

NOVEMBER DECEMBER 2018

# AramcoWorld





## 6 The Magnificent Migration

Written by Peter Harrigan

Beginning around 3,000 years ago, humans began domesticating camels, setting in motion one of history's great civilizing developments: long-distance trade over arid lands, from Central Asia to North Africa. By then camels were seasoned travelers: Their own journey had been under way for 40 million years—all the way from North America.

## 18 Camels and Culture — A Celebration

Written by Shaistha Khan

Photographed by Hatim Oweida

Brought by truck, by trek, singly and in herds, nearly 40,000 camels compete each year in contests of beauty, speed and obedience outside Riyadh, Saudi Arabia. Camel-culture exhibits and performances round out the King Abdulaziz Camel Festival—all for the love and lore of the national animal.

## 24 Bling Your Camel

Written and photographed by Beliz Tecirli

Want your camel to stand out from the herd? Don't think too hard about endurance—it's pretty much a given for a camel. Speed? Not every camel has it. An elegant neck and sloopy lips? Both completely genetic. Either they are there or not. But accessories? Maybe an artistic fur-cut? That's up to you.

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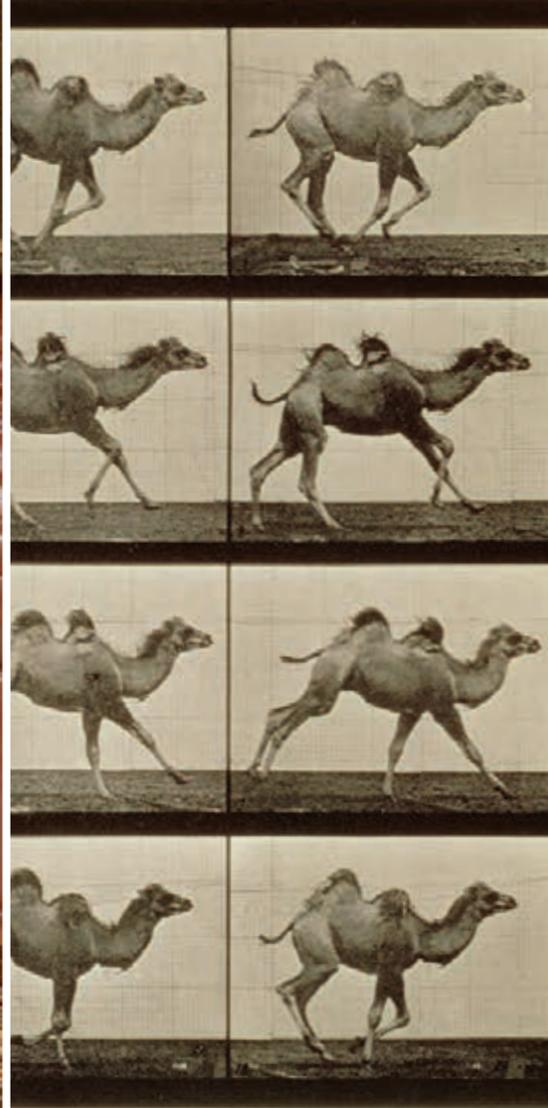


We distribute *AramcoWorld* in print and online to increase cross-cultural understanding by broadening knowledge of the histories, cultures and geography of the Arab and Muslim worlds and their global connections.

This special theme issue is devoted to the camel, whose history is interwoven with thousands of years of civilization, and whose future holds scientific, economic and cultural promise.

**Front Cover:** Morning sun backlights dromedaries in eastern Saudi Arabia. Worldwide, dromedaries outnumber Bactrian camels four to one. Photo by Jason Plews.

**Back Cover:** "Two Camels in Sinai," by Margot Veillon, ink and watercolor, c. 1970. Image courtesy of AUC Artistic Legacy Collection and AUC Press.



## 28 The Art of Saddling A Camel

Written by Doug Baum  
Photographed by Nick Keller

Since the earliest days of domestication, the camel's hump—or humps—have challenged would-be riders. In Africa, Arabia, India and Central Asia, saddle designs—some simple, some elegantly artisanal—have long expressed both utility and culture. (And most of them, with practice, are comfortable.)

 38 REVIEWS  40 EXHIBITIONS

## 30 The Culinary Camel

Written by Sara Al-Bassam  
Photographed by Hatim Oweida

From Bedouin banquets to hipster *hashi*-burger food trucks, it's time for taste-testing the desert-to-dessert caravan of camel milks, camel pizzas, camel sliders, ice cream flavors, energy drinks and upscale chocolate. Camel: It's one of the world's fastest-growing health-and-heritage consumer product sectors.

CALENDAR INSERT

## Camel

2019 Gregorian and 1440–41 Hijri Calendar

Introduction by Peter Harrigan

Herded, saddled, loaded by traders; cared for, sung about and even sung to—one-humped dromedaries prove extraordinary in deserts where the sun is hot; two-humped Bactrians rank no less in others where it is not. Let the rhythmic gaits of our calendar camels carry you along for the year.

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# FIRSTLOOK

## Morning *tafheem*, al-Rumah, Saudi Arabia

Photograph by  
Abdullah Sulaiman Alshathri

First Place, 2018 King Abdulaziz  
Camel Festival Photo Contest

To get camels ready for races, they are taken out for *tafheem*, an Arabic word that has two main meanings in English. One is “gathering together,” and the other is “coking”—as in making charcoal, a process that uses some of the wood’s energy in burning, but which allows for quicker and hotter burning later. For these camels, that means when they compete on the eight-kilometer-long course in the al-Dahna desert.

This was my first experience shooting camel racing. I had left my house after midnight to arrive at dawn. As the sun rose, there was some mist near the ground, and this herd was kicking up dust, too. To me this photo shows some of the quiet spirit that is also part of the Arab heritage with camels.

—Abdullah Sulaiman Alshathri

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[www.alaiblfestival.com](http://www.alaiblfestival.com)





# FLAVORS

## Saudi Camel Meatballs

Recipe by  
Anissa Helou

Photograph by  
Kristin Peters

### The first time I tasted camel was some 25 years ago in Damascus, Syria.

I didn't want to pass up the chance. I sat down and asked the butcher to grill me some meat. He suggested I have it ground rather than cubed, as it would be too tough otherwise. It was not a gastronomic marvel. The meat was dry with a slightly gamey taste, but I was excited to have tried it. In this recipe, which also uses ground meat, the meatballs are made more interesting by the addition of millet grains, which provide a nice crunch, and dipping sauces that temper the dryness of the meat. If you can't get camel meat, simply use lamb or beef, or a mixture of both.

(Serves 6 to 8)

#### Meatballs

1 lb 2 oz (500 g) ground lean camel meat  
Scant 1 c (150 g) uncooked millet  
6 cloves garlic, minced to a fine paste  
1 t ground coriander  
½ t black pepper, finely ground  
Sea salt  
Sunflower oil for deep-frying

#### Tahini Dip

½ c plus 2 T (150 ml) tahini  
Juice of 1½ lemons, or to taste  
1 clove garlic, minced to a fine paste  
Sea salt

#### Tamarind Dip

1 c (200 g) seedless tamarind paste  
½ t ground coriander  
½ t finely ground black pepper  
A few sprigs of cilantro, most of the bottom stems discarded, finely chopped  
Sea salt

Put the tahini in a bowl and, alternating them, gradually add the lemon juice and ⅓ cup plus 1 tablespoon (100 ml) water, stirring all the time. The tahini will thicken at first even though you are adding liquid, but do not worry; it will soon thin out again. Before you use up all the lemon juice, taste the dip to adjust the tartness to your liking. If you decide to use less lemon juice, add a little more water to make up for the lost liquid. Stir until the sauce has the consistency of sour cream. Add the garlic and salt to taste. Mix well.

Put the tamarind paste into a separate bowl. Add 1 ⅓ cups (325 ml) hot water and let steep for 15 minutes, then mash the pulp in the water. Line a fine-mesh sieve with cheesecloth and set over a bowl. Strain the tamarind mixture in the sieve, pressing on the pulp to extract as much tamarind as you can. Add the coriander, pepper and cilantro. Season with salt to taste and mix well.

Combine the meat, millet, garlic, coriander, pepper and salt to taste and mix well. Shape the meat into small balls, each the size of a walnut, and place on a baking sheet. Refrigerate for 15 minutes while you heat the oil.

Set a fine-mesh rack on a rimmed baking sheet or line the baking sheet with several layers of paper towel. Pour 2 inches (5 cm) sunflower oil into a large deep skillet. Heat over medium heat to 350°F (180°C). If you don't have a thermometer, test by dropping a piece of bread into the oil—if the oil immediately bubbles around it, it is ready. Drop in as many meatballs as will fit comfortably in the pan. Fry, stirring the meatballs every now and then, until the millet is golden and the meatballs are cooked through, 3 to 5 minutes. Drain on the wire rack or paper towels.



**Anissa Helou** ([www.anissas.com](http://www.anissas.com)) is a chef, food writer, journalist, broadcaster, consultant and blogger focusing on the cuisines and culinary heritage of the Middle East, the Mediterranean and North Africa. Born and raised between Beirut, Lebanon, and Mashta el-Helou, Syria, she knows the Mediterranean as only a well-traveled native can. She is the author of numerous award-winning cookbooks, an accomplished photographer and intrepid traveler. She runs culinary tours to Mediterranean countries and teaches cooking classes, for which she has appeared in numerous TV shows. Helou was also the first-ever chef-in-residence at Leighton House during the annual Nour Festival in November 2011.

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LEFT: COURTESY ANISSA HELOU







THE  
**MAGNIFICENT  
MIGRATION**

WRITTEN BY Peter Harrigan  
GRAPHIC BY Mesa Schumacher



Three-way eyelids, long eyelashes and nostrils that can close completely are just a few of the adaptations that, over millions of years, have allowed these camels in eastern Saudi Arabia to continue browsing brush with seeming nonchalance during a sandstorm.

## The first time I met a camel was in the open desert.

I was taken to visit a grazing herd amid the sandy reaches between Riyadh and Hail, Saudi Arabia. I kept a bit of distance, and an inquisitive camel (a female, I was told) approached at an ambling, padding lope. As she drew near, I fixed on the graceful arch of her light-tan neck, and then there was her head in front of me, sizing me up with features that could, if one were not tactful, provoke a comic response: the big, deep-brown eyes; the tiny, vertical ears; the oversized flapped nostrils; the upper split lip and droopy lower lip. I had barely noticed the hump, or the legs, which can seem disproportionately long and spindly, a bit like a giraffe's.

But I gave the camel her credit: she was both curious and confident. Her eyes were like a horse's, but cast downward and, with three eyelids each and long, even tentacle-like eyelashes that shield against sun and sand, fascinating just to watch: Every once in a while her third, innermost eyelid would nick sideways like a windscreen wiper. This was the beginning of what has become a long appreciation of the camel's adaptive wonders.

On another desert trip, I learned something about camel milk. It was spring, led by two Saudi camel enthusiasts. We drove off-road—seemingly aimlessly, for three days, over and around sand dunes—in search of camel herds. The Bedouin owners invariably welcomed us. We admired newborns and

talked rains and grazing. We were served fresh camel milk, warm and foamy, in gourds and bowls. Each tasting yielded a distinct bouquet. Camel milk, like honey, our hosts explained, has what the French call *terroir*: the

aromatic compounds in the wild plants the camels graze upon vary from area to area, and they are fat-soluble, which means they influence the flavor of the milk.

I also beheld the affinity between herder and camel as being truly both acute and individual. I once tested this by asking a herder who owned 53 camels to pick out the camel that left a single print in the sand. To me it looked like any of thousands. He scrutinized it and walked toward a camel that to me appeared otherwise indistinct—except for the tiny clip I had hidden on her when she made the print. “This *rub*,” he said, using the word for a six-year-old she-camel, “I call her *Rima* [gazelle-like]. Of course that footprint is hers. I love my camels and, like my family, I know every one of them.” As Bedouin have done as long as stories have been told, he had a name for every one of the females, each based on attributes real, fanciful or in between.

Far less tranquil are city camel markets. About 10 years ago I escorted a group of international visitors to one of the largest in Saudi Arabia, on the northern outskirts of Riyadh. Hundreds of corrals sprawled over multiple square kilometers created a vast, multi-sensory immersion bolstered by banter from the owners, from hobbyists to specialist breeders. The visitors reveled in what was, for most of them, sheer novelty, but for Susan Hoebich the experience was to go further. In her

it inspired a determination to acquire a breeding pair of thoroughbred Saudi dromedaries for her ranch in California. What followed I shall return to later.

Her quest, and all of my own experiences, involved *Camelus dromedarius*, that is, the dromedary, Arabian camel, or in more anatomical terms, the one-humped camel. Today only two other species of the genus *Camelus* exist, and both are two-humped: *Camelus bactrianus*, the Bactrian camel, native to the steppes of Central Asia, and *Camelus ferus*, the Wild Bactrian, which survives as an endangered species in pockets of Northwest China and the Gobi Desert of Mongolia.

Combined, the global population of *Camelus* stands around 30 million head. More than 90 percent of these—some 27 million—are dromedaries. Nearly all the remaining three million are Bactrians, as there are but a scant 1,000 or so wild camels. (In South America, their smaller and very distant domesticated relations, llamas and alpacas, number about eight million.)

None of them—not one—lives today in its land of origin. Camels are the products of one of the greatest migrations the animal kingdom has ever known.

**S**aad Sowayan, Ph.D., knows the Bedouin of northern Saudi Arabia and their camels well. A professor of anthropology at King Saud University in Riyadh, he has dedicated decades to the study of desert oral narratives, ethnography and the cultural legacies that have arisen amid and around al-Nafud al-Kabir, the great sand desert.

“The camel brings to mind everything that is worthy in desert life. It has unlimited patience, and is the strongest yet most tender of animals,” he says. “Everything that is related to love and attachment, expressions, vocabulary and usages, are borrowed from the camel.”

Surrounded in his wood-paneled private library in Riyadh by books and archives of hundreds of hours of recordings with desert nomads, he proffers an example: The Arabic word *hanin* means “to yearn for something. It is borrowed from the distinctive sound that the camel makes when she yearns for her calf. The attachment of the camel to her calf is very strong. At the same time,” continues Sowayan, “the camel is the strongest, the most enduring and most patient, and so a worthy person is often compared to a camel. The heavy responsibilities of life or leadership—if one is a tribal chief—are likened to the camel’s burden carrying heavy loads.”

Sowayan’s recordings and studies demonstrate the intimate, symbiotic relationship between dromedaries and humans that has developed over the 4,000 years since the first camels were domesticated, probably somewhere in the southern Arabian Peninsula. With it has emerged an extraordinarily complex, ever-evolving and arcane corpus of Arabic dromedary terminology. This is not just individual words and metaphors. Sowayan explains that camels literally became the means of transmitting the oral tradition. Poems—many in the traditional Arabic form called *qasida*—typically include a lyrical dedication to the camel that carries both poet and verse over great distance. As a result, dromedaries pervade Arabic oral

tradition, and poetry is freighted with imagery, metaphor, allegory, epithets and motifs that all refer to them.

