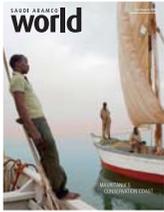


SAUDI ARAMCO
World

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MAURITANIA'S
CONSERVATION COAST



Chat with fisherman Yacoub oud Abdullahi as he waits to catch a breeze in his lateen-rigged boat and you'll catch nautical lingo that mixes Spanish and West African Arabic—not uncommon on the Banc d'Arguin, a land-and-water national park along the coast of northwest Mauritania. Photo by Kevin Bubriski.

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President

Ahmed M. Alzayyat

Director

Public Affairs
Mae S. Mozaini

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Editor

Robert Arndt

Managing Editor

Dick Doughty

Assistant Editor

Arthur P. Clark

Administration

Sarah Miller

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Edna Catchings

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Herring Design

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The Editor
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Back Cover



The long-abandoned sugar mill in Kouklia, Cyprus once relied on cane grown in the surrounding fields. Sugar refining collapsed throughout the Mediterranean region when New World plantations began to produce sugar cheaply enough to make it a staple in the world diet. Photo by George Azar.

Errata: In the May/June issue, photographs on pages 20-23 from Sanaa's restaurant are by Jay Pickthorn. On page 31, the upper photo shows sails made of canvas, not palm fronds.

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



2 Nature's Best-Dressed

Written by Nathalie Yonow

Photographed by Gordon T. Smith

Bearing little resemblance to their garden-pest counterparts, and preying on nearly everything except fishes, the Red Sea's 175 known species of the sea slugs known as nudibranchs start both their defense and their offense with an astonishing color wardrobe.



10 Monsters from Mesopotamia

Written by
Robert Lebling

Illustrated by
June Brigman

Yes, they *are* coming and, yes, there *are* more of them: Ever since the first ghoulish proto-vampires, werewolves and zombies lurched from the preliterate shadows to stalk the cuneiform-on-clay myths of Mesopotamia, they remain undead despite the passage of four millennia, adapting endlessly to every time and every place—perhaps none more than our own.





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A Walk Through Historic Arab Paris

Written by Nancy Beth Jackson

Photographed by Isabelle Eshraghi

Stopping at a college, two churches, a library and Paris's largest mosque in just over two hours, the Institut du Monde Arabe's walking path guides visitors to deeper understanding of the city as an enduring cultural bridge.



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Mauritania's Conservation Coast

Written by Louis Werner

Photographed by Kevin Bubriski

From the wave-battered "monk seal coast" to tidal flats teeming with fish and fowl, the 36-year-old Banc d'Arguin National Park—once best known for shipwrecks—is a haven for wildlife and still provides a livelihood for people.



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Sugar, Please

Written by Graham Chandler

Photographed by George Azar

Few plants have had a greater impact on how we live, eat and work than a sweet, fibrous native of tropical Asia: sugar cane, which archeologists are learning was first refined in mass quantities around the 12th century at mills in Jordan and throughout the Eastern Mediterranean. Those places became the gateways to the global Sugar Revolution.

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Written by Julie Weiss

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NATURE'S BEST

WRITTEN BY NATHALIE YONOW

PHOTOGRAPHED BY GORDON T. SMITH

Sea slugs may be nature's "best-dressed" marine animals, as the Red Sea creatures on these pages attest. Unlike their garden-pest cousins, they come in a dazzling array of shapes, sizes, colors and patterns, and they are definitely not slimy. In addition, they may offer scientists maps to new drugs through the chemical compounds they produce.

Sea slugs, scientifically known as opisthobranchs ("rear gills" in Latin), are highly evolved relatives of marine snails. Primitive sea slugs retain a thin external or internal shell, but advanced ones, like the nudibranchs, or "naked gills," pictured in this gallery, have none. Living without this protection means they have had to develop other methods of defense, expressed in a wide display of adaptations seen in sub-orders such as dorids (which have gills near the tail and two sensory horns near the head), dendronotids (those

◀ The chromodorids are probably the most colorful and easiest sea slugs to recognize. Doris was a Greek goddess, the daughter of Oceanus, and *chromo* means color, so they are the colorful goddesses of the sea. Their colors and patterns are limitless, although their basic body plan remains the same. *Chromodoris geminus* Rudman, 1987 is found in the Red Sea and Indian Ocean and is truly beautiful underwater—its ocellated spots are almost luminescent. Like many spotted species, it flaps the edges of its mantle in a kind of rhythm, and the spots above and below glow.



