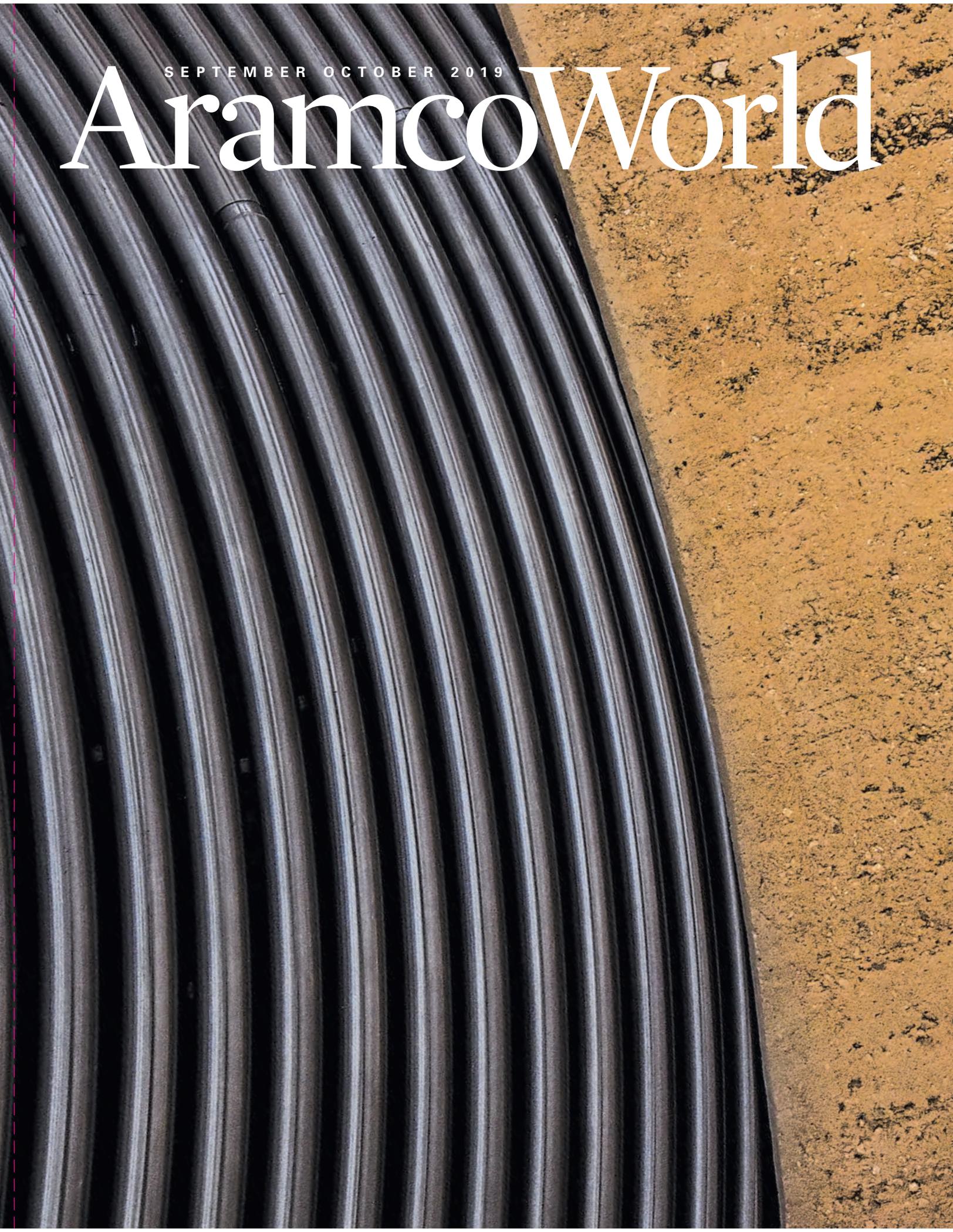
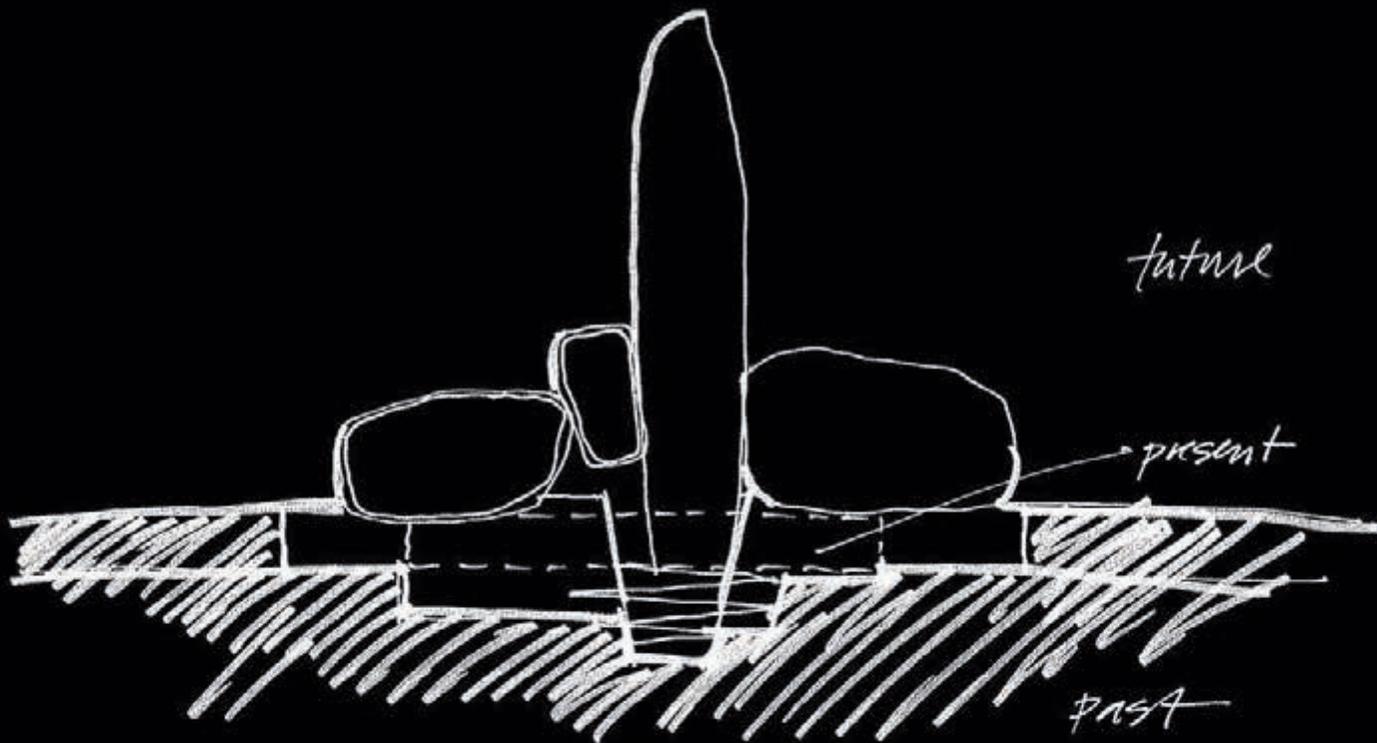


SEPTEMBER OCTOBER 2019

AramcoWorld





6 A House for the World

Written by **Matthew Teller**

An ultramodern concept inspired by a simple arrangement of stones won architectural firm Snøhetta the international competition to design the King Abdulaziz Center for World Culture, or Ithra, in Dhahran, Saudi Arabia. Open to the public, Ithra's site alongside historic Dammam No. 7, the country's first major oil well, symbolizes its role as a source of energy of a different kind: human energy, powered by creativity and sparked by architecture that embraces past, present and future. Named both for the founder of Saudi Arabia and an Arabic word meaning enrichment, Ithra offers museums for science, natural history and traditional and contemporary art; theaters for music, drama and cinema; labs for ideas in technology and design; programs for youth in STEM subjects and reading—and at its heart, a luminous library, where the story of Ithra begins.

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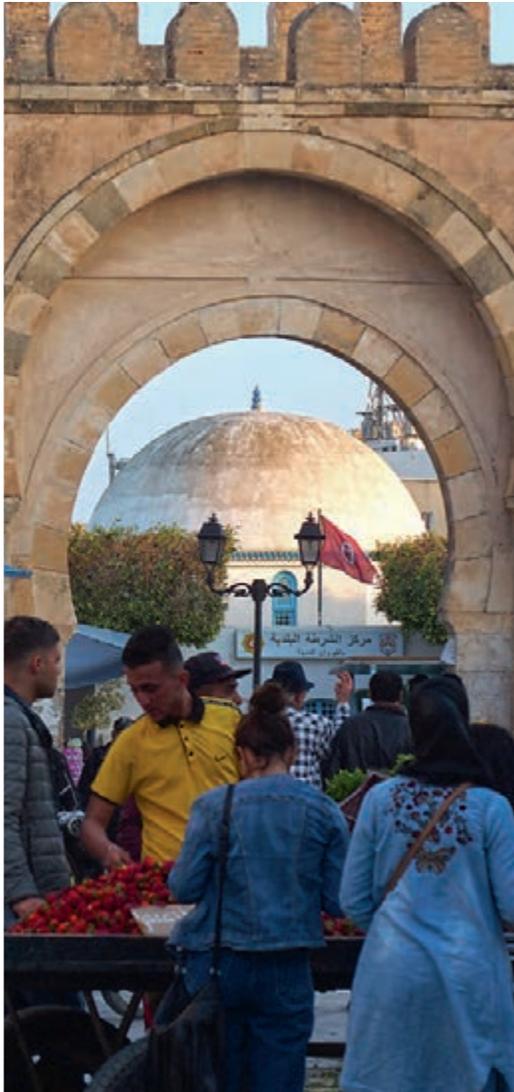
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We distribute *AramcoWorld* in print and online to increase cross-cultural understanding by broadening knowledge of the histories, cultures and geography of the Arab and Muslim worlds and their global connections.

Front Cover: In a tangible interplay between new and old, industrial and organic, tubes of stainless steel curve alongside rammed earth inside the King Abdulaziz Center for World Culture. Photo by Abdullah A. Alshammary.

Back Cover: This detail from a copy of the Qur'an on parchment highlights the calligrapher's stylized Rayhani Arabic script and color-coded vowels and diacriticals. He produced it in 1020 CE in Kairouan for the governess of a young prince. It is on display at Tunisia's National Museum of Islamic Art in Raqqada. Photo by Richard Doughty.



22 Chef 2.0

Written by Brian E. Clark
Photographed by Krisanne Johnson

Can robots cook? Yes, says Michael Farid, MIT grad and cofounder of the new eatery Spyce in downtown Boston. But does it taste good? Yes, says Daniel Boulud, Michelin-star chef and the culinary brains behind the Spyce menu.

26 Africa's First City of Islam

Written by Ana M. Carreño Leyva
Photographed by Richard Doughty

Founded on a plain between sea and hills in the year 670 CE, Kairouan became a capital of dynastic power and a cultural beacon, the center for the spread of Muslim Arab influence through North Africa and southern Europe—not only in religion, but also in architecture, medicine, education, law and more.

34 Egypt Drops the Beat

Written by Tristan Rutherford
Photographed by Rebecca Marshall

It was a Cairo composer who produced the world's first electronic remix, and now, 75 years later, his digital descendants are mixing fresh new beats for new generations. The best place to listen is along the shores of the Red Sea at the annual Sandbox Festival.

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FIRSTLOOK

Birthday Feast

Photograph by
Carolyn Drake

In the small town of Syrdaryo, about 80 kilometers outside of Tashkent, the capital of Uzbekistan, photojournalist Carolyn Drake visited the family of a local friend. The visit coincided with a birthday celebration. In the family's main room near a window, a *dasturxon* (Uzbek for tablecloth used as a place setting, usually set on the floor) served as a focal point for sweets, appetizers and side dishes, surrounded by *kurpachas*, felt mats used for sitting or reclining.

Laid out across the center of the *dasturxon* are four bowls of chocolate and pastries. Plates of cheese and *kolbasa* (sausage), and seeds and raisins mirror them from both sides, while alternating plates of *olivier* (Russian potato salad), *kraboviy salat* (Russian crabstick salad) and a salad topped with pineapple border the edges.







FLAVORS

Jollof Rice

Recipe by
Tunde Wey

Photograph courtesy
Ricarius Photography

Jollof rice is Nigeria's national dish—well that may be a slight exaggeration, but it's pretty popular.

There's a friendly rivalry between a few West African countries as to who makes the best jollof rice. The provenance of the dish is disputed, but evidence suggests it originated from the Senegalese *thieboudienne*, though most Nigerians would disagree. Suffice it to say, we take jollof rice very seriously. It reflects a variety of important West African cooking techniques, such as stewing, steaming, smoking and one-pot cooking. It is mostly eaten with sweet fried plantains and chicken, goat or beef. Some people say that the plantains have to be plentiful, and cut and fried in 1-inch (2-cm) cubes, to create the perfect balance of sweet and savory. It is a fun dish to make but requires some practice to get it exactly right. The perfect plate of jollof rice must be slightly smoky, deeply flavored, al dente and bright red. It's a challenge but definitely worth it!

(Serves 6 to 8)

½ medium red onion,
coarsely chopped 10 oz
(280 g)

2 medium-large
tomatoes, coarsely
chopped

½ medium Scotch bonnet
or Habanero chili pepper,
stem removed

3 medium-large red bell
peppers (15 oz / 425 g),
coarsely chopped

2½ cup (1 lb / 480 g)
medium-grain rice

½ cup (120 ml)
vegetable oil

1½ tsp salt

Fresh thyme, to garnish
(optional)

Jollof Spices

½ tsp turmeric

½ tsp ground coriander

½ tsp cumin

½ tsp allspice

1½ tsp ground hot chili
pepper, such as African
dried chili or cayenne

1 ½ tbsp onion powder

2 bay leaves

½ tsp ground ginger

1 tbsp dried thyme

In a blender or food processor, combine the onion, tomatoes and chili pepper. Purée. Pour half of the purée into a bowl and set aside. Add the bell peppers to the machine and pulse until smooth. Add the purée to the blended vegetables in the bowl and stir to combine.

Place the rice in a sieve and rinse under running water until the water runs more-or-less clear.

In a medium pot, heat the vegetable oil over medium heat. Add the blended vegetables along with the salt and jollof spices. Bring the mixture to a boil.

Add the rice and stir until well-mixed, then reduce the heat to low. Tightly cover the pot and cook until the rice is al dente, about 45 minutes. Check after 25 to 30 minutes; if the rice is sauce-logged, remove the lid to cook off the excess liquid. If the rice seems dry, stir in up to 1 to 2 cups (240 to 480 ml) water. Allow the rice at the bottom of the pot to char a bit to infuse the dish with a smoky flavor. Remove from the heat and fluff with a fork.

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**The Immigrant
Cookbook**

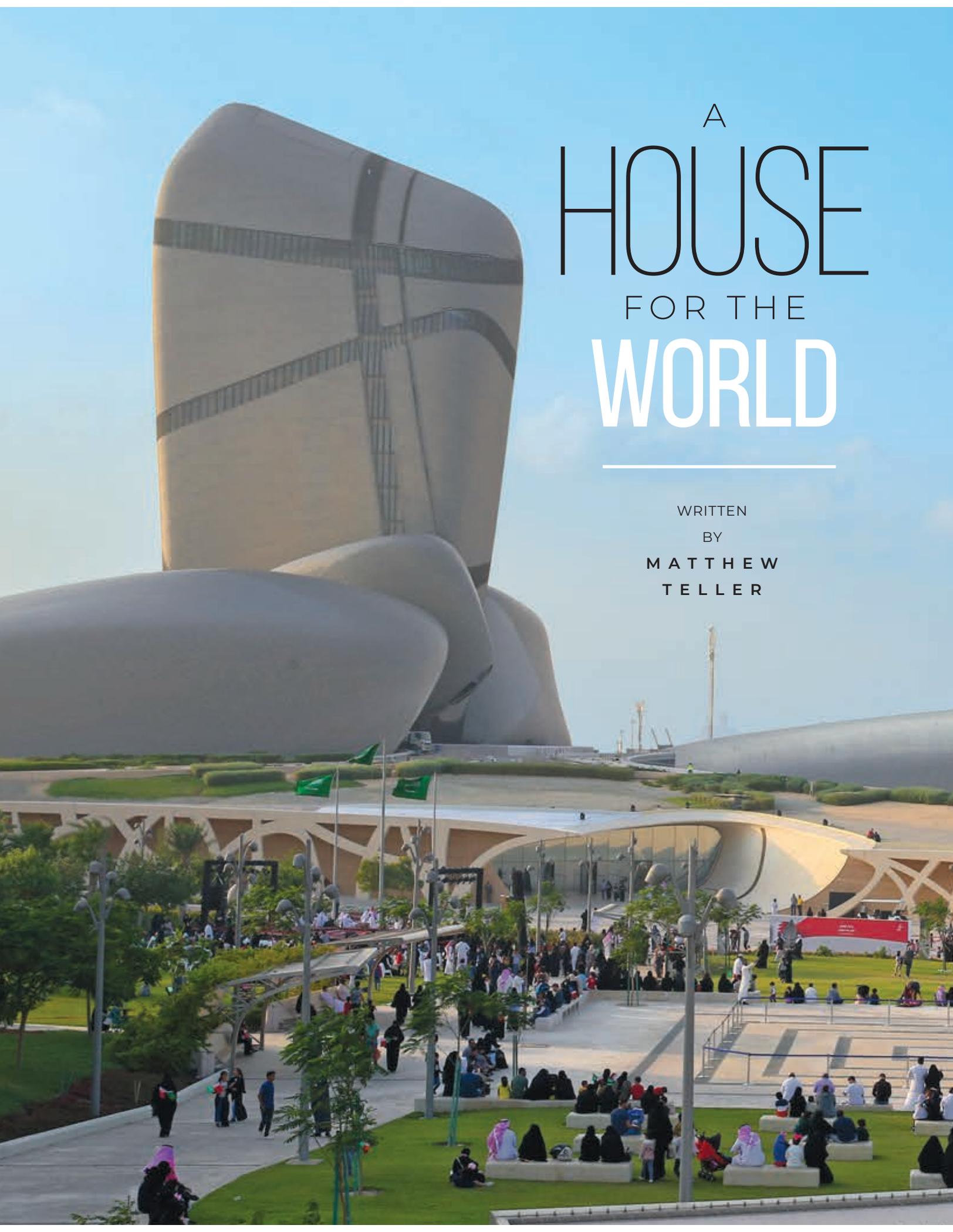
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Tunde Wey is a Nigerian cook and writer. He moved to the us at 16. Since 2016 he has been traveling across the country with his pop-up dinner series, *Blackness in America*, which explores race in America from the Black perspective, through food and discussion. You can read more about his projects at fromlagos.com. He currently resides in New Orleans.