Another observer and recorder of this ethnographic panoply was the early-20th-century Czech professor of Oriental studies, writer, illustrator, photographer and cartographer Alois Musil. He spent several years from 1914 exploring northern Arabia

cataloging place names, vocabulary and history. He also transcribed Bedouin anecdotes, songs and poems. A chapter in his monumental book *The Manners and Customs of the Rwala Bedouins*, published in 1928 by the American Geo-

graphical Society, details semantics related to the camel.

The Arabic generic term commonly used for camel is *ibl*. The word *jamal*, which is sometimes used colloquially, strictly refers to a male camel between six and 20 years old. Its three-consonant (trilateral) root structure (j-m-l) happens to be the same as the Arabic word of beauty, but there is no demonstrable linguistic link: Like “camel,” “jamal”—the two words

[A camel owner stands with his son and camel near Riyadh, Saudi Arabia. Camels are so deeply central to cultures from North Africa to Central Asia that 19th-century orientalist Joseph Freiherr von Hammer-Purgstall recorded 5,774 Arabic words related to camels.](#)

**The camel brings to mind everything that is worthy in desert life. It has unlimited patience, and is the strongest yet most tender of animals.**  
—Saad Sowayan



nearly rhyme—might share distant roots in Phoenician, which gave Greek *kamelos* and Latin *camelus*. In Arabic a male or female riding camel is a *dhalul*. The overall most favored type of camel is *naqah*, a female riding camel aged above five years—generally regarded as the fastest. As a result, Arabic poetry frequently alludes to *naqah* in verses elaborate and glowing.

As a young camel grows, a word exists for every stage—much as humans pass from infants to toddlers to teenagers, but in more detail: From suckling to its third year, there are five words, Musil noted. “In the fourth year it is called *jid*; in the fifth year, *tini*, which means, “changing [teeth],” as it grows new incisors. And so on, until at 20 years a she-camel becomes a *fatir* until death, generally at an age between 30 and 40 years.

As thorough as Musil was, the myriad facets of the daily life and lore of nomads stretched his ability to record every word and detail relating to camels. He delved into camel saddles, lost camels, their value and uses, watering, pasturing, camel songs, drinking from a camel’s paunch and camel ailments. He also observed and wrote on the Arabian horse, desert flora and fauna, the tent and encampment, diet, dress, poetry, marriage and other customs.

But when it came to listing the vast vocabulary Arabs have linked to the camel, an Austrian orientalist had already gone further a full century earlier. Joseph Freiherr von Hammer-Purgstall collected 5,774 words for dromedaries, their features and related paraphernalia. This included no fewer than 30 words referring to milk.

**I**t was linguistics that helped convince camel conservationist John Hare in the early 1990s that the *Camelus ferus*, long thought to be either a feral variety of Bactrian or the forbear of the domesticated Bactrian, is in fact genetically distinct. Working in between the Taklamakan and Kuruktag deserts in China’s northwest, Hare discovered that Mongolian language, like Arabic, is rich in camel terminology. Some dialects, it turns out, share a specific word for the wild camel: *hautagai*, derived from *hautag*, which alludes to its flat head as a distinguishing feature. This suggests it has been long recognized as distinct from the domesticated Bactrian. In 2008, gene sequencing demonstrated conclusively that *ferus* is neither domestic Bactrian runaway nor Silk Road dropout, nor—most significantly—any progenitor of Bactrians.

This means that into extinction had marched not only the



“Be like a camel—carrying sweets but dining on thorns,” says a proverb from India evoking the grit of camels that made Silk Road trade possible across the vast barren deserts, steppes and mountains of Asia. Two-humped Bactrian camels were often used for that trade, and while most Bactrians are domesticated *Camelus bactrianus*, about 1,000 head of *Camelus ferus*, the critically endangered wild camel, remain in Northwest China and in the Gobi Desert of Mongolia. Many live in a reserve established in 2003 near Lop Nur, China, where this photo was made.

dromedary’s wild ancestor, but also that of the domesticated Bactrian. Their stories of origin and domestication are still unfolding, now more rapidly than ever, at dig sites and labs from the Middle East to Asia, Europe and the Americas.

Indeed dromedary and Bactrian camels are the most recently domesticated of mammals. Dogs, cattle, sheep and goats were in the human fold by about 9,000 years ago; the horse and donkey were brought in 5,000 to 5,500 years ago. The camels were not in proven widespread use until 3,000 to 4,000 years ago, and overall, less is known about camels than any other domesticate. The process likely began with hunting, before the camel’s subsequent capture and herding for milk as well as meat, followed by its eventual employment for hauling and, finally, riding. It is this last step that was to have such a profound impact on human history across the Middle East and Asia.

“Camels are the largest of domesticates and the most difficult of animals to manage and handle. You have to be strong to deal with them. An ill-tempered camel can swiftly and unpredictably kick out in all directions with each of its feet,” says Faisal al-Mathen, director of the Camel Research Center at King Faisal University in Hofuf, Saudi Arabia, which studies the conservation and improvement of camel genetics. Also relatively recent are the extinctions of the wild ancestors of



dromedaries and Bactrians, especially when set against their vastly longer ancestral story. Biologically speaking, today's camels belong to the family known as Camelidae, or camelids: two-toed, split-lipped plant-eaters (herbivores), of which members include not only domesticated llamas and alpacas but also the wild guanaco and vicuna of South America.

The remains of the most distant camelid ancestor were discovered in 1848 by a fur trapper working in the White River Badlands of South Dakota in the central us. Paleontologists dated his find to 35 million years ago, in the Eocene Epoch, when that territory was largely forested. They named this herbivore *Poebrotherium*. About the size of a goat, it most closely resembled today's llama, and it had evolved from a yet smaller creature the size of a large rabbit, *Protylopus*.

About 34 million years ago, during the transition from the Eocene to the Oligocene Epoch, the climate in North America grew cooler and drier. Camelids began to diversify into gazelle-like stenomylines, snouted floridatragulines, short-legged miolabines, long-necked aepycamelines and the giraffe-like *Oxydactylus*. Topping the weight scales were *Titanotylopus* and *Gigantocamelus*. By 20 million years ago, some 13 genera of camels flourished throughout North America. By four million years ago, camelids were the largest even-toed creatures (artiodactyls) on the continent.

Recent studies of DNA samples from camelid bones imply that around 25 million years ago two camelid family tribes

### Camels are both the most recently domesticated mammal and the least studied.

most notably, the human migrations that settled the Americas).

“Camels are at the top of my wish list for ancient fossils right now,” says Zazula, who spends summers digging in the Klondike region. “They’re incredibly rare. I think there are about 50 bones known that have ever been found in Alaska or Yukon, and that’s in comparison to the tens of thousands of ice-age woolly mammoths and bison and horses.”

Even farther north, and east, from 2006 to 2009, a research team led by the Canadian Museum of Nature discovered 30 camel fragments on Ellesmere Island in Nunavut. Scientists dated the remains to 3.5 million years, the mid-Pliocene Epoch, a global warm phase when the region was cloaked in boreal forest. Collagen fingerprinting, a cutting-edge science pioneered at the University of Manchester in England, confirmed that the bones belonged to a camelid.

“This is an important discovery because it provides the first evidence of camels living in the High Arctic,” explains Natalia Rybczynski, a paleontologist with the Canadian Museum of Nature who has led numerous Arctic field expeditions. The discovery not only extended the range of camels in North America north by about 1,200 kilometers, but also it suggested, she adds, “the lineage that gave rise to modern camels may have been originally adapted to living in an Arctic forest environment.

“We now have a new fossil record to better understand camel evolution, since our research shows that the *Paracamelus* lineage inhabited northern North America for millions of years,

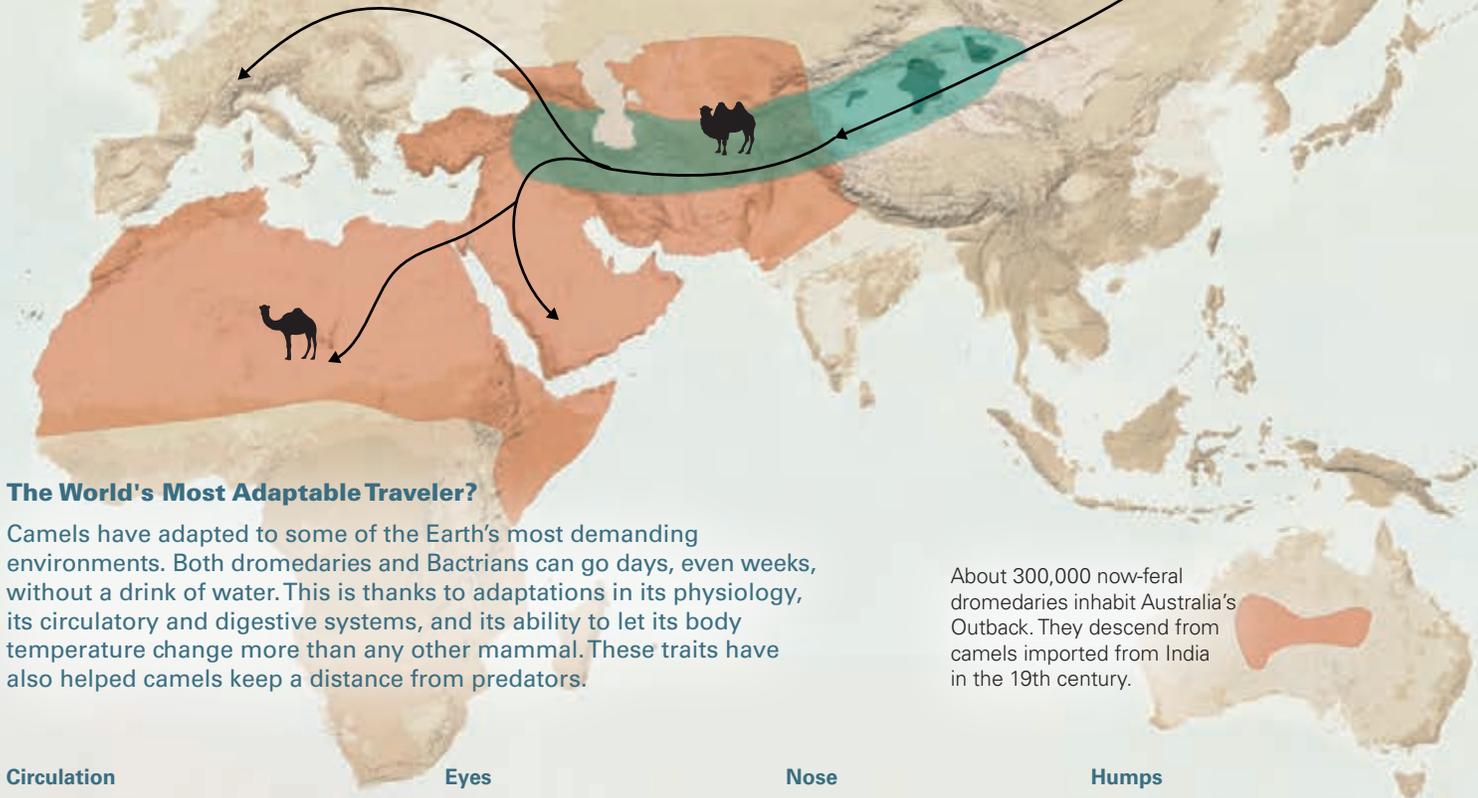
emerged: the Lamini, which eventually dispersed south to become today's South American camelids, and the Camelini, which gradually moved north.

These conclusions build on discoveries such as the fossil find of *Paracamelus*, which has turned out to be the most direct ancient ancestor of both dromedaries and Bactrians. Found in 1913 in Canada's Yukon by Klondike gold-rush prospectors, this discovery revealed that camelids had moved far to the north.

“These goldmines are a real ‘gold mine’” for learning about the climate, geology, animals and plants that lived when North America was connected to Asia by land that now lies submerged under the Bering Strait, says Grant Zazula, head of paleontology for the Yukon Territorial Government. The “land bridge” first appeared some eight million years ago, and it remained until it was submerged again 14,500 years ago. Much remains unknown about the biological exchanges it facilitated (including,

**Domestication** of camels began between 3,000 and 4,000 years ago—slightly later than horses—in both the Arabian Peninsula and western Asia.

**World camel population today** is about 30 million: 27 million of these are dromedaries; 3 million are Bactrians; and only about 1,000 are Wild Bactrians.



### The World's Most Adaptable Traveler?

Camels have adapted to some of the Earth's most demanding environments. Both dromedaries and Bactrians can go days, even weeks, without a drink of water. This is thanks to adaptations in its physiology, its circulatory and digestive systems, and its ability to let its body temperature change more than any other mammal. These traits have also helped camels keep a distance from predators.

About 300,000 now-feral dromedaries inhabit Australia's Outback. They descend from camels imported from India in the 19th century.

#### Circulation

Blood cells that can swell up to three times their normal size are what allow the camel to drink so much water. As it uses water, the same cells narrow to keep flowing, allowing the camel to become more dehydrated than other mammals.

#### Eyes

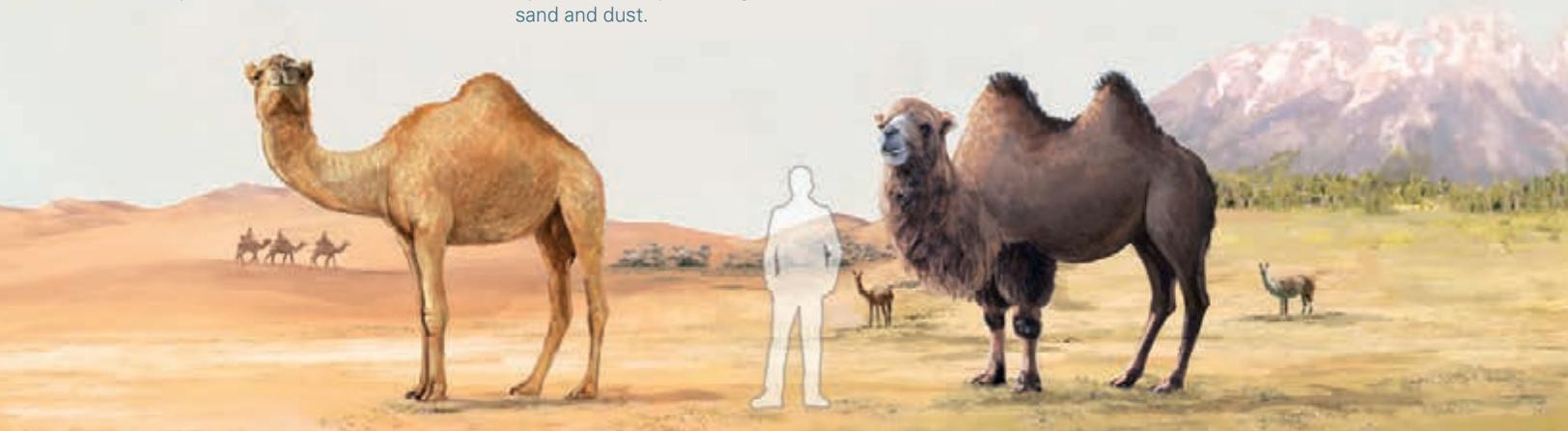
Camels see well in both bright desert sun and at night. Their eyelids are semitranslucent, which allows a camel to walk with its eyes shut. Extra-long eyelashes, too, protect against sand and dust.

