time, but they made me a writer. Writing has always come easily to me, and the way to get photographs published was to write. My first article was in 1977 in *Skin Diving* magazine. That was the biggest magazine in the world devoted to diving at the time; it stopped publication after 50 years in 2002, and I wrote for them for 25 years. … [Writing is] a creative process where I really enjoy the end result just like I enjoy the result of shooting a good photograph, and now with digital I can edit that photograph, bring out everything that I wanted to convey in the first place.

OPPOSITE Eric Hanauer says his photography, featured in *AramcoWorld*'s May/June 1989 issue, introduced a new audience to the rich marine life of the Red Sea. **ABOVE LEFT** The brilliant colors of coral captured Hanauer's attention. **ABOVE RIGHT, FROM TOP** The hawksbill turtle is common in the Red Sea; a starfish clings to its perch; and anemonefish, also known as clownfish, are immune to the anemone's sting.

What was the importance of the story about the Red Sea back in the '90s, and how can we relate to it today?

It's tremendously rich in its marine life and in color. In a lot of areas, like the Caribbean, the colors are pastels; in the Red Sea, there are brilliant primary colors, reds, greens and yellows. There's clouds of fish, tiny orange fish called anthias, maybe 2 inches long, and clouds of hundreds of them around the reefs, tremendously rich marine life. Clear water and the contrast between the brilliant colors of underwater and the desert above is just breathtaking. Plus, we're looking at over 5,000 years of history.

At the time [the *AramcoWorld* story] opened people's eyes. The audience that I was writing to was very different than the audience I usually write for. My experience, probably 90-95% of my writing has been in diving magazines, and I have written to divers. … So [the story] opened my writing to a broader audience. And opened the underwater world of the Red Sea to people who may not been aware of it.

How did you prepare for these stories?

I kept very detailed journals, and at that time before computers, they were written out longhand. I wrote journals every day. I kept extensive dive logs; as soon as I got out of the water, I'd write down what I saw, what I experienced. So I had a lot of notes to work from. And I did my homework. I did a lot of reading, interviewed a lot of people [divers and dive guides]. At the time, for example, the southern part of the Egyptian Red Sea was *terra incognita* for the most part. And I interviewed people like Adel Taher, who had been there and had dived those places.

Underwater photography was fairly new back then. How experienced were you with it?

I started underwater photography in the mid-1970s. By the time I got to Egypt, equipment had improved considerably and it has continued to improve, of course, with digital. For example, at that time we were shooting film, [and] we had 36 pictures on a roll of film. Now we have unlimited pictures. We were making a dive at The Brothers one time, and at Little Brother island I shot my 36 pictures pretty quickly, swam back to the boat, and underneath the boat was a gigantic oceanic whitetip shark, just about as big as the boat, just hanging out there with a group of pilot fish in front of him. And I was out of film. So all I could do is wave at it and say, "Hello, this would've been a great photograph, maybe next time." There was never a next time.

Waleed Dashash has served as the visuals editor for *AramcoWorld* since 2023.

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ERIC HANAUER (4) OPPOSITE: KAREN STRAUS

Tastes of Azerbaijan

Written by
TRISTAN RUTHERFORD

Photographed by
MATHIEU PALEY

A smorgasbord is served at a guesthouse in Qalayxudat, a village in northern Azerbaijan. **CLOCKWISE FROM MIDDLE** *qatıq* (yogurt); *lobya çiğırtması* (string beans and eggs); *buğlama* (lamb stew); *xerek çöreyı* (a type of bread); *paxlava* (baklava) and *ağ gilas mürebbesi* (wild-cherry preserves).

A medieval town, encircled by Soviet architecture and modern skyscrapers, sits on the western shore of the Caspian Sea, presenting a dizzying contrast of ancient and modern history encapsulated in one city skyline. On its streets thronging crowds munch on popcorn, gelato, *simit* (Turkish sesame bread) and sushi, plus baklava (known as *paxlava* in Azerbaijani) served from tea shops straight out of Istanbul. **This is Baku.**

Situated on the ancient trade road from Central Asia to Europe, the capital of Azerbaijan is where history and cuisine collide.

The country has sat at a crossroads of Eastern Europe, the Middle East and western Asia for centuries as a Silk Road hub and a gateway that dynasties and empires routinely fought to control.

The resulting Turkic, Anatolian, Persian and Eastern European influences, paired with the reality of Azerbaijan's diverse array of produce and other ingredients, have combined to create a complex and enticing cuisine.

Each region of Azerbaijan has a unique take on its cuisine, which I came to explore.

My first stop was the Baku suburbs, where half of Azerbaijan's 10 million inhabitants live. Set amid boxy apartments built when the country was part of the Soviet Union, the Honey Cake Pastry School is educating a new breed of foodies. The graduates will go on to work in Baku's thriving restaurant scene. Most speak fluent English, although their parents used Russian as a second language. To be part of Azerbaijan's culinary scene, English is the only language to learn.

The star tutor at the cookery school is Elmira Gadirova, 62. In

OPPOSITE Social media star Elmira Gadirova cooks *bakı paxlavası* (Baku-style baklava) in her apartment in the capital city, Baku. **ABOVE** Past and present meet in Baku, where the old city is joined by contemporary skyscrapers like the Flame Towers, one of which is visible here.

2016 she started her own YouTube channel when she was looking for a distraction after losing a close family member. Gadirova's videos on YouTube and Instagram soon found an audience for her style of Azerbaijani food. Her recipes like *turşu* (cucumber pickles) or *shorgoghal* (turmeric pastries) are classic dishes that she learned from her mother decades ago. Gadirova's recipe for *Bakı paxlavası*—Baku-style baklava—alone has received more than 3 million views. She thinks she knows the reason.

"Some mothers-in-law keep their recipes a secret," she told me, like a touch of orange juice here or a splash of rosewater there. "Instead, I share everything."

Back on Baku's Bulvar Boulevard, a promenade that runs along the seafront, Gani Nasirov, a professional culinary tour guide, said Gadirova's traditional style of cooking is only a fraction of the big flavors that compose the distinctive cuisine of Azerbaijan. But her popularity is a sign of growing interest in Azerbaijan's culinary traditions, Nasirov said, as he prepared to lead me across the city. "People want to know more about our food! There's nothing else like it," he said. "We're even starting to see tourists from our own country and from other countries coming here to find out what it's all about."

Baku

With Nasirov as my guide, I began my tour of Baku with a stroll through Yaşıl Bazar (Green Market), a covered farmers market packed with produce from across Azerbaijan.

As we moved through the aisles, we passed piles of artfully arranged apples grown in the country's mountainous north, bins of scarlet tomatoes that arrive daily from the subtropical south, and vats of olives and clusters of grapes from Baku's hinterland. Mulberry trees line the streets of Baku and can be found in most private courtyards, so it's no wonder the market was nearly bursting with mulberries, both fresh and dried. When offered a sample, I was amazed by the bright sweetness of the delicate fruit.

Nasirov and I pressed on, wending our way past a cluster of restaurants outside the bazaar where customers could snag a shaded table and order an array of Azerbaijani delicacies.

Baku residents of all backgrounds unite in their adoration for the dumpling dish *dushbara*. We joined the lunchtime rush at decades-old Cola Cafe, a block behind Bulvar in the downtown. Working in the restaurant's basement kitchen, chefs mixed just

TOP Traditional *dushbara* is made from only minced lamb, flour and eggs. But don't let these dumplings' sparse ingredients fool you—they take immense skill to make, and the spicy broth in which they simmer sets one cook's dish apart from another's. **BOTTOM** *Nar Gugurma pilav* is similar to *Fisincan pilav*. Instead of beef with walnuts and pomegranate molasses, chestnuts and cherries are ground with lamb meat and mixed with rice. **OPPOSITE** Fresh fruits and vegetables overflow from markets like this one outside Qusar.

three ingredients—minced lamb, flour and eggs—then sealed a bit of the mixture inside pinches of thinly rolled pastry before the dough dries. The dumplings are simmered in a spiced broth, like Italian tortellini, then served. The most accomplished *dushbara* rollers make dumplings so tiny, 10 can fit on a spoon. Sitting at one of the communal tables, I found the dumplings were savory and rich, and each bite seemed to dissolve in my mouth.