JUNG FITZPATRICK PHOTOGRAPHY





A
HOUSE
FOR THE
WORLD

WRITTEN
BY
MATTHEW
TELLER

IT WAS THE LIBRARY THAT KEPT DRAWING ME BACK.

AN ETHEREAL, FUTURISTIC SPACE, WHITE, CALM, LIT FROM ABOVE BY A VAST SKYLIGHT THAT DIFFUSED THE SUNLIGHT POURING INTO AN ATRIUM ENCIRCLED BY LAYERED WHITE BALCONIES—I ROAMED THAT LIBRARY. I READ THERE. I WROTE THERE. I DAYDREAMED THERE. ACOUSTICALLY, IT WAS LIKE FLOATING ON A WARM SEA: AMONG THE TALL WHITE CASES OF SCHOLARLY HARDBACKS OR SEATED IN A RECLINER WITH A NOVEL, SOUNDS SOFTENED, BECOMING PLIABLE AND UNOBTRUSIVE. IT WAS A PLACE TO THINK. I COULD CHOOSE TO BE AMONG THE VOICES, OR I COULD CHOOSE SILENCE.

The library, in Dhahran, eastern Saudi Arabia, was, I learned, the seed for the creation of the much larger building in which it stands. That complex is officially titled the King Abdulaziz Center for World Culture, though it's widely known by its informal name Ithra—an Arabic word meaning enrichment. Ithra comprises an 18-story tower emerging from a cluster of lower, rounded structures, all clad in shimmering tubular steel and set in a landscaped oval of greenery between freeways and desert. It opened to the public last year and, according to the international design magazine *Wallpaper**, is Saudi Arabia's "most progressive piece of contemporary architecture."

Ithra was conceived and built by Saudi Aramco, the energy and chemicals company of Saudi Arabia. That sounds like a strange combination: Petrochemical production doesn't naturally fit with cultural enrichment. Why did Aramco bother? And why not in Riyadh, or Jiddah? Both are much larger and more culturally significant cities. Who is Ithra for?

Large companies take the idea of corporate social responsibility increasingly seriously. According to a 2015 UN-backed report, the 500 biggest corporations together spend around \$20 billion a year on projects that support local communities and campaigns on health, education and culture that don't bring immediate, tangible returns to their bottom lines. While such spending often has admirable intentions, it can also reflect mere brand management. It would be easy enough to wonder if that is what's happened in Dhahran.

But the story of the building, and of the people who made it happen, suggests that cynicism alone could not have sustained such a project over the 12 years it took to go from idea to reality.

"The most difficult thing is when someone asks, 'How did it start?'" says Ithra's head of strategy Fatmah Alrashid. "The start is different from one person to another. This project became so personal to so many people that each one of us might tell you a different starting point."





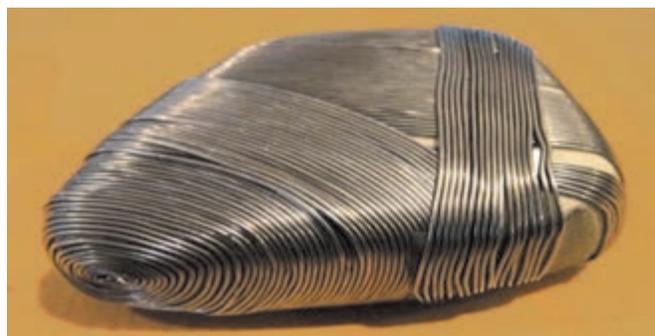
Its stainless steel skin shining in a computer-generated sunset, the cluster of what architectural firm Snøhetta called the “five pebbles” of the King Abdulaziz Center for World Culture, or Ithra, appears in an early concept. **Right:** To model cladding each building in steel tubes, the architects wrapped wire around a stone. **Previous spread:** Families came to Ithra December 15, 2018, to enjoy programs celebrating Bahrain National Day, one of many local events that helped Ithra attract more than 700,000 visitors in its first year.

Maha Abdulhadi starts by slapping her hands down on her desk and grinning at me. “Ithra is one of the best things Aramco has done,” she says, beaming.

Abdulhadi heads the Energy Exhibit, a forerunner of Ithra that is now absorbed into the larger cultural center, though it stands a hundred meters from Ithra’s main building. Aramco has operated a museum since the 1950s, when displays focused squarely on oil. It explained drilling, separating, refining, shipping and other processes largely to schoolchildren who came to learn about Aramco’s historic role: Dammam No. 7, the well from which in 1938 Saudi oil first began to flow in commercial quantities, lies nearby.

In the 1980s, the Oil Exhibit—as it was long known—moved to a site alongside Aramco’s company compound, which lies inland from the now-contiguous coastal cities of Dammam and al-Khobar. It was rebuilt and renamed the Aramco Exhibit, with cultural and historical displays added. Though the interior has gone through revamps since then, the structure remains as it opened in 1987: glass frontage, marble facing, precast concrete arches.

For years the exhibit was one of the only museums in the entire Eastern Province of Saudi Arabia. It became a vital, popular resource. Roughly 200,000 people visited annually, suggesting a public demand for leisure and learning.



“I remember when I was a child passing Dammam’s public library, but I never went in,” says Alrashid. “It was very old, and it always looked closed. Public engagement with culture at that time [the 1970s and 1980s] was low. There was a small private museum in the house of a collector who displayed some crafts and the Aramco Exhibit. That was it.”

Alrashid describes the seismic changes Saudi society experienced in the 1990s: Generations that had pursued higher education at home and abroad were gaining leadership positions. The realization began to bite, she says, that a scarcity of cultural and social provision across all age groups, but particularly among youth, was having a corrosive effect.

“Saudi Arabia is a young country,” Alrashid continues. “When the nation started [in 1932] there was a focus on infrastructure, but then what would help future development? The concept of whether you liked your major or not, or whether you’re actually interested in your work [was overlooked]. A focus emerged on engagement with youth before they join the workforce. How can we provide people with a platform to let them experiment, to know what it is they would like to

contribute before they make a decision that might impact the rest of their lives?”

As it turned out, Alrashid’s inquiring train of thought dovetailed with shifts in the company culture of Aramco—and wider events in the country.

This is another place where the story of Ithra could start.

“I was the first nonengineer to run Aramco,” says Abdallah Jum’ah as he sits forward in his chair in the lobby of an al-Khobar hotel, his hands restless in his lap. “I studied politics, liberal arts. In school I was very active in theater.”

Jum’ah became Aramco’s CEO in 1995.

“We were opening up to the world, moving to transform Aramco from a local company to an internationally integrated energy enterprise. I said we can only do that if we take the lead to transform the minds and hearts of the next generation. [But just] when we needed global connections, there was a movement in the country to put us in a cocoon.”

He recalls how frequent business travel generated time to reflect on his country’s deepening social conservatism.

“We used to carry lots of books on the plane—novels, history, poetry. I thought if [only] we could encourage people to read, put different seeds in their minds.”

Here is where the story starts to coalesce.

Fuad Al-Therman was in the back seat of the car when President and CEO Abdallah Jum’ah first spoke of “a world-class library” Aramco might give to the community.

“Ithra was Abdallah Jum’ah’s idea,” says Fuad Al-Therman, director of Jum’ah’s office from 2004 to 2008 and another key Aramco figure to have shaped the development of the project.

Al-Therman identifies how the atrocities of September 11, 2001, shifted national priorities in Saudi Arabia, bringing ideas forward for new platforms to encourage tolerance and diversity. Saudi Aramco started to expand its community programs from small-scale social responsibility

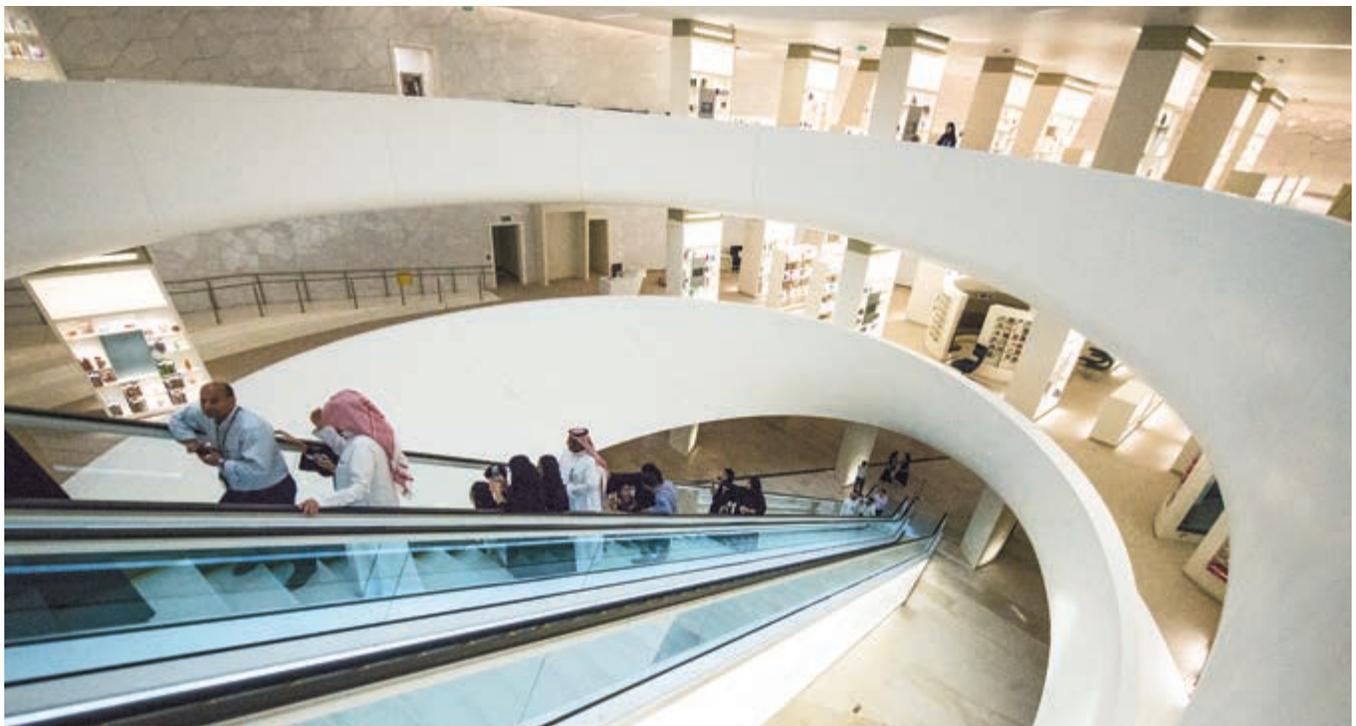
schemes in al-Khobar and Dammam—such as street cleanups and excursions for people with disabilities—into ways to reach out further into the neighboring communities. Plans were drawn for a new, history-themed museum to supplant the Aramco Exhibit, but the scheme was shelved in 2004.

It was two years later, in 2006, when the idea of a permanent, Aramco-built institution devoted broadly to culture was first voiced.

On May 15, Jum’ah was at the wheel of a car for the one-hour drive north from Dhahran to an Aramco facility at Ju’aymah. Beside him was then-Senior Vice President for Exploration and Producing Abdullah Al-Saif. In the back sat Al-Therman.

Al-Therman recalls that the trip came after Sudanese journalist Jaafar Abbas had published the last of a trio of op-ed pieces in the Dammam newspaper *Al Yaum (Today)*. It recounted Abbas’s arrival in Saudi Arabia in the late 1970s as a young Aramco employee and how he had used the company’s small community

Rising from the plaza level, the escalator at the center of Ithra takes visitors to the library, the original impulse for the complex. On the library’s shelves are more than 200,000 books in both Arabic and English. Around them are spaces for reading, study, research and collaboration over latte from the café.



ITHRA - OPPOSITE: SNOHETTA (2); PREVIOUS: AHMED AL-THANI



library to read voraciously and build his knowledge.

“Mr. Jum’ah told us he’d read this article,” remembers Al-Therman. “He said to us what Aramco needs to do is build a library. A ‘world-class library.’”

That August, while in Switzerland for a meeting, Jum’ah took Al-Therman on a walk beside Lake Geneva. The “world-class library” came up. Jum’ah was pondering how the company’s board of directors could be persuaded to approve such a non-commercial idea. Al-Therman suggested linking it to celebrations for Aramco’s 75th anniversary, due in May 2008.

Without Jum’ah, Ithra might never have been granted high-level backing. Without Alrashid—and many others, as we will see—Ithra wouldn’t look as good or function as well as it does today. And without Al-Therman’s suggestion, Ithra might have remained merely an idea.

“I was personally interested,” says Al-Therman, who today is chief of staff for Aramco’s CEO. “This is a nation-building company that fuels world prosperity. It has a commercial mandate, but it goes way beyond energy facilities and infrastructure. Aramco must create a ‘knowledge society.’ It’s about human development at large. If we think about non-Aramco people living in the community, what are we giving them?”

That sense of mission proved critical, and it imbues almost every aspect of Ithra today. Al-Therman defines the Ithra mission under three broad themes. First comes knowledge and the desire to “create a book-loving society [as] the gateway to open-mindedness.”

Then comes creativity. “To be innovative, you need to be ‘outside the box,’” Al-Therman says. “How can we create a culture that supports trial, error, failure and perseverance?”

The third component is encouraging tolerance and diversity of thinking within Saudi society and beyond.

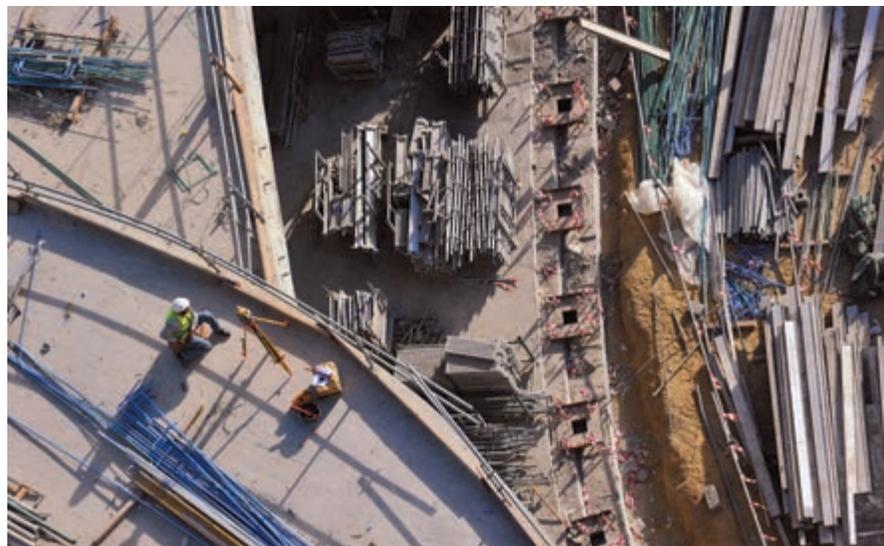
“There are huge misperceptions about Saudi Arabia,” says Al-Therman. “We want to engage cross-culturally to understand others, and for others to understand us.”

But, he adds, Ithra’s relationships with its local communities are critical. “We’re not doing it for the PR, for the kingdom to look good. Our mission is to transform thinking.”

A few months after Geneva, in November 2006, Al-Therman accompanied Jum’ah on a business trip to Milan, Italy. While there, they attended the opening of La Scala’s opera season.

Jum’ah loved the music, remembers Al-Therman. On the

Construction began in 2010 even as the final stages of design were still in progress. Faced with unique designs and materials, “you were designing things as you were constructing them,” says Belal Nasir, Ithra’s head of design and engineering. **Above:** Scaffolding and a crane help workers attach the stainless steel cladding to the top of the Knowledge Tower in 2015. **Lower:** Ithra under construction in 2013.



flight home, as their plane was landing, Al-Therman leaned over to Jum'ah and reminded him that the clock was ticking: With only 18 months to go, the company should start planning for the 75th anniversary, including defining a vision for the “world-class library.” As they touched down, Jum'ah agreed. He asked Al-Therman to set the ball rolling.

“And yes,” Al-Therman says with a smile, “I would say La Scala had some inspirational impact!”

Thinking on the library evolved quickly. Dhahran's home region lacked an auditorium where, for instance, Aramco executives could address a large gathering. That seemed like a worthwhile addition. Likewise, Dhahran had no banquet hall where the company could host a prestigious reception. One was added.

But an auditorium can double as a performance venue. And a banquet hall can also serve as an exhibition space. “Slowly, slowly, to the library we were adding a few components,” says Al-Therman. “This created a center for arts and culture.”

The two-page internal mandate that resulted, signed by Jum'ah and dated December 6, 2006, proposed “building a world-class cultural center with a major public library to be integrated with the existing [Aramco Exhibit] ... [as] a key contribution from Saudi Aramco to the local community.”

Al-Therman's intervention had moved the idea out of the mind of his boss and onto paper. The memo established the cultural center as a formal task within Aramco and entrusted its development to the head of the company's 75th-anniversary

“Architecture has the ability to expand people's horizons, [and] we are always looking for culture as a driver.”

—KJETIL TRÆDAL THORSEN

effort, Nasser Al-Nafisee (now a senior aide to King Salman).

Al-Nafisee and his team moved ideas forward, and on March 25, 2007, Jum'ah wrote to Minister of Petroleum and Mineral Resources (and former Aramco CEO) Ali Al-Naimi to lay out how the company's anniversary event would draw on the legacies of King 'Abd al-'Aziz Al Sa'ud, the founder and first king of Saudi Arabia. As part of the celebrations, Aramco invited then-King Abdullah to come to Dhahran

to lay the foundation stone for the proposed cultural center.

King Abdullah accepted.

The next issue was how to build the thing.

“Aramco is a company deeply driven by functionality, and founded on efficiency,” says Al-Therman, who trained in architecture. “It doesn't excel in artistic style. But you can't drive innovation and inspiration with a normal building. It has to be something breathtaking, evoking a sense of wonder and exploration. The architecture must be an embodiment of the mission.”