◀ Another spotted species, *Chromodoris charlottae* (Schrödl, 1999), was first discovered by a British diplomat running the marine station in Suakin, Sudan, in 1911. Sir Charles Norton Edgcombe Eliot thought it was a Red Sea variety of a western Pacific species and called it *Chromodoris reticulata* var. In fact, Eliot's species was different and was only described as a new species many years later. It is known only from the Red Sea. The describer's name and the year are in parentheses because he originally described it in a different genus.

With the subsequent rise and fall of sea levels, the creatures of the Red Sea found themselves in a unique environment and either adapted,

evolved into new species or died off. For example, the fossil record of shelled sea slugs shows that interglacial periods were times of high diversity through influx. During glacial periods of little contact with the oceans, as well as during post-glacial periods of stability, speciation occurred.

Despite much research into Red Sea fauna during the last 250 years, many sea slugs remain to be discovered and described. Indeed, 30 unidentified individuals are pictured in my book *Sea Slugs of the Red Sea*, and more than 20 are in bottles in my university lab.

My obsession with the Red Sea and its wildlife began in 1968 when I moved to Saudi Arabia as a child. The gift of a mask and snorkel from my father on a trip from Riyadh to Dhahran, near the Arabian Gulf, opened up another world. Months later, we made the long trek to Jiddah to go snorkeling, and so began

— DRESSED

with tree-like gills in pairs along their backs) and aeolids (those covered with fingerlike projections). Their bright colors and bold patterns warn predators of their noxious taste.

Of the 4000-plus species of nudibranchs worldwide, more than 175 are found in the Red Sea and nearly one quarter of these live only there. This almost self-contained waterway—running some 2100 kilometers (1300 mi) from the Gulf of Suez in the north to the narrow Bab al-Mandab in the south—is

a very special place, hosting endemic fish, sea urchins, worms, slugs and snails, and myriad other animals. It has been isolated for approximately five million years, and its fauna has suffered partial extinctions with several glaciations, the most recent 20,000 to 15,000 years ago, which substantially lowered sea levels.

The Red Sea's southern gateway opened around five million years ago—at the time land uplifts closed off its shallow link to the Mediterranean—and has never shut, so its fauna is Indo-Pacific.



▲ The lovely *Chromodoris obsolete* (Rüppell & Leuckart, 1830), originally described and illustrated from the Red Sea 180 years ago, is quite common on reefs from north to south. Like many of the species illustrated, it has remained in the Red Sea, never colonizing the Indian Ocean.

▼ One can only assume that the stripes of *Chromodoris africana* Eliot, 1904 work as camouflage or as an advertisement of toxicity. All chromodorids produce defensive secretions from a series of glands located around the edge of the mantle. This species is found only in the Red Sea and along the northeastern coast of Africa. A similar species, the Pyjama nudibranch (see table of contents), has blue stripes (instead of white) on its back.

my love of coral reefs, my father's shell collection and our forays into the challenges of identification.

In choosing a career, I was following in the footsteps of Petrus Forskål of the ill-fated Danish expedition to the Red Sea (1761–1767) and Jules César de Savigny, who was only 21 when he joined Napoleon's expedition to Egypt (1798–1801). These pioneers recorded a total of 18 opisthobranchs, including a number





This spotted species, *Chromodoris annulata* Eliot, 1904, occurs in the Red Sea, the Arabian Gulf and the western Indian Ocean. Typically, there are two purple rings on the dorsum, one around the rhinophores at the front and one around the group of gills at the rear. However, almost all specimens from the Gulf have either a line between the two rings, as in the upper photo, or the rings are broken into dots and dashes. The reasons for this are not known, as in all other respects they are identical. Recent research on a Sudanese reef demonstrated that individuals can travel up to 20 meters (65') in one day!

of nudibranchs. The Red Sea is an ideal location for these animals, with its calm, well-lit, warm and clear waters providing perfect conditions for the growth of coral reefs, an ecosystem that harbors one of the most diverse habitats in the world.

Nudibranchs don't just decorate the coral reef, however; they eat nearly every marine creature except fishes. Many restrict their diets to a single prey, most frequently a sponge. Some of these have evolved to resemble their quarry and even burrow into it and remain there. Other species go so far as to mimic the polyps, patterns and positioning of their prey. Those that feed on upright

page 9 ►



Nembrotha megalocera Yonow, 1990 is one of my favorite species. I nearly drowned when I found it, balancing myself on a coral head while hanging on a cliff edge.... I took my pictures, measured it and then tried to get it into my little collecting bag when it took off swimming into the deep blue! So many scientific discoveries are accidental. It didn't swim fast, but flicked its body from side to side. Eventually, I caught it, pretty much falling down the cliff and exceeding my depth limit of 30 meters (110'), never mind the sharks all over the place. Back at the university, it turned out to be a new species, as well as a Red Sea endemic.