Fisincan pilav is a typical Baku dish. Beef is ground with walnuts and browned before being elevated with *narsharab* (pomegranate molasses) and served over rice. "Rice dishes, or pilafs, are considered the king of all Azerbaijani foods," said Nasirov, who regularly takes visitors like me to Baku's aptly named restaurant, Fisincan, to sample the plate. The walnuts and pomegranates in these meatballs are grown nearby on the Absheron Peninsula just outside Baku, while rice is grown in southern Azerbaijan.

Bakı paxlavası (Baku-style baklava) is an iteration of the beloved pastry featuring Azerbaijani walnuts and cardamom, a spice that was introduced to the country centuries ago via the Silk Road. In Baku, the layered phyllo dough pastry is served cut into star shapes, a remnant of Azerbaijani folklore, according to Gadirova. When I visited Gadirova during Nasirov's tour, she offered me a wedge of her own *baki paxlavasi*, a perfect marriage of walnuts, cardamom and layers of phyllo dough so light only the sticky sweet syrup holds the whole thing together.

The Greater Caucasus

It took me three hours in a shared taxi—a popular and inexpensive form of transport in Azerbaijan—to get from

Baku to Hil, a village of about 5,000 located in Qusar, a northeastern district in the foothills of the Greater Caucasus.

The town, like most in this mountainous district perched on the Russian border, is populated with Lezgins, a Northeast Caucasian ethnic group with its own distinctive language and customs. Hospitality is a crucial tenet of this mountain culture, and as I traveled throughout the Qusar district, Lezgins welcomed me into their homes and encouraged me to try their traditional dishes.

In Hil, I was presented with şakuka, a sort of pizza. To make the bread, wheat dough is pounded and then pierced with turkey feathers once it has risen. When the dough slides into the *kharak,* a traditional clay bread-making oven, the feather-shaft-sized holes allow the heat to permeate the bottom of the dough so that it cooks evenly. Once out of the *kharak*, the bread is smeared with a paste of raw egg and cottage cheese combined with fresh coriander and dill and then thrust into a wood-fired oven one final time. Served fresh, the coriander and dill make a sharp contrast to the smoke-laced wheat bread.

I opted to further explore this region by following a newly opened section of the Transcaucasian Trail, a hiking path running from eastern Azerbaijan to the Georgia border. Along the way, I was invited to have my first *tskan* at the Shaverdiyev family's homestead on the edge of Yerği-Kek, a remote village of about 40 people.

After baking for about an hour on a metal tray directly over an open fire, the *tskan*, an enormous meat pie of diced halal meat, potatoes, berries, herbs and seasonal vegetables, was ready. We had to wait until every family member was present for the pie to be sliced up, but it was worth it. Nourishing too: Each slice of *tskan* is a meal, packed with all the protein, vegetables and starches you'll need.

The pancake-like *qutab* can be found elsewhere in Azerbaijan, but the Lezgi version in the regional capital Qusar should not be missed. Paper-thin dough is smeared with butter and packed with local greens, pumpkin and *shor*, a dry, crumbly cottage cheese made from sheep's milk. Then it is folded in half and placed on the sizzling griddle of a *sac*, a domed iron pan imported by Turkic nomads a millennium ago. I ate several at the rooftop restaurant North, a quiet spot overlooking the Qusar River.

THIS PAGE AND OPPOSITE In Yerği-Kek, a small village and one of Azerbaijan's highest, Liza Shahverdiyeva makes a traditional *tskan* meat pie as her mother-in-law, Perisultan Shahverdiyev, watches. Seasonal ingredients such as onions, berries and potatoes are mixed with meat, stuffed into dough and then baked in a *kharak* over an open fire. Each slice is enough to fill tourists walking the 1,500-km (930-mile) Transcaucasian Trail, which passes through the village.

Ganja Region

To reach Ganja in western Azerbaijan, I bounced back to Baku and caught a high-speed train for this food-centric city in the Kur-Araz lowlands. As the train zipped along, I peered out at the region's hilly orchards, raised pastures and fields irrigated by tributaries to the River Kura.

Local food guide Rufat Sadiq met me at his café, Lavash Da, and

presented me with a glass of *Gence dovğasi*, the city's traditional yogurt-based drink. Made by blending *ayran*—a popular Caucasian or Turkish beverage of yogurt, salt and water—with cucumber, coriander and chickpeas, it is packed with enzymes to aid digestion of the region's meat-centric diet.

> "Some mothers-in-law keep their recipes a secret. ... Instead, I share everything."
>
> —ELMIRA GADIROVA

From there, I grabbed a taxi for a 45-minute ride to Dashkasan, a mountain village in the northeastern part of the Lesser Caucasus—to have *xengel*. The ingredients of this stuffed pasta dish reflect the topography: a succulent mix of minced lamb, butter, yogurt and walnuts from the highlands; wheat noodles, pomegranate juice and tomatoes from the valleys below. In Kamale, a modest cafe with ancient metal tables, dented flatware and astonishing valley views, several gas burners in a tiny kitchen boil up bowls of *xengel* for mountain visitors.

I wrapped up my tour of the region in the farming village of Khoshbulag, about 12 miles from the Armenian border. Looking for bread, I found Lazeler Taghiyev, the only bread baker in town. I walked in just as she pulled another *Gence tandir* loaf from her tandoor oven. Unlike other Azerbaijani flatbreads, hers is baked in meter-high urns made of stone, not clay, giving the loaves a crispy consistency, she explained. In the kitchen, amid giant bags of *buğda* flour, a type of durum wheat also

ABOVE In the town of Ganja, *tandir* bread is made in a *tandoor* (mud) oven.
LEFT In Dashkasan a local makes traditional herd *qutab* with spinach, cheese and lots of butter.

used in pizza, her children ripped fresh loaves apart and ate them with watermelon and sheep's cheese. I followed their example, getting my hands sticky as I layered juicy chunks of watermelon and slices of the dry, salty cheese inside my own loaf.

Sheki and the Georgian borderlands

Jumping on the high-speed train, I headed west of Baku to Yevlakh, a flatlands city that has been a trading hub for centuries. Upon arrival, I hailed one of the city's taxis, a red 1988 Soviet Lada, and soon the city streets gave way to mulberry forests and winding roads. An hour later the

In the town of Dashkasan, men share a dish of *piti*, a traditional stew. Chickpeas, dried plums and a diced leg of lamb are covered in a layer of sheep fat and slow-cooked. A sprinkle of saffron is added just before serving, and it's often scooped up with fresh bread.

driver pulled into Sheki, a town tucked into the southern edge of the Greater Caucasus.

Once the Silk Road wove through this towering city, linking northern trade routes to Dagestan, Russia's southernmost tip. (Silk was also produced locally; hence, the mulberry trees, the leaves of which comprise silkworms' main diet.) Spices and grains would then travel through the smaller settlements of Gakh, Zaqatala and Qabala that guard the Greater Caucasus mountains near Azerbaijan's western border with Georgia. I opted to follow this route for my sojourn.