To chase that aspiration, Aramco's 75th-anniversary team launched one of the first international design competitions in Saudi Arabia, inviting proposals from architects from around the world.

One of the companies that responded was Norwegian firm Snøhetta, whose completed buildings at that time included Egypt's Library of Alexandria.

“The first thing we noticed was the ambition of this project,” says Snøhetta's founding partner Kjetil Trædal Thorsen. “Architecture has the ability to expand people's horizons, [and] we are always looking for culture as a driver.”

Through the second half of 2007, Al-Nafisee led his team in developing the scope of the project, whittling entries down from 36 to six, and convening an international jury to judge the shortlisted proposals on cost and construction criteria, functionality, sustainability and esthetics.

The design jury met that December. Though they eliminated three of the six, they could not agree on a winner.

In five months the king would be in Dhahran to lay a foundation stone—but of what? There was no time to ask the final three architects to refine and resubmit their designs, run another round of judging and secure approval of the project from Aramco's board of directors.

“It's an understatement to say it was a difficult moment,” says Al-Therman, who sat on the jury.

Shortly afterward, Jum'ah appointed him to move the whole project forward.

Taking over as director at the beginning of January 2008 “was—I wouldn't say terrifying, but it was quite a big challenge,” Al-Therman recalls.

His first task was to pick a design. A proposal by Dutch



Above: A five-ton composite wooden beam, glued and laminated and bent to twist 90 degrees, gets wheeled into a warehouse in Germany before shipping to Ithra. **Lower:** One of the 93,403 stainless steel cladding tubes is shaped to its individual specifications using a custom-built fabricator.



In addition to a permanent oil exhibit in Dhahran, Aramco sponsored traveling exhibits as early as the 1950s, such as this display set up in January 1959 in Hofuf, in eastern Saudi Arabia. The educational displays have since evolved into today's Energy Exhibit in Dhahran, which served as a model for Ithra's even broader offerings.

would not have taken it on. It simply embedded too many challenges.... [But] we didn't consider the complexity as something we couldn't get through."

Thorsen and Robert Greenwood, another Snøhetta partner, expanded on the philosophy underpinning their approach in the journal *Architectural*

architect Rem Koolhaas had the least backing from Aramco. It really came down to the last two, he says.

The design with less support came from Snøhetta. Its architects had proposed an abstract array of mirrored metallic forms, clustered on the desert surface. Al-Therman was intrigued but conflicted. Some on the jury had called Snøhetta's idea a Nordic design transplanted to Saudi Arabia. More popular among Aramco management was a swooping, dramatic concept by Iraqi British architect Zaha Hadid.

But Al-Therman and the project management team had developed a good feeling from the meetings with Snøhetta. They sensed a flexibility of approach that would be vital on such a mammoth build.

They recommended Snøhetta's design to Abdulaziz Al-Khayyal, Aramco's senior vice president of industrial relations, as the one with the highest potential for success. The next month, February 2008, the two companies signed contracts.

Design. "While Europe is using its history [to define modernity] ... Middle Eastern societies prefer to look to a possible future to define their present ... to avoid superficial Westernisation of aesthetics. Solutions may rather be found in the emotional translations of a rich iconographic and decorative tradition."

Snøhetta's competition-winning design survives in Ithra as it stands today, though the original concept underwent far-reaching changes during the two-year design process. The design centers on the 112-meter tower, an irregular, apparently windowless, monumental volume in steel with curved edges, striated and mysterious, reminiscent of a stone set upright to mark a significant location. Around it cluster three low, sleekly rounded shapes like wind-worn rocks. Wedged above ground level between one of these and the tower, mimicking a fallen boulder trapped in a canyon, rests another glinting, curved form, smaller than the rest and the only one with an obvious window.

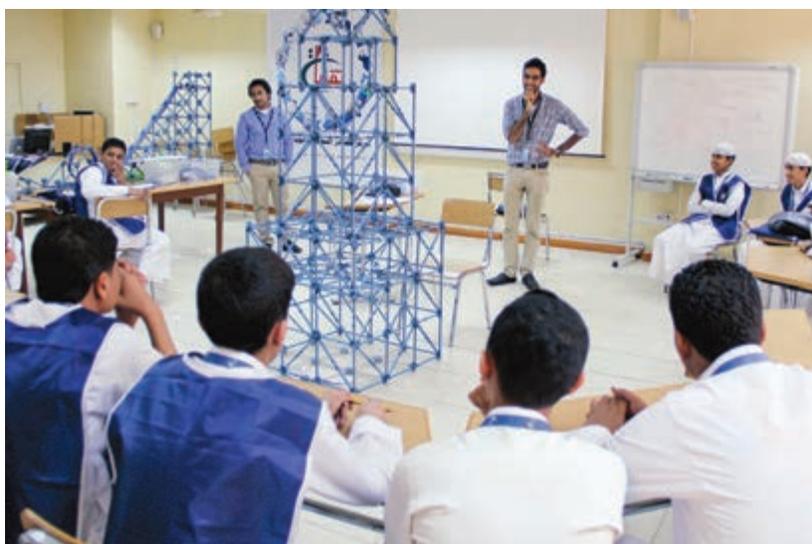
All five "rocks" connect internally to form a single building. With the pre-existing Energy Exhibit alongside, they are set in a landscaped area almost devoid of context: The only buildings within a kilometer are industrial units, corporate

Before Ithra officially opened its doors, it had spent five years introducing STEM, arts and cultural programs to more than two million students and adults across the country.

Looking back from a vantage point in 2019, Thorsen offers a wry smile.

"If you were with your full senses, you would not have started this," he says.

"We underestimated the complexity—which in the end probably was a good thing, because had we taken a risk analysis and gone through this project, we probably





At Ithra's official opening on December 1, 2016, Custodian of the Two Holy Mosques King Salman ibn 'Abd Al-'Aziz Al Sa'ud, right, and Minister of Energy, Industry and Mineral Resources Khalid A. Al-Falih, left of center, listen to an explanation of the cultural center's design and programs from Fuad Al-Therman, general manager of the office of the president and CEO.

facilities and a hospital.

Why rocks?

"There are slight but significant differences between how Snøhetta explained the [design], and how Aramco explains [it]," says Al-Therman.

Snøhetta spoke of finding inspiration in the stones strewn across the desert floor, leaning each one against the next to represent teamwork and institutional support.

"The stone shapes are based on conceptual inspirations," says Thorsen. "[They] talk together." He cites Italian writer Italo Calvino's 1972 novel *Invisible Cities*, which imagines the explorer Marco Polo and Emperor of China Kublai Khan discussing the structure of a Roman arch.

"The Roman arch has a keystone [that] holds everything together. If you remove that keystone, the arch collapses. Similarly, we [designed] a chain of 'pebbles' that hold each other up, and we have a keystone [that is] the smallest of these stones. It's showing that you can be very strong, even [if you're] very small."

For Al-Therman, though, this was all "too abstract." He doubted such ideas would resonate with Saudi publics. Faced with Snøhetta's design, he began to probe for a homegrown narrative.

First Al-Therman examined the English word "petroleum." He broke it down into its constituent Latin parts—*petra*, meaning rock, and *oleum*, meaning oil. Rocks contain oil, and it was clear that this new building would have to dig deep into the rocks of Saudi Arabia's first oilfield.

Then he hit upon the perfect analogy. Natural rocks hold

the energy of oil, and Dhahran is the place where oil launched the prosperity of a nation. Now Ithra's free-form, architectonic "rocks" would harness energy of a different kind—human energy—to launch a new national prosperity fueled by creativity.

Conceptually—and collaboratively—the building began to evolve. One of the challenges became learning to reconcile the philosophy of Aramco's project-management culture, grounded in safety and functionality, with that of the architects and Aramco's own design team, which focused on the idea of Ithra as transformative.

Both Al-Therman and Jum'ah credit Alrashid's contribution.

"Fatmah was the bridge," says Al-Therman. "She played a huge role in codesigning with Snøhetta."

Al-Therman engaged Alrashid—who was already working as a designer within Aramco—in June 2008. She began commuting between Dhahran and Snøhetta's offices in Oslo and, that fall, embarked on

a year and a half of work in Norway with a project management team as the linchpin connecting client and architect.

It was a period that saw the building take further shape against a backdrop of deepening understanding between the two companies as Alrashid worked to harmonize often radically different outlooks.

"All my time was dedicated to Ithra. It was a continuous thinking process," she says, that focused on how to fine-tune the building to Ithra's program goals and vice versa. The resulting dialogue led to numerous changes, including, for example, moving the children's museum from the "Keystone"—as Ithra named

The building took shape amid efforts to harmonize often radically different outlooks.



Architecture is always in connection with human activities. So yes, you can have a design, it can look splendid, it can radiate, it can be recognizable, but what turns it into great architecture is the activities that are going on inside, in combination with these spaces.

—KJETIL TRÆDAL THORSEN
founding partner, Snøhetta

the smallest of the Snøhetta’s “pebbles”—and dedicating that prominent space to what became the tech-oriented Ideas Lab.

She talks also about how this dynamic inspired changes to the building’s interior esthetics.

As conceived by Snøhetta, “they were beautiful but plain, no colors at all, very minimalist Scandinavian. I had a lot of conversations with the Snøhetta team that we needed to bring richness, colors and textures that, in the context of Saudi society and culture, we would appreciate.” There was, she reflects, “not resistance, but maybe not full awareness of where my ideas were coming from.”

She found insight during the long days of the Scandinavian summer. “Nature there is very rich and very dynamic. In summer the sun never sets. You’re seeing changes of color around you each hour. I told Snøhetta, ‘I understand where you’re coming from: You want less detail in the interior because you have all of this from outside flooding you. But what we have in

Ithra is an Arabic word meaning enrichment.

We enrich knowledge. We nurture creativity and enrich the creativity of the people through the various programs we offer. We try to enrich the rest of the world’s knowledge of Saudi culture, and we enrich the Saudi people with the culture of the world.

—ALI AL-MUTAIRI, *director*



If we look at the vision and think about the vision of Ithra, it is a very futuristic and progressive vision, which is to imagine and see the Kingdom as a beacon of knowledge for the rest of the world. The mission of it is to create that impact, a tangible impact on human development through creativity, knowledge and cross-cultural engagement.

—FATMAH ALRASHID, *head of strategy*

Saudi Arabia is a monotone of gray and pale beige, the color of the sand. Textures and colors enrich our imaginations.’ When we started to have these conversations, we were able to meet halfway. They understood very well.”

In the words of Snøhetta partners Thorsen and Greenwood, “cultural differences [were] outnumbered by intellectual similarities.”

In Oslo Alrashid made another conceptual leap, proposing to Snøhetta that the building should integrate art with the architecture. She and her team began commissioning artists to create work for specific sites within the building. One huge wall in Ithra’s plaza—the main, central interior space—now glows with a contemporary decorative pattern inspired by



I think it stands out in the sense that it's what we call an iconic building.... It's not bound by time or place.... It's very unique in the form that it takes. It's very unique in the materials that are used to construct it. It's very unique in the methods that were used to construct it. It's very unique in the mission that it has to deliver.

—BELAL NASIR
head of design and engineering

Iznik tiles from Turkey, by Australia-based studio Urban Art Projects. In the library, Egyptian sculptor Hani Faisal's delicate Arabic calligraphy crowns every bookcase. An elaborately colorful mural in Ithra's café is the work of young Saudi artist Yusef Alahmad. Ithra's theater has a stage curtain by Dutch designer Petra Blaisse.

Art is indeed everywhere now. Transition points around the plaza—at the entrance to the gift shop, to a restaurant, to the cinema—are marked by fixed vertical panels of rust-colored Corten steel, set obliquely to the wall line. Created by Australian artist Belinda Smith, each of these seven “history gates” is pierced by openwork patterns that recall stages in the history of the Arabian Peninsula, from the petroglyphs of prehistory through agriculture and trade to modernity.

“This concept of enriching the interiors with artworks commissioned at an early stage of the design is based on a simple message: Creativity and expression are an essential part of our daily life. They are not accessories,” Alrashid says.

spent hours in Ithra's plaza, walking, talking, sitting. The building's main entrance—which, after the dazzling heat outside, channels visitors calmly in one direction, dead ahead down a gently sloping corridor, cool and enclosed—opens to the plaza, where Ithra reveals itself. All five “pebbles” meet here. It is a broad, irregular space full of movement—“a village of cultural activities,” Thorsen calls it.

Visitors track to and fro, crisscrossing among the access points into the pebbles. Dark lines of tiling underfoot and bright lines of illumination overhead mimic the sun-baked patterning of Arabia's desert salt flats, known as *sabkhas*: It's tempting to follow the intersecting lines as if in an airport concourse



but—perhaps playfully—they lead nowhere in particular.

Light floods the plaza from one side through a glass wall that opens not to the desert, but to one of three “oases”—sunken, open-air atria that maintain a connection to the outside, even though the plaza, like more than half of this intricate building, actually lies below ground level.

This lack of concern for the external realities of ground or sky informs a secondary design concept. As well as facilitating movement through the building horizontally, Snøhetta designed for a vertical progression, from past to present and future.

Entering at plaza level is all about the present: Here are the theater, the cinema, the Great Hall—that early idea for a banquet room-cum-exhibition gallery—the information desks, the administrative offices, another “oasis” that doubles as an open-air performance space, and the Children's Museum, with its activities and play zones.

From the plaza, a ramp spirals downward, coiling around a daylight-flooded atrium to the four museum galleries. Each one lies deeper than the last, and each looks further back in time. First comes contemporary art, then Saudi heritage, then Islamic culture, then natural and geological history. Lower down still is an archive gallery with displays on the history of Aramco, which has transferred its archives to Ithra.

Ithra is communicating the spirit of innovation. We wanted a building that is, when you see it, you say, ‘I've never seen anything like this and most likely I will never see anything like it.’ You will not only enjoy great architecture, but you will enjoy great people.

—FUAD AL-THERMAN
general manager of the office of the president and CEO

TOP AND OPPOSITE, TOP (2): JOHNNY HANSON; BOTTOM AND OPPOSITE, BOTTOM: AHMED AL-THANI





At the bottom of the spiral, three stories below the plaza, lies an enclosed, fountained courtyard that opens to the sky at the hidden center of the building. Named “The Source,” it’s a symbolic representation of the famous oil well, Dammam No. 7. Anchored there is more art: “The Source of Light” is a monumental sculpture by Italian artist Giuseppe Penone, its skeletal bronze and steel forms, cast to mimic trees, reaching 30 meters toward the sky.

And then there’s the future. From the plaza, straight-backed figures of visitors glide upward on an open, three-story ascent, carried by a 26-meter, unsupported escalator to that ethereal, light-filled library. Elevators head higher still to the Idea Lab, where innovation concepts are brainstormed, and farther, up into the Knowledge Tower, which hosts master classes and lifelong-learning workshops that promote skills and creative engagement.

“The wonderful thing about this project is that [Aramco]

has stayed ambitious all this time,” Snøhetta senior architect Tae Young Yoon told *Wallpaper** magazine.

During the day, I often found the plaza quiet—ordered lines of schoolchildren with their teachers, visitors touring an exhibition—but in late afternoon, the atmosphere livened as the workday finished, and college students began to joke and jostle into the library. By evening the plaza felt like a shop-free mall, parents pushing buggies, groups of friends hanging out, cinema or theater audiences gathering.

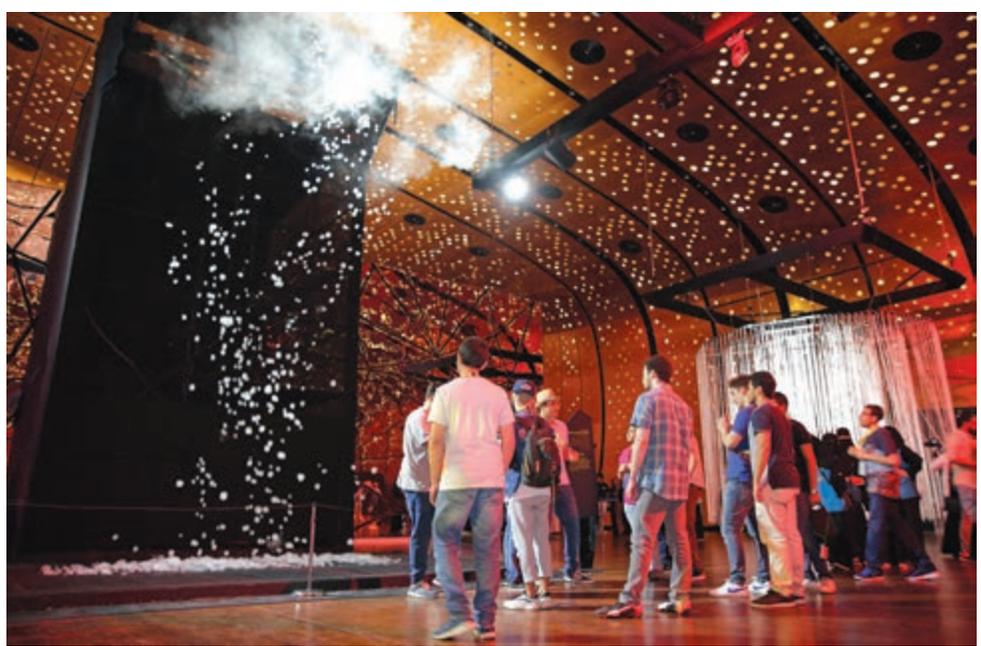
There’s an honesty in the visible materials. Sight lines across the plaza are broken by structural columns, each one rising from a triangular base to a square summit in a sculptural pirouette of architecturally exposed concrete.

This is echoed by the plaza’s wall construction, which deploys an ancient technique known as rammed earth, where dampened soil, mixed with gravel or clay, is compressed to form blocks for construction. It’s found all over the world, including in Saudi Arabia’s premodern mud-brick buildings, and it has gained recent popularity for its environmental friendliness and sustainability. Nowadays, though, it’s almost always stabilized with cement, which undermines those sustainable credentials. Ithra has revived rammed earth’s original formula—and put it on show.

“There’s only one person in the world who in his bones believed [cement] was not necessary,” says Belal Nasir, Ithra’s head of design and engineering. That person was Austrian architect Martin Rauch. An Ithra team, including Nasir, traveled to see Rauch’s Alpine home, self-built from traditional, uncemented rammed earth—and then brought Rauch to Dhahran to help train Saudi contractor Fahad M. Al-Suwaygh in the new/old technique.