#### Nose

A camel can close its nostrils. This helps keep out sand, and it also helps cool exhaled air, which helps conserve water.

#### Humps

These store fat, not water. The fat in the hump gives camels a reserve of energy when no vegetation is available for grazing.



#### Dromedary (*Camelus dromedarius*)

Weight: 400–600 kilograms  
Shoulder height: 1.6–2 meters

#### Bactrian (*Camelus bactrianus*)

Weight: 600–1,000 kilograms  
Shoulder height: 1.6–1.8 meters

# THE MAGNIFICENT MIGRATION

Best known today for inhabiting hot, arid regions of North Africa and the Middle East, as well as colder steppes and deserts of Asia, the family Camelidae had its origins in North America. The signature physical features of camels today—one or two humps, wide padded feet, well-protected eyes—may have developed first as adaptations to North American winters.

Land bridge  
8 MY–14,500 Y

About 6 million years ago, camelids began to move westward across the land that connected Asia and North America.

Camelini



Camelid ancestors

Lamini



About 3 million years ago, camelids of the Lamini tribe entered South America.

## The First Camels

The earliest-known camelids, the *Protylopus* and the *Poebrotherium*, ranged in sizes comparable to modern hares to goats. They appeared roughly 40 million years ago in the North American savannah. Over the 20 million years that followed, more than a dozen other ancestral members of the family Camelidae grew, developing larger bodies, longer legs and long necks to better browse high vegetation. Some, like *Megacamelus*, grew even taller than the woolly mammoths in their time. (Later, in the Middle East, the Syrian camel may have been even larger.) Around 25 million years ago, two tribes of camelids divided: The Camelini gradually migrated north and west, and the Lamini drifted south.

ADDITIONAL RESEARCH SUPPORT: NICHOLAS J. CZAPLEWSKI; RICK E. OTTO; LULU SKIDMORE

- Dromedary
- Bactrian
- Wild Bactrian
- Llama
- Vicuna
- Guanaco
- Alpaca



**Camelops**  
4 MY–10,000Y

**Megacamelus**  
10–5 MY

**Aepycamelus**  
21–5 MY

**Procamelus**  
22–5 MY

**Poebrotherium**  
40–32 MY



Some 3.5 million years ago, warmer climate allowed rich, boreal forests to flourish near the Arctic Circle, where *Paracamelus* fossil bones have been found in Canada's Yukon. It may have been here that camelids developed their fat-storing humps and feet for walking over snow.

and the simplest explanation for this pattern would be that *Paracamelus* originated there,” explains Rybczynski. “So perhaps some specializations seen in modern camels, such as their wide flat feet, large eyes and humps for fat may be adaptations derived from living in a polar environment.”

So too the characteristic wide, split footpads now so useful for soft, sandy deserts would have been a no-less-useful adaptation to snow. And likewise even the camel's iconic hump that stores fat (not water) was an adaptation to enduring a harsh winter. And those large eyes, so lauded by Bedouin poets and valued by camel-show judges, would have helped during six months of high-latitude darkness. The camel's teeth, now able to chew through sharp thorns, would have been no less handy grazing the rough vegetation of the Arctic.

On the western side of the land bridge, *Paracamelus* finds corroborate the hypothesis that it was the first of the Camelini to move into Asia, and that it is the ancestor of all camels today. These include discoveries in China, Russia, India and Kazakhstan, as well as Syria, Algeria, Italy and even as far west as Spain.

As well as *Paracamelus*, at least four other genera of camels continued to survive in North America until they had become extinct on the continent, along with woolly mammoths and other large mammals, by around 13,000 years ago.

**D**isentangling the story of the camel's migration from North America into Asia remains a puzzle that is gaining increased attention among scientists and archeologists. Pieces in the puzzle involve subsequent extinctions, the domestication episodes of at least two species and locations that include much of Asia, Arabia, Africa and parts of Europe,

and calls for answers to the question, “one hump, or two?”

In 2003 and 2005, Syrian and Swiss archeologists uncovered some extraordinarily large bones at the oasis of al-Kowm, a prehistoric “hot spot” midway between al-Raqqah and Palmyra. When confirmed as camelid remains, the bones demonstrated that giant camels were not restricted to North America. Named the Syrian camel (*Camelus moreli*), this species lived around 100,000 years ago, weighed around 1,000 kilograms and at

three meters tall—more than twice the size of today's camels—stood almost the size of an elephant.

It was not just its enormous size that astonished scientists, explains paleolithic archeologist Jean-Marie Le Tensorer of the University of Basel, Switzerland.

Until this discovery, no one knew “that the dromedary was present in the Middle East more than 10,000 years ago.”

In addition to pushing the existence of camelids back 90,000 years, the layering of the finds points to a sustained population over thousands of years. Along with the giant camels, archeologists also uncovered remains of smaller camel species, as well as gazelle, oryx, buffalo, rhinoceros, early horses (equids) and a few carnivores. Human remains and tools uncovered nearby hint at hunting.

Camels, writes Le Tensorer, are “charismatic species of domestic large mammals, but their anatomy, history and evolution are poorly known. We know that the family Camelidae colonized Eurasia from North America using the land bridge across what are now the Bering Strait between six and seven million years ago and that they included some large-sized forms of the poorly defined genus *Paracamelus*.”

But only a few studies have tried to describe and compare

**Wide, flat feet, large eyes and humps for fat may be adaptations derived from living in a polar environment.**

—Natalia Rybczynski

the bone structures of Bactrians and dromedaries, and there remain many gaps in knowledge regarding domestication, the precise origins of the genus *Camelus*, and more.

In addition to the recent conclusion that the wild camel is from a distinct but as-yet-uncertain lineage, genome sequencing also suggests that the split between dromedary and Bactrian may have its origins in North America too. This further suggests that single-humped camelids may have arrived in Asia before two-humped ones. Genetic diversity might argue for this too: There are around 90 recognized breeds of dromedary compared with just 14 Bactrian breeds.

Complicating the story further is the vexing matter of crossbreeding. This has led to two false trails, one due to fact and another due to a myth based on what turned out to be false premises. Crossbreeding dromedaries and Bactrians produces a single-humped hybrid that matures faster, produces more milk and is larger and stronger than either purebred parent. However, it is more susceptible to disease, and continued interbreeding with hybrids degenerates the lineage. As a result, the species are not herded together, but rather the two have been brought together for selective improvement, generally using male Bactrians and female dromedaries, for thousands of years.

Richard Bulliet, professor emeritus at Columbia University and a specialist in Middle East history, considers that the first deliberate crossbreeding likely took place somewhere between northern Arabia and the Tigris-Euphrates region sometime between 250 BCE and 224 CE. “Someone—most likely merchants connected with Arab camel breeders—thought to cross the two species and discovered that the hybrid was an ideal pack animal,” he wrote in his seminal *The*

**Someone—most likely  
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—Richard Bulliet**

*Camel and the Wheel*, which examines camel domestication and the consequences of the rise of camel-breeding nomads.

A hybrid superior to either of its thoroughbred parents in load-carrying capacity could not help to be in demand. By the Islamic period, people were using two-humped camels in Iran and Afghanistan primarily as breeding stock for hybrids. Farther west, Ottoman armies depended on single-humped hybrids as pack animals. Hybrid breeding never took hold in the Arabian Peninsula, however, as camel-herding nomads there fiercely protected the pedigree of their dromedaries. Over time a wide range of some 90 thoroughbred breeds developed.

Hybrid breeding also gave birth to the belief that dromedaries originated from Bactrians. Until World War II, the most northerly breeding herd of dromedaries was in Italy, near Pisa. It owed its origins to a gift of 20 camels—among other animals—given in 1622 from the Bey of Tunis to the Grand Duke of Tuscany. A series of widely cited 19th-century veterinary and anatomical studies at the grand duke’s estate revealed the presence of a vestigial second hump in both adult and fetal dromedaries. This led to the conclusion that dromedaries were a variant of Bactrians.

It was not until 2010 that research disproved this. Examination of thoroughbred dromedaries at the Central Veterinary Research Laboratory in Dubai showed no such features. Although the Italian conclusions were false, the anatomical findings were not erroneous: Unbeknownst to the examiners,

the Italian herd had a significant hybrid ancestry, and this was what had produced the trace second hump.

**R**ecent paleogenetic studies have led scientists to propose that the Bactrian’s domestication, which propelled cultural and economic development across the steppelands of Central Asia and, subsequently, opened up the Silk Roads extending to the fringes of Europe, occurred earlier than previously believed, about 5,000 years ago around what are



Natalia Rybczynski, a paleontologist at the Canadian Museum of Nature, collects a fossil of the High Arctic camel during a 2008 field expedition to the Fyles Leaf Bed site on Ellesmere Island in Nunavut. Lower: In her lab, Rybczynski has laid out some 30 limb-bone fossil fragments of the High Arctic camel for further study.

## Better Camels?

Could racing camels benefit from the same kind of reproductive science that for decades has helped develop racehorses? In the 1990s this was a question in the mind of Shaykh Mohammed bin Rashid Al Maktoum, vice president and prime minister of the United Arab Emirates, ruler of Dubai and aficionado of both horse and camel racing. At the same time, Julian (Lulu) Skidmore was putting her recently received degree in animal science from the University of London to work with renowned equine reproduction specialist Twink Allen in Cambridge, England. When Allen was contacted to consult on a camel-embryo transfer project for Al Maktoum, he sent Skidmore as a research assistant. She quickly realized that while much is known about horse reproduction, little was known about camel reproduction. Twenty-seven years later, Skidmore is scientific director at the Camel Reproduction Centre in Dubai. *AramcoWorld* spoke with her by Skype.

**AramcoWorld:** What do you do at the Camel Reproduction Centre?

**Skidmore:** We've got a group of about 200 research camels. When I started, because so little was published about camels, we were able to do a lot of the pioneering work on just the normal reproductive cycle. And that led to doing a lot of embryo transfers and freezing embryos—some of the first [such work]. I suppose the real highlight was introducing a hybrid that had a llama mom and a camel dad. If you could get a camel-sized animal with an alpaca-like coat, you would have a lot more good fiber and things to work with. That would have been a practical benefit.

**AramcoWorld:** Why is it important to study camels?

**Skidmore:** Camels now are becoming more popular. Camel racing here was the main drive. The camels are worth a lot of money, a bit like the thoroughbred racing industry in the UK, so you have to study to see what the problems are and how you can improve them. But they're also being used as dairy animals now, and that's becoming more and more popular. There are many different health benefits, and the antibodies of camels



are slightly different. So, the more we explore camels, the more fascinating we find they are. You can provide milk, meat and transport with very little food import, so camels are very important for the more developing countries as well.

**AramcoWorld:** What other types of research are happening?

**Skidmore:** We've been cloning camels, and we're doing a lot more cell-culture work with camels now. We are doing stem-cell work to see whether you can improve things like legs, tendons—much the same as they are [doing] in other species. And there's going to be some work I think on antibodies, and blood work, all of which is pretty much in the starting stalls at the moment. I think universities are making more of camels now, and I think people are actually becoming more aware of camels. Rather than [seeing them as] that grumpy animal with the hump in the desert, they're actually beginning to realize their benefits. And at the end of the day, with global warming and climate change, if it all really happens and we end up with desertification of areas, camels are going to be the ones that can survive at all. They'll be the survivor species, I reckon.

now the border between Turkmenistan and Iran.

Domestication of the dromedary likely occurred a thousand or more years later, but the exact period remains uncertain. The dromedary domestication also opened up a network for trade, mainly via the trans-Arabian incense routes and, in North Africa, the trans-Saharan routes. Hans-Peter Uerpmann, former professor of archeobiology at the University of Tübingen, excavated the area of Mleiha in Sharjah, United Arab Emirates (UAE), where camel bones have yielded insights into the transition from wild to domesticated. Both the wild dromedary species and the wild Bactrian one were larger than the subsequently domesticated animals.

Uerpmann reasons that, according to the available evidence, dromedary domestication “happened somewhere in Arabia during the transition from the Bronze Age to the Iron Age some 3,000 years ago.” The evidence comes from several archeological sites in the UAE dating back further, where remains of hunted wild camels have been found. Some are on the coast: It appears that wild camels, like their descendants, may have been attracted to grazing on mangrove trees.

Scientists also hope for fossil remains to come to light along the largely unexplored Red Sea coast of Saudi Arabia, as well as in the many thousands of paleolakes that pepper the

country, some of which are being surveyed and excavated.

“Many open questions remain,” says Pamela Burger, a conservation geneticist at the Research Institute of Wildlife Ecology at Vetmeduni Vienna. “We have managed to turn the wild

**Camels line up for milking at a dairy farm in Dubai. Consumed by Bedouin for ages, camel milk is now finding its way to grocery shelves. With less fat than cow milk, it is lactose-free and high in iron, Vitamin C and protein.**



dromedary into a domesticate, but we still don't know how and where domestication began, and what effect it has had on today's animals."

Burger explains the challenges she and other scientists face. Genetic studies for camels lag significantly behind those for horses. "Equid finds are often from permafrost zones, and there is far more genetic material available," she says. "But camel remains are far fewer and invariably are found in hotter regions" where ultraviolet and heat exposure break down DNA. "It's not a question of knowledge or techniques. It is more the issue of resourcing studies and obtaining good specimens," says Burger.

Even so, Burger and her team have made discoveries. For example, during the process of domestication, humans bred the domesticated animals by selecting those parts of the genotype that brought the most benefits and, over time, this has reduced genetic diversity. However, this has not been the case with the dromedary, which continues to exhibit enormous genetic diversity. This makes camels unique among domesticated animals.

Using samples from more than 1,000 dromedaries that they have compared to archeological samples, Burger and her team concluded that the dromedary's genetic diversity was a consequence of its extensive use as a transport animal. The to-and-fro over long distances on caravans brought dromedary populations into contact with each other. Over centuries, this produced a genetic flow that furthered diversity. By contrast, farm animals such as cows, sheep and chickens have seen erosion of their genetic resources.

This knowledge is opening the door to new research on optimum traits that can further aid in selective breeding for meat and milk production on mass-marketing scales. (See sidebar, p. 16.) It also may help improve racing and show stock. Like other domesticated species, the camel, too, is rapidly moving into an era in which its relationship to humans is ever more deliberately and scientifically managed. It has achieved remarkable and extensive adaptations, and its symbiosis with nomads has inspired a multitude of cultures. In so doing, the camel has also achieved the distinction of being a domesticated animal that, when compared among other species, offers and provides humans uses of unparalleled variety. These include food through milk and meat, and resources such as wool, fur, skin and manure, as well as services as long-distance mounts, long-haul pack animals, patient

agricultural partners and lifters of water at wells.

Today, camels and their human companions also give us enjoyment and entertainment through racing and cultural activities such as camel festivals. They are now providing a foundation for increased academic and scientific attention through organizations such as the International Society of Camelid Research and Development, the International Camel Consortium for Genetic Improvement and Conservation, and the Camel Research Center at King Faisal University. All promote research and fieldwork, conferences and information exchanges in the growing field of "camelology." "While some studies might be focused on improving camels for racing and their looks, our attention is more on improving strains for productive uses," says Faisal al-Mathen of the Camel Research Center. His colleagues, he continues, are collaborating with the University of Inner Mongolia to find "new camel products from milk, fat for cosmetics as well as immune studies."