Piti is Sheki's must-try dish, and I headed past the city's UNESCO-inscribed caravanserai to the restaurant Ari Memmedin Pitixanasi, intent on having some. The recipe's name is derived from the earthenware pot into which chickpeas, dried plums and a diced leg of lamb are thrown. Sealed in by a layer of sheep fat to ensure the meat is juicy, the *piti* is slow-cooked for up to 10 hours. Grabbing a seat in the restaurant's stone courtyard, I was soon spooning up

"Rice dishes, or pilafs, are considered the king of all Azerbaijani foods."

—GANI NASIROV

piti broth, which serves as a starter, inhaling the aroma of saffron added in moments before serving. Then I dug into the *piti* itself, a tender meat stew served alongside thick, doughy *kulche* bread.

I took a winding road out of Sheki past farms and medieval structures to get to Gakh, a smaller stop on the historical Silk Road—and *sürhüllü*, a plate featuring thumb-shaped pasta and chunks of fresh lamb or *qaxac*, dried mutton studded with fennel seeds, in a savory broth. At the restaurant Qax in central Gakh, I got a steaming bowl, garnished with pickles and garlic and served alongside glasses of fruit juice made from last autumn's harvest. This part of Azerbaijan is a land of cool summers and harsh winters. For centuries food preservation was a key part of the diet, a fact that echoes in the cuisine today in which many dishes feature dried meats, dried fruits and other items with a long shelf life.

ABOVE A man pours *çay* (black tea) at the Eltchin guesthouse in Qalayxudat. *Çay* is by far the most popular drink in Azerbaijan—and has been since the 18th century. Although originally brought from China, some is now grown locally. Tea fields dot the landscape around Baku, and hand-picked teas and fruit infusions are served at restaurants near the fields. **RIGHT** Elmira Gadirova's *shekerbura* is a perfect accompaniment to a cup of *çay*. Shaped like moons, the pastries are stuffed with hazelnuts and dusted with sugar. They are an especially popular dessert during holidays like Novruz.

Arriving in Qabala, an ancient city surrounded by waterfalls, I turned around and headed right back out of town. I was intent on having an excellent *dasharasi*, a kebab made over stones, for lunch, and Gabala Khanlar, a restaurant on the edge of a dense forest just outside Qabala, was my destination. Once I'd ordered, I watched as thin cuts of lamb, beef and eggplant were seared between a pair of fire-heated stones. The slightly bitter eggplant was a perfect complement to the crisp, juicy meat, and I asked for a second helping before I'd finished my first.

Lankaran Region

After another quick stop in Baku, I headed south in a shared taxi to Lankaran, a city perched on the Caspian coast and flanked by rice fields and tea plantations. Located in southeastern Azerbaijan, it was once a bottleneck most caravans funneled through en route to Silk Road cities farther inland.

Today the Lankaran Bazaar in Al-Nakran, the main city square, still groans under the weight of grapes, honey and rice that are transported from surrounding provinces and from across the Iranian border. The seafood on display at the market—sturgeon, carp, trout and more—is remarkable.

I started off at Khan Lankaran, a small restaurant just off a busy intersection, where I tucked into an incredible *lavangi*. In this iconic Lankaran dish (the name means "something in the stomach"), fish or chicken is stuffed with *alcha* (sour green plums), raisins, onions, walnuts, sumac and *narsharab* (pomegranate molasses) and roasted. Although tempted by the chicken, I opted to have *lavangi* made with kutum, white fish found only in the Caspian Sea. This complex, sweet and sour plate was served alongside watermelon, pickles, sheep's cheese and locally grown vegetables.

Tara, a pesto-style mix of herbs, cream and nuts, is a regional staple so popular I noted some workers scooping it out of jars at lunchtime. The recipe varies based on what's seasonally available, chef Khanum Xara explained. When Xara makes *tara* she has her guests collect the dill and parsley. Xara, who creates traditional meals in her own kitchen at home, then grinds it all into a paste. Sitting at a table on her balcony overlooking the city, I scooped some *tara* onto a slice of fresh-baked bread and marveled at how

At Kafe Cayci in Dashkasan, a woman holds a pot of traditionally stewed *piti*. The name comes from the earthenware pot in which it's cooked and served.

the cream, the brightness of the dill and the hint of bitterness from the parsley all blended. *No wonder everybody loves this stuff so much*, I concluded as I spooned out another dollop.

I drank çay, or tea, everywhere I ventured in Azerbaijan. Azeris mostly consume black tea, and it is sipped any time of day. It is believed black tea was introduced to the country by 16th-century traders hauling Chinese black tea through the Caucasus. By the 19th century tea plantations began springing up in the region. Tea fields carpet the hills around Lankaran. My quest for fresh çay led me to the Nilado Green Tea Farm (*Lankaran Istisu Qesebesi Yasil Cay Plantasiyasinda*) northwest of the city. Hand-picked teas and fruit infusions are served fresh from the plantation, on tables placed alongside the tea fields. Savoring my *armudu*, a pear-shaped glass cup, of black tea, I sat quietly, sipping and watching tea fields sway in the breeze.

Back in Baku and wrapping up my trip, I swung by the Yaşıl Bazar to snag packets of fragrant saffron and sweet dried fruit. From the bakery Rəmzioğlu Paxlava I purchased hazelnut-stuffed *shekarbura* pastries, shaped like sugary moons, and nibbled at one as the plane began to taxi, marveling at the contrast between the light sweet pastry dough and the rich taste of hazelnut inside. Soon I was back home in the United Kingdom, but the rich flavors and tastes I experienced on my trip continued to linger.

Tristan Rutherford is a 7-time award-winning journalist. His writing appears in *The Times* and he has authored two books for *National Geographic*. Photojournalist **Matthieu Paley** specializes in documenting people and regions that are often misrepresented and is committed to issues relating to diminishing cultures and the environment. He is a regular contributor for *National Geographic*.

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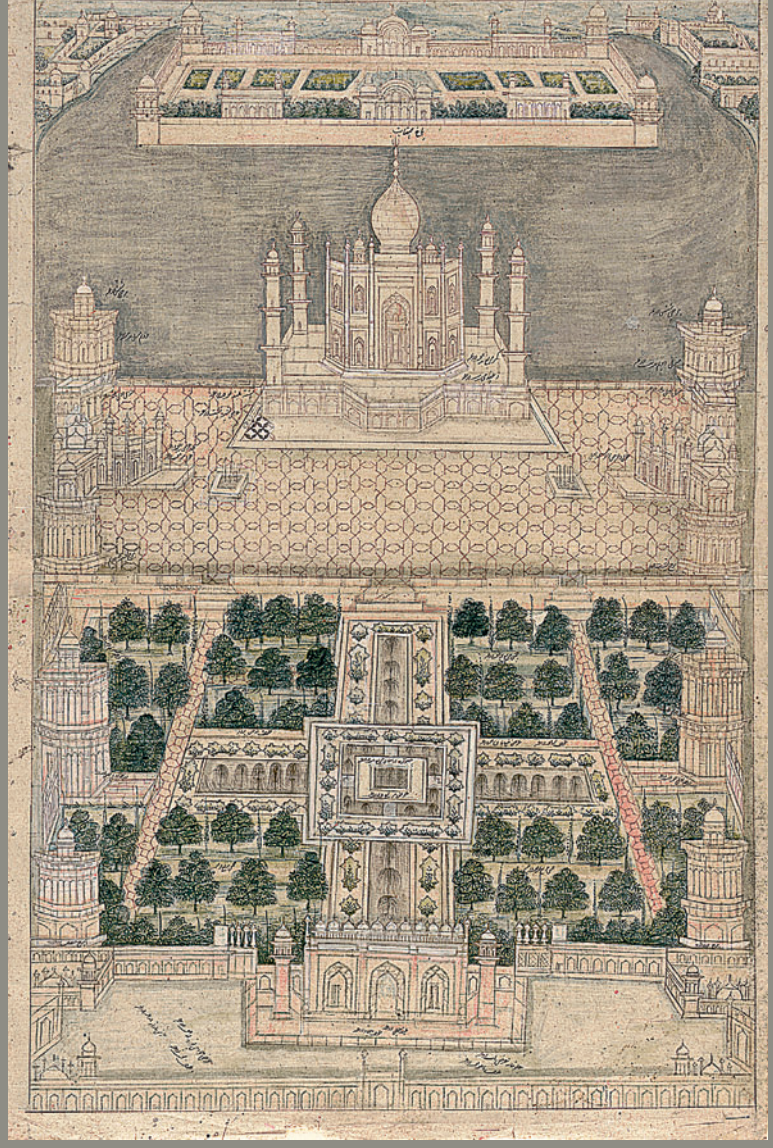