Virtuoso ‘ud player from Iraq Naseer Shamma performed with a full string ensemble in Ithra’s theater on December 20, 2018.





Opposite, left: Youth learn about Saudi Arabia’s seashore, mountain, desert and other habitats and inhabitants in the natural history galleries of the museums that also show both Islamic and contemporary art. **Above left:** A puppet show entertains children in the library, supplementing activities in the Children’s Museum. **Above:** Under the star-like, perforated copper sheeting of the Great Hall, adults and youth view an exhibition titled “Sense and Sensibility” during last year’s annual Tanween festival, which brings global innovators to Ithra.

“We wanted to reintroduce [rammed earth] to the people of this region who are familiar with it, but using this new method,” Nasir says.

The resulting warm-toned, rough-textured walls help root this most contemporary and international of buildings in its local context. They provide a visual and tactile prompt toward traditional design while, functionally, reducing heat from outside, controlling humidity, cutting energy consumption from air-conditioning and boosting acoustic performance—all from the simplest of local materials.

In early 2010, with the building’s design complete, Alrashid returned from Oslo. Construction began that August under then-CEO (and now Minister of Energy, Industry and Mineral Resources) Khalid Al-Falih, a long-time supporter of the project who had worked with Jum’ah for many years. Al-Falih, with the help of Al-Khayyal, continued to drive the project forward, even while internal debates flared over easier, more familiar design solutions like walls of concrete and marble rather than rammed earth. It is testament to Al-Khayyal’s and Alrashid’s tenacity that, in most cases, innovation prevailed.

The diversity of finishes that resulted is dazzling.

The wave-like balconies of the library, as well as its fluidly shaped benches, desks and surfaces, are all clad in brilliant white Corian, a smooth acrylic compound best known for its use on upscale kitchen countertops.

Walls and ceilings in the library feature a shiny, fish-skin cladding of overlapping, pentagonal plates formed from micro-perforated, galvanized steel: Aside from their visual impact,

they dampen acoustic reverberation and allow interior surfaces to faithfully track the volume’s free-form curvature.

The interior of The Great Hall—14 meters high and 1,500 meters square—is clad in huge, arching sheets of perforated copper, backlit to create a glittering, planetarium-like effect.

Performance spaces, including the cinema and theater, have walls of stretched acoustic fabric, fixed over sound-insulating panels.

Shielding the light well that flanks the spiraling museum ramp are 42 gigantic timbers, each 25 meters tall, formed of a composite of cedar and oak. The timbers twist 90 degrees from base to top in an echo of the region’s traditional, wooden *mashrabiya* window screens, exposing changing views over the Source and Penone’s sculpture as you move down the ramp.

“Buildings are built. Ithra was manufactured, like a spaceship,” says Al-Therman.

The innovation extends outside. Xeriscaping—an irrigation-free technique of landscaping for arid habitats—shapes the desert surface

that covers Ithra’s subterranean construction, with local species growing in dry beds beside imports from Australia and Arizona to demonstrate natural variation.

But the most startling and original aspect of the building’s design is its exterior cladding. Snøhetta’s first concept imagined a mirrored surface for each of the pebbles, but challenges from Dhahran’s climate and the need for sustainable construction and environmental performance quickly showed that finishes such as plate steel or glass were impractical. Months of testing and modeling during 2008 and 2009 under the guidance of the British engineering firm BuroHappold produced a unique—and

By evening
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At the House of Blues in Orlando, Florida, Saudi rapper Qusai performed August 17, 2017, as part of Ithra’s international program that has brought artists, musicians, innovators, filmmakers and entrepreneurs to audiences across the globe.

profoundly challenging—solution. Following a prototype demonstration in Salzburg, Austria, Aramco’s project management team, supported by Al-Khayyal, took a leap of faith.

Ithra is wrapped in steel tubes—93,403 of them, totaling more than 360 kilometers if laid end to end. Each tube is 76.1 millimeters in diameter, made from wafer-thin steel only two millimeters thick. They are placed exactly 10 millimeters apart from each other and attached with titanium pins to stand proud of the weatherproof panels beneath that form the building’s skin. Each tube is bent in two or three dimensions to accommodate the curvature to which it is fixed. Each one is barcoded. It fits in its exact position and nowhere else.

Resistance to abrasion from wind-blown sand was a key consideration. Nasir explains that the tubes are made from Duplex 2205, one of the hardest types of stainless steel.

“There was no standardized material that could follow the shape of the organic curves,” he says. “The tubes allowed us to maintain the curves as they were intended.”

The engineering challenges in designing the tubes, and then bending each one precisely, were fearsome. Such a facade had never been attempted. The German contractor Seele GmbH built new self-learning machines and wrote specialist software specifically for the task. There was only one chance per tube to get the bend and twist right—rebending was impossible—and the software also had to factor in spring-back in the steel by bending each tube fractionally farther than required. Tubes that would run across the building’s windows also had to be crimped to exactly a 12-millimeter thickness to form a louvre, allowing light to penetrate while keeping direct sun at bay and opening a view to the outside.

Conservation architect Oriel Prizeman has praised the

scheme’s technical ambition, writing in *The Architectural Review* that Ithra “deflects rather than cherishes light.” After dark each evening, more than 150 ground-level floodlights bathe this textured exterior in computer-programmed washes of changing images, patterns and colors.

Some have remarked on what they see as unsubtle symbolism in having an oil company’s building wrapped in miles of pipework, but close up, the effect—perhaps counterintuitively—is less industrial than organic. Ithra’s skin reminded me

of a fingerprint, or the intricate whorls of growth that mark the shell of a mollusk.

The angled pipework’s visual effect carries through, literally, from outside to inside. As you move through the plaza, the fabric of tubes wrapping each gigantic pebble of a building extends from high overhead right down to floor level. At the Great Hall, I rapped my knuckles on a section of tubework to hear the smooth metal resonate, and then slid my fingertips across the rough, pebble-flecked wall of rammed earth directly alongside.

“Building with an ancient technique [rammed earth] in harmony with a system that had never been done before [steel tubes] demonstrates how past and present can work together. It’s a message for our young engineers and architects,” says Alrashid.

Thorsen elaborates on the same thought. “When historical building methodologies and contemporary methodologies come together, you read a span of time even though you might not be quite conscious about it. Only when you start reflecting upon it afterward is when it comes to mind and you discover something new.”

The tubes retain the form and glitter of Snøhetta’s original concept while also keeping the building cool. They reflect heat

“We are communicating our culture abroad, and we want to communicate world culture here.”

—ABDULLAH ALRASHID

away, and they shade every exterior surface. They were a factor in Leadership in Energy and Environmental Design, or LEED—a global rating system developed by the nonprofit U.S. Green Building Council—awarding Ithra gold status, the second-highest tier.

Even as these innovative design solutions took shape, Al-Therman expressed Aramco’s conviction that architecture alone could not carry Ithra’s mission to transform society.

“It should not be about an iconic building. It should be about a great cultural program,” he says. “Not to cater to what’s accepted, but to elevate taste and thinking.”

In 2008 Al-Therman commissioned market research in 10 cities across Saudi Arabia, focused on what public expectations of an ideal cultural center might be.

“The key finding was that people wanted live and dynamic cultural experiences, not a gallery with paintings on the wall,” he says.

This not only put theater and cinema at the top of Ithra’s emerging list of priorities, but it also set the direction for outreach programs that, in the five years before the building in Dhahran even opened, engaged more than two million people.

Throughout 2013 and 2014, Ithra toured Saudi Arabia with a large-scale pilot program that included elements of the finished cultural center—a theater, a cinema, an art museum, a children’s zone—to test public responses. Half a million people visited each of four pilot locations. Ithra supported around 100 Saudi schoolteachers to receive training in the U.S. Internationally, Ithra-coordinated exhibits of Saudi contemporary art, live performances and screenings of work by Saudi filmmakers reached another half a million people in 40 U.S. states throughout 2015 and 2016.

That outreach continues today. “iRead,” Ithra’s annual literacy competition, has been fostering national debate around student-submitted book reviews since 2013. The Ithra Art Prize, launched in 2017, is open to Saudi and Saudi-based artists, with the winner exhibiting at the prestigious Art Dubai fair: The 2019 winner, Daniah Alsaleh, called it “transformative” for her career.

“The brand awareness of Ithra’s outreach programs was, until very recently, stronger than the brand of the center itself,” says Ithra’s head of programs Abdullah Alrashid. “We look at it as a two-sided arrow. We are communicating our culture abroad, and we want to communicate world culture here.”

A key vector for that is the 900-seat theater, the first major venue in Saudi Arabia to offer a year-round program of performing arts.

“Part of our work is to familiarize people with [what theater is],” says artistic director Elie Karam,

“Architecture is, on one hand, formal, and on the other hand, it’s conceptual, but it’s also contextual. We tried to create shapes and forms that were transferable into a discussion in the Arabic community.”

—BELAL NASIR

emphasizing how the country has no pre-existing stage tradition to draw on. He describes the variety of shows in the current season, from visiting European orchestras to Indian classical drama and a U.S. entertainment troupe. Plans are afoot to launch a national student-theater program.

Nearby in the 300-seat cinema, head of performing arts Majed Samman says Ithra is supporting Saudi filmmakers to transition from hobby shoots, often for online platforms, to professional

production. *Joud*, a film produced for Ithra by a joint Saudi-British team, premiered in September 2018. Nine more films are in production this year. Ithra is running monthly workshops to boost Saudi expertise in film, from cinematography and editing to sound design and production, and it is hosting screenings of local and international films that might otherwise struggle to be seen.

This model of building skills, enabling creativity and then showcasing results, extends to what is perhaps Ithra’s most ambitious project, the Idea Lab. This three-level workshop occupies the Keystone, that smallest of the five pebbles, wedged above ground between its neighbors. Fatmah Alrashid talks eloquently of her struggles to fill this unusual space, originally designed for the children’s museum.

“It’s important for the philosophy of the architecture, an area squeezed between pebbles—small but strong because it supports all the others, and hanging with a window looking down to the Source, a negative void that connects everything

“The Sun” by Edvard Munch evokes conversation between a father and daughter at Ithra’s exhibition of the Norwegian painter. “I think this part of the world deserves to see what the rest of the world has in terms of culture,” says Ithra Director Ali Al-Mutairi.





“It should not be about an iconic building. It should be about a great cultural program. Not to cater to what’s accepted, but to elevate taste and thinking.”

—FUAD AL-THERMAN

around it. It was very intriguing.”

She began to realize she had to turn the idea of cultural consumption on its head.

“All Ithra’s programs charge you up, but there was no outlet. You’re exposed to a lot that inspires you, but then what? How do we create a place where you can say, ‘I have an idea. What can I do about it?’”

Today, three zones comprise the Idea Lab. First comes Think Tank, a modest working area under the domed roof of the Keystone. Below it, Do Tank is a design and modeling room that includes a 3-D printer and a unique “materials library”—searchable racks displaying samples of textiles, plastics and several hundred other natural and synthetic products, all to offer inspiration to fabricators. Last is Show Tank, a mini-theater and display area for presentation and discussion.

Alrashid sees the Idea Lab as bigger than its physical space. “It’s like the brain. This is the place where things start, and then they spread.”

Creative Director Robert Frith notes that the Idea Lab is supported also by a network of collaboration that builds partnerships with Saudi institutions as well as global ones.

“Before the building opened, we were running as a creativity-and-innovation unit. That included [working] with local universities to have people in the community engaged with making and prototyping ideas. We’re about getting people to their next stage—putting an idea on paper, or modeling it, or testing it, or referring them on [for] business incubation,” he says.

Al-Therman calls Ithra’s emergence “nothing less than a miracle, because such a project goes against the conventional wisdom of Aramco. But if you think your biggest asset is people, then you need to nurture this asset. Ithra’s visitors are future Aramco employees. We hope one of the graduates from the Children’s Museum will be Aramco’s CEO in 50 years.”

A handful of cultural institutions worldwide that parallel Ithra’s combination of a multidisciplinary approach, innovative architecture and transformative ambitions have offered insights,

From top: Ithra’s 360 kilometers of perfectly bent, individually shaped steel tubes gives its facade a texture that has been compared to eroded stones, fingerprints, tree rings and seashells. Inside, there are few right angles or edges: Even walls curve into ceilings, and lines that appear to flow freely impart a sense of living space. White hexagons, microperforated to better absorb sound, wrap Ithra’s library in irregular patterns inspired by traditional Islamic geometric motifs. In the plaza, Arabian Peninsula petroglyph and agricultural motifs create patterns of openwork on panels of rust-colored Corten steel, created by Australian artist Belinda Smith. “Creativity and expression are an essential part of our daily life. They are not accessories,” says Fatmah Alrashid.



Projections celebrating Saudi National Day illuminate Ithra’s Knowledge Tower on September 23, 2018, as families arrive for an evening of music, art and festivities. “All the different elements at Ithra are trying to enrich the lives of the public,” says Abdullah Alrashid, head of programs. “Doing so in a manner that is very Saudi, but in a very global language.”

examples and lessons, Al-Therman says. He cites the Pompidou Center in Paris, Egypt’s Library of Alexandria and California’s Getty Center. Yet perhaps more than any of them, Ithra has become an attempt to demonstrate a new way forward for a society as a whole—inclusive, curious, responsive. Ithra keeps its ticket prices low enough to give it broad popular appeal—under \$10 in some cases—and the old Aramco Exhibit is now the Energy Exhibit, a fully-fledged science museum showcasing live experiments and interactive technology, which remains free. In its first 11 months, Ithra drew almost 700,000 visitors.

The focus is exceptionally long term, an effort to create enough engagement in arts and creativity to, as Abdullah Alrashid puts it, “instill a behavioral change.” Ithra embodies a mindset that aspires to reshape the very concept of public space in the kingdom.

Fatmah Alrashid identifies a source of inspiration.

“The idea of Ithra came from people who grew up in this region, who were exposed to similar circumstances and opportunities in this company. When we met and put our thoughts together, it’s as if we were all agreeing already,” she says.

There is a yet further vision. The currently empty expanses around Ithra have potential to grow into a district of culture-focused institutions. Local, and then national, social transformation is the goal.

“Ithra has become one of the most important ways that Aramco can both give something back to the Saudi people and also invest in them. It represents our commitment to growing human potential,” says Aramco President and CEO Amin Nasser,

under whose oversight Ithra was completed.

For Abdallah Jum’ah, it comes down to company sustainability.

“We wanted to transform Aramco into a responsible *international* citizen,” he says with emphasis.

“The only way we can do that is with people who understand the other. We needed a house not just for Saudi Arabia, but a house for the world.” 🌐



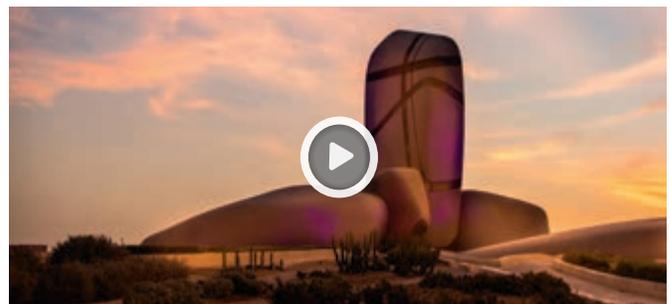
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When household items broke, the soft-spoken Farid says, he and his two brothers regularly tried to fix them, often successfully.

“So I guess that was just in my nature,” says Farid, an MIT graduate and cofounder of Spyce in Boston, a new kind of eatery buzzing with an unusually efficient type of food preparer—a robot.

It’s a captivating system relying on automated mechanics to channel ingredients into woks and then bowls. The fast-casual cafe in the city’s Downtown Crossing neighborhood has gained national attention for its innovations; Farid appeared on *The Today Show* in 2018 not long after the restaurant opened.

Farid, 28, says he spent a good amount of time in the kitchen in Dubai, where he grew up. He never tried to disassemble the family blender, but he did ponder better methods to handle the tedious task of stuffing grape leaves with meat, rice, garlic and other ingredients.

He hasn’t solved that problem. But his early idea offers some insight into why Farid grew up to be CEO of Spyce. He joined fellow MIT electrical and mechanical engineering graduates Kale Rogers, Luke Schlueter and Brady Knight to found the company. They knew each other well. All were teammates on the school’s championship water polo team and members of the same fraternity.

The robot theme at Spyce followed some of Farid’s earlier adventures. At MIT, for a class project, he built an electric, motorized skateboard to zip around campus. For that, he won the school’s Mechanical Engineering de Florez Award for ingenuity. He used the skateboard until it broke.

Farid studied robotics as an undergraduate and bagged third place in another robotics contest. But it wasn’t until graduate school when he was no longer on a university food plan that the idea of creating a robotic kitchen developed.

“I thought, ‘Wouldn’t it be great if there was a good, healthy, delicious and affordable food option?’ I guess you could say it kind of came out of frustration.” After more thinking, he hatched a plan to have robots produce meals

CHEF 2.0

Written by BRIAN E. CLARK

Photographed by KRISANNE JOHNSON

As the son of a pair of engineers from Egypt, Michael Farid grew up wondering how machines were put together.

efficiently and affordably. He pitched the idea to his friends. They agreed on the goal.

That was 2015, and the would-be restaurateurs—none of whom had any experience in a commercial kitchen—took a course on startups at the university’s Martin Trust Center for MIT Entrepreneurship. They completed their first prototype—one of many—through MIT Global Founders’ Skills Accelerator program, now known as MIT delta v.

Bill Aulet, who heads the center, praises the young engineers for their idea’s spunk, and for raising more than \$20 million to launch Spyce.

“They’ve progressed rapidly by getting some of the top people in the world to work with them,” says Aulet.

They received financial backing from the likes of Starbucks founder Howard Schultz and investment partner Dan Levitan. The pair run the San Francisco-based Maveron venture fund, which invests in technology-enabled, consumer-oriented businesses. The Collaborative Fund also put money in, as did famed chefs Thomas Keller, Jerome Bocuse and Gavin Kaysen.

Levitan says Farid and his team are strong.

Newberg, Oregon.

Rogers wrote the first wok temperature-control feedback loop in the kitchen and “hacked a window air conditioner to be a refrigerator for our first real prototype.”

At Spyce, after customers place their orders on electronic tablets, several “modules” kick into action. The first one is a box-like runner. It scoots along a line of silos behind a glass window and collects different ingredients for the dishes, including sweet potatoes, peas, chiles, tomatoes, peppers and kale, plus chicken, salmon and sauces. (They’re cut up offsite by real people in a commissary kitchen that contracts with casual restaurants.)