**S**usan Hoebich, who was so enraptured by the camels she saw in the market in Riyadh that she set out to secure a thoroughbred pair for her California ranch, never was able to realize her dream. Restrictions on animal imports to the US from the Middle East thwarted her. She acquiesced to the purchase of a pair locally born. Their pedigree? Australia—which imported its first dromedaries in the 19th century.

The great migration continues. 🌐



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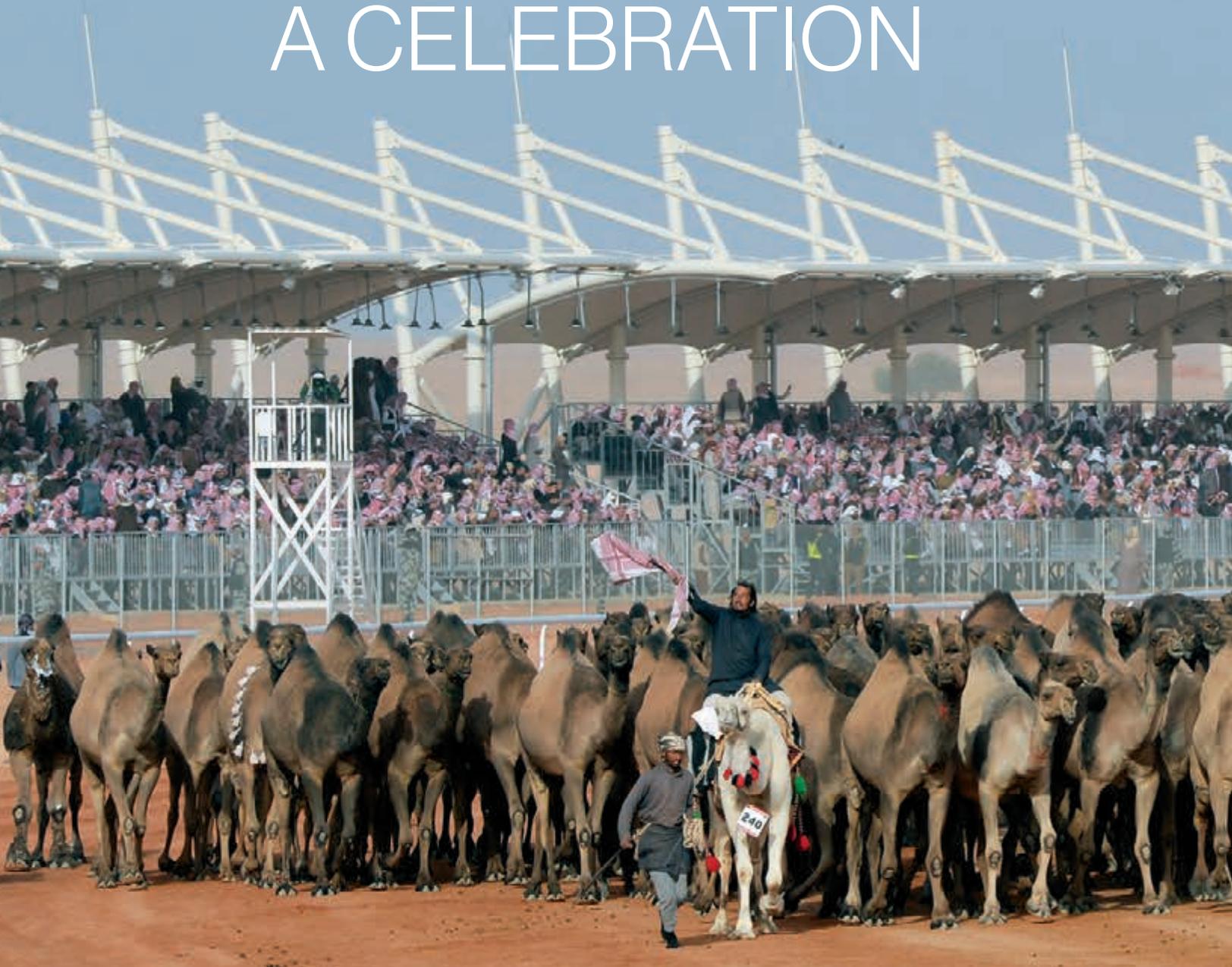
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TOR EIGELAND, OPPOSITE, TOP; COURTESY OF LULU SKIDMORE; LOWER: HATIM OWEIDA

# Camels AND Culture

## A CELEBRATION



As the morning mist dissipates over the flat desert, a rider mounted on a camel bedecked with red tassels calls out and, as one, 100 camels break into a trot at the end of a long straight track. These are purebred *sheqah* camels, beige in color and native to ‘Ar’ar, near the northern borders of Saudi Arabia. Spectators in the stands cheer as the camels flow by, humps a-bobbing and knees a-jutting; a couple of drones whir overhead. A few hundred meters down the track, the driver beckons a second time. Barely breaking its motion, the herd turns and parades back to its starting point.

It’s the 100-camel herd competition day at the *Mazayen al-ibl*,

the Camel Beauty Contest, which also features 10-, 20-, 30- and 50-camel events, dozens of individual competitions and an entire, separate, eight-kilometer circuit and viewing stands devoted to camel racing. What started more than two decades ago as a Bedouin festival in northern Saudi Arabia has become, over the past two years, the King Abdulaziz Camel Festival, an officially sanctioned, 28-day celebration of the national animal. This year it has drawn more than 300,000 spectators, and 1,900 owners have brought with them the main attractions: 38,000 camels.

Headed by the Riyadh-based King Abdulaziz Foundation for Research and Archives, the festival offers more than a dozen events and pavilions for exhibitions, history, crafts and more, all amid newly built, permanent fairgrounds. It’s

Written by  
**SHAISTHA KHAN**

Photographed by  
**HATIM OWEIDA**



*Left:* Following their mounted leader, a herd of camels parade along the racecourse at the King Abdulaziz Camel Festival, which has drawn more than 300,000 spectators over 28 days. *Above and top:* Spectators cheer on favored camels competing in dozens of categories for racing, beauty, obedience and more.

aimed at attracting urbanites—who these days may be no more familiar with camels than their peers in Texas might be with horses.

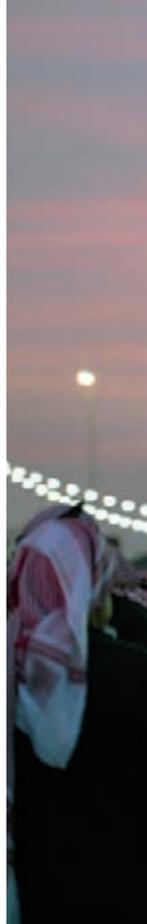
“There is a big audience for camel-related activities,” says Fawaz al-Muhrej, a board member of the government’s newly established Camel Club, which is charged with promoting camel-related events nationwide. Last year, he explains, camel events in Saudi Arabia were “consolidated and aligned” with the kingdom’s Vision 2030, the national strategy for economic diversification.

“The festival aims to evolve into a global event, with pavilions and camels from other countries,” al-Muhrej adds, “a world-class, international affair, one that people will

automatically associate with Saudi Arabia.”

Now situated just outside the city of Rumhiya, northeast of Riyadh, the festival occupies more than 10 square kilometers with dedicated areas for the beauty contest, and races; as well as auctions, markets and a central area for family entertainment showing rare camels, camel-hair art, a photography contest and cultural exhibits. As al-Muhrej explains, this is intended to be just the start of much more: Plans include camel safaris, camel-milk factories, camel hospitals and camel-research centers.

Listening to al-Muhrej, I can’t help but wonder why, in the 21st century, put on such a traditional event? Why not something ultramodern and international, like a Grand Prix Formula 1?



One of the festival's auction corrals, *top*, offers potential buyers close looks at camels that can command prices higher than a luxury car. *Above left*: Traditional Saudi folk musicians entertain festival visitors, and *above right*, a judge marks his scores as camels pass by during *Mazayen al-ibl*, the camel beauty contest.

Sultan al-Omani has been judging camels for well over 30 years, both in Saudi Arabia and in the United Arab Emirates (UAE). Watching the sheqah herd, he scribbles a few numbers on a piece of paper, perhaps crossing out a previous rank-holder. Beauty here lies in the eyes of highly trained beholders: the judges. The height of the she-camel; the shape of its nose and lips; its body structure and proportion all count: “Nothing is bigger than the rest,” al-Omani explains.

“Her body should not be too fluffy and fat, nor too skinny. The hump to the back is well rounded. There is a

proportional distance between the hump and the neck. The neck should be long and thin. The nose should be long and a little wide at the bridge—this is a very good sign of beauty. The ears are pert, and lips should droop. The taller the camel, the more beautiful.”

Nearby, Abdulaziz al-Musa, 18, is at the festival to present his father's camels at the beauty contest. He's grown up attending camel festivals, and last year, the al-Musas won a second-place prize that paid \$200,000.

To breed and grow beautiful camels, he explains, the al-Musas feed their camels a diet of barley and dry hay. The herd has an exercise regimen that includes long rounds twice



*Mahrajan al-malik Abdulaziz al-ibl—King Abdulaziz Camel Festival—proclaims a sign, top, in the festival’s main plaza. Started informally in 1999 by Bedouin in northern Saudi Arabia, the festival is now a national event. Above left: In the craft exhibition tent, a weaver demonstrates Bedouin textile-making. Above right: A moment between an owner and one of his camels offers a glimpse into the rapport that has underpinned the relationship between humans and camels for thousands of years.*

daily and veterinary checkups monthly. “I think it will be a tough competition between the amir’s [prince’s] camels and our camels,” he jokes.

With a total of \$57 million in prize money to be handed out by the end of the festival, and some \$31.8 million of that for the beauty contest alone, stringent rules are in place to ensure fair play. Electronic registration sees every camel fitted with a microchip that stores details of the camel and its owner, and camels are inspected before each event. With such rich bounty, and social prestige in owning what could be literally a million-dollar beauty or herd, the stakes are high—and emotions run strong.

Despite these incentives, though, Jasser al-Hajri agrees they are nostalgic for the simpler, at times even chaotic, old Mazayen al-ibl. They say, that was a more social gathering where camel breeding and herding families come together to appreciate beauty and finesse. “Now, everyone wants to be the best and win,” says al-Hajri.

This year there are indeed more ways to win: For the first time, there is a camel obedience contest. Fawzan al-Madi, head of the Organizing and Field Committees, has championed the new contest.

“There are several ways to test the obedience of camels:



simple tests like having the owner command it to sit or stand up, or the handler serve the camel some food, and if it continues eating despite the handler calling, the camel is deemed undutiful,” says al-Madi.

More complex tests involve making two differently colored herds walk into each other. “If one camel follows the wrong herd to the other side, the herd loses. The handler will also take the camels through very tight spaces, causing some of them to get scared and back away,” he adds. At the heart of the competition is the assurance that the owner and his camels remain inseparable.

**F**urther away from the fairgrounds, at the camel auction, men and boys gather around a pen as the auctioneer, megaphone in hand, enters and invites bids on a golden-yellow she-camel and her calf. “What? No takers?” he asks, tossing out a stream of friendly banter and cajoling. He presses on, the rising pitch of his voice suggesting that this duo is a prized pair that will be worth a lot more than what

meets the eye. One observer speculates the price might go up to \$60,000.

Some 400 transactions have taken place during the first three weeks of the festival, and this has led to a nationwide increase in camel prices, says Fahad Saeed al-Diryabi, owner of the auction house. Here, he explains, buyers can take home anything from an individual camel to a whole herd. Camels can cost as much—or more—than luxury cars, pickup trucks and desert-popular 4x4s: from about \$1,500 for the most ordinary dromedary all the way to more than \$750,000 for a top, breeding-ready beauty or racer. People buy for all kinds of reasons too, he adds. “A camel calf will make for grand banquet dinner, a male camel for racing or procreation, or a beautiful she-camel to grow their herd and take part in future competitions.”

The most sought-after camel breeds are the yellow *she’al*, the white *widbah* and the *suffur*, which are yellow with dark humps. Al-Diryabi proudly recounts a tale of a purebred camel he sold that went on to win at the races for three years in a row.

At the end of my two-day visit to the festival, speaking



*Top, from left:* In the Camel Walk category of the beauty contest, eight judges await contestants. The festival's mascot proves a popular photo subject. A family feeds a camel. Poets bring alive the camel's long literary legacy. *Lower, from left:* A herd parades along part of the festival's eight-kilometer-long racecourse. Young camels in the back of a pickup truck help lure their mothers along during one of the herd events of the camel beauty contest; attendees cheer on. In the Art Tent, children take part in creative activities. A breeder talks to a family about his camels. This large camel sculpture in the festival plaza is one of the event's many artistic expressions.

with camel enthusiasts, experts, contenders and others, I find an answer to the question I came with. As I watch them lovingly pet and play with their camels, ardently recite camel poetry and narrate camel tales, I am reminded how much the humble dromedary is integral to the identity of this country. It was on camels that the earliest traders helped build this region's first civilizations, and it was on a camel that in the early 20th century King Abdulaziz Al Sa'ud united today's kingdom. Riding on such legacies, the festival reinforces a sense of pride more than any Grand Prix ever could. 🌐



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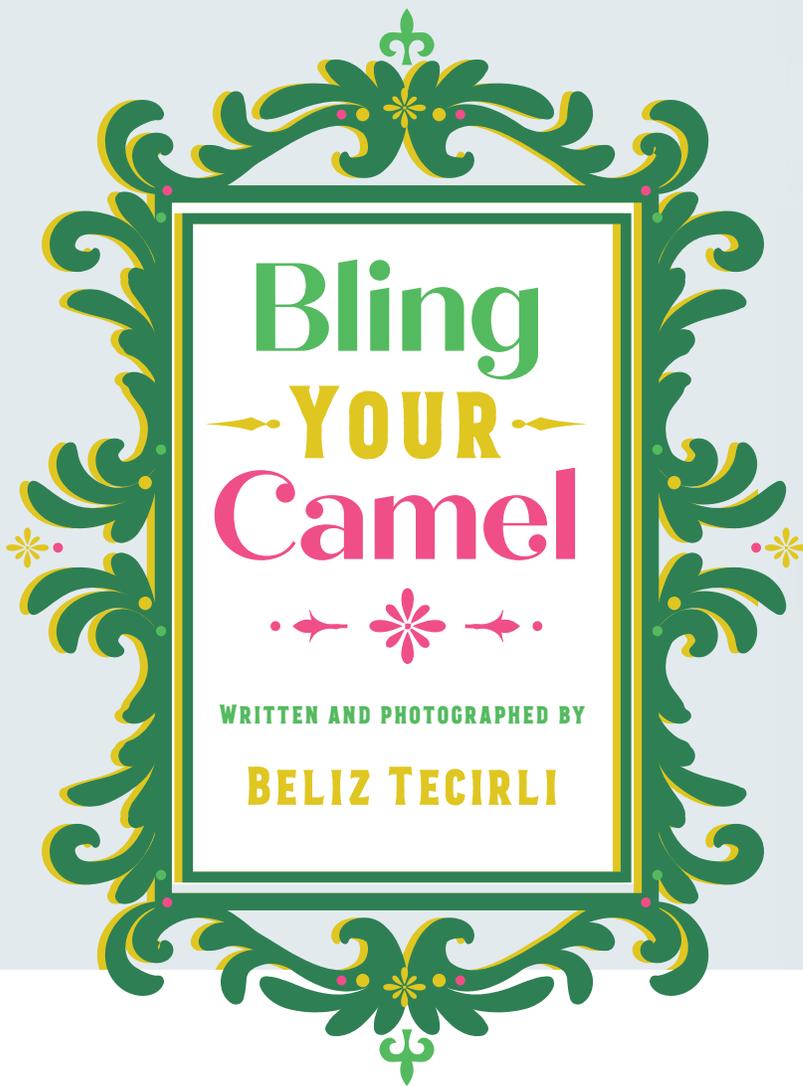
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## 📌 Camel, camel ... who's the fairest of them all?