LEGACY

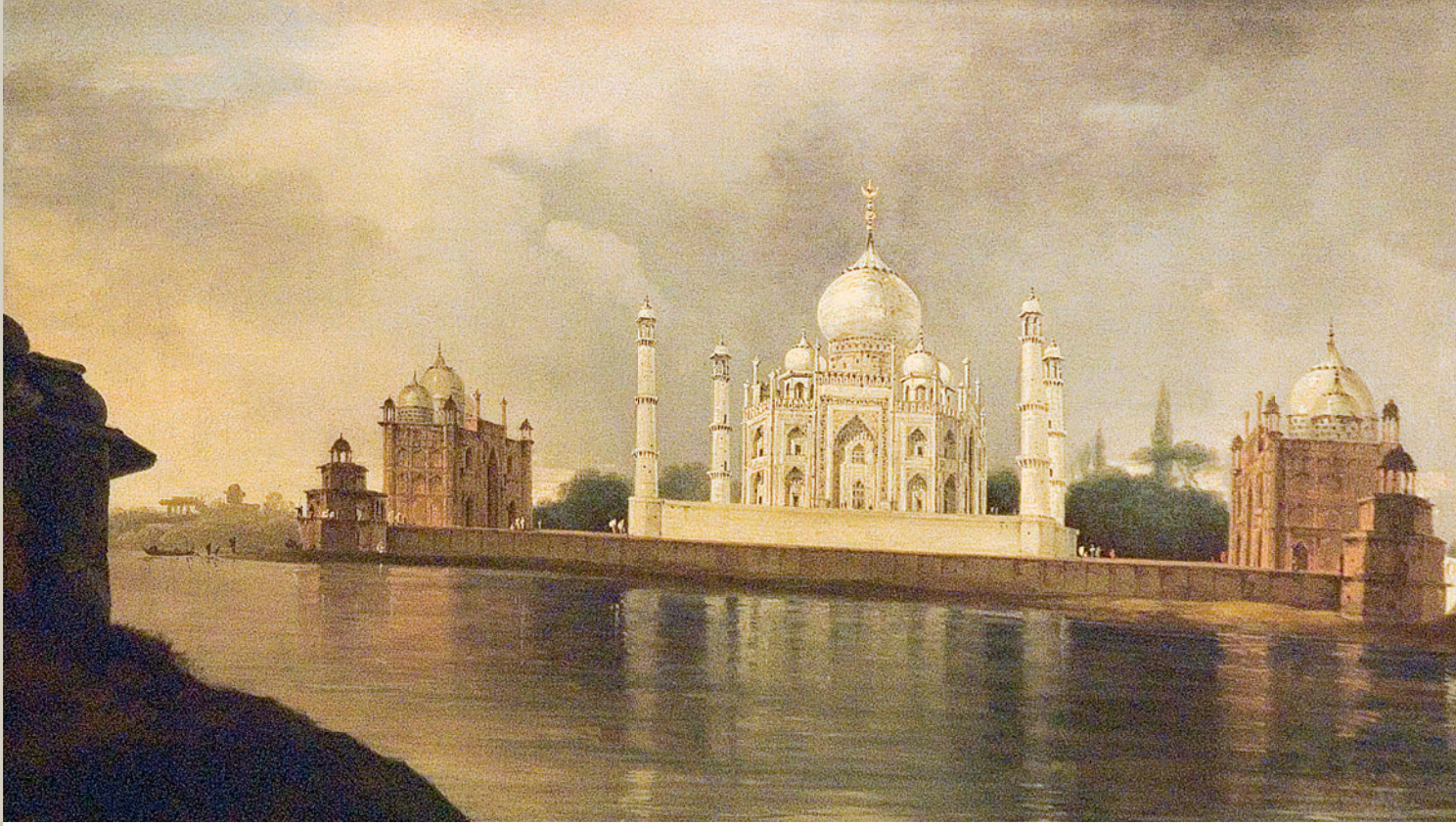
ABOVE: © SOTHEBY'S; RIGHT: ARTHUR M. SACKLER GALLERY, SMITHSONIAN UNRESTRICTED TRUST FUNDS/BRIDGEMAN

ABOVE "Taj Mahal by moonlight" was painted by Bengali artist Sita Ram in 1815. The watercolor is "from a set of albums prepared for the Marquess and Marchioness of Hastings between 1814 and 1817," according to Sotheby's, whose recent auction saw the painting sell for about 10 times its original valuation. **RIGHT** "Bird's Eye View of the Taj Mahal at Agra," pen and opaque watercolor on paper, Company School (1790-1890).

AT A SOTHEBY'S AUCTION

in the fall of 2023, an Indian painting drew a bidding frenzy that made headlines. When the gavel fell the artwork had sold for $609,628—more than 10 times its original valuation.

Artist Sita Ram's 1815 chalk-and-watercolor-on-paper piece is as exquisite as its magnificent subject: the world's most famous Islamic mausoleum. Visible are a tender gray-white sky and a swaying garden of lush mango trees. Between these layers of gray and green, like a creamy floating cloud, stands the Taj Mahal.



"It appears like a perfect pearl on an azure ground. The effect is such I have never experienced from any work of art," said painter William Hodges of the Taj Mahal. Hodges spent some six years in the early 1780s traveling and recording the landscape and architecture of India in watercolor and oil paintings.

"The Taj Mahal by moonlight" is one of more than 200 surviving works that the Indian painter created on a yearlong trip with his employer, Warren Hastings, an official with the British East India Company, which at the time was the equivalent of the world's biggest trading corporation.

The inspiration for the art that has transcended time corresponds to Hastings' nightly visit to the Taj Mahal in 1815, which he describes as a once-in-a-lifetime experience, adding an epithet to the monument as "uncommonly striking." He also confessed how the visit left an "impression of gratification" for him.

Hastings was not the only European to have expressed vivid emotions upon visiting the Taj Mahal. Over the centuries, explorers, merchants and painters professed their fascination with the monument.

The Taj Mahal became not only one of the most important art subjects but a marker of a sophisticated India.

Gradually the Taj Mahal became not only one of the most important art subjects but a marker of what would be viewed as a sophisticated India. It changed the West's perception of the country as a "lesser civilization," "a land of magic, mystery and a strange religion," according to Isabelle Imbert, a specialist in pre-modern art of Iran and India. That sentiment resonated among other historians.

Emblem of Culture

The European perception of India began changing in the 17th century with the growing admiration for the Taj Mahal, built in the north Indian city of Agra as an enduring monument of love from Mughal Emperor Shah Jahan for his favorite wife, Mumtaz Mahal. Construction on the primary marble structure began after she died in childbirth in 1631 and was completed about 12 years later.