The metallic, orange-colored runner then zips to one of seven stations on the line and drops the selections into one of seven woks heated to 450 degrees. The woks rotate, mixing and cooking the sizzling ingredients within three minutes, filling the restaurant with aromas of cumin, coriander, grilled chicken and other mouth-watering smells.

The individual woks then tilt to drop the food into a bowl, which swivels out of the way and is collected by a real person who adds condiments such as cilantro, mint, sesame seeds, almonds, feta cheese and cucumber salad. Next, the wok dips down into a sink to be spray-washed and sanitized. It then rotates up, ready for the next dish.

“Keep in mind that the runner is always fetching the next meal, and there are seven woks running,” says Farid. “There is a lot happening.”

Inventors drilled the robot through many iterations before the process was perfected. It never acted up and threw food across the kitchen, but it did create plenty of messes.

“We spent a lot of time cleaning up after our failed experiments,” Farid admits.

The most embarrassing incident occurred when a potential backer checked out the first prototype. It



“In the early stages of a company, nothing matters more than the people,” he says. “Michael and his cofounders are super smart, highly motivated and, as we like to say, unapologetically non normal.”

Rogers, one of those cofounders, says he has been eating with Farid since their freshmen days during preseason training for the water polo team. Like Farid, Rogers spent time cooking with his mother growing up in

Above: On a warm July afternoon in downtown Boston, the patio at Spyce is popular. **Right:** An ordering tablet offers Spyce’s global-fusion, one-bowl dishes created under the guidance of Michelin-starred chefs Daniel Boulud and Sam Benson. **Opposite:** Cofounder of Spyce Michael Farid, 28, stands in front of the array of robotic woks that turned an idea into a thriving business.





As customers order on Spyce's electronic kiosks during the lunch-hour rush, several robotic modules kick into action. First, a "runner" moves along a line of ingredient-filled silos, picking just the right vegetables, protein, rice and sauces. Then it zips to one of seven 450-degree woks. Elevated circular screens keep customers aware of the progress of each order.

performed flawlessly until the very end, when the inventors realized, much to their dismay, no bowl was in place to receive the meal.

The food spilled all over the counter.

Says Farid: "That person did not invest."

But the young entrepreneurs learned from the experience and installed a sensor to alert them when bowls needed to be replaced.

Spyce isn't the only restaurant experimenting with robotics. In San Francisco, hamburger joint Creator uses a machine with numerous sensors and actuator mechanisms to produce burgers.

And to the south in Mountain View—part of Silicon Valley—the pizza joint Zume can reportedly produce a pie in 22 seconds with the aid of robots named Giorgio, Pepe and Bruno.

Farid says people often ask what's the runner's name, but he says they have no plans to give it a moniker. And while it occasionally has hiccups and needs to be maintained, he says it runs well. It never calls in sick, is always on time and never complains.

"I'd rather you know the names of the staff than the runner," he says. "I'm proud to say we get lots of compliments on our customer service."

As the robot handles repetitive tasks, staffers can focus on interacting with customers, he says.

"In your typical fast-casual restaurant," notes Farid, "most of the workers are in the kitchen. We always try to have someone out by the ordering kiosks helping people place their orders and answering questions."

The robot also helps solve what Farid says is the difficult problem of finding enough restaurant workers in Boston, where the unemployment rate in June was at three percent, well below the national figure of 3.6 percent, according to



state figures. And the robot saves kitchen space, which helped in finding a location in expensive Boston.

In the coming years, Farid says he sees more automation for the restaurant world. He's not worried that traditional restaurants will disappear though.

"Dining out is an intrinsic part of many cultures and will continue to flourish as chefs create the next food trend that catches the hearts and minds of consumers," says Farid.

"In the area of quick service, though, where the point is to feed people affordable meals nourishingly, there will be more technological innovation. It may not be as fast as some have predicted, but we'll see more restaurants adapt and use new techniques to make food service more efficient."

Spyce has one nod to Arab cuisine on its menu: a Lebanese bowl made of roasted chicken, lentils, white mushrooms, cherry and sun-dried tomatoes, fresh dill, tahini, feta and cucumber salad. Other choices include Korean, Thai, Indian, Latin and pasta dishes, all served in compostable bowls.

Most of the bowls have a rice base, but diners can order the Lebanese selection with freekeh, a wheat grain that Farid says has been a staple in Middle Eastern diets for centuries. Each bowl starts at \$7.50, which is less than nearby



Left: Though cooking is robotic, the human-to-human experience is the most important ingredient, says Farid. Orders are finished by Spycy “garde mangers” Autumn Lopez, left, and Sofia Morales, right, at the garnish bar. **Right, from top:** After cooking, the robotic wok tips the meal into a bowl, ready for garnishing. Ready to eat are the chicken and rice bowl, and two variations of the Thai bowl.



restaurants with similar offerings. Patrons can add proteins at extra cost.

Farid credits his mother for developing his interest in food.

“My mom was a great cook,” he says. “She made me care about the food she was serving me and my brothers.”

Farid says he and his partners continue to finesse the menu.

“The vision we have for it starts with it being globally inspired because there are flavors to be celebrated from around the world. We’re working on a couple of new Middle Eastern-inspired dishes, though nothing specifically from Egypt.”

Though Farid and his colleagues figured they had a handle on robotics, early on they realized they needed help with recipes. On a whim and a prayer they emailed Michelin-star chef Daniel Boulud, who runs restaurants in New York, Boston and around the globe.

To their surprise, Boulud was intrigued. He visited and later signed on as culinary director. Sam Benson, of Café Boulud in New York, is the executive chef for Spycy.

When I stop by Spycy, I choose the Lebanese bowl because I have never tried freekeh. I find it nutty and tasty, as is the entire dish. A side of cucumber salad proves so satisfying I ask employee Autumn Lopez for another scoop. She provides it with a smile.

Chatting with Farid, I tell him I doubt whether a robot would have been so obliging. “Exactly!” he responds.

Though some people who are new to Spycy might expect a human-free experience, the restaurant has five people working

when I visit again and sample a Korean bowl with salmon. One employee is helping customers at the kiosk tablet, while three garnishers keep busy behind the counter.

It’s lunch time, and the restaurant’s 15 seats are full. Soon there is a standing-room-only crowd. A supervisor in checkered tennis shoes and a sports coat keeps things flowing. Farid says most customers take their bowls to go.

So what does Farid’s mother think of Spycy?

“She’s thrilled and thinks the restaurant is awesome,” says Farid, who cooks with her in his own kitchen when she visits. “She’s been very supportive since it started.”

Farid says he and his fellow Spycy Boys, as they were jokingly dubbed at MIT, are planning to launch another restaurant soon using similar technology.

And as for using a robot to wrap ingredients in grape leaves? Farid says his mother still chides him about it, and the solution remains a wok in progress. 🌐

RIGHT, SECOND AND FOURTH FROM TOP: SARAH STORRER



Brian E. Clark is a Wisconsin-based writer-photographer and *Milwaukee Journal Sentinel* columnist who contributes to publications including *The Los Angeles Times*. **Krisanne Johnson** (krisannejohnson.com) is a Brooklyn-based photographer whose work has been exhibited internationally and appeared in magazines and newspapers such as the *New York Times*, *TIME*, and *Fader*. Johnson holds a Master’s degree in Visual Communications from Ohio University. Since 2006, she has been working on personal projects about young women and HIV/AIDS in Swaziland and post-apartheid youth culture in South Africa.



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In the mid-seventh century, the Arab expansion reached the Mediterranean Sea, which was dominated then by the Byzantine Empire. In much the same way the sea was a field of power for Byzantine fleets, so, too, would the desert become for the Arabs—an alternate, rival realm. From it, their influence would spread across North Africa and southern Europe. Where this started was Kairouan. Now a midsize city in central Tunisia, it was for more than four centuries North Africa's leading link between East and West, a capital of power and the cradle of North African Arab culture that endures today.

Africa's FIRST CITY of Islam

Written by
**ANA M.
CARREÑO
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Photographed by
**RICHARD
DOUGHTY**



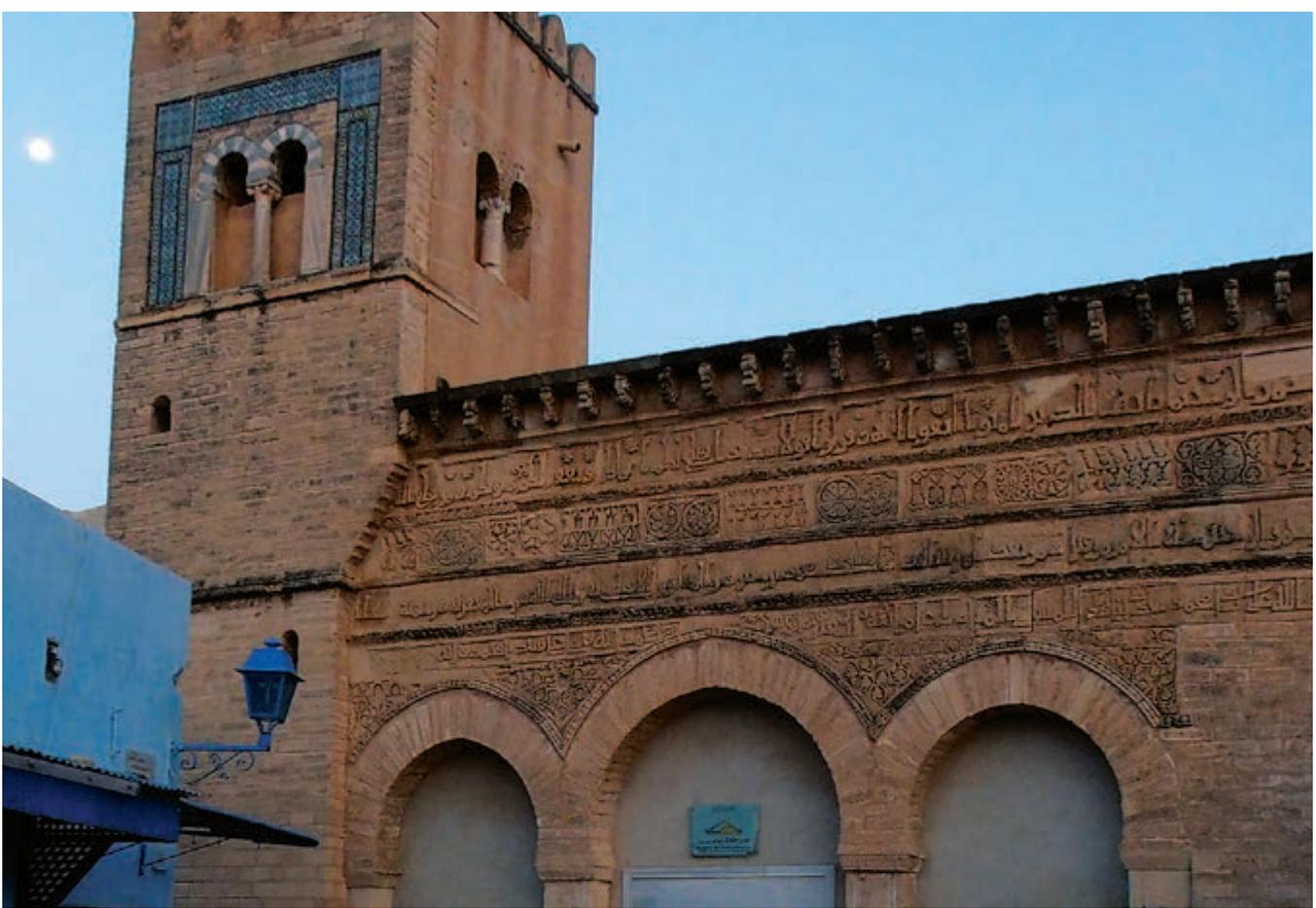
Built in 670 CE and reconstructed in the early ninth century, the minaret of the Great Mosque of Kairouan, **opposite**, became an architectural template in North Africa and al-Andalus, or Muslim Spain. Kairouan rose in part to challenge Byzantine seaports such as Carthage, **left**, where a column stands amid the ruins of what were once extensive seaside public baths.

It took the Muslim Arabs some 50 years to dominate central North Africa, which they called *al-Maghrib al-Adna* (the Nearest West) and the Romans called Ifriqiya. (Today this includes western Libya, Tunisia and eastern Algeria.) The Byzantines, with their stronghold at Carthage, ruled the coasts. Inland, Berber tribes controlled the oases. Arab general ‘Amr ibn al-‘As, who was sent to take control of Alexandria in 643 CE, 11 years after the death of Prophet Muhammad, afterward kept going west. With him was a nephew, a young officer named ‘Uqba ibn Nafi. According to Arabic sources, Ibn al-‘As sent his nephew on at least one raid south into central Libya. Though the Arab army was unable to hold onto any of the

coastal ports and towns, Ibn Nafi’s experience proved valuable.

Twenty-seven years later, the caliphate—by then based in Damascus—decided to resume the campaign into North Africa. One of its goals was to establish a permanent base. Caliph Mu’awiya appointed Ibn Nafi to lead it.

Ibn Nafi’s chosen site lay on an inland plain one day’s march from the sea—a safe distance from the Byzantine navy—and at an equally cautious remove from the highlands sheltering Berber tribes that variously allied with and fought the Arabs. Ibn Nafi named his site *al-Qayrawaan*, which Arabized the Persian word for caravan and today carries an English meaning close to “garrison camp.” Early Arab historians recount the site had been previously settled by both Romans and Byzantines, but it had fallen to ruin.



Arabic sculpted in Kufic script, rosettes and vegetal designs dating from 866 CE make Kairouan’s Mosque of the Three Doors a virtual catalog of Aghlabid motifs and the oldest Islamic ornamental facade standing today. The reliefs identify the mosque’s founder, Muhammad ibn Khayrun al Mu’afiri al-Andalusi—a name that highlights the relationship that thrived for centuries between Kairouan and al-Andalus, which the Arabs entered in 711, four decades after founding Kairouan.

It proved an intelligent strategy. After constructing a large mosque and government house, it was from Kairouan that 12 years later Ibn Nafi and an Arab army set out farther west. Some sources claim he reached as far as the Moroccan coast.

Though he was ambushed and killed on his return to Kairouan by Berber rivals, his unexpected success helped leaders who followed to envision what became the further expansions of Muslim Arab power. Kairouan became the headquarters and the essential junction toward the rest of northern Africa and, after the Arab conquest of Iberia in 711, Europe. The reach of Islam and the cultural influences that followed exceeded those of any former civilization. In addition to Iberia, which became “al-Andalus” after its previous Vandal rulers, these extended along the entire southern Mediterranean coast, the Atlantic coast south into the Senegal River basin, and inland to the Sahara and the cities of the Niger River.

“Kairouan was born in a hostile environment, disputed and coveted by too many dynasties to name from the beginning,” explains Mourad Rammah, 66, a local historian and president of Kairouan’s Association to Safeguard the City. The association, he says, helped the city achieve its listing as a UNESCO World Heritage Site in 1988. Rammah descends from the Qays family, one of Kairouan’s oldest families that arrived with—or shortly after—Ibn Nafi himself. One of Rammah’s early-14th-century ancestors, Abu Abdallah al-Rammah al-Qays, was the city’s leading *faqih*, or jurist, as well as imam at the Great Mosque.

The governor’s house that Ibn Nafi built did not endure

long, but the mosque, Rammah explains, was built on a such a grand scale that it could only have come from an early vision of a glorious, powerful city. Today it is the oldest mosque in North Africa. It has been rebuilt and renovated several times, most completely in the ninth century under the Aghlabids, whose rule marked the peak of Kairouan’s power.

Writing at the end of the 10th century, Arab geographer al-Muqaddasi described Kairouan as, “more inviting than Nisapur and bigger than Damas [Damascus], more prestigious than Isfahan.” Yet he was also a critic. “Its water is not good,” he wrote. “Its collection is done by storing rainwater in reservoirs.”

Al-Muqaddasi was referring to what was then the most advanced water supply system in any contemporary Islamic city: A century earlier, the Aghlabids had built 15 circular pools outside the city walls and filled them from rainwaters and the nearby *wadi*, or seasonal water channel. The largest pool was 128 meters in diameter and nearly five meters deep. It even had an octagonal tower in the middle where royals and high officials could relax. Today, the city conserves four of the cisterns as a public park and historic site.

Fouzi Mahfoudh is the general director of the National Heritage Institute in Tunisia’s capital, Tunis. The institute’s offices occupy a much-remodeled 11th-century palace that in the mid-19th century served as the town hall. Located in the heart of its *madina*, or old city, it is worth noting that on the patio to which Mahfoudh’s office opens,

one can see the beauty of tiles belonging to different periods that integrate local and Italian influences.

Although Kairouan marks “the foundation of a country on the road of conquest,” Mahfoudh says that the city’s greatest importance comes from being Islamic North Africa’s “first point of culture” in religion, science, scholarship, law and architecture. It was in Kairouan, he explains, that the first university on the African continent was founded in the early 800s. Though it never carried a formal name, it influenced the founding of what is today the oldest continuously operating institution of higher learning in Africa, the University of al-Qarawiyyin in Fez, Morocco. It was started in 859 by a woman descended from ibn Nafi’s line, Fatima al-Fihri. To the east in Egypt, the Fatimid dynasty modeled Kairouan’s institution in 970 CE when founding the University of al-Azhar in Cairo. Also in Kairouan, says Mahfoudh, in the ninth century there was a multidisciplinary *Bayt al-Hikma* (House of Wisdom), along the lines of the one in Baghdad, that helped make the city a beacon of learning.

Spanish historian Luis del Mármol Carvajal, who wrote his accounts of the region in the 16th century, tells us that “in ancient times, people from all over Africa came to this university [in Kairouan], in the same way as the French go to Paris and the Spanish to Salamanca, and its elderly writers and doctors boasted that they have studied there.”

This rich exchange, Mahfoudh continues, “took place not only with the Arab Islamic world, but also with Europe.” Commerce helped expand relations with the African city, and propelled the expansion of knowledge and artistic influences. “The city became a laboratory of religions and cultures. It was a crossroads where elements taken from the west, such as Berbers, met Arabs from the east, and also Jews and Christians, too.”