As if it's not enough to endure the planet's hottest and driest landscapes. As if it's not enough to do it carrying 200 kilograms, walking 150 kilometers, day after day. With no water. And then taking just 10 minutes to quaff 100 liters and keep moving. As if that's normal.

All this our beloved mammal, the camel, has done for thousands of years. With grace. With poise. Even beauty.

"A long neck. Big, droopy lips." Camel owner Ehlal al-Shaibani tells me some of the traits that have him and his herd pocketing prize money at the King Abdulaziz Camel Festival's annual furry, four-legged pageant. "The color of the camel is not important. That's subjective," he adds.

Head judge Fawzan al-Madi says it's mostly a matter of genes.

"At six months, based on the genealogy, it is clear if the camel will have a career of beauty contests or be sold for its meat."

But a camel can get only so far with tight genes. In some categories of the contest, judges eye not only looks, but also decoration.

So get ready to bling your beauty beast.

Here are a few ways to start.

### IT'S ALL HANDMADE

First, know there are no factories making camel bling. You can't order this stuff online. All items are handcrafted, and the cost of fully fitted camel gear might cost as much as, say, remodeling your kitchen. Well, not always, but close.

A good place to start kitting up is the Suq al-Dahna. This is the camel-oriented market set up along the road near the King Abdulaziz Camel Festival. Families are given a stall space for free to sell handcrafted camel accessories. Not a designer label for 120 kilometers. It's *the* place.

### BEGIN WITH JEWELRY. LOTS.

Necklaces are the most obvious and literally in-your-face of camel decorations. You might choose some big, elaborate creations made from multicolored braids. Look for ones that have the most ornamental accessories such as shells sewn in. Hang them from the camel's head like rainbow dreadlocks, and make sure you get them long enough to almost scrape the sand.

Or get some with luxe cotton pom-poms, tassel mirror charms that sparkle in the sunlight, and all manner of hundreds of silky threads in a kaleidoscope of colors.



**Sultan al-Buqami, spokesperson for the festival, points out that Arabs have a long tradition of making prominent decorations for camels on special occasions, especially for the head and neck, as well as chains, bracelets and plates of brass to be fixed along the camel's nose.**

Remember, we're not going for subtle here. So now it's time for a bell.

As you might expect, this goes on the neck. It is wrapped with wool dyed with many colors, shaped like a large knot. There is no clapper, so it makes no sound. This is just for adornment. Get a big one.

**ANKLE SPARKLES, AND HOW ABOUT AN ELVIS QUIFF?**

For both sparkle and sound, try a quartet of anklets. Most are cast out of brass, and their jingle will make your camel sound like a desert sleigh ride.

Then go visit the men with scissors, and don't ask for just

From saddlebags hand-woven in traditional patterns to tinsel-tassel costume-crystal necklaces—camel-sized—vendors at the roadside Suq al-Dahna also offer riding crops, straps, cinch belts, blankets, neck bells, foot bells and, *opposite*, plastic flowers to add flair to any pretty nose.

a trim. These artists could make Vidal Sassoon swoon with the intricate designs they can cut into a coat of fur. How about a stunning mandala? Geometrical patterns to run chest to tail?

**FOUR STICKS, TWO STICKS, NO STICKS, FORKED STICKS?**

Of course, your pretty-faced, blinged-up camel won't be much good for riding until you saddle up. Custom saddle versions start around \$3,000. Look for one with light chrome, high-density foam, nylon, webbing, leather and felt pads. (An antique one would use wood, iron, leather and grass stuffing.) Choose a sporty two-stick saddle for speed and simplicity, but it requires tricky rigging, and you don't want to hurt your camel. A four-stick saddle sets you up more like a camel SUV: a lot more baggage and supplies, easier to load and unload, and good balance.

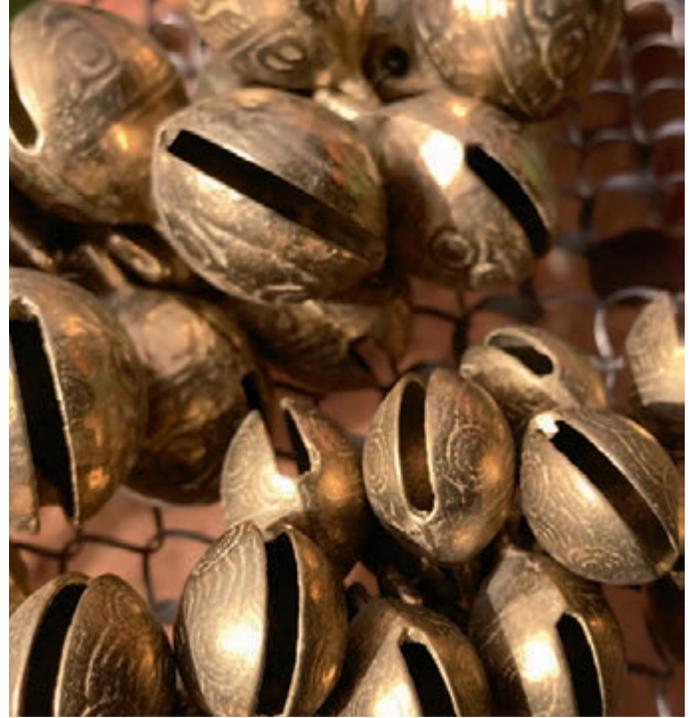
**UPGRADE YOUR SADDLEWEAR**

The modern Arabian camel saddle is a beautiful affair, often with dual seats and high pommels, adorned with brilliant colors and saddlebags fringed with polychrome pom-poms and tassels down each side. (Just don't ask for air conditioning.)

One of these on your camel's hump will literally raise your bling factor a couple of serious meters.

HATIM OWEIDA (2)





Trimmed, shaved and cut again, camel-hair art, *above*, is often practiced for special occasions. *Right, from top:* Brass footbells from India; a two-seat *howdah* that updates a very old, transverse saddle design often used for women and children; negotiating at the Suq al-Dahna.

### UNLESS YOU ADD A ROOF.

The iconic *howdah* is a seat that provides canopy and accommodation for two or, cozily, even more. Riding a howdah must have truly felt like being aboard a ship of the desert.

### KEEP ADDING TRAPPINGS

A camel can be a hard beast to ride at the best of times, so people have made the job easier with reins and more to keep camels on the straight and narrow. There are many with stunning designs made from dyed wool, camel hair and even horse hair. Your camel's front and rear can be draped with *dababeeb*, wool or tightly woven fabric placed on the back of a piece of woven wool cloth called *al-shamalah*.

Down the sides of the camel, from each side of your saddle, hang *al-safaif*, your two-part, multicolored wool cinch belt that ties down and around the camel's stomach. This you can have embroidered and adorned with multicolored metals and lashes.

Ready to stride? Time to hit the sands? Just be ready—there's a lot of competition out there. 🌐



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# A TOUCH of IRON

WRITTEN BY  
JAMES P. MANDAVILLE

*Larw la wusumba*

*Da'at kbushumba.*

(If not for their brand marks

Their noses would be lost.)

—BEDOUIN RHYME

In this Arabic verse, “noses” means camels. Even though a good herder can recognize every camel in his herd on sight, keeping track of herds is easier when the animals are marked. *Wusum*, or brand marks, are meant mainly for others.

Egyptian tomb paintings and records from Mesopotamia show that the branding of livestock goes back at least to the second millennium BCE. Because many brands are simple geometrical forms, and all are applied with hot iron instruments, there are similarities in both ancient and more recent brands, as well as similarities with brand markings across geography. (For example, some camel wusum in Saudi Arabia are identical to cattle brands in the American West.) The advantages of branding as a sign of ownership lie mainly in its simplicity and permanence: Attempts to alter a brand leave tell-tale scars.

The camel brand—*wasm* in its Arabic singular form—also functions a bit like a European coat of arms in that it belongs to a certain tribe, clan, family or individual. All members of a given subtribe use the same *wasm*, but may add personalized small marks, often a line or a dot, called a *shabid* (witness).

The same *wasm* is sometimes used by more than one tribe, and each tribe will position it distinctively, such as one on the cheek, another on the neck, another on the hip or thigh. Branding takes place when camels are 12 to 18 months old, during the summer months when herds are gathered near wells.

*Wusum* can also label other property, such as wells, where a *wasm* might be inscribed in stone or (more recently) cement. Sometimes they appear on boulders or cliff faces, engraved by herdsmen whiling away hours or marking passage.

More than one scholar has noted the resemblance of *wusum* to letters in Ancient South Arabian, a script used for the language of the southwestern Arabian Peninsula, from about the fourth century BCE to the fifth century CE. Overall, however, these resemblances appear to be, like others, coincidental overlappings of simple geometrical forms common among cultures worldwide. 🌐

A *wasm* usually consists of one to three elements. Each basic form carries a name that is well-known among the various tribes.

The following are some common examples.

- | *al-matraq* (the striker or staff, a straight line)
- *al-ragmah* (the dot)
- ⌂ *al-bab* (the door)
- *al-halga* (the ring)
- ∪ *al-hilal* (the crescent)
- *al-'aradi* (the trio of hearthstones that support a pot)
- X *al-magass* or *al-jalam* (the sheep or goat shears)
- T *al-maghzal* (the spindle)
- 2 *al-hayyah* (the sand viper)
- ∪ *al-tuhayhi* (the sand-dwelling lizard)
- └ *al-mish'ab* (the angle-ended camel driver's stick)
- └ *al-bakur* (the curved-ended camel driver's stick)
- E *al-misht* (the comb)
- △ *al-madhba'* (the hyena's den)



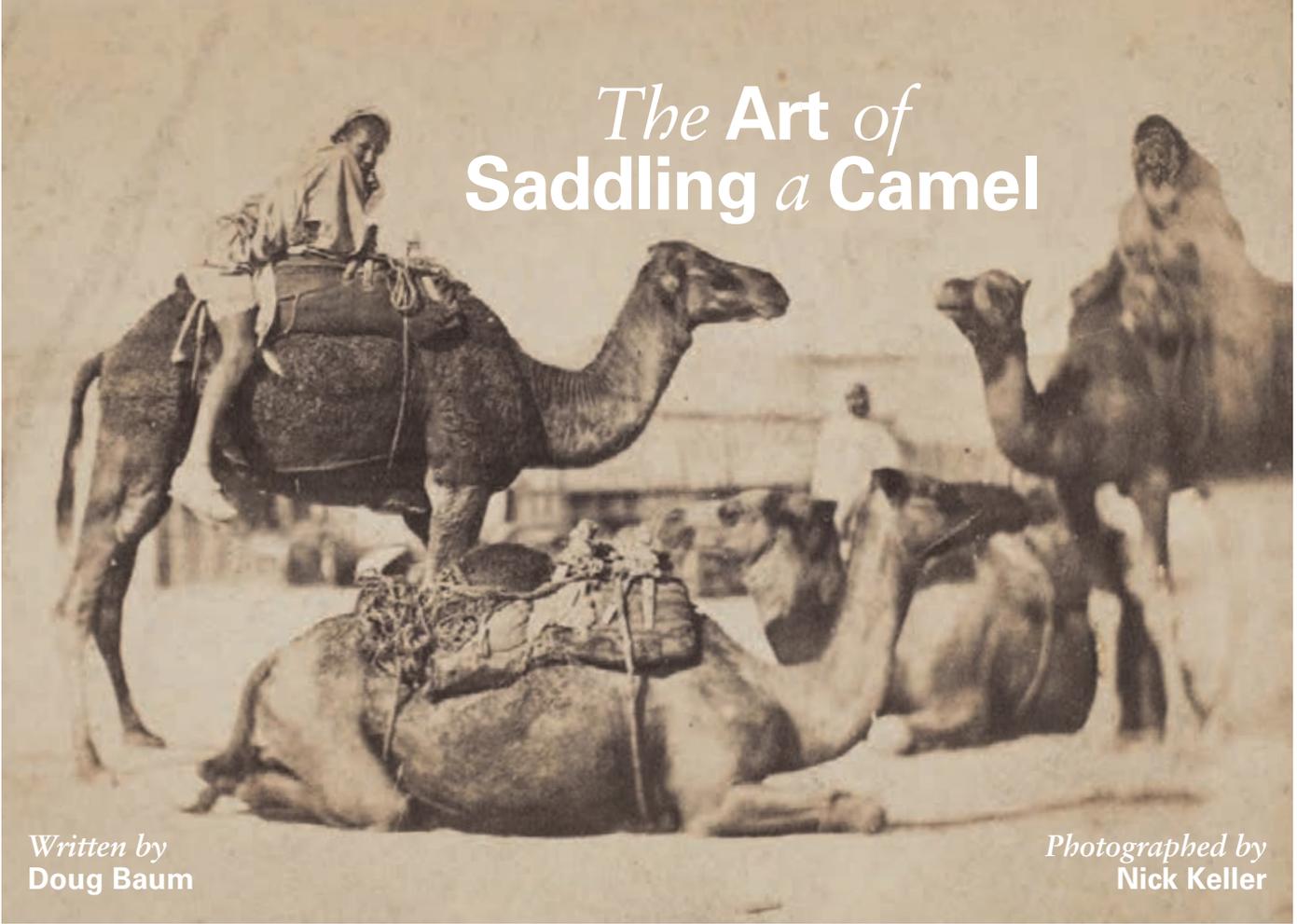
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# The Art of Saddling a Camel



Written by  
Doug Baum

Photographed by  
Nick Keller

## From the earliest days of domestication, the camel has presented a unique challenge: How do you ride an animal with a hump in the middle of its back?

Surprisingly few studies have focused on the technologies that harness the labor potential of the camel from Asia to the Arabian Peninsula to West Africa. Not surprisingly, surveys of this kind are not always of much interest to many camel herders and drivers themselves.

“This is the way my father and grandfather did it,” says Adel Hamza, 55, who has offered camel rides to tourists at Egypt’s pyramids since he was a boy.

“We’re too busy working to study why something is the way it is,” says Mohammed Abd Elhay, a veterinarian in Cairo who has worked with camels.

Richard Bulliet, in his 1975 book, *The Camel and the Wheel*, points out that the first camel saddle was likely a blank

et or an arrangement of mats, across which the weight of an equalized load on left and right could be placed.