The first words of praise came from Jean-Baptiste Tavernier, a Frenchman with a penchant for Eastern cultures according to Emily Shevelton of the School of Oriental and African Studies at the University of London. Tavernier was a merchant with a prosperous career in precious gemstones and silk. He traveled to India six times between 1636 and 1668 and visited the Taj Mahal more than once. On his return to France, he published his travelogue *The Six Voyages of Jean-Baptiste Tavernier* at the behest of French monarch Louis XIV. The travel book enumerated all that he witnessed during his stay in India, from succession battles to Mughal life at large. He also described the monument's striking architecture and beauty.

Once the travelogue was published, interest in the East grew among the elite, particularly after its rapid translation into English, German, Italian and Dutch.

Tavernier contemporary François Bernier also described his visits to the Taj Mahal with great enthusiasm. Bernier was the personal physician to the Mughal Court.

Bernier's account, *Travels in the Mogul Empire*, dedicates

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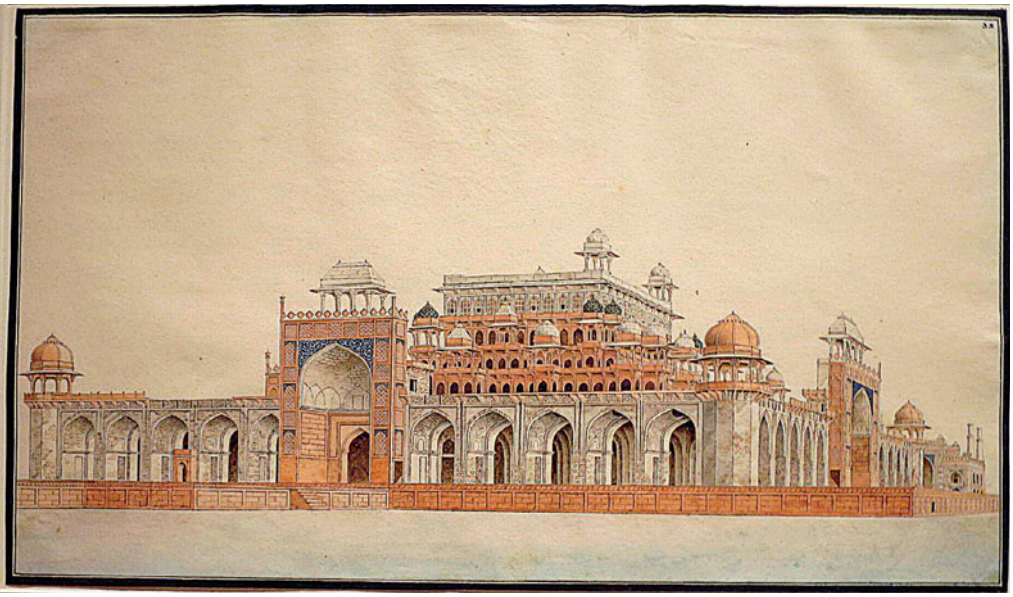
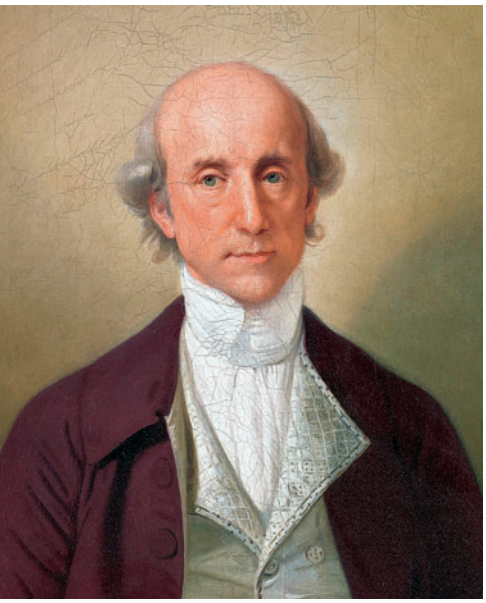
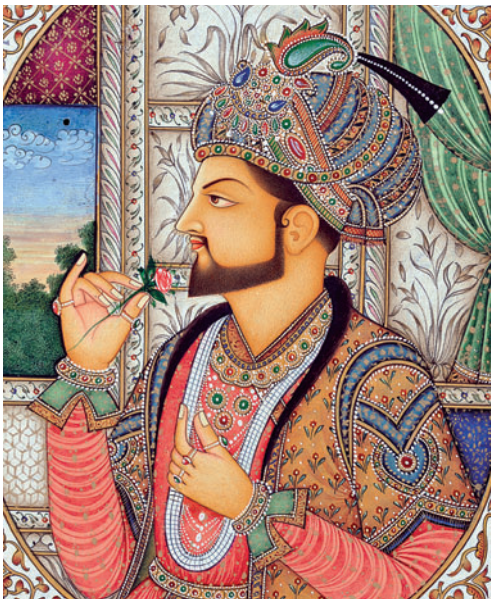






multiple pages to his visit to the Taj Mahal. He says one is "never tired of looking at" it. Bernier also points to a travel companion's reaction to seeing the Taj Mahal as "nothing in Europe so bold and majestic."

Shevelton says "Bernier, writing in 1699, was stunned by the aesthetic beauty of the Taj Mahal and concluded that it deserved to be listed among the wonders of the world (Voyages 1699)."

Apart from conceiving the Taj Mahal as a grand mausoleum, Shah Jahan also intended it to be a unique piece of architecture.

Ebba Koch, professor emeritus of art and architectural history at the Institute of Art History in Vienna and a leading authority of Taj Mahal, affirmed the emperor's vision of the monument as his magnum opus. She writes in 2005's "The Taj Mahal: Architecture, Symbolism, and Urban Significance" that "the Taj Mahal was built with posterity in mind, and we the viewers are part of its concept."

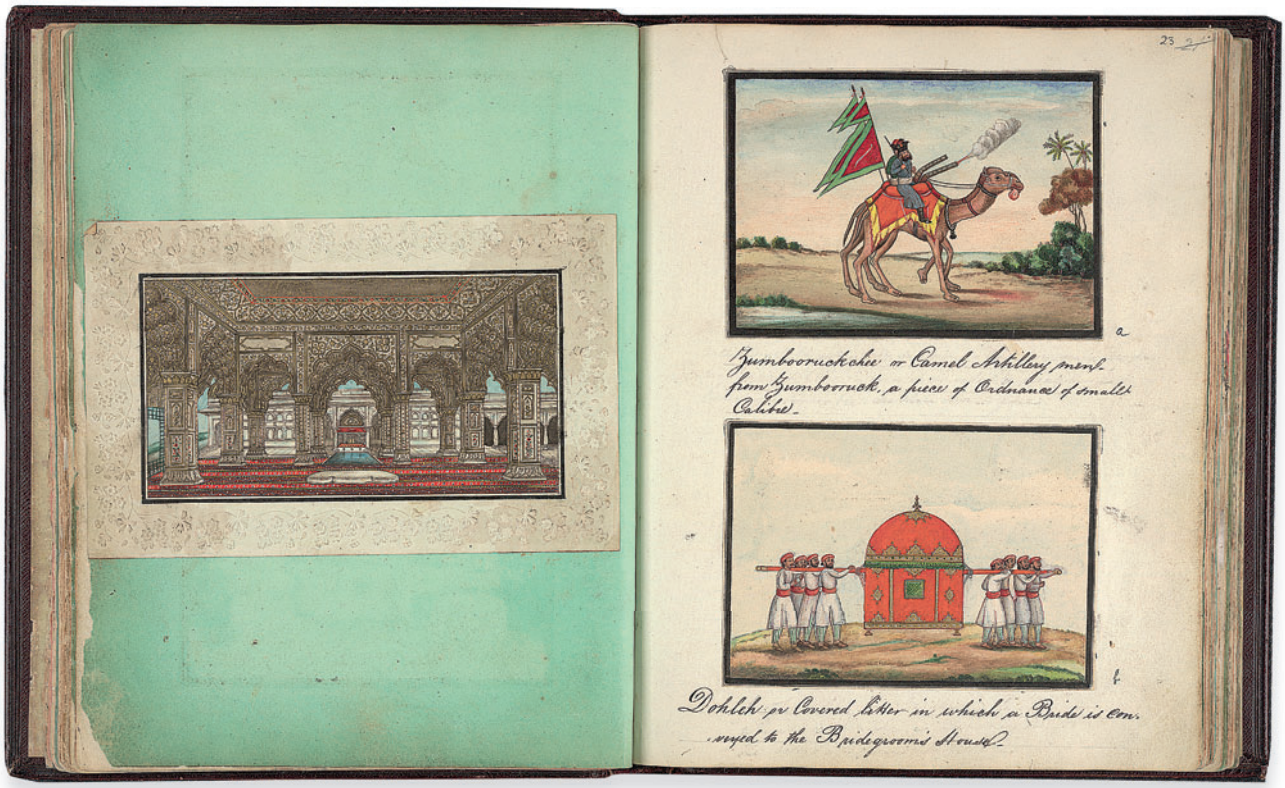
"We the viewers" would grow to include not only those who witnessed the feat of architecture in person but its artistic renderings as well.