“Kairouan was born in a hostile environment, disputed and coveted by many dynasties from the beginning,” explains historian Mourad Rammah, president of Kairouan’s Association to Safeguard the City, which produced the map, **above**, of Kairouan’s historic core comprised of more than 2,000 buildings and lived in by some 17,500 people. **Lower**: Two of the original 15 cisterns, built in the ninth century by the Aghlabid rulers, now serve as tranquil centerpieces to a public park and historic site.



Arab writer al-Ya’qubi, in the late ninth century, noted the presence in Kairouan of “Arabs from Quraysh, from Mudar, from Rabiya, from Kahtan and other tribes, too; Persians from Khurasan; finally, Berbers from Rum and still others.” Funerary inscriptions in the National Museum of Islamic Art



in nearby Raqqada (see sidebar, p. 32) show that Kairouan's Christians kept their use of Latin throughout the city's centuries of influence.

"Regarding the importance that the scientific field had in Kairouan, and only as some examples, for there are many," Mahfoudh says, "we can mention two exceptional ones: the most celebrated [10th century] doctor and pharmacist, Ibn al-Jazzar, and Constantine, who was called Constantine the African, who introduced advances in medical science in Europe through the universities of Salerno and Montpellier." Of Ibn al-Jazzar's 43 known works, 10 have been preserved, most notably his general therapeutic manual *Zad al-Mussafir wa-qut al-hadir*, translated into Latin as *Viaticum peregrinantis*, which was used in Europe through the 16th century.

Constantine the African, Mahfoudh says, was a Christian who is generally believed to have studied in Kairouan before going on to teach medicine in Italy at Montecassino Abbey. There, he was also called "the Master of the East in the West," as he devoted his energies to the translation of Arabic treatises, many of which he had carried there himself. His translations became fundamental almost a century and a half before Sicilians, Toledans and Venetians undertook systematic translation of medical and other scientific texts from the East.

Being such a renowned city, it is also not surprising that Kairouan became a famous destination for geographers and historians. (It has also been a destination for generations of

With its hypostyle prayer hall opening to a plaza lined on three sides with shady, arched porticoes, the Great Mosque of Kairouan's size made it an immediate landmark of piety and power that remains an active house of faith and the city's most popular visitor attraction.



pilgrims, with many claiming that Kairouan is the "fourth holy city of Islam.") The travelers' accounts, and the ways they portrayed the city in different times, illuminate the rise and eventual fall of the city's urban and social fortunes.

Tenth-century geographer Ibn Hawqal is author of the *Kitab fi surat al-ard* (*Book on the Configuration of the Earth*). He was born in Mesopotamia, and his works included economic and political geography. Visiting Kairouan, he described it as the following:

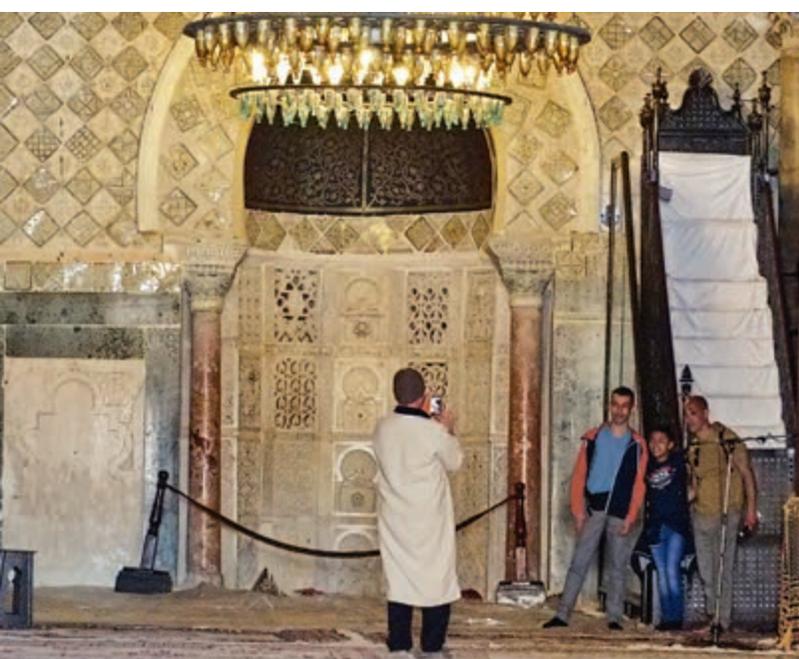
one the most important cities of the Maghreb, being above all others given its trade transactions, its wealth, the beauty of its buildings and markets. It is also the headquarters of the administrative power of all the

Maghreb; here was where the tax collections took place, and the place for the government residence.

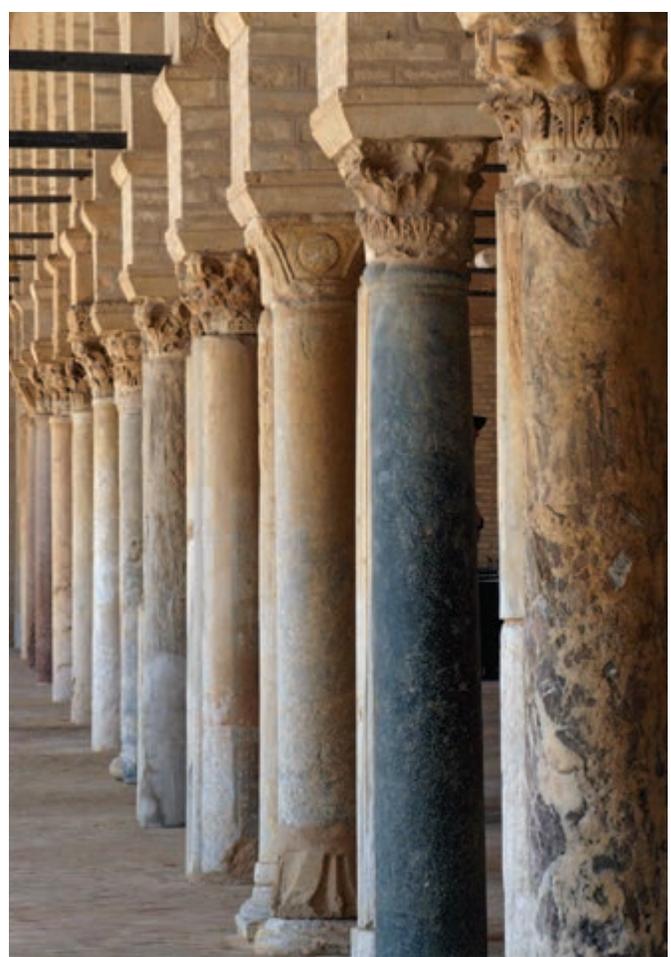
A century later, geographer al-Idrisi, from al-Andalus, described the city in words very much like Ibn Hawqal's. However, he also wrote of its recent decline in his *Kitab nuzhat al-mushtaq fi ikhtiraq al-afaq* (*Book of he who desires to journey through the climates*):

This city is the mother of all metropolises and the capital of this setting. It was one of the most important cities in the Maghreb... In its prosperous times, it had three hundred baths, the most part of them in private homes, and the rest open to the public. Now it has all become totally destroyed and depopulated.





Decorated with shimmering, diagonally set lusterware tiles imported from Iraq in the mosque's earliest years, the *mihrab*, or prayer niche, **above**, is believed to be the oldest part of the mosque. The oldest materials, however, are the scores of Roman columns and capitals, **right**, brought from sites that had fallen to ruin. Later construction included the intricately ornamental vault and dome of the mosque's west door, **left**, which was added in 1294 CE.



Hassan al-Wazzan, the diplomat and traveler of the 16th century known in Europe as Leo Africanus and author of the *General Description of Africa*, noted Kairouan's attempt to recover:

Nowadays, the city ... starts to be repopulated, in a miserable way though. We can only see poor craftsmen, most part of them goat and sheepskin tanners who sell their leather garments in Numidia, where European fabrics cannot be found. This craft provides them a hand-to-mouth existence.

What happened? Indeed, from the 10th century, cities such as Tunis, Marrakesh, Fez, Tlemcen and others had risen in power, weakening Kairouan's role. Dynastic conflicts, too, took a toll. Kairouan's population declined, although it maintained its importance as a pilgrimage center. In the late 10th century, the increasingly powerful Fatimid rulers moved their capital from Kairouan to their new city on the Nile,

al-Qahirah (the Victorious)—Cairo. The economic and political blow was crippling. A plague followed some decades later. The coup de grâce came in 1045, when the nomadic tribes of the Bani Hilal began pillaging the city, and the region reverted to a largely pastoral economy.

Rammah says although Kairouan never again reached its former heights of achievement, its legacies shaped North Africa and Europe. "The intellectual basis of the western Islamic



RAQQADA: *The Palace Suburb*

When Kairouan was appointed to join the World Heritage List of UNESCO in 1988, one of the sites not in Kairouan proper that led the list was Raqqada. Ibn Hawqal wrote that “outside [Kairouan], there was a place named Raqqada, rimmed by the big mansions of the Aghlabid family.” Al-Idrissi observed that “the castles of Raqqada rose up, so high and well built, surrounded by so many gardens and orchards.” Located about 10 kilometers south of Kairouan, Raqqada was a royal retreat built and later abandoned by the Aghlabids. Nearly 1,000 years later, it was used by the first president of independent Tunisia, Habib Bourguiba. The residence he built was donated to the city in 1978, while he was still president, for the purpose of creating the National Museum of Islamic Art, which opened in 1986.

Built in a style that traces to al-Andalus, its green glazed ceramic roofs, its courtyards and gardens also recall riyads in Morocco and the palaces of the Alhambra as well as others in Morocco and al-Andalus. The three-portal facade that opens to the main garden, however, pays *homage* to Kairouan’s own Mosque of Ibn Khayrun, also called The Mosque of the Three Doors. Built in the ninth century, it is the oldest facade sculpted in Arabic calligraphy.

Curator Zouhair Chehaibi shows with pride the museum’s galleries of woodwork, ceramics, tiles, coins and calligraphy. Especially important to understanding the complex history of the region, he explains, are the inscriptions on so many of the objects, including funerary steles, friezes, memorial doors and manuscripts. “All testify to the lineages of dynasties and populations of the city,” he says.

Right: Motifs on a glazed dish made in Kairouan between the ninth and 11th centuries show Berber (Amazigh) influences. **Far right:** This marble funerary stela was engraved in Kufic Arabic script in 893 CE, during the era of Kairouan’s greatest power. Both are on display at the National Museum of Islamic Arts, where the portico, **lower**, echoes Kairouan’s Mosque of the Three Doors, and the collections are curated by Zouhair Chehaibi, **lower right**.



world was coined here,” he says. In daily life throughout North Africa today, this can be seen in the practice of Islamic law: Kairouan was the center for the development of the Maliki judicial thought, which today is one of the four main schools of law in Sunni Islam and the one predominant in North Africa.

In architecture, the Great Mosque of Kairouan projected

influence that can today be seen everywhere. Its simple, square minaret is now a solid and weighty contrast to the graceful, sky-piercing minarets built in later times to the east in later capitals. Kairouan’s minaret became a model that influenced designers of other minarets to the west and north. In Córdoba, Spain, the original minaret of the 11th-century mosque,

Right: Trained in the Malaki school of law that flowered in Kairouan and commemorated today with a statue in his hometown of Tunis, Ibn Khaldun lived in the mid-14th century and became a key figure in the philosophy of history. His “was a scientific and spiritual relation” with Kairouan, says National Institute of Heritage President Faouzi Mahfoudh, **lower right**, who calls Kairouan Islamic North Africa’s “first point of culture.” **Lower:** A medical supply store in Kairouan remembers its most famous doctor, the 10th-century physician Ibn al-Jazzar.



around which the current cathedral tower was built, is much like that of Kairouan’s: three square cuboid layers topped by a domed cupola. From Tunisia west, nearly all minarets today are also square.

The Great Mosque’s 32-meter-high minaret remains the tallest building in Kairouan. Though now approached most often by car, the main streets still lead to it. As for travelers of old, it appears silhouetted on a hazy horizon, a hint of the reverent grandeur within its arcade-ringed plaza and column-forested prayer hall. It remains a kind of lighthouse of the desert, amid the scrublands and irrigated farms that, closer to town, give way to apartment blocks and shops, poles and wires, all the way to the old city walls. There, near the mosque, in between prayer times, tour buses lumber up to its doors and visitors disembark, spend an hour, take photos, and then return the space to silence until worshippers return for the next of the day’s prayers.

Outside the mosque hums the old madina, whose winding, pedestrian-only streets mix delapidation and restoration of more than 2,000 homes and small businesses for 17,500 residents, says Rammah. The urban pattern established here, he



adds, separated craft guilds and set up rules for types of public and private spaces that, like the minaret, were imitated by other cities throughout Islamic North Africa.

In citing the city’s “universal value” as a World Heritage Site, UNESCO enumerated a total of 36 monuments in Kairouan, an “exceptional witness to the civilisation of the first centuries of Islam in North Africa.” Despite these accolades and the city’s long and many influences, Rammah laments that visitors remain relatively few compared to the many more who chase sun and sand at Tunisia’s coastal resorts. 🌐



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Richard Doughty is editor of *AramcoWorld*.



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EGYPT DROPS THE BEAT

WRITTEN BY **Tristan Rutherford**

PHOTOGRAPHED BY **Rebecca Marshall**

In 1944 Halim El-Dabh lugged a suitcase-sized predecessor to the magnetic tape deck, called a wire recorder, to a folk ritual known as a *zar*. Although he was studying agricultural engineering at Cairo University, El-Dabh was also a budding avant-garde composer who had grown up amid the Egyptian capital's flourishing music and recording scene. After the *zar*, he took the recorder to a nearby radio station in Cairo. There he used echo chambers and voltage controls to manipulate the trance-like vocals, drums and tambourines that lay in the magnetized spool of metal wire. In this way, the world's first electronic track was born, "*Ta'abir al-Zaar*" ("Expressions of the Zar," which El-Dabh later called "The Elements of Zar"). Its haunting synthesized sounds can be found today excerpted on YouTube.

El-Dabh went on to sample everything from scrap metal clangs to *qanun*, or zither, twangs. Bending, shaping, overlaying in pursuit of what he called "inner sound," he "looked at sound like a sculpture," he said in a 2005 interview. A Fulbright scholarship in the early 1950s took him to the us, where he went on to six decades of aural experimentation that often combined ethnomusicology and new technology. Although he remains little known even in Egypt, El-Dabh is generally recognized as "the father of electronic music."

In the late 1990s, a second Egyptian electro-music evolution arose. It, too, involved students who, like El-Dabh, used

the technology of the day—in this case early computers—to sample everything from Bedouin singers to *riqs* (tambourines) and Western instruments. Many attended universities abroad where they explored the dance beats of house, techno and trance. Degrees were not all they brought home: There were vinyl records, Technics turntables and mixing boards. Electronic raves followed, often advertised on photocopied



flyers with an entry password.

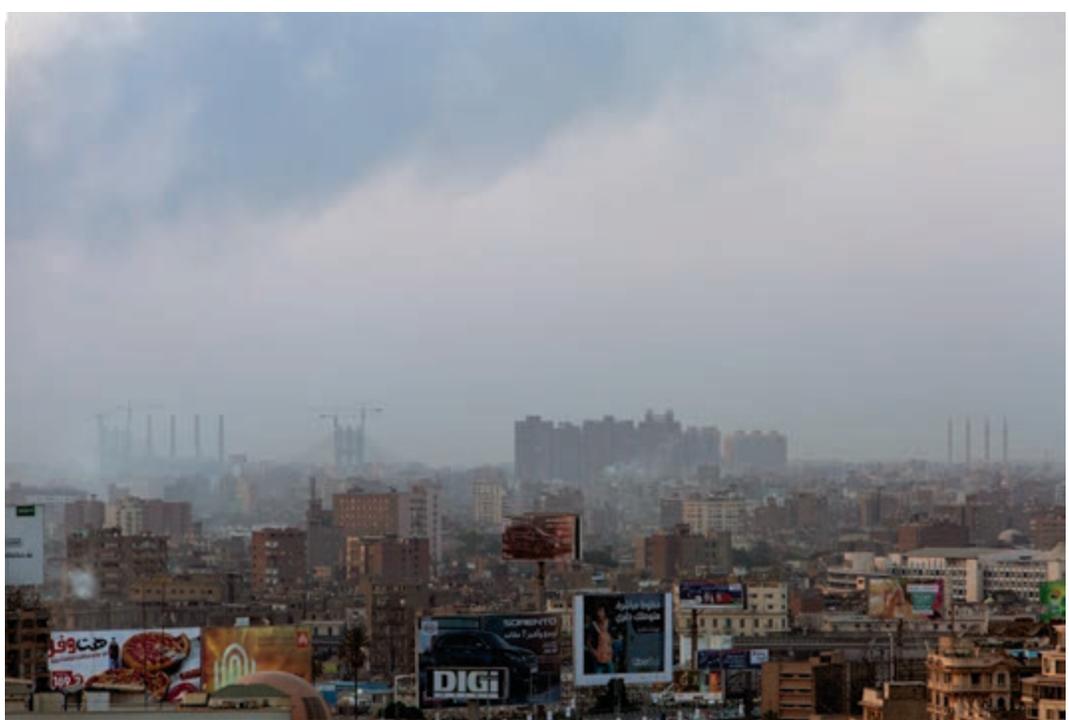
Producers Hussein Sherbini and Mahmoud Shiha, both 32 years old, remember the scene.

“As so few people had the necessary music tech, I played my first gig aged 16,” Sherbini recalls. “Laptops were scarce, and we carried my entire computer with a big box screen” into private parties. Because the latest vinyl was hard to come by in Cairo, Sherbini and Shiha figured out how to craft live music on the spot using early versions of the software Fruity-Loops, which “could synthesize any sound.” They recall that occasionally foreign DJs and electronic artists would fly in and play venues barely suitable for a hands-in-the-air stomp. Paul Oakenfold played a private, Nile-side wedding; Seb Fontaine rocked the Sakkara Country Club. The creative influences on Egyptian ears were pretty much one-way from the West.

It was up to pioneers like Sherbini, Shiha and others to start moving them in other directions. Egyptian pop musicians, says Shiha, “have essentially been singing the same song since 1989.

So we thought, ‘Let’s open a music studio and see what we can create.’” After a few years supporting themselves with advertising jingles produced in the house of a friend’s grandmother, they opened EPIC 101 Studios in 2011. The location is nothing fancy: It’s an apartment in Dokki, a neighborhood across the Nile from downtown.