The dromedary (one-humped) camel allows a rider to sit in front of, on top of, or behind the hump; the Bactrian (two-humped) camel is saddled between humps. It is not surprising, then, that camel saddles vary as much as the cultures that make them and the work the camels do, as well as the resources available for fabrication. Generally, in regions where wood is plentiful, one finds larger contraptions; in less resource-rich areas, designs tend to be minimalist.

① One such wood-scarce region is the Horn of Africa, where the simplicity of saddlery hints at its beginnings: Here saddles are for carrying, not riding. Two pairs of poles, made from tree



1

Somali



2

South Arabian



3

North Arabian frame



4

North Arabian

branches and placed over blankets, hides or grass mats, cross over and rest upon the camel's hips and shoulders and meet on either side along the lower abdomen. According to former herdsman Abdulkarim Adhan, "Nomads have no time for decorating those sticks! Most important is that it can serve its purpose."

2 East across the Red Sea, the South Arabian camel saddle evolved with the overland incense trade, and it still finds utility throughout parts of the Arabian Peninsula. This saddle places the rider behind the hump. It employs a U-shaped pad, called *mahawi* in Arabic, that provides cushion, back support and a restraint to prevent the rider from sliding off. Often decorated with geometric patterns, the mahawi is secured around the camel's flank by a woven strip of goat hair called a *kfal*. This in turn is tied at the front to a single- or double-arched harness often made from acacia trees. According to Hamood al-Wahiba, a Bedouin camel herder from Oman, this allows for both riding and heavy packing using woolen bags hung on each side.

It was probably in Babylonia and Assyria that camel cultures first came into contact with horse cultures, and the horse's superiority in warfare likely gave rise to the North Arabian saddle, which is situated on top of the hump—the best position from which to fight with spear and sword. This saddle is supported by a pair of wool or canvas pads, one on each side of the hump, stuffed with grass, palm fiber or straw that level the contours of the camel's back. Centered and closer to the camel's head, the rider gains control.

3 The frame for the North Arabian saddle is two upside-down, Y-shaped pieces made of tamarisk wood, *tarfa* in Arabic—one in front of the hump and one behind—joined by two pieces on each side. The front and back poles of this saddle can extend up high enough to hang the rider's belongings, in one or more handwoven and often beautifully dyed saddlebags called *horj*. 4 Tassels on these bags hang below the belly of the camel and sway with the camel's gait—a decorative motif that also deflects flies. A fringed leather leg-rest pad, or *meerika*, stuffed with camel hair or wool, hangs from the front.

Fully bedecked, a camel carrying a Bedouin can be quite a sight. On a trek a few years ago, my Bedouin travel companion Saleh, 55, and I met a young man riding high on a camel fitted with tassels hanging from every possible place. The halter had an ornate knot of goat hair over the bridge of the nose, and the meerika was shiny and new. I asked Saleh why our camel lacked such accoutrement. He replied, "I am old and married. He's still young and looking for a wife!"

5 In central North Africa, the Tuareg *tirik* is one of only a couple of camel saddle styles that utilize the camel's shoulder. Its origins are a response to the need for maximum rider control, and it seats the rider forward of the hump, as near as possible to the camel's head.

"Specialized craftsmen take three to four months combining wood and leather to create each saddle," says Tuareg nomad Sidi Amar Taoua. Sometimes small copper bells hang from the saddle, and the varied artistic expressions give clues to region and tribe, he adds.

6 Looking eastward from Arabia, resources are comparatively plentiful in northwest India's Rajasthan. Here the *pilarn* is an ornate apparatus of wood and brass with three grass-filled leather pads, one on either side of the shoulders and one behind the hump. On either side of the body, high along the rib cages, sit twin wooden runners, connected by three wooden arches over the front, middle and rear of the camel's back. Where each piece meets is brass joinery, and the wood can be inlaid with brass, silver or stainless steel. Colorful fabric, embroidered with floral or animal motifs, is often laid over the entire saddle. This saddle can thus accommodate two passengers, one in front of the hump and the other behind. (The Indian romantic tale of Mahendra and Mumal is often accompanied by images of the couple thus seated.)

7 In Central Asia the two-humped Bactrian camel offers its own logic. Most commonly, a piece of fabric sits between the humps, over a pad or blanket, with two connected "fenders" hanging down each side, complete with stirrups. Ornamentation is mostly embroidery in traditional motifs.

8 For packing on Bactrians, gear is tied to wooden poles, one on each side that rests on rectangular wool pads stuffed with straw.

These technologies are far from all. As the roles of camel cultures diminish worldwide, the art and engineering of camel saddlery offers windows into the history of cultures that bear a deeper gaze. 🌐



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5  
Tuareg



6  
Indian



7  
Bactrian



8  
Bactrian camel pack



# The Culinary Camel

I have a dark secret: I am not a great cook. I could live off cheese sandwiches, whole fruit and the occasional meat, forever. My mother doesn't know this.

So it should come as no surprise that I, a woman from Saudi Arabia, have never eaten camel meat. Or drank camel milk.

And while I am, clearly, without shame, I am also curious. That is what brought me to the tent in al-Rumah, two hours from Riyadh, at the King Abdulaziz Camel Festival. I came knowing that, over the next few days, I'd be eating camel.

It only took a few hours.





Written by **SARA AL-BASSAM**

Photographed by **HATIM OWEIDA**

“Dinner is ready.”  
The words come with much anticipation. Dinner, it turns out, was camel. They divided part of one camel among five enormous silver trays, each with rice and vegetables.

“Do you eat camel often?” I ask my companions.

“Not really,” Nada answers. “We have it when important guests visit us. And during Ramadan. We have to have it during Ramadan.”

“We’ll buy a whole camel and split it between our homes,” she says. One camel can feed several hundred people.

She explains that the “most delicious” camel meat is *hasbi*. That means it comes from a camel between six months and one year old.

“They’ve got enough meat on them by then, but are also nice and tender,” she says. “That’s what we’re eating today.”

Yikes. I had prepared myself to eat camel, but not *baby* camel. Refusing was not an option. “What will it taste like?”

“Like lamb,” she says.



Later in the evening, Mohammed al-Rushoody, our host at the festival, tells me stories of growing up with pet camels. His favorite was a young male, which he nursed when the mother died. “I was so upset when he died.”

“How,” I ask, “can you eat camels when you’ve raised them as pets?”

“Because they’re delicious,” he says, grinning. “And besides, their purpose is to be eaten.”

Top, from far left: Camel sliders and fries go down with mango juice at Louvre Abu Dhabi café. Just add water to Camelicious’s camel milk powder. Wash and rinse with Camellure’s camel-milk shampoo. Desert begets dessert with date-flavored ice cream at Al Fanar in Abu Dhabi. Baby Camel Bites come with Cajun spices at CML Station, Abu Dhabi. Camel Cookies come by the can, and Nouq camel milk ice cream comes in flavors that include pistachio and Arabic Mastic. The Camel Soap Factory’s signature scented soap bars sell briskly to tourists; Al Nassma’s gold-foil-wrapped camel milk chocolate comes in five flavors. Opposite: Baby Camel Salad at CML Station; Endurance Drink and milk by Camelicious.



This is where Mohammed is mistaken. Before their meat ever filled anybody’s belly, camels were first and foremost a means of crossing and surviving in deserts. It’s a job they got by developing padded feet, protective long eyelashes and of course the ability to go weeks without water. Their hair and skins provide clothing and shelter, and even their pellet-like excrement—nearly odorless—can be burned to cook a meal. Not to mention the nutritious milk. They’re “ships of the desert” for good reasons.

But that’s a role that seems to be changing.



The next day, I ask my colleagues if they’ve ever had camel meat or milk before.

“I got invited to a friend’s farm, and I got to drink camel milk, straight from teat to bowl to mouth,” says Jason, one of the photographers. “The milk was still warm in the glass. It was very sweet.”

Trays of camel meat with rice make for traditional fare for owners, breeders and family members at the annual King Abdulaziz Camel Festival near Riyadh, Saudi Arabia. The meat of a single camel can feed up to several hundred people. Before refrigeration this meant that a camel would be slaughtered only for a major event.



“Really?” interjects Hatim, the other photographer. “I also drank it straight from a camel, but the milk was salty.”

Mohammed shares his own experience: “I find camel milk very sour, actually.”

Three people, three very different impressions: Is camel milk a kind of tasting equivalent of a #TheDress debate?



At the festival’s *suq*, I meet Umm Abdullah, an older woman who is selling camel bridles. I ask if she has ever eaten camel. She laughs.

“Child, I used to raise and milk camels myself.” Her eyes well up. “We are in the city now. But I’m a Bedouin. I’m just a city-dwelling Bedouin.”

She refuses to share her recipe for camel meat. “You simply use the same spices that you would for lamb,” she says. “Everybody has their own favorite mix.” Instead, she shares her recipe for camel milk.

“It’s best during the winter,” she says. “Or you can heat the milk with some desert plants and leave it to ferment, and then it becomes like yogurt.”

I wrote it down:

Camel milk, pasteurized

Ginger

Sugar

Cardamom

Black pepper (optional)

Just like that.



Next door, Umm Muhammad is happy to share her camel meat recipe. “I only make camel meat with rice, like a *kabsab*. It doesn’t work otherwise,” she says. “I put cinnamon, dried lime, bay leaves, cloves and cardamom. But I don’t like camel.

“I know I’m from the desert,” she continues, “and I’ve eaten it a lot. It’s healthier, but I never liked it.”

Farther down the *suq*, Umm Ziyad asks if I’m interested in spices. I ask if she has any for camel meat.

“They’re all for camel’s meat,” she says, adding, “my mix is special. I can’t tell you what’s in it, so don’t ask me.”

The way to cook camel, she says, is “just like lamb, but double the cooking time so it becomes tender.”

I mention the need to impress guests. “Use my spices on onions for a delicious *kabsah*, and sauté them together before you put in the meat,” she instructs. “Or if you want to really impress, make *harees* with camel’s meat. But don’t use any spices.”

Harees is a porridge-like dish, and it is a traditional recipe from Najd, Saudi Arabia’s central province. She directs me: Put the camel meat in until it is “half-cooked, or the fat melts a bit.” Then add harees (cracked wheat, or bulgur, would likely do). Add water. Boil.

She eyes me. “Or I could show you. Call me when you’re about to cook.”

And just like that, she gives me her number.



Back at the festival, Saeed al-Sowailem, M.D., gives me the rundown on the little-understood coronavirus, also known as the Middle East Respiratory Syndrome, or MERS, that emerged in 2012 in Saudi Arabia. At its peak in 2015, it had claimed more than 500 lives.

The virus was discovered to originate from bats, but camels, too, were carriers. This spread fears around camel milk and meat.

“Coronavirus in camels is just as common as the cold is in humans,” al-Sowailem says. “It’s always been there.” There is “no evidence that the strain that’s infecting humans is transmitted to them from camels,” he explains. But just to be sure, the solution is simple: “If you’re going to drink milk, make sure it’s pasteurized.” And meat? “Cooking meat well is important to prevent all kinds of diseases.”



Two brothers, Mohammed and Nawwaf al-Sahli, tell me there's "no way" they would eat camel, and food safety has nothing to do with it.

"I don't like it," says Mohammed, the older brother. "It's tough. It has lots of bones. But I do like camel milk a lot.

"I used to go to the camel market with my grandfather to buy and cook the meat," he says. "My grandfather had a *naqah* [she-camel] and we would drink her milk. But we sold her when he passed away, and we stopped drinking after that."

Nawwaf agrees. "I prefer lamb."



When I meet Fawzan al-Madi, he is between overseeing camel races and rounds in the camel beauty contests. What, I ask, does he look for in deciding whether a camel will be a money-winner or food?

"You can tell by their lineage, if the parents were fast or beautiful," he says, "but you can also tell when they're young. A six-month-old camel will show signs of beauty in their eyes, in the shape of their heads; or he will be faster than average."

The camels that are neither pretty nor fast get sold to slaughterhouses. "That's if they're male," he says. "We'll keep females for their milk and to reproduce."

Al-Madi is on the board of the kingdom's Camel Club, the newly formed official body that is gradually consolidating camel events in Saudi Arabia under one administrative umbrella and, with this effort, pushing camel culture to new heights.

"The camel is a symbol of Saudi Arabia," al-Madi said in a press release. "We used to preserve it out of necessity, now we preserve it as a pastime."

It may come as a surprise that Saudi Arabia, home to 1.4 million of the world's dromedary (one-hump camel) population, does not derive more economic benefit from camel industries aside from untreated camel leather. There are not yet any major commercial camel farms, let alone any significant derivative products from camel meats or milk. Currently the most reliable source of camel meats and milk are local weekly markets, where farmers gather from neighboring towns and cities to sell their produce, or straight from camel markets.

"This will all change," al-Madi tells me. "There will be factories of camel milk products, and we will export."



At the festival there are signs of this. One of them is painted on a camel burger food truck. A caricature of a camel has been given a speech bubble that reads, in English, "Born to be hamburger."

I'm pretty sure no camel ever actually said that.

There are two burgers on the menu: hashi and chicken. I realize this is not the time for chicken. I get to the cashier and ask what they put in the hashi burger.

"We add spicy *jarjeer* [rocket leaves] and our secret, special sauce," he says. "It goes great with hashi."

I take my first bite. It's tender. Juicy. Slight crunch. The spiciness of the rocket leaves is ... interesting. Ultimately, it's a burger. Not exactly a big deal.

The cashier tells me that the owner has a private farm where he raises and slaughters camels. They marinate the meat themselves. One camel will make enough burger patties for three or four days' business. "It's getting busier. People at first were surprised to see hashi burgers, but then they tried them," he says. "It's a different way of eating something familiar."



On the ride back to the hotel, I tell our Uber driver, Nasir, that I just had my first taste of hashi.

"Nice! He's still nursing from his mother!" he says. "He must have been delicious."

Nasir, it turns out, has a lot to say about camel meat.

"Did you know that the best part of the camel is not the hump, but right under the hump, where the fat from the hump has made the meat delicious and tender?"

"And don't try eating the tongue either. It's rough from eating all the spiky desert plants. It's not like lamb.

"Ah, I bet you didn't know this either," he goes on, glancing back through the rearview mirror, excited.

"The taste of camel milk changes depending on what the camel ate that day. If she eats desert herbs, her milk is salty, but if she eats dates, then you're lucky. That's when her milk is sweet."

And so it was that Nasir solved our camel milk mystery.



Back home, I reflect on the people I have met. Many told stories of older relatives who have kept traditions of raising camels, drinking their milk and eating their meat, but these traditions rarely survive beyond that older generation. For many, a need to move to the city changes everything.

My own departure from those customs happened several generations ago when my great-grandfather left his village and followed the trade route and settled abroad. My parents became the first generation of his descendants to return to Saudi Arabia. While there are many traditions we've held onto and passed on, there are some we lost.



Searching for published camel recipes, or descriptions of their culinary context, I am fairly shocked to find a general dearth of both. Whether it is Arabic or English cookbooks, written by Arab authors or foreign visitors, the gap is glaring.