The Catalysts

The late 17th century saw the rise of a hybrid artistic style called "Company Paintings" that were executed exclusively by Indian-origin artists, henceforth known as "Company Painters."

"Artists were commissioned by an equally diverse cross-section of East India Company (EIC) officials and their wives, ranging from EIC's medical and botanical staff to soldiers, civil servants and diplomats, missionaries, judges and discriminating women

TOP Artist Ghulam Ali Khan painted Diwan-i-Khas in the palace of the Delhi Fort in 1817 in the Company style. **MIDDLE** Sheikh Latif created a watercolor of Emperor Akbar's Tomb at Sikandra between 1810 and 1820. **BOTTOM LEFT** A painting of Warren Hastings (1732-1818), first governor general of Bengal, India, by Johan Joseph Zoffany, c. 1783-1784. **BOTTOM RIGHT** An Indian School portrait of Mughal emperor Shah Jahan.



"Reminiscences of Imperial Delhi" consists of 89 folios containing approximately 130 paintings of Mughal and pre-Mughal monuments of Delhi, as well as other contemporary material, and accompanying text written by Sir Thomas Theophilus Metcalfe, the governor-general's agent at the imperial court (1795-1853). Pictured are ink and colours on paper (1843) of the interior of the Diwan-i-Khas, **LEFT**; Camel Artillery Man, **TOP RIGHT**; and Bridal Dohleh, **BOTTOM RIGHT**.

writers as well as by more itinerant "British travelers passing through India for pleasure and instruction," historian William Dalrymple writes in his book "Forgotten Masters: Indian Painting for the East India Company." "What all had in common was a scholarly interest in and an enthusiasm for India's rich culture, history, architecture, society and biodiversity."

For those who were receptive to India, the Taj Mahal acted as the gateway to their curiosity and enthusiasm; it was one of the most drawn architectural edifices.

Art historian Imbert echoes Dalrymple: "The art depicted more about the patron's taste, curiosity than the artist's choice, and when it came to western artists traveling to India, they depicted Taj Mahal because it was one of the most magnificent monuments in Mughal India [and] deserved to be depicted."

The first round of Company Paintings came about as part of a conservation initiative led by the British administration in the early 1800s. The project roped in draftsmen of Agra like Sheikh Ghulam Ali and Sheikh Latif to render exact drawings of Mughal monuments, including the Taj Mahal and Emperor Akbar's tomb at Sikandra, both of which had fallen into disrepair. The idea was to use these meticulously drawn geometric pencil artworks as the structural plan for the conservation project.

"These resident artists at the Mughal court in whatever capacity, as draftsman or architect or stone cutters as Sheikh Latif was, turned their hands for producing first their work for East India Company and then for the passing travelers," Dalrymple says. "Judging by the number of copies, they seem to have developed an atelier, maybe a family atelier, which mass-produced this art in the 1820s and '30s."

> "These resident artists at the Mughal court ... turned their hands for producing first their work for East India Company and then for the passing travelers."
>
> —WILLIAM DALYRIMPLE

Around the same time some of the first professional British landscape painters William Hodges and uncle-nephew duo Thomas and William Daniell arrived in India, but they didn't share the same perspectives.

Hodges did not want to give the Taj Mahal any extra attention. Consequently, he depicted Agra as the city of ruins. "Though he admired Taj fervently, he did not fulfill his promise to include a separate view devoted to it in this series," notes Giles Tillotson, a scholar on Hodges.

An aquatint by English landscape painter Thomas Daniell depicts the Taj Mahal. Daniell traveled India with his nephew William Daniell, drawing scenes from across the country and later publishing them in a multivolume collection, Oriental Scenery, 1795 and 1808.

In contrast to Hodges' apparent indifference, the Daniells, painted the Mughal monuments with great passion and are regarded as the most successful British watercolorists from the colonial era.

Between 1786 and 1793, the Daniells made several trips across the country with their retinue, and equipment including a camera obscura, to record scenes. During their North India trips, they were likely in contact with the best Company Painters of Delhi.

"The numerous annotations detailing the colors and shades for rendering the inlay work in marble facets of the tomb complex show that the Daniells regularly collaborated with native draftsmen, who probably prepared preliminary sketches, rubbings and etchings that served as a visual record for firming up finished sketches and paintings of the monuments," writes Yuthika Sharma, an academic at Northwestern University specializing in the visual culture of the early modern and colonial period of South Asia.

Once the Daniells returned to England, their art (144 aquatints and six uncolored artworks) produced in India became hugely popular. Published in 1795-1808, the collection included beautiful renderings of the Taj Mahal—and remains one of the highlights of British colonial artistry. For the British commoner, this was possibly the break-even point to their ignorance of and disinterest in India.

Indeed, Company Painters' architectural drawings of the Taj Mahal, Agra Fort, Tomb of I'timād-ud-Daulah and the Red Fort of Delhi influenced perceptions of the country. The change was noticeably evident in the heightened commissioning of Indian art in the 19th century. Any European or East India Company official with an interest in India wanted to carry back the memories of their stay within the folds of a beautifully illustrated album.

Artistically valuable commissions culminated in two such albums, *Delhi Book* and *Fraser Album,* respectively commissioned by British civil servants Thomas Metcalfe and William Fraser. Established artists reproduced these "to cater to Europeans' rising antiquarian interest in Delhi's monuments," Sharma notes.

That "The Taj Mahal by moonlight" entices art lovers more than two centuries after it was created reflects the enduring power of both the piece and its subject around the globe.

Based in Philadelphia and Mumbai, **Nilosree Biswas** is an author, filmmaker and columnist who writes about Asian history, art, culture, food and cinema. Her work regularly appears in national and international media.

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AUTHOR'S CORNER

Lives in Clay: A Conversation with R. Neil Hewison

Written by KYLE PAKKA

He never planned on Egypt. Having learned Swahili while studying linguistics at York University, in his hometown of York, United Kingdom, R. Neil Hewison expected his first assignment with the international charity organization Voluntary Service Overseas would be in East Africa.

Instead, in 1979 he found himself teaching English in Fayoum City, a quiet town of horse-drawn buggies about 100 kilometers southwest of Cairo and a fertile basin west of the Nile. "Almost immediately I was invited into people's homes in little villages," Hewison remembers. "It was a great introduction to the culture. I loved it and wanted to stay."

Intrigued by the Fayoum river basin, Hewison published his first book, "The Fayoum: History and Guide," in 1984. Although he spent the following decades working for the American University in Cairo Press, Hewison built a home in Tunis, Egypt, a Fayoum village famous for modern pottery.