◀ Originally described from the Red Sea, *Risbecia pulchella* (Rüppell & Leuckart, 1830) is found all over the Indo-West Pacific. It belongs to a genus that has a very peculiar habit called tailing or trailing, in which two individuals, rarely more, crawl head to tail. The reasons for this behavior are not known; it was once thought to have something to do with mating. *Risbecia* also has a rather spatula-shaped head, which it flaps up and down—another unknown adaptation, although it seems to occur in species with a dark violet underside. It is large, growing up to 130 millimeters (5") in the Red Sea.



▲ The space-age-looking nudibranch *Ceratosoma trilobatum* (Gray, 1827) has two large wings and a curved-over projection to protect the gills. The gills and the tentacles are a sea slug's most precious assets. Often, this species is found with the ends of its lures missing, bitten off by a fish or snipped off by a crab—but full of chemicals and not tasty! It is huge, growing to 200 millimeters (8"), and rather stiff and hard. It is a relative newcomer to the Red Sea, but common in the Indo-West Pacific.



▲ *Gymnodoris impudica* (Rüppell & Leuckart, 1828) is another one of my favorite species! There are only a few records from the Red Sea. It wasn't until I was researching my book that I realized that the very common Indo-West Pacific species *G. rubropapulosa* was in fact the same species, and that the wonderful German naturalists Wilhelm Peter Eduard Simon Rüppell and Friedrich Andreas Sigismund Leuckart had illustrated and described it from the Red Sea. Their work was perfectly recognizable, so their identification and name took precedence over the later names. Early scientists often collected by dredges, which is one reason so many "new" species are being found and described today—when careful searching by diving is revealing previously unsampled reef habitats and therefore many new species of different types of animals.

▶ *Hypselodoris dollfusi* (Pruvot-Fol, 1933) has a remarkable story. It was described from a single specimen in the Musée nationale d'histoire naturelle in Paris and never heard of again. In fact, it was deemed unidentifiable by one sea-slug expert. Then, in the 1990's, a specimen with its photograph was collected from the Arabian Gulf and sent to an expert who recognized it as the long-lost species of Mme. Alice Pruvot-Fol! An even stranger twist is that it was originally described from the Red Sea but rediscovered in the Gulf, where it is now quite common! Where did it hide for the intervening 80 years? It is now recorded from the gulfs of Aqaba and Oman, but it has not yet been found (again) in the Red Sea proper.

▼ This beautiful species, *Ardeadoris egretta* Rudman, 1984, is tiny, only up to 15 millimeters (0.6") long. This is one of the first photographed in the Red Sea. Since it was recorded only recently, and lives in the Indian Ocean and western Pacific, it's likely that it was brought in by ships in their ballast water. There are several other small white species, but all with different-colored edges, gills and tentacles.





▲ *Marioniopsis cyanobranchiata* (Rüppell & Leuckart, 1828) belongs to the dendronotid order of nudibranchs. All have variously shaped “trees” aligned along each side. These are gills, characteristically branched to provide a high surface area for diffusion of oxygen and possibly other elements dissolved in the sea. They have no protective nematocysts, or defense cells, like the aeolids, but still seem protected, presumably by chemicals taken from their soft coral prey. Many species (not this one, he is too chunky) can swim to escape predators.

▼ *Halgerda willeyi* Eliot, 1904 is neatly camouflaged, its stripy dark and light pattern hiding it well in caves and overhangs where the light changes constantly. Most dorids, like this one, eat sponges and manage to incorporate either or both chemical and mechanical defenses from them. Chemicals are stored in glands which squirt out nasty-tasting and -smelling secretions to ward off would-be predators.



▲ Some species are so well camouflaged they can barely be seen. This example of *Sclerodoris apiculata* (Alder & Hancock, 1864) has been moved for the photograph, but its irregular outline, rough texture and nondescript color make it very difficult to see in its natural environment, in and among its sponge prey. It incorporates sponges’ spicules—minute, sharp support structures—into its skin. These can be aligned in the skin, making it either spiky or rough and tough.