The oldest "Saudi cookbook" I can find, *The Art of Saudi Cooking*, was published in 1987 by Al Nahda Women's Charity Society. In it there's mention of "passing on to our daughters ... our treasured, but soon-to-be-forgotten, local cuisine." The book has a recipe for stuffed turkey, two for lamb's brains, but not one for camel.

Going back further—a lot further—there is A. J. Arberry's translation of *Kitab al-tabikh* (*Book of Cooking*), a



Top left: Baby Camel Pizza at CML Station. Left: Chef Francis Njogu prepares minced camel meat for a Camel Bolognese at Switch, whose menu, above, offers several camel dishes.

With me are Hatim, a photographer, and Mariam, a fellow Saudi living in Abu Dhabi.

Mariam admits she has never eaten camel.

“Growing up, they told us that if you eat camel, your heart will become tough because the meat is tough,” she says.

She takes a bite of the bolognese. Pause. Chew. Swallow.

“Better,” she declares finally, “than I was expecting.”

“But I’m not going to have more than two bites. Did you take your photo? Are we done?”

First-timer Mariam Habidi samples chef Njogu’s Camel Bolognese at Switch. Her verdict? “Better than I was expecting.”

cookbook produced around 1226 by Baghdad scholar Shams al-din al-Baghdadi. It includes 164 recipes, and no camel.

To help me understand this, I speak to chef and food writer Anissa Helou, who has written nine books. Her latest, *Feast: Foods of the Islamic World*, includes a chapter on her experiences with camel.

“People didn’t eat camel in the past because it was their beast of burden,” Helou explains. This made it a great luxury, “more associated with feasts and celebrations.”

She explains that the quality of the meat varies depending on the cut and the age of the camel. Today, “camel is eaten at different [socioeconomic] levels and settings. It can be a cheap meat, which is the regular camel, the beast of burden,” she says, “or it can be very refined, baby camel [hashi] that is unbelievably gorgeous.”



There is a place, I learn, where al-Madi’s prediction of factories and camel-food products is happening.

We fly an hour south and land in Abu Dhabi.

In the United Arab Emirates (UAE) capital, we sit down at a hipster fusion restaurant called Switch where the menu includes a whole section titled “Camel.” Camel Slider, Camel Burger, even Camel Bolognese. We taste all three.





In the kitchen, Chef Francis Mungai Njogu says he had never cooked camel before he came to Switch, but he had grown up in Kenya drinking camel milk.

“What matters is the quality of the meat,” he says. “Camel cooks fast in general, because it’s more tender, but the tenderness of the meat depends on the age of the animal.”

The restaurant offers both camel and beef burgers, but Njogu says the camel is more popular even though it’s more expensive. “Most of our guests are locals, so they are familiar with it, and they become regulars because they like it.”



Our next stop is CML Station, where the menu offers Baby Camel Salad, Baby Camel Cubes and Baby Camel Pizza. It takes me a moment to realize that this restaurant’s name is not an acronym. It opened last year, which makes it about as old—or young—as some of the hashi it dishes up. Habib, general manager of operations for owner Murban Restaurant Management, says it’s one of the several food and beverage brands they manage, including Camel Cookies, which opened four years ago.

Locals “are very familiar with the world,” says Habib. “If you give them a pizza with a camel on it, they’ll accept it. They’re familiar with both pizzas and with camels.”

The concept appeals to tourists too. “They’re always asking why there is no Emirati cuisine,” he says. “This way they can say, ‘I saw a camel, I rode a camel, and I ate a camel.’”

Our meal arrives, and the standout favorite is baby camel cubes. The smaller cuts are perfectly tender, paired with potato spirals and some very un-local Cajun spice.

“Ours is a modern twist of a national symbol and product,” says Habib.



It was time for milk.

One of the two major camel dairy farms in the UAE, Camelicious, lies on the outskirts of Dubai. We arrive as camels are lining up, entering a pen, and workers are attaching automated milkers.

“The innovation of automated camel milkers happened here,” says Karim, Camelicious’s representative, who points out that each milking session lasts about five minutes and yields five to seven liters.

The farm started in 2003 with 16 camels, he says. Now it has more than 6,000.

Karim, it turns out, is something of an evangelist for his product.

“My skin and my hair have changed since I started drinking it

everyday,” he says, taking swigs of it as he talks. “It’s more expensive than cow milk, but it’s definitely not more expensive than collagen injections.”

Milking camels is also far more nuanced than milking cows. Camels produce milk for 14 to 18 months after delivering a calf but—this is the tricky part—they let down milk only to their calves, and if they are separated, they stop lactating.

“We have a different approach to the mother-calf relationship,” says Jutka Juhasz, head of the dairy’s Farming and Veterinarians Department. “When the calf is born, we keep it with the mother. We encourage that emotional bond.”

A few weeks after birth, the farm workers start training the mothers by making sure the calves nurse only in the milking pens. There, they develop an association of the handler’s “tongue-clicks” with nursing. Then—gradually—the automated milkers can be used on them.

Another key is well-being: an unhappy camel won’t produce milk. So the mothers and calves exercise daily along a track. It’s a bit like roaming the desert. Sort of.

“Camels are very friendly, very curious, and they approach us with an open heart,” says Juhasz. “They are respected. We don’t want to exploit them. We want to work with them.”



Camelicious has gone well beyond simple bottled whole and skimmed milk: There are flavors, powdered milk, ice cream and even baby formula.

Mazen Mustafa oversees new products. He takes pride in the simplicity of the lineup. “No preservatives, no hormones,” he says. “Natural and artisanal.”

The baby formula, he says, works well for children with allergies to cow milk products.

Then there is Endurance, a new energy drink. “Camel milk has all the necessary vitamins for athletes. It’s a healthy

Hungry attendees line up at “The Truck” for camel burgers (with french fries, of course) at the King Abdulaziz Camel Festival.



alternative to sugary energy drinks,” he says. A protein bar is in the works.

I ask him why this hasn't happened earlier.

“Camel herds were managed by individual families,” he says. “There’s a lot we don’t know about camels and their milk. Camel milk is a gift from our culture to the rest of the world.”



**C**amelicious Sales Manager Mohammed Ashraf says that at first, when bottles hit shelves in 2006, it was hard to convince a younger generation of Emiratis to try it. “Between the late 1970s and the 1990s, the links to the old ways of living were broken.” They hadn’t grown up drinking camel milk and for them, “it was ‘eww!’”

But converted they were. The company now produces 3.6 million liters of camel milk a year, and most goes down locally among Emiratis, Europeans and Asians alike.

The second biggest market is the UK, where although it costs three times what cow milk costs, camel milk “is classified as a superfood,” Ashraf says. “So it’s attractive to the health-conscious. It’s a niche market.”



**I**t was time for dessert. That started with ice cream.

Stephan Barbier, who came to the UAE from France, believes the world would be a better place with more camel milk ice cream.

“The first time I had camel milk here, it was completely new to me and I loved it,” he says. “And I saw that it’s actually much better than cow’s milk. I switched completely.”

He and business partner Frederic Kuzyk soon recognized that “anything you can do with cow’s milk you can also do with camel’s milk.”

They started Nouq—from the Arabic for a she-camel—in 2016.

Their flavors range from staple vanilla and chocolate to “crossovers” common in Europe and the Middle East, such as pistachio and caramel biscuit, as well as niche flavors known only in the Middle East, such as Arabic Mastic.

I try their most popular flavor, Honey Saffron, which is aimed at Emiratis and Indians, as well as Europeans. It’s sweeter than I expect.

“Ah,” Barbier chuckles. “People know that camel milk is salty compared to cow’s milk, so they think that camel milk ice cream will also be salty. But salt is a flavor enhancer. And camel’s milk is less fatty than cow’s milk, so the fat doesn’t coat your palette. More of the flavors come through.”



**T**he Majlis is a café in Dubai Mall where, if it’s not made with camel milk, it’s prepared in camel ghee.

At least mostly: The waitress tells me that many local customers go for traditional Turkish or Arabic coffee, maybe some dates—and no camel

At the Camelicious dairy farm in Dubai, camels are carefully trained to accept automatic milking. Their milk is pasteurized and bottled in a variety of flavors including date, chocolate and strawberry.



## What’s in a glass of camel’s milk



Along with vitamin E, zinc and selenium, a cup of camel milk also contains the following daily recommended nutritional values:

- 10% of protein
- 11% of potassium
- 15% of phosphorus
- 30% of calcium
- 70% of vitamin B1



Cool after molding, chocolate camels made with camel milk are transferred for packaging at Al Nassma in Dubai. Above right: Camel Cookies, which makes cookies with regional flavors but not camel milk, is riding a camel-conscious wave of popularity. Right: “Camel Milk 101” starts best with coffee or tea—and don’t worry if you don’t get it right the first time.

milk. “They come like it’s a regular cafe,” she says. “Camel milk isn’t special to them like it is for tourists.”

Seated nearby are Silas and Mateus, from Brazil. It’s their first time to taste camel milk. Mateus orders a cappuccino.

“Do you taste the sand?” Silas teases as his friend sips.

Silas has visited Dubai before but was never interested in trying camel milk. “Mateus was talking about it ever since we got here. I was hoping he’d forget.”

Mateus likes it. “It tastes different. A little stronger than a regular cappuccino.”

Would he have it regularly if it was available at home?

“Maybe not everyday,” he says, “but I would have it every week.”

Silas doesn’t like it. “Where’s the nearest Starbucks?”



I can not leave before paying a visit to the camel milk chocolate factory. I repeat: Camel milk. Chocolate. Factory. I leave with a bag full of camel milk chocolates. Everything finishes better that way.

Martin Van Almsick spent the first part of his life working in the chocolate industry in his hometown of Köln, Germany. His wife, Hanan, comes from Sudan—“camel country,” he says—and was familiar with the milk. So in 2005 when the pair heard a camel milk factory had opened in Dubai, it was a no-brainer: Al Nassma Camel Milk Chocolates was born a few years later.

Their first challenge was a recipe that would work with camel milk’s lower fat and higher salt. But their bigger challenge was cost, because camel milk is so much more expensive than cow milk.

“You have to create a product—a brand—that is really premium,” says Martin. “This is one of the most expensive chocolates in the world.”

From chocolate beans from Tanzania and vanilla beans from Madagascar, to packaging that used wood from Bavaria, Al Nassma took the premium idea and ran with it. “We’re a craft chocolate,” he says. “This is the good old way of making chocolate.”

Al Nassma’s display cases now appear in top department stores and airport duty free shops around the world—anywhere that might sell a \$10 chocolate bar. They offer dark and milk chocolate as well as dates, a flavor called Arabia (think cardamom), macadamia-orange and a slew of nuts. Their best seller? Pralines. Their best customer group? Japanese chocoholics during the season of *Giri Choco*, which means “obligatory chocolate.”

“A lot of people buy [the chocolate] as a unique gift, but then they go home and take a bite, and find that it’s amazing chocolate,” Martin says. “Then they call us.”

My own favorite flavor? So far it’s Arabia. It pairs great with the milk, and it tastes like ... home.

As for camels? I’ve become too attached to eat them anymore.

But the milk? I’m a proper convert. 🌐



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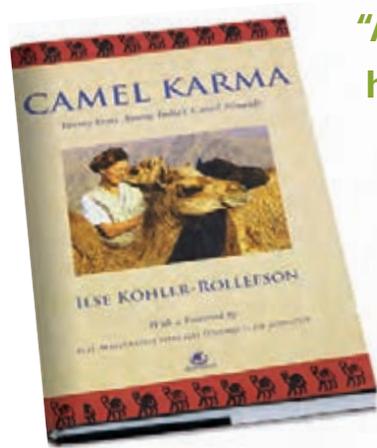
Mauritanian camel dairy: N/D97



# REVIEWS

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

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**“A boy, maybe 12 years old ... handed me a bowl of steaming tea ... made from camel milk without water added, a potion very suitable for sustaining you through many hours of herding camels.”**

### Camel Karma: Twenty Years Among India’s Camel Nomads

Ilse Köhler-Rollefson. Tranquebar Press, 2014, 9-789-38403-063-6, \$21.99 pb.

When Köhler-Rollefson left the confines of a veterinary clinic in Germany to accompany Rajasthani herdsmen of the Raika ethnic group on their wanderings in northwestern India, she learned that animal care and human care are indivisible. She saw that the Raikas’ lives depend on their camels, and that caring for the health of an entire ecosystem, in which animals and their owners live and produce together is as important as caring for any one of them. Köhler-Rollefson measures this journey by the years spent in the Raika’s company and marks its important milestones as acts of advocacy to preserve both their Thar Desert home and their right to live freely in it.

—LOUIS WERNER



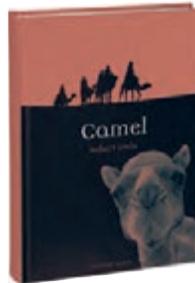
### Barefoot through Mauretania

Odette du Puigaudeau.  
Geoffrey Sainsbury, tr.  
Caroline Stone, intro. 2010,  
Hardinge Simpole, 978-1-84382-201-1, \$23.95 pb.

In 1933 Odette du Puigaudeau

and her companion, artist Marion Sénonés, found themselves in Mauretania. They quickly fell in love with the country and decided to travel as widely as they could and record every aspect of the indigenous culture they encountered. Moving with the tribes, camels became an important part of their lives. Du Puigaudeau offers numerous descriptions of their mounts and discusses the relative merits of *azouzel* (neutered male) or *fal* (female) camels, their treatment and their place in the society, among other things. This account, originally published in French in 1936, provides a vivid and amusing glimpse into a way of life that Du Puigaudeau recognized as imperiled.

—CAROLINE STONE



### Camel

Robert Irwin.  
2010, Reaktion Book Ltd, 978-1-86189-649-0, £12.95 pb.

This book pulls together an impressive collection of fascinating facts about camels, including, most

importantly, desert lore. One hump or two? Or more properly, dromedary or Bactrian? Irwin covers them all. The earliest camels evolved in North America and spread to Asia over the “land bridge” that connected the continents for millions of years. Modern camels developed in North America half a million years ago, then spread to Asia. The dromedary developed later from two-humped camels, probably in Arabia. From the second century BCE, dromedaries have carried caravan goods that drove economies of the ancient and medieval worlds. Cited in the Qur’an, camels became icons of Arab and Islamic culture. Farther east, Bactrians carried merchandise along Asia’s Silk Road, linking China with the Middle East and Europe.

—ROBERT W. LEBLING



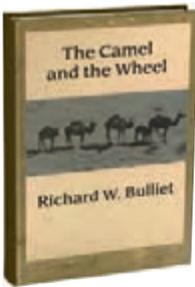
### The Camel in the Sun

Griffin Ondaatje and Linda Wolfsgruber, 2013, Groundwood Books, 9-781-55498-381-0, \$17.95 hb.

This simple tale of compassion for an over-worked camel

is based on a hadith (the reports of deeds and sayings of the Prophet Muhammad). As the camel trudges through the desert between al-Hasa in eastern Arabia and Jiddah in the west, struggling up and down huge sand dunes, its owner, Halim, demands more and more. At a stop in Madinah, he rests in the shade and drinks cool water, while the camel stands in the hot sun. Muhammad, upon seeing the animal, comforts it and asks Halim why his camel is sad. The owner then understands what the animal is experiencing and begins to appreciate and care for it. The book is sensitively illustrated with a muted color palette, inducing an almost dreamlike atmosphere. This would be a wonderful book to read with a small child.