After his 2017 retirement, Hewison zeroed in on Fayoum pottery as exemplified by modern pieces in Tunis, as well as pottery traditions in the villages al-Nazla, just southwest of Tunis, and Kom Oshim, nearly a two-hour drive in eastern Fayoum.

AramcoWorld recently spoke with Hewison about the resulting book, "Fayoum Pottery," Tunis life and the changing fortunes of Fayoum's ceramic artisans.

Fayoum Pottery: Ceramic Arts and Crafts in an Egyptian Oasis

R. Neil Hewison. AUC Press, 2021.

OPPOSITE AND RIGHT Making a *bukla* in al-Nazla, Fayoum, Egypt.

Why is Fayoum pottery—both traditional and modern—worth documenting?
Pottery is produced all over Egypt—in Old Cairo, in the Delta, in Upper Egypt—so in that sense, Fayoum is not special. But Tunis pottery is special because it has become a new way to sustain and bring prosperity to a previously impoverished rural community, and also because it has found such an eager market for handcrafted folk-art products, first in Cairo and then around the world. Kom Oshim is keeping alive a long tradition of crafting enormous pots, while al-Nazla pottery is special because the primeval hammer-and-anvil technique perpetuated there is now not found anywhere else in Egypt or, as far as I have been able to discover, in the world.

What were you surprised to learn?
I already knew Tunis pottery pretty well, but the size of the kilns at Kom Oshim—some 4 meters square [in surface] and 4 meters in height—was a shock. The first time I visited the workshops, in 2020, they were building up the fire in the pit below the kiln, and it was like those old movies where they shovel coal into the engine on a steam train. They can get hundreds of these tall pots into these kilns at a time.

The other village, al-Nazla, was more of a rediscovery. After 40 years of visiting this place, I still find it fascinating to watch the potters start with a bowl of clay and hammer it into a sphere. There's nowhere else in Egypt where they make pottery like that.

While Tunis is known for modern pottery from the Tunis Pottery School founded by the late Swiss ceramicist Evelyne Porret in 1990, the al-Nazla and Kom Oshim pottery traditions have been handed down for centuries. Is the craft still being preserved this way today?
Some of today's potters can trace the craft back through nine generations, but it's not being passed down as regularly from generation to generation now. Potters in al-Nazla and Kom Oshim love what they do, but their children are being educated, they go to school, they go to university, and the potters want them to have a better life.

What do you think the future holds for these pottery villages?
There's reason for concern for traditional pottery. When I first moved to Fayoum, everybody had a Kom Oshim pot or an al-Nazla *bukla*, a big round pot for storing water and keeping it cool, in their house because there weren't a lot of refrigerators. I had a bukla in my flat. Now everybody has fridges and freezers, and demand has dropped, and that's obviously a problem.

In Tunis, things are looking up. People started coming for pottery, but now you can go horseback riding, take a boat ride on the lake, and people have opened coffee shops and restaurants. The Tunis Pottery School is still going, and the youngest generation is trying new techniques and designs. I have less hope for the future of al-Nazla and Kom Oshim because they are not as commercial. They've got tougher challenges.

After living in Tunis for decades, what does this book mean to you?
Looking back, I was incredibly lucky to be sent to Fayoum. I've had so much fulfillment from living here. It's really nice to present something that gives a sense of what, to me, is a very special place.

This interview has been lightly edited and condensed for length and clarity.

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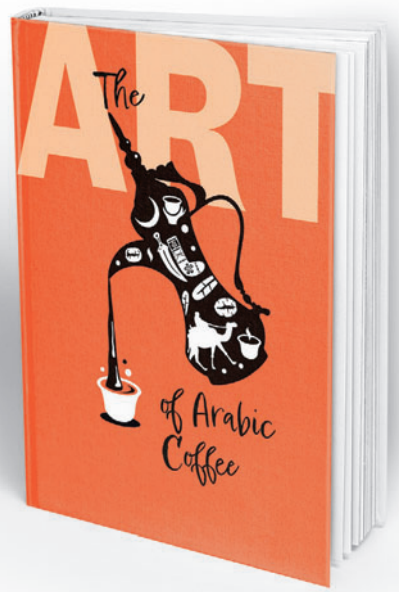
R. NEIL HEWISON

REVIEWS



"For me, Arabic coffee represents a secret passage to the mysterious culture of the Arab world. It is the silent language of hospitality for each family, each tribe and each country."

—from *The Art of Arabic Coffee*

The Art of Arabic Coffee

Medina Ilyas. Medina Publishing, 2022.

The ceremony of serving Arabic coffee (*qahwa*) amounts to a ritual of "connecting ... to share stories, a delicious drink and a warm experience," author Ilyas notes. Arabic coffee comes in many forms, and Ilyas, a coffee connoisseur, spent 15 years researching and collecting recipes throughout the Middle East. As she traipsed across the region, Ilyas explored a variety of coffee cultures, from sipping traditional Bedouin iterations in Oman to partaking at modern cafes of Riyadh, Saudi Arabia. The resulting book features tips on how to extract the most flavorful coffee, plus an array of recipes, coffee-serving rituals and other valuable "tricks." (Ilyas also explores Arabic coffee's purported health benefits, from giving an energy boost to potentially reducing the risk of Type 2 diabetes.) Offering a treasure trove of information, this book is a win for both coffee devotees and anyone who simply wants to better understand coffee's place in Arab culture. —ROBERT W. LEBLING

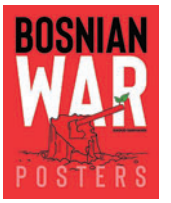
Without endorsing the views of authors, the editors encourage reading as a path to greater understanding.

African Art Now: 50 Pioneers Defining African Art for the Twenty-First Century

Osei Bonsu.
Chronicle Books, LLC, 2022.

Although often overlooked in the modern art world, over the past decade Africa's art scene has been experiencing a Golden Age, according to Bonsu, international art curator at the Tate Modern in London. Osei Bonsu hopes to address this oversight, starting with this book spotlighting 50 artists from the continent. Aimed at creating an art gallery in book form, Bonsu draws on an array of artists, including the Zimbabwean mixed media artist Kudzanai Chiurai and the Ghanean painter Amoako Boafo, whose striking piece "Yellow Dress" graces the cover. Each entry comes with a brief biography on the artist and an explanation of how we might see and understand their creations. Often political and insightful, many artists seem to be struggling with their sense of identity, using their art as the second person in a dialog of self-questioning. The poignant resulting collection is a feast for the eyes readers won't forget.

—NURTILEK ABDIMALIKOV



Bosnian War Posters

Daoud Sarhandi-Williams.
Interlink Books, 2022.

During the Bosnian War, local graphic designers, illustrators and artists used their creativity to protest the conflict. Artists were working under "war circumstances," which translated to "no paper, no inks, no electricity, no water. Just good will," as commercial design team Trio Sarajevo noted on the back of postcards they created. The resulting posters, postcards and leaflets produced over the course of the war (April 1992 to December 1995) became an important voice of Bosnian resistance at a time when social media was nonexistent and graphic art was a vital part of mass communication. In 1998, Sarhandi-Williams and his research assistant, Alina Wolfe Murray, spent the year crisscrossing the war-scarred region collecting these pieces to produce this unique war chronicle. Posters have been used to protest or promote wars since pre-World War I. The book acts as a sobering reminder of their continued historical importance.

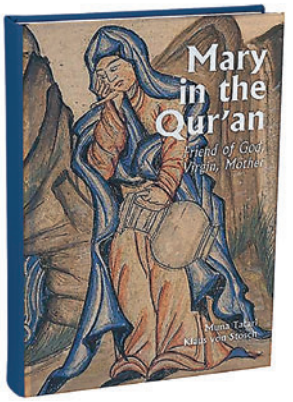
—PINEY KESTING

Dynasties Intertwined: The Zirids of Ifriqiya and the Normans of Sicily

Matt King. Cornell UP, 2022.