Crucially, says Shiha, it had windows facing the street,



“We had zero idea how to do this,” says Hussein Sherbini, left, of his cofounding of EPIC 101 studios in 2011 in Cairo with Mahmoud Shiha, right. The duo has since helped some 800 students, “from 13-year-olds to 50-year-olds,” find their electronic grooves. At the Sandbox Festival in El Gouna, they set up a demonstration stage, **opposite**, where festivalgoers sample electronic gear.

which meant “we could put our sign in the window rather than on the street, so we pay less taxes,” he says with a laugh. Quotes for soundproofing were extortionate. “So we went on YouTube to learn soundproofing, wiring and glazing and did the lot ourselves.” Success has followed. By creating both sounds and electronic visuals, they won a commission for a Doritos commercial in 2014. Then, in 2015, they produced





Musician and producer Nomad Saleh, **above**, recently brought French electronic artists together with traditional Egyptian desert musicians at the remote oasis of Siwa. **Center**: Cairo-based Karim El Zanfally and DJ Gaser El Safty perform live as The Meteors Project, layering tempos and musical geographies on Sandbox's main stage. The festival's smaller stage, **right**, offers a club-sized space for artists such as Cairo-based Zeina, **opposite, top right and lower**. "In Egypt, if you have something noble to say, the crowd is with you," she says.



visuals for top Egyptian pop icon Amr Diab. A more recent job projected animated, psychedelic visuals onto the facade of Cairo's British Embassy, while a digital avatar of Queen Elizabeth II waved from a 3-D balcony, all set to throbbing beats.

Other Egyptians began to join the party. EPIC 101 Studios began supplementing production income with courses in DJ-ing and composition, as well as visuals production. "Thirteen-year-olds to 50-year-olds, around 800 students in all," says Sherbini, have shown up. "You need no electronic experience. You just have to want to do it." Sherbini and Shiha each write and run several courses, while other courses are guest-taught by digital stars like Egyptian electro-chill master Slim Nasr. A new, larger studio is in the pipeline—as are opportunities for the studio's graduates to perform live—and they are producing free tutorial apps in Arabic.

Word of the scene spread outside Egypt, too. Aspiring DJs and musicians from Britain and Germany found EPIC 101's fees could be as little as one-tenth of the cost of comparable courses at home. The studio's eight years of business has also

paralleled the growth in social media, broadband internet, WiFi and streaming, as well as collaboration music platforms, all of which help them link with artists near and far. Now DJs anywhere can find tracks by Shiha and others. New songs are streamed on music-sharing platforms like SoundCloud, Mixcloud and Beatport with no need for recording labels, distributors or industry media buzz. At the same time, the partnerships and influences among Egyptians and other DJs were blossoming online, culminating in a plan to find a physical meeting place. The annual Sandbox Festival, a thumping celebration of house and electronic music, was born and is now held every spring in El Gouna, where the mountains of Egypt's Eastern Desert meet the Red Sea.





As much as El-Dabh's wire joined acoustic tradition with electronic avant-garde, the highway from Cairo south to El Gouna remixes medieval and modern. In downtown Cairo, hand-painted movie murals compete alongside flashing digital LED billboards. Art Deco mansions bestride Mamluk mosques. Bicycle deliverymen take orders by WhatsApp for wicker trays of *'aysh baladi* flatbread that they balance on their heads amid multilane traffic. Young couples wear matching Liverpool FC shirts in homage to local football hero Mohamed Salah who, at age 26, is older than half of Egypt's 100 million population. Leaving Cairo is a maelstrom of watermelon trucks, upscale Land Cruisers, vintage Beetles, police Jeeps, honking commuters and revving scooters.

Electronic musician Nomad Saleh, 39, is one of the 4,000 global revelers on the road to Sandbox. He opens up on the new 10-lane highway that skirts the site of Egypt's proposed new capital, which will one day host much of the government alongside artificial lakes, solar farms and a massive theme park. Saleh, who ditched a chemical engineering degree to become an electronic composer and photographer, explains that with high-speed internet and the 2011 revolution, "Egypt is changing fast." The revolution had a side effect on the music scene when nighttime curfews obliged clubs to stay open until daybreak.

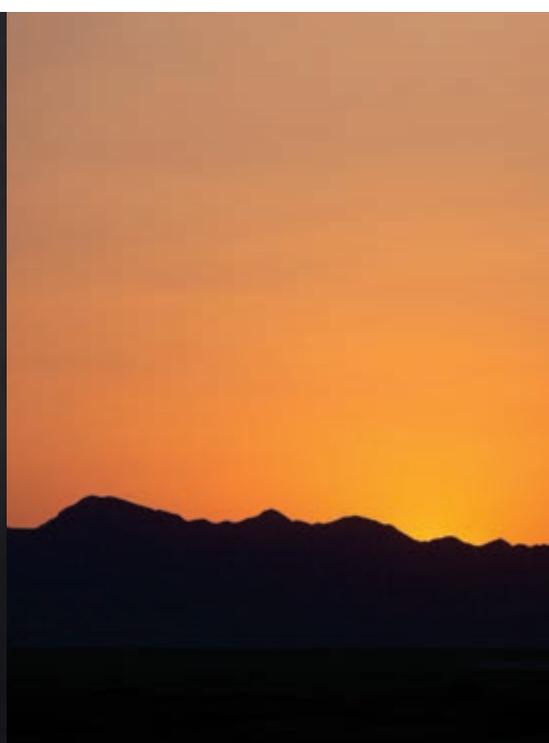
"In electronic music, we have pioneers like DJs Aly & Fila, who play all over the world," he says, referring to the trance duo with two million Facebook followers and more than 200,000 views of their dreamy 2015 set at the Giza pyramids. As he talks, his phone pulses and bleeps from a peer-to-peer app sharing real-time alerts of checkpoints and speed cameras.

"Electronic music has even touched a different social class with *mahraganat*," continues Saleh. The word literally translates as "festivals," although it has evolved to mean an electronic hybrid of traditional *shaabi* (popular) music from Cairo's working-class suburbs, often performed with spectacular gymnastic dancing as revelers wave the kinds of flares normally used for roadside emergencies. It took hold in a big way during the 2011 revolution with lyrics often laced with

antiestablishment invective, not unlike American hip-hop. Also like hip-hop, *mahraganat* was at first starved of official airplay, so it spread via MP3 files swapped among basic Nokia cellphones and played in taxis and tuk-tuks. Low-tech YouTube tracks that didn't use video at all still attracted tens of millions of views. Would Saleh attend a *mahraganat* gig? "Probably not," admits the musician. "Our scene is very tribal." But since the revolution, TV ads have used *mahraganat* to sell washing machines and car insurance. Even DJ and superstar performer Diplo jetted over in 2017 from Los Angeles to meet rough-hewn singers in Salam City—an ungentrified district that the Egyptian Tourism Authority prefers to ignore.

Saleh's own interests tally with this emerging electronic role reversal: Western musicians are flying to Egypt in search of everything from inspiration to innovative riffs to lay over beats. After turning right near Suez, Saleh Bluetooths a chilled oriental collaboration with the French group, Pandhora. "These guys wanted an immersive experience, so I took them to Siwa,"

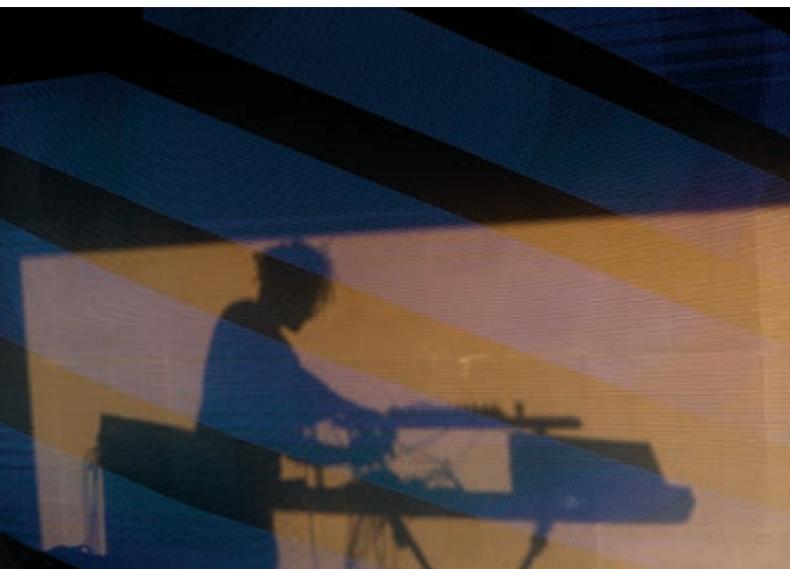




Above: DJ Safi helped found two radio shows in Cairo that featured contemporary Egyptian music on his way to becoming one of Egypt’s leading electronic DJs and producers. **Right and opposite:** Mountain sunsets and flat sand beaches in El Gouna set an elemental stage for the annual Sandbox Festival, where Safi’s DJ set, **opposite, lower**, was one of 18 Egyptian performances.

he says, describing the oasis of palms and canals deep in Egypt’s Western Desert. There, Saleh matched their MacBook Pros and Akai Force synthesizers with traditional instruments. “It was basically a one-week jam lit by lanterns and shooting stars,” Saleh recalls. The forthcoming album is simply titled *Siwa*. They tweaked the production online by sharing the audio files. When they decided they needed a backup singer, Saleh commissioned a Cairene songstress. Did Pandhora meet her? “There was no need.” Did Saleh meet her? “Only on WhatsApp.”

As the sun sets behind the Red Sea highway, ridges and sand go ochre. Twinkling offshore oil rigs become stars on a



calico stage under a moonlit, still-blue sky, like the world has just turned upside down. The road ends in El Gouna, where Egypt’s leading electronic musician is also flipping music production on its head.

Cairo-born DJ Safi is the godfather of contemporary Egyptian electronica. More importantly, the 39-year-old is pushing international collaborations to new levels. With a goatee beard and a Zen-like persona, he presides over the Dūf recording studio like a space-age monk. The studio fully opened earlier this year, but Safi had already made his first commercial venture at 10 years old mixing tracks on cassettes he sold to friends “for three days of lunch money.” Yet like so many musicians in Egypt, his career was interrupted by seven years of medical school. “There’s a subconscious social element in my generation that has trapped so many creative Egyptian minds in engineering degrees or similar. Although attitudes are changing,” he says, “if you got good grades in high school and told your parents you wanted to become, say, a photographer, you might get slapped.”

His chance to deep dive traditional Arabian sounds came in 2007. Safi pioneered a radio show at Nile FM called *Nile Bazaar*, which fused Western beats with Eastern melodies, as well as *HomeGrown*, a show that allowed local musicians to have their tracks played in high rotation. “It’s common in Egypt to copy and promote yourself as, say, a Pearl Jam cover band. With respect, you won’t become the next Pearl Jam, but if you add a bit of *tabla* and ‘*ud*, that could take your sound all over the world.”

Safi is also grafting East onto West in another way. “I say to visiting artists, why not work on music during the winter rain when you can make tunes here at Dūf with your family, like a musical staycation?” Most European and American artists visit to find sounds they can’t find at home—not only in terms of traditional Egyptian instruments. “When these foreign artists fly in,” says Safi, “I might inspire the group by sailing out to sample some Red Sea dolphins, then we’ll go and make a track. Then musicians’ eyes really light up!” He recounts that when New



Above: Adham Taweela, director of operations for Nacelle, the musical events production company that runs the Sandbox Festival, noted that this year some 50 percent of attendees came from outside Egypt.



difficulties going the other way, too. “Next month I got booked in Tunisia,” explains Safi. “But when I looked at the paperwork for an Egyptian to apply for a Tunisian visa, it was just too much.” He says he hopes technology will break down some of these barriers, too, as it has already done for others.

The following day, few barriers are holding back the Sandbox festival. Uber tuk-tuks ferry a Day-Glo army of fans to a few hundred meters of beachfront at the edge of town. Kites pulling kitesurfers float offshore like Technicolor butterflies, and the arena is half Mad Max with sand bulldozed

York-based DJ duo Bedouin came to El Gouna, he laid on a surprise. “I asked them, ‘Has Bedouin ever been in a studio with real Bedouins?’” They had not. “So I brought in a whole group of cats from Upper Egypt who have installed pickups on their *rubabas*,” he says, referring to the traditional, stringed instrument.

Money remains a push and pull for musicians in Egypt and throughout the Middle East. For some, like veteran Jordanian DJ Kitchen Crowd, it’s less expensive to live and rent studio time in El Gouna than it is to stay at home in Amman. On the flip side, the Egypt Musicians Syndicate charges fabulous fees for foreign musicians to perform in Egypt, be they Syrian, German, Tunisian or American, thereby holding back a potential United Nations of musical performance. There are

into high berms that wrap the festival’s two soundstages. A hypnotic bass line tremors the sand underfoot. A 21st-century arcadia awaits behind the festival gate, though compared to other world megafestivals, it is boutique: a motel-sized cool-off pool, a pair of wooden swing sets, a scattering of seesaws and giant capital letters spelling “SANDBOX” are all live selfie bait. Swimmers in the Red Sea’s shallows limber up before a sunset shimmy. The beat is about to drop.

The opening sets of late afternoon are smooth and sirenic. Then the sun blisters gold, crashes behind the distant ridge, and the tempos pick up, unleashed, rumbling, whipcracking into hyperwarps. Arms fly up, brows glisten, and communal euphoria sweeps the transnational, multigenerational crowd.





Sandbox founder Tito launched the first Sandbox Festival in 2012. It has since grown into a three-day, internationally recognized event.

Behind the decks is 32-year-old Cairo-based DJ Zeina, who studied music production both in Canada and at EPIC 101. The latter's Sherbini and Shiha are nearby, running their studio's pop-up stage backed with floor-to-ceiling light panels. There is a stage where anyone can come play with the drum machines, keys and MIDI boards, the better to entice a new generation of artists. Nomad Saleh shares the party from a bespoke Instagram photography tent.

Safi is there too, confessing to the nerves he says always come before performing. His set, splicing Egyptian and European

“This is about taking Egyptian dance culture to the rest of the world,” says journalist Russell Beard, who hosted the 2018 Sandbox Festival official video.

house sounds into unique musical DNA, is on in two days. “I asked to play as the sun was setting,” he says. “I like the challenge of a set that bridges the day and the night.” After her set, Zeina is all smiles. Like every Egyptian electronic musician, she is by necessity a trailblazer, running an all-female DJ night in Cairo plus a production operation. “The constant narrative that outsiders want to paint is one of how it’s a struggle for female DJs,” explains Zeina. “That can get repetitive. Instead it would be insightful to discuss our creative process as artists, as our scene is growing fast.” (Students in EPIC 101’s courses in live visuals production are

predominantly female.) “The club circuit can get exhausting,” she continues. “So sometimes the ability to be confined to a studio space,

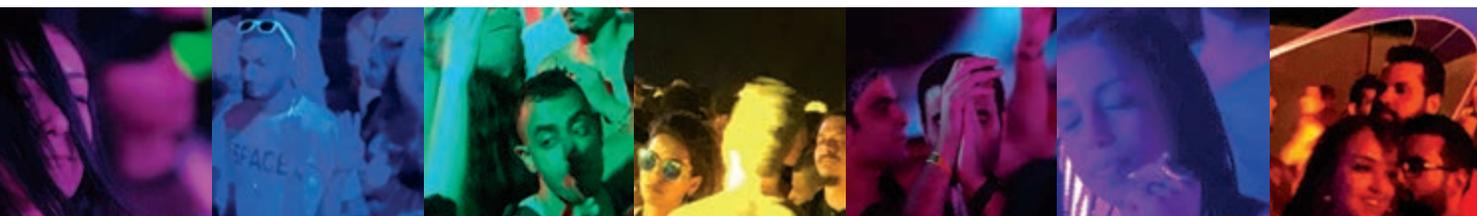
where I’m answerable to me, myself and I, is the perfect antidote.” But Sandbox won’t be Zeina’s only summer gig. She’s playing near Alexandria a party jointly organized by Lebanese outfit Überhaus and London-based Boiler Room, which puts on dance music events as far as Berlin, Lagos, Ibiza and Ramallah, Palestine.

“Their Ramallah party [in 2018] was actually Boiler Room’s best performing event,” explains Zeina. “It’s because people

BEHIND THE DECKS:

Below are the Egyptian artists who performed at Sandbox Festival 2019. They and more can be found online through Spotify, SoundCloud, Beatport, Mixcloud, Bandcamp and iTunes.

- Adham Zahran
- Ahmed Samy
- Aly B
- Aly Geode
- Aroussi
- Atish
- Hassan Abou Alam
- Hisham Zahran
- Mazen
- The Meteors Project
- Moff
- Nour Fahmy
- Ouzo
- Safi
- Zeina





As night falls in El Gouna, a crew readies the Sandbox Festival's soundstage for a live performance by one of the festival's two dozen international artists, Italian electronic composer and instrumentalist Giorgia Angiulli.

are so curious to see what the Palestine scene looks like.” In addition to a lineup of other top Palestinian DJs and musicians, it was topped by techno queen Sama’, who trained in Cairo as an audio engineer before becoming Palestine’s first female DJ and electronic producer.

According to founder Tito, Sandbox had similar grassroots origins. It “came a bit randomly,” says the 44-year-old veteran of Cairo’s underground house scene and music festival organizer Nacelle. It was 2012, he says, “and we were doing all the DJ parties, but I’ve always been fascinated by live electronic.” Tito and his colleagues named their new festival both to reference its beach setting and the word’s ease of pronunciation in both Arabic and English. “We thought we’d do a one-day thing with four local artists and a foreign headliner,” he recalls. Seven festivals later, his “one-day thing” has blossomed into a three-day lineup featuring 46 musical artists, 19 of whom come from Egypt or have Arab connections. Moreover, Tito says one-fourth of this year’s audience has come from abroad. “That’s around 50 nationalities,” he says.

“This is about taking Egyptian dance culture to the rest of the world,” says journalist Russell Beard, who last year flew from his home in Scotland to emcee the festival’s official video. “This is in

the process of emerging, connecting up to a global scene.”