—MARGARET POWIS



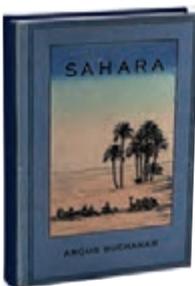
### The Camel and the Wheel

Richard W. Bulliet. 1990. Columbia UP Morningside ed. 978-0-23107-235-9, \$35 pb.

*The Camel and the Wheel*, originally published in 1975, sets out to show

how the camel has fit into human history. Despite Bulliet's occasional acknowledged reliance on scant evidence, this well-researched (though somewhat dated) book convincingly answers a question that arose early in his study: Why did camels replace wheeled vehicles as standard transport throughout virtually their entire range from Morocco to Afghanistan around the mid-first millennium CE? Using sources such as travelers' records and pictorial representations, as well as Arabic and Persian linguistic references, he presents evidence of camel domestication between 3000 and 2500 BCE for milking and cargo-carrying purposes, going on to highlight how the camel's unique capabilities afforded advantages over wheeled transport. He also discusses saddle evolution, loading and handling techniques, Roman-era attempts to train the camel to pull carts, and the Persian army's use of camels as mounts for light artillery as late as the 19th century CE.

—GRAHAM CHANDLER



### Sahara

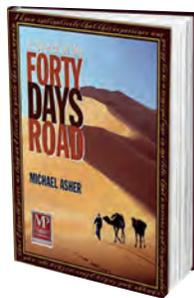
Angus Buchanan. D. Appleton and Co., 1926, 2-221-13115-4-718, \$44.90 hb.

Any Westerner's account of Saharan exploration that is dedicated to his camel—

as "steel true and great of heart"—marks the author as a sensitive individual who knows the task is impossible without help, especially when the route transects Tuareg territory in Niger and Algeria not long after their 1918 rebellion against the French. That Buchanan named his camel White

Feather, a reference to a novel about a British officer's loss of nerve in the Sahara, with a white feather symbolizing his act of cowardice, only makes his sometimes plodding tale into something more bizarre. One chapter is written in the voice of White Feather, telling how a foreigner "white as the sand" roped, trussed and branded him before saddling for the journey at whose end "he stroked me ever so gently, and I knew then that his heart was heavy as mine."

—LOUIS WERNER



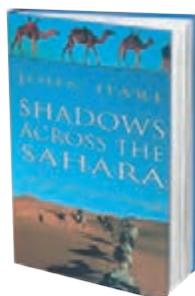
### In Search of the Forty Days Road: Adventures with the Nomads of the Desert

Michael Asher. Master Publishing, 1986, \$7.99 Kindle

Asher is a bit of a legend in the annals of modern Saharan travels, having crossed that desert both south to north

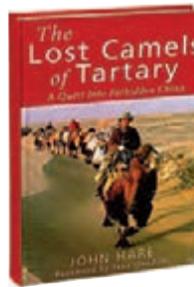
and west to east. Rather than being a "one-and-done" type who writes his book and then moves on, Asher has commitment life-long to the Sahara, having written numerous travelogs and novels set there, and worked in famine relief for UNICEF. The *Forty Days Road* is the route running west of the Nile on which Sudanese tribesmen still drive herds north to Egyptian markets. Asher traveled circuitously around this route in the early 1980s, before the killer famine of mid-decade tore tribal life apart. His writing is deeply learned, his ear for fluent Arabic conversations with travel companions is exacting, and his citations from sources as different as T. S. Eliot's *The Waste Land* and the RAF Desert Survival pamphlet's section on "Natives" add oblique angles to his acute descriptions of Sudanese pastoral life at the desert's southern margin.

—LOUIS WERNER



### Shadows Across the Sahara: Travels with Camels from Lake Chad to Tripoli

John Hare. 2003. Constable, 978-1-84119-626-8, \$72.65 hb.



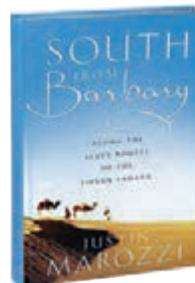
### The Lost Camels of Tartary: A Quest into Forbidden China

John Hare. 1999. Abacus, 978-0-34911-146-9, \$58.80 hb.

I opened *Shadows Across the Sahara* hoping to reprise the taste of my own camel-caravan ride 200-plus kilometers through Niger and on to Libya, but to the arduous task of obtaining funding and governmental approvals for the trek. My anticipation of vicariously feeling the to and fro of a camel and hearing the serenity of the desert was unassuaged until about halfway through. Here, Hare rode away from the caravan to allow his colleague to take a photo;

here, my memories rode in. I vividly recalled the connection I formed with my dromedary, 'Ubaylah, the bond she had with the other camels in our caravan, and the sense I got of her innate relationship with the land. *The Lost Camels of Tartary* is different, in part because rather than riding camels, Hare writes about a series of trips, most using vehicles, designed to raise awareness of an endangered species of Bactrian camels that range across much of Central Asia, a region once known as Tartary. While *Shadows Across the Sahara* includes cultural, historical and historical references offering insights into a camel expedition, the references in *The Lost Camels of Tartary* create a link to these threatened animals. The latter is a fascinating read because it describes one of Earth's most inaccessible locations—the Mongolian Steppes—and the people and camels living there.

—BRAD WILKINSON



### South from Barbary: Along the Slave Routes of the Libyan Sahara

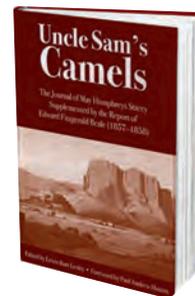
Justin Marozzi. Harper Perennial. 2002, 9-780-00739-740-2, \$28.99 AUD pb.

The author, a British travel writer, presumably did

not know all he was getting himself into when he began a camel trip across Libya on the historic trans-

Saharan routes. Despite being briefed by old desert hand Wilfred Thesiger, who advised him to travel light in the local manner, Marozzi shops for sleeping bags and other out-of-place gear. The maps he bought did little good because his chosen route led as much west to east, from the border town of Ghadames to Kufra Oasis, as it did north to south. Marozzi shows semi-comedic affinity for his ship of the desert, as should any honest explorer, subheading the "camels" entry of the book's index with the terms *ill-treatment, obstreperousness and sleeping, spitting, and straying*. There are accounts of past Saharan explorers throughout, among them the early 19th-century diplomat Joseph Richie who, appropriately for the apparent romantic Marozzi, was a friend of the Romantic poet John Keats and died in Marzouk oasis, the author's first rest stop midway on his journey.

—LOUIS WERNER



### Uncle Sam's Camels: The Journal of May Humphreys Stacey Supplemented by the Report of Edward Fitzgerald Beale (1857-1858)

Lewis Burt Lesley, ed. 2006. Huntington Library Press, 978-0-87328-220-8, \$35.98 pb.

When May

Humphreys Stacey was just 19, he accompanied the 1857 Beale expedition, which used 25 camels to survey a southwestern wagon trail that later gained fame as Route 66. These were the days between the Gold Rush and the Civil War, when westward migration was fraught with danger due to the harsh environment and potentially hostile native tribes. This reprint of the original 1929 Harvard University Press publication of Stacey's journal is enhanced with a foreword by Western historian Paul Hutton and includes Beale's 1858 report on the 2,700-kilometer journey from San Antonio, Texas, to Los Angeles. "The camels are so quiet and give so little trouble," Beale said of the new and rather unusual army recruits, "that sometimes we forget they are with us." The book reminds the reader of a not-so-distant past when safe travel within America's borders was not a given, while introducing us to the hardy souls and some four-legged newcomers that would change that.

—DOUG BAUM



# EVENTS

Highlights from  
[aramcoworld.com](http://aramcoworld.com)



## CURRENT / DECEMBER

**Noor Afshan Mirza and Brad Butler:** *The Scar* is a film in three chapters ("The State of the State," "The Mouth of the Shark" and "The Gossip"), inspired by a true event, with names, scenes and locations fictionalized through the use of Magical Realism. Istanbul-based Mirza and Butler's practice takes on, and deconstructs urgent and complex narratives around our relationship to state power as seen in *The Scar*, which engages with issues of inequality and corruption, ultimately proposing a post-patriarchal near future. The film is shown as an immersive five-screen installation, alongside an associated program of workshops, talks and performances, co-curated with Mirza and Butler, which imagines future feminism and its relation to the past and to the present. Delfina Foundation, London, through December 1.

## CURRENT / JANUARY

**Emperors & Jewels:** *Treasures of the Indian Courts from the Al-Sabah Collection, Kuwait.* Whether they are gem-studded rings and cups, intricately carved dagger hilts and trays, or any of the many other glittering artworks on display, all the objects in this exhibition reflect the opulence of life at the courts of the Mughals and their contemporaries. As great patrons of the jeweled arts, which blended Central Asian, Persian and Indian traditions, the Mughals contributed to a flowering of creativity and craftsmanship in India from the 16th to 19th centuries. Paintings from the Aga Khan Museum's collection, showing receptions and gardens, hunts and battles, are displayed both as original miniatures and as spectacular enlargements, setting the scene for the jeweled artworks and revealing just how passionate Mughal princes were about art and beauty, adorning themselves "with all

splendour and magnificence," both to feart and to fight. Aga Khan Museum, Toronto, through January 27.

## CURRENT / FEBRUARY

**Art of Three Faiths:** Practitioners of Judaism, Christianity and Islam have been called the *people of the book* for their shared belief in the importance of the divine word. A recent acquisition of a remarkable medieval Torah allows the Getty for the first time to represent the three faiths through their sacred books. The display showcases the manuscripts, each rendered in glowing gold and luminous colors on parchment; a ninth-century North African Qur'an; a 15th-century Christian Bible; and a rare 13th-century Torah from northern Europe. J. Paul Getty Museum at the Getty Center, Los Angeles, through February 3.

**Roads of Arabia** explores the archaeological and cultural heritage of Saudi Arabia and the diverse history of the



Attendees of the King Abdulaziz Camel Festival in January of this year enjoyed a guided camel ride around festival grounds.

## Camel Events around the World

The week-long **Pushkar Fair**, with its main attraction of camel trading, is held in **Pushkar, India**, November 15–23. **Al-Dhafra Festival** is a two-week event comprising a camel beauty contest, children's village, traditional *suq* (open-air market), camel racing and arts workshop: **Madinat Zayed, UAE**, December 17–January 1. **The International Festival of the Sahara** is marked by a long camel trek in the Sahara and filled with nomadic games, life scenes of traditional wedding ceremonies, horse races and dromedary fight scenes: **Douz, Tunisia**, December 20–23.

**Bikaner Camel Festival** includes camel performances, dances, races and rides: **Bikaner, India**, January 12–13. The annual **Camel Wrestling Festival** witnesses competitions between two male camels pushing each over the other. The historic festival engages more than 1,200 camels: **Seljuk, Turkey**, beginning January 20. **The King Abdulaziz Camel Festival** is a month-long festival that provides a cultural, touristic, sporting, recreational and economic platform for the camel and its heritage—replete with camel racing, camel beauty contests and poems dedicated to the highly prized livestock: **Rumhiya, Saudi Arabia**, February 5–28. The second edition of the **International Festival of Zaafrane** continues its unique "dromathlon"—a 20-run semi-marathon that includes both runners and camels, all cheered on by spectators on motorcycles: **Zaafrane, Tunisia**, February 7–9.

**Thousand Camel Festival** brings attention to the speed and agility of Bactrian camels in a two-day event that highlights camel racing and games, traditional Mongolian musicians and dancers, as well as visits to paleontological and cultural sites in **South Gobi, Mongolia**, March 7–8. **Texas Camel Corps** celebrates West Frontier Days with reenactments that bring mid-1800s Texas to life. The reenactments feature camels, which were used by the us military to carry supplies to settlers and soldiers: **Sheffield, Texas**, May 17–18. **Camel Cup** is a camel race for sheer fun that attracts spectators from all over to **Alice Springs, Australia**, July 13–14.



Arabian Peninsula, in partnership with the Saudi Commission for Tourism and National Heritage. The exhibition also integrates additional artifacts from the UAE that are displayed for the first time, highlighting the shared history of the two nations through five chapters. Artworks include anthropomorphic stele that dates to the fourth millennium BCE and a gold funerary mask from the first century BCE, both on loan from the National Museum in Riyadh, as well as an imported vase dating from 5500 BCE from Mesopotamia discovered on Marawah Island, just off the coast of Abu Dhabi. Louvre **Abu Dhabi**, through February 16.

#### CURRENT / APRIL

**On the Steppes of Genghis Khan** tells the fascinating story of Genghis Khan and the nomads of the Mongolian steppes. For more than a millennium, Mongolian nomads made their mark on contacts between East and West through expansion and by controlling trade routes across steppe and desert. The exhibition takes visitors on a journey in the company of Mongolian nomads and their animal herds. It reveals life on the move, where Genghis Khan is ever-present, both as a historic hero and as the personification of the dream of united people. The nomadic way of life has survived in Mongolia to the present day, with a third of the population still living as nomads on the steppes with their sheep,

goats, horses, camels and cattle. *On the Steppes* shows visitors how the nomadic way of life, right up to the present day, constitutes an intriguing alternative to our own settled and sedentary existence. Moesgaard Museum, **Aarhus, Denmark**, through April 7.

#### CURRENT / JUNE

**Somalis + Minnesota** is a new exhibit on history and culture. Told through immersive settings, artifacts, photos and firsthand accounts, the exhibit tells the story of Somali immigrants, their arrival in their newly adopted home of Minnesota, and the successes and struggles they have faced. The event celebrates the story of Somali culture, from traditional life in Africa, through the massive migration that began in the 1990s, to today's well established Minnesota Somali community, featuring a reconstructed nomadic hut imported from Somalia and opportunities for visitors to learn how to load a camel for travel across the desert. Minnesota History Center, **St. Paul, Minnesota**, through June 9.

#### COMING / FEBRUARY

**Riverside County Fair & National Date Festival** started as a festival to celebrate the end of the annual date harvest of the vast Californian desert region, the major commercial date-producing area in the western hemisphere. Until 1903 when date

palms were transplanted to the region from Algeria, dates had been an unknown commodity. By the 1920s enough acreage was planted to make them a major crop for the area. Date groves in the Coachella Valley were, and still are, such a novelty that they have become quite a tourist attraction, resulting in an annual Date Festival that has given rise to the Riverside County Fair and the Coachella Valley date festival. Attractions include the Nightly Musical Pageant and Hedrick's Camel & Ostrich Races. Riverside County Fairgrounds, **Indio, California**, February 15 through 24.

#### COMING / MARCH

**AgraME** (Increasing Food Security in the Middle East and Africa). In order to strengthen food security and build a sustainable supply,

countries in the Middle East and Africa are looking at ways to boost domestic production within the aim of reducing import dependency. With a more targeted focus on crop and animal farming, aquaculture and animal health sectors, AgraME 2019 provides a venue for those looking to source the latest products and innovative solutions, including a conference talk on the latest developments in assisted reproduction in camels. **Dubai World Trade Center**, March 5 through 7.

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