This work follows the complex relationship between the Berber Zirid dynasty of Ifriqiya (North Africa) and the fierce Normans, Viking descendants who invaded and ruled the nearby island of Sicily in the 11th and early 12th centuries CE. Despite holy wars taking place around them, for decades Zirid rulers savvily maintained a relationship with the Norman rulers governed not by faith but by policies advancing wealth and power, either through cooperation or conflict. Ultimately, the drought that swept Ifriqiya in the 1140s CE left the Zirids vulnerable, giving Sicilian Normans an opening to dethrone them and conquer Ifriqiyan coastal lands. However, the resulting Norman African kingdom lasted only until 1160-CE Almohad conquests. The author chronicles how Zirids and other Ifriqiyan lords used relationships to remain active political and economic players across the Mediterranean, despite the powerful Norman dynasty across the Strait of Sicily.

—ROBERT W. LEBLING



Mary in the Qur'an: Friend of God, Virgin, Mother

Muna Tatari and Klaus von Stosch. Tr. Peter Lewis. Gingko, 2021.

From Mary to Maryam, Daughter of Imran, Mother of Jesus

Written by DIANNA WRAY

A figure revered in both Christianity and Islam, Mary has fascinated followers of both faiths for centuries.

With this book, translated from its original German, authors Muna Tatari, an Islamic theology professor at Germany's Paderborn University, and Klaus von Stosch, a Catholic theology professor at Bonn University, examine the place that Mary—or Maryam, as she is known in the Qur'an—occupies in Islam.


Muna Tatari


Klaus von Stosch

MIDDLE: MUNA TATARI; LOWER UNIVERSITY OF BONN

We don't plunge directly into the Qur'an though. Broken into four sections, "Mary in the Qur'an" builds off comparative theology—the in-depth study of religious tradition to better understand both faiths—to provide a solid understanding of Mary's evolution, first in Christianity and then in Islam.

Working chronologically through the New Testament, the patristics and early Catholic dogma, the first section of "Mary in the Qur'an" traces how Mary's place in the church evolved.

Religious studies scholars believe Mary, a teenager from Nazareth engaged to a carpenter when the angel Gabriel informs her that she will have a child conceived immaculately, first entered the Bible's New Testament as a named figure in the late first century CE.

Over the following centuries, the story was handed down, mostly intact. But understanding and representation of Mary continued to shift. People were praying to her by the third century CE. In 431 CE the Council of Ephesus, convened by Roman Emperor Theodosius II in modern-day Turkey, codified her place in the Catholic Church and named her the first Christian saint.

By the time the Qur'an was being transcribed, in the seventh century CE, Tatari and von Stosch contend, Byzantine Emperor Heraclius propagandized Mary as a divine figure to justify imperialism and military expansionism.

By contrast, the Islamic figure of Maryam that emerges in Surah (Qur'anic chapter) Maryam, one of seven surahs in which she appears, and in Muslim scholarship emphasizes both her purity and her humanity, most likely a response to Heraclius' approach, according to the authors. Thus, Maryam is a woman chosen by God from the moment of her own conception and the mother of 'Isa, Jesus in Arabic. But there are key differences between Maryam and the Christian Mary.

In the Qur'an, Maryam is not regarded as a prophet, but Islamic theological tradition acclaims her as the most righteous of women, a sign for all people. Crucially, she is not venerated and cannot be called on to intercede between mankind and God. In the Qur'an, this figure is human, of flesh and bone, and her relationship with God is an example. Section 3 applies these findings, exploring how Maryam can be understood as a role model and a figure of emancipation.

Ultimately, Tatari and von Stosch created an academic work that connects the venerated Mary with the esteemed Maryam, creating a path where the two religions may be able to connect as well.

> "Just as in the Bible, Mary comes across in the Qur'an as a woman who, in her search for answers and a greater understanding of her own life, constantly questions and digs deeper."
>
> —from "Mary in the Qur'an"

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EVENTS

Highlights from aramcoworld.com

Please verify a venue's schedule before visiting.

CURRENT / MAY

Face to Face: The People Behind Mummy Portraits is the first exhibition on ancient Egyptian mummy portraits in the Netherlands. Mummy portraits were usually painted on wood during the Roman period in Egypt. After treating and wrapping the body of the deceased, the portrait was attached to the face of the mummified person. In this exhibition visitors are not only introduced to the people portrayed but also to makers, surviving relatives, imitators, collectors, archeologists and researchers who play a role in these portraits. The mummy portraits appeal strongly to the imagination because of their colors, penetrating gaze and, above all, their modern-looking realism. Today they are seen as an example of the earliest known, realistically painted portraiture. Allard Pierson, **Amsterdam**, through May 20.

CURRENT / JUNE

Ten Thousand Suns aims to challenge apocalyptic narratives with a hopeful message, embracing joy and a rich tapestry of artistic expression rooted in diverse communities. Centrally focused on contemporary art, the 24th Biennale of Sydney will delve into a variety of themes, including the history of Islam in Australia and the resurgence of First Nations technologies. Various venues, **Sydney**, through June 10.

CURRENT / JULY

Golden Spider Silk delves into the fascinating world of golden spider silk, unveiling its extraordinary history and remarkable properties. For centuries, spider silk was coveted by those seeking to compete with the silk arriving from China and flooding the wealthy wardrobes and bedchambers of Europe. The exhibition charts the histories of the fascinating players determined to harness this rarest of silks, from the inception of the idea by the Frenchman François-Xavier Bon in 1709 to modern-day creators. Museum of Islamic Art, **Doha**, Qatar, through July 6.

CURRENT / SEPTEMBER

Carpets and Canopies in Mughal India showcases portable courtly spaces among nomadic groups, such as the Mongols and Turks of Central Asia. Mughal carpets were not meant to be walked on; instead, they functioned more like furniture, as seats of honor. They also created an intimate space where courtly pleasures were enjoyed. Using silk or pashmina—fine wool yarn made from the coats of Himalayan goats—intricate floral patterns on Mughal carpets evoke the luxury of a garden of paradise. Many of the patterns originated in paintings or manuscript illuminations. The **Cleveland** Museum of Art, United States, through Sept. 8.

CURRENT / OCTOBER

Arabofuturs brings together the works of 17 videographers, visual artists, photographers and performers who use the motifs of science fiction or fantasy to question the certainties and achievements of our time. The exhibition invites viewers to enter the dreamlike world of the new Arab imaginations. Institut du Monde Arabe, **Paris**, through Oct. 27.

COMING UP

Light: Visionary Perspectives explores the centrality of light and its significance across cultures and contexts as a unifying symbol for the world. Marking the Aga Khan Museum's 10th anniversary, the exhibit will dive into the omnipresence and impact of light, placing visitors at the center of contemporary installations by renowned artists including Anila Quayyum Agha, Ala Ebtekar and Jamelie Hassan. Aga Khan Museum, **Toronto**, June 28 through March 17, 2025.

Readers are welcome to submit event information for possible inclusion to proposals@aramcoamericas.com, subject line "Events."

From Kalīla wa Dimna to La Fontaine: Travelling Through Fables traces the evolution of animal fables across cultures and centuries. Featuring more than 130 artworks, including manuscripts, graphic arts and 3D objects, the exhibition considers the commonalities between *Kalila wa Dimna* and French fabulist Jean de La Fontaine. Louvre **Abu Dhabi**, United Arab Emirates, through July 21.

Kalila wa Dimna. 13th-century manuscript. Bibliothèque nationale de France.

LEARNING CENTER

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