With the mixing of music comes the mixing of people, networks and ideas. Chats over smoothies and sushi deep into the festival nights might cover samples, mixes, venues and introductions to new artists. Beanbag conferences on the beach may hatch recordings in El Gouna, London or online. Festivalgoers sharing #sandboxfestival tens of thousands of times showcase over and over the still largely underground talent—all notes in a beat that’s been building ever since Halim El-Dabh walked out into Cairo carrying his wire recorder 75 years ago. 🌐



Tristan Rutherford (www.rutherfordtomasetti.com) is a five-time award-winning travel journalist who contributes most frequently to *The Times* and *The Daily Telegraph* of London. When not on assignment, he enjoys evenings telling adventure tales to his three young sons. **Rebecca Marshall** (rebecca-marshall.com, [@rebeccamarshallphoto](https://www.instagram.com/rebeccamarshallphoto)) is a freelance photographer based in Nice, France.



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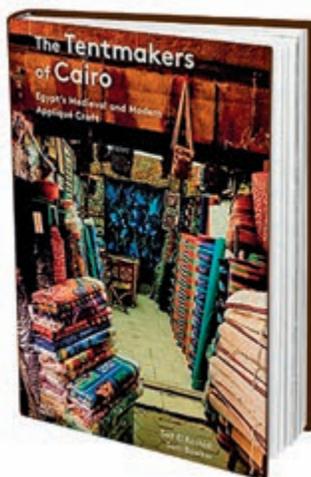
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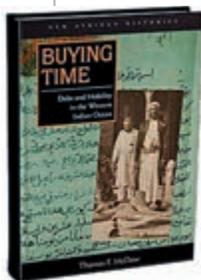
“The tentmakers sew, by hand, a distinctly Egyptian form of needle-turned cotton appliqué called *khayamiya* ... [derived] from the Arabic word *khayma*, which means ‘tent,’ so *khayamiya* is ‘the art of the tent.’”

The Tentmakers of Cairo: Egypt’s Medieval and Modern Appliqué Craft

Seif El Rashidi and Sam Bowker. 2018, Auc Press, 9-789-77416-802-4, \$24.95 pb.

This book is a model of how to make the fruit of specialized academic research interesting to a wider public. It covers the history of tents and tentmaking, discussing the evolution of tent design and tent-fabrication techniques, treating the social function of tents and the impact of tourism on the industry, and concluding with interviews with present-day craftspeople and merchants. The text is divided into bite-size sections, making it very easy to consult, and well-chosen illustrations achieve a happy compromise between the book’s informativeness and its affordability. *Tentmakers* is a fascinating read and—besides appealing to textile experts, art historians and those interested in the development of Egyptian crafts—it has much to offer to quilters, embroiderers and interior designers, as well as those researching Egyptian social history, especially that of Cairo. It has notes, references and a good bibliography. Although no glossary is provided, the Arabic for numerous technical terms is given in the text, greatly enhancing the book’s usefulness.

—CAROLINE STONE



Buying Time: Debt and Mobility in the Western Indian Ocean

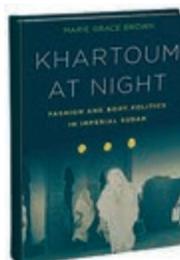
Thomas F. McDow. 2018, Ohio UP, 9-780-82142-282-3, \$34.95 pb.

This study of the economic and environmental

factors influencing Omani migration to East Africa during the 18th and 19th centuries accomplishes a neat feat: It is not only a comprehensive synthesis of 200 years of history, but also a highly readable volume that links the fascinating stories of people to official records reflecting their relationships. Drawing on hundreds of documents in the Zanzibar archives, the author paints a complex picture of an interconnected world before European colonialism began to disrupt and replace ties between Arabia and Africa. Examining the forces of kinship, credit and client-patron relationships, he

explains the extent to which Arab, Omani and Indian Ocean culture penetrated to the Lake regions of Central Africa, within the context of economic and religious tensions in the Omani heartland, while illustrating the gradual expansion of British influence and control. An epilog relates this history to late-20th-century developments as the pendulum of prosperity swung from Zanzibar to Oman following the discovery of oil there in the late 1950s, the Zanzibar revolution of 1964 and the accession of Sultan Qabus ibn Said in 1970.

—CHARLES O. CECIL



Khartoum at Night: Fashion and Body Politics in Imperial Sudan

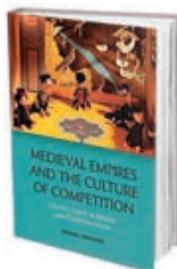
Marie Grace Brown. 2017, Stanford UP, 9-781-50360-264-9, \$22.50 pb.

This book about the influence of

women’s fashion and clothing

during Sudan’s colonial period is a timely study for today’s rapidly changing social climate. Marie Grace Brown provides a nuanced account of the impact of politics and economics on Sudanese women during the period of British colonial dominance, from 1899–1956, discussing how women used their clothes, shoes and even the spaces they occupied to effect change. She addresses topics such as women’s education and harems, explaining how they are meaningful aspects of Sudan’s history. She shows that seemingly benign things, such as marriage rites, hair braiding and childbirth, can have a significant impact on the national narrative. For example, there were marked differences in how Sudanese women gave birth before and after British occupation, which Brown asserts influenced the course of neonatal health for years to come. This intense reflection of Sudan’s history offers a fresh perspective on current events.

—MARINA ALI



Medieval Empires and the Culture of Competition: Literary Duels at Islamic and Christian Courts

Samuel England. 2017, Edinburgh UP, 978-1-47442-522-3, £75 hb.

In the West these days, poetry rarely has a political flavor. But in the Middle Ages, in both Europe and the Middle East, literary compositions often packed a powerful punch that influenced rulers and their administrators. This study explores the social and political impact of court literature, most of it poetry, in Islamic and Christian imperial leadership circles from about 950–1350. Writings of key individuals—poets, secretaries, even leaders themselves—played an important role in encouraging competition (and ultimately cohesion) in these courts at times of political or military upheaval. The author focuses on literary contests in later Abbasid Iraq under the Buyid Persian viziers, in the Levant under the legendary Kurdish sultan, Saladin, and in 13th-century Spain under King Alfonso X of Castile. He also examines the literary creation in Spain and Italy of a fictional Saladin who interacts with European knights and rulers, describing this imaginary character as a “defused threat” who provides a model of righteousness to inspire ethical conduct among European nobles and royals. Clearly Europeans found much to admire in the actual Saladin, who trounced the Crusader Kingdom of Jerusalem but showed great generosity and fairness to his enemies.

—ROBERT W. LEBLING



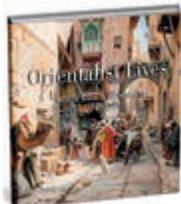
The Mercantile Effect: On Art and Exchange in the Islamicate World during the 17th and 18th Centuries

Susan Babaie and Melanie Gibson, eds. 2018, University of Chicago Press, 978-1-90994-210-3, \$59.95 cloth.

This colorfully illustrated volume of essays by art-history scholars examines the intersections of art and trade in the early modern era, when Europe’s taste for goods from the “Islamicate world” (a term coined by historian Marshall

Hodgson) impacted art and material culture on both ends of the trade routes. A 17th-century painted fan from Holland depicting the interior of an imaginary Asian merchant’s shop, replete with Indian and Persian customs, “visualises the fluid movement of objects and people” at the time. A “costume album” from Turkey illustrating various members of Ottoman society in typical outfits was among the “popular souvenirs for European travelers,” revealing how Ottomans saw themselves and how they wished to be seen. From decoratively designed porcelain and pocket watches, to the adoption of “themes and motifs from Ottoman art” in eastern Orthodox ecclesiastical textiles, this informative collection of essays explores how the “irresistible quest for new markets” established “connectivity” between the two cultures that “transcend[ed] barriers.”

—TOM VERDE



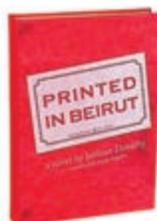
Orientalist Lives: Western Artists in the Middle East, 1830–1920

James Parry. 2017, AUC Press, 978-9-77416-835-2, \$59.95 hb.

The word “Orientalist” is rarely encountered in an art context nowadays, so it’s just as well the title offers some clarification. The cover image doesn’t. For those who know the work of Gustav Bauernfeind, the painting is clearly of the eponymous Orientalist in solar topee engaging with the locals in a Middle Eastern backstreet. This book stands out more prominently than Bauernfeind does. It’s the first general survey of Orientalist art in recent years, and for once it focuses on the artists behind the often-derided paintings. Instead of tackling them biographically, James Parry has chosen themes such as “Celebrity Studios” and “Model Problems.” The information he provides is revealing, especially the obstacles that faced artists with a taste for travel in the 19th century. By looking at their lives as well as their work, he rekindles some of that curiosity about the Islamic world that existed so much more in the past than now. The collector behind the

book, M. Shafik Gabr, is an Egyptian financier with a passion for East-West dialogue. His collection appears throughout the book and makes a fine emissary for an essential cause.

—LUCIEN DE GUISE



Printed in Beirut

Jabbour Douaihy. Paula Haydar, tr. 2018, Interlink Books, 978-1-62371-990-6, \$15 pb.

If you have ever labored over a work of fiction, or have

a special interest in turn-of-the-century Lebanon or publishing in the Middle East, this novel may be your cup of tea. Even if none of the above applies, the thriller that unfolds at the fictional century-old Karam Brothers Press in the Lebanese capital will likely intrigue you. The protagonist is a would-be novelist whose handwritten manuscript has been rejected by every publisher he visits. The writer finally takes a fallback job as copy editor at the last press on his list, Karam Brothers, only to find his manuscript mysteriously vanishes from his desk. When it reappears several days later it is beautifully printed and bound in a bright red cover—work arranged by his boss’s wife. Then he discovers that his novel has been printed on paper identical to that of counterfeit 20-euro bills in circulation. Thus the scene is set for an awkward romance, financial complications, a police investigation—and murder.

—WILLIAM TRACY



A Taste for Home: The Modern Middle Class in Ottoman Beirut

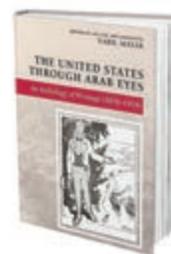
Toufoul Abou-Hodeib. 2017, Stanford UP, 9-780-80479-979-9, \$65 hb.

In the late 19th and early 20th

centuries, Beirut grew from a small coastal town into an international port city. Rapid political and economic development brought social change as a newly empowered Arab middle class acquired tastes for consumption that influenced new ideas of domesticity. Toufoul Abou-Hodeib takes that social upheaval as the spark to investigate the middle

class’s “global intimacies of taste.” Ranging widely across archival sources in French, English, Arabic and Ottoman Turkish, she looks at how Beirut became a place seen as “neither Oriental nor quite Western.” She delves deeply into Beirut lives, for example, by examining advertisements to understand how material objects defined notions of social status. Of the many points that emerge, one stands out: European imperial influence may have played a role in shaping urban development, but on the ground—and especially in the new privacy of home—Beirutis were making their own city.

—MATTHEW TELLER



The United States through Arab Eyes: An Anthology of Writings (1876–1914)

Nabil Matar. 2018, Edinburgh UP 978-1-47443-436-2, £19.99 pb.

This book suggests that Americans (and perhaps others) might want to take a closer look at their migratory roots. Migration is not easy: It involves uprooting families, searching for new homes and jobs, and adjusting to a new way of life. This collection is the first English translation of Arabic accounts of travel and emigration to the us, from 1876 to the beginning of World War I, offering a fresh perspective on what America was like then for Arab visitors and immigrants. The collection focuses on travels and migration of people from Egypt and from Ottoman Syria (e.g., Syria, Lebanon and Palestine). Writers include Egypt’s Idwar Ilyas (1876) and Prince Muhammad ‘Ali Pasha (1912), Lebanon’s Jibra’il Ilyas Ward (1898) and Palestine’s Khalil al-Sakakini (1907). We learn about the successes and disappointments of Arab immigrants as they search for the “American dream” and encounter sometimes harsh reality. We also learn about these Arab encounters with, and impressions of, other ethnic groups in the American mix, including Chinese and African Americans, both of whom have suffered their own hard times in America. This collection is an eye-opener.

—ROBERT W. LEBLING



EVENTS

Highlights from
aramcoworld.com

CURRENT / SEPTEMBER

Queens of Syria (2014), directed by British Academy of Film and Television Arts Award-nominated Yasmin Fedda, is a prizewinning film that tells the story of 50 women from Syria who, forced into exile in Jordan, came together in the autumn of 2013 to create and perform their own version of *The Trojan Women*, the timeless Greek tragedy about the plight of women in war. What follows is an extraordinary moment of cross-cultural contact across millennia, in which women born in 20th-century Syria find a blazingly vivid mirror of their own experiences in the stories of a queen, princesses and ordinary women like themselves: uprooted, enslaved and bereaved. The Hands

Up Foundation, **London**, through September 25.

CURRENT / OCTOBER

India's Subterranean Stepwells:

Photographs by Victoria Lautman. This exhibition of 48 photographs of monumental water-storage systems in India called stepwells, *vavs* or *kunds*, reveals magnificent inverted constructions, from three to 13 stories deep, that extend down to the water tables. Villagers, religious pilgrims and transient traders once descended into the stepwells to find clean water, as well as a cool and quiet reprieve from the heat above. Lautman first encountered these architectural marvels 30 years ago and has since documented more

than 200 sites—some preserved as heritage sites and some restored as functioning community wells, while others remain forgotten and derelict. Fowler Museum at UCLA, **Los Angeles**, through October 20.

Striking Iron: The Art of African Blacksmiths. For more than two millennia, ironworking has shaped African cultures in the most fundamental ways. This exhibit reveals the history of invention and technical sophistication that led African blacksmiths to transform one of Earth's most basic natural resources into objects of life-changing utility, empowerment, prestige, spiritual potency and astonishing artistry. It includes more than 225 artworks from across the African continent,

Inspired by the East: How the Islamic World Influenced Western Art looks at how, from the 1500s to the present day, artists and craftspeople from Europe and North America have drawn inspiration from—and have represented—the Islamic world, especially the Middle East and North Africa. A section of the exhibition will be dedicated to how some artists from the Islamic world were able to turn the Orientalist gaze back on itself during its height in the 19th and early 20th centuries, reusing and reimagining such imagery for their own ends. The show offers a rare opportunity to see the Islamic Art Museum Malaysia's stunning collection of Orientalist paintings alongside glassware, ceramics, sculpture and video created by artists of the Middle East, highlighting the artistic connections that continue to stretch across the world and connect cultures. The British Museum, **London**, October 10 through January 26.

"Les Femmes du Maroc," 2005, by Lalla Essaydi (b. 1956). Triptych of photographic prints.



THE TRUSTEES OF THE BRITISH MUSEUM



focusing on the region south of the Sahara and featuring archeological evidence from ancient times to present-day artifacts. National Museum of African Art, **Washington, D.C.**, through October 20.

CURRENT / NOVEMBER

Helen Zughaib: *Stories My Father Told Me.* Helen Zughaib was born in Lebanon and grew up in the Middle East and Europe, before coming to the us to study art at Syracuse University. After 9/11 Zughaib persuaded her Syrian Lebanese father to recount his life as a boy, which culminated in his own migration to the us. Zughaib translated his tales into art, resulting in a series of 25 wondrous paintings titled *Stories My Father Told Me.* They have become a prolog to the long conversation Zughaib is now conducting with her *Syrian Migration* series. This exhibit is a work of exquisite love, an urgently needed gift of memory within reach of those whose pasts are buried. **Boulder Museum of Contemporary Art, Colorado**, through November 24.

CURRENT / FEBRUARY

Zarina: *Atlas of Her World.* The India-born American artist Zarina Hashmi is best known for her prints and sculptures, which bring the visual language of abstraction and minimalism together with an ongoing engagement with themes

of memory, place and loss. Over her more than five-decade career, the artist has created an extensive body of work influenced by her early study of mathematics and enduring interest in the history of art and architecture. With some 30 prints, sculptures and collages dating from the 1960s to the present, the exhibition is the first to present her work alongside other artworks and objects—spanning cultures and centuries—that have served as touchstones throughout her career. Pulitzer Arts Foundation, **St. Louis, Missouri**, through February 2.

COMING / SEPTEMBER

Arabicity|Ourouba is the inaugural exhibition of the Middle East Institute Art Gallery, curated by London-based writer Rose Issa. The exhibition coincides with the launch of the gallery's newly renovated headquarters. The exhibition explores the esthetic, conceptual and sociopolitical concerns of the Arab world over the past 20 years as expressed by 18 artists from across the Arab world. Middle East Institute Art Gallery, **Washington, D.C.**, September 14 through November 23.

COMING / OCTOBER

Stories of West Africa: *Hollis Chatelain.* Hollis Chatelain creates art quilts based on her photographs of when she lived in the West African

countries of Togo, Burkina Faso, Mali and Benin. From her photographs, Chatelain drew the original illustrations for her coloring book titled *Stories of West Africa.* These drawings, done in colored pencil, were scanned, enlarged, digitally printed on cotton fabric and then machine quilted. Each quilt tells a story showing the strength of family and community, while the backgrounds show lively African fabrics that play an important role in the everyday life of the region. San Jose Museum of Quilts and Textiles, **California**, October 20 through January 12.

COMING / NOVEMBER

Tutankhamun: *Treasures of the Golden Pharaoh* commemorates the centenary of the world's most celebrated archeological discovery with the largest collection of Tutankhamun's treasures ever to travel out of Egypt, including more than 150 original artifacts from Tutankhamun's tomb, 60 of them on their first journey outside Egypt. The legend of this pharaoh captured imagination globally when, in 1922, his tomb was opened by British archeologist Howard Carter and financier George Herbert, fifth Earl of Carnarvon. Public fascination has endured for decades, with exhibitions in 1972 and 2007 drawing record crowds with fewer than 55 items from his tomb. This exhibit, through nine immersive galleries

that incorporate digital content, contextual material, audio and custom soundscapes, explores the meaning of the items in the royal tomb and the story of its discovery. Saatchi Gallery, **London**, November 2 through May 3.

Shahidul Alam: *Truth to Power* presents the first comprehensive us museum survey of the renowned Bangladeshi photographer, writer, activist and institution builder. More than 40 images and ephemera, including portraits, landscapes and scenes of daily life, strife and resistance in the "majority world"—a term Alam has deployed for decades to reframe notions of global relations—show the breadth of his practice and the impacts of his four-decade career. The exhibition provides a nuanced view of Bangladesh and South Asia, exploring systems of personal and collective agency that underscore the importance of self-representation, empowerment and the quest for truth in both art and life. The Rubin Museum of Art, **New York**, November 8 through May 4.

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