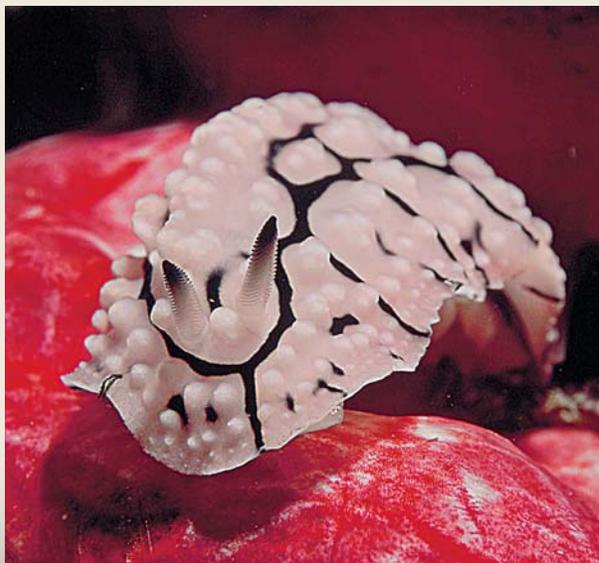


▲ *Flabellina rubrolineata* (O'Donoghue, 1929) shows off the remarkable armory wielded by the aeolid nudibranchs. They eat anemones, jellyfish and stinging hydroids and—in an amazing feat—collect their stinging cells without setting them off, and swallow and digest them. They then store these for their own defense in sacs at the tips of the cerata, the finger-like projections extending from the body. Their bright yellow color warns would-be predators of the surprise awaiting them.



◀ *Pteraeolidia ianthina* (Angas, 1864) feeds on corals, which have zooxanthellae in them to help make their carbonate skeletons. This dragon-like sea slug harvests the single-celled creatures and very cleverly stores them in the digestive gland within the cerata, where they provide it with a secondary food supply. On a bright day, it can be seen with its cerata fanned out like wings to expose them to sunlight, hence its name *Pteraeolidia*, or “winged wind god.”

▶ *Phyllidiopsis sinaiensis* (Yonow, 1988). This recently described species has been recorded commonly in the Gulf of Aqaba, but very rarely in the Red Sea proper. It has a very closely related sibling species living in the Indo-West Pacific, which differs consistently in external pattern and some internal details. Interestingly, the Indian Ocean one differs slightly from the West Pacific species.



branching animals such as hydroids are often long and thin, making themselves nearly invisible by matching their dinner's shape and color. And there are sea slugs that eat their relatives: *Gymnodoris impudica* (pictured at top, page 7) feeds on chromodorids, for example.

We have a great deal to learn from nudibranchs and their relatives. A number of species are able to toxify chemicals they “capture” from their prey, and some even make their own pharmacies of complex toxins to fend off predators or communicate alarm or reproductive readiness. These toxins are sometimes located in brightly colored body extensions that distract predators from vital organs and can be regenerated if bitten off, or in a series of glands located around the edges of the body.

The acids and chemical compounds found in sea slugs have attracted much recent research and may prove useful to the world at large. However, just as coral reefs are threatened today by man and by warming sea temperatures, so are their inhabitants. While some types of sea slugs may be tolerant of environmental changes and able to adapt, others may disappear before we even know they are there, along with their potentially life-saving pharmacies.

I have had the good fortune to spend most of my life identifying sea slugs, discovering and naming several. I hope these photographs convey some of my enduring fascination with these remarkable creatures. 🌐



Dr. Nathalie Yonow (n.yonow@swansea.ac.uk) is a marine biologist at Swansea University in Wales who lived in Saudi Arabia for 15 years. Her research

focus is Red Sea opisthobranchs, but her expertise extends to sea slugs of the Indo-West Pacific oceans.



Gordon T. Smith (searcraig@emirates.net.ae) has been diving and photographing in the waters of the Red Sea since he first moved from Scotland to Jiddah more than 20 years ago. He now resides in Dubai.

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Egypt's underwater world: M/J 89
diving in the southern Red Sea: J/A 91

📖 The writer is author of **Sea Slugs of the Red Sea**, published in 2008 by Pensoft Publishers.

MONSTERS FROM MESOPOTAMIA

Written by Robert Lebling / Illustrated by June Brigman

People have long used fear as a tool to entertain. Tales of monsters have been with us since the dawn of time. They are part of every people's traditions and folklore, whether told around a prehistoric campfire or projected on a wide screen with digital sound for 21st-century audiences.

In all the stories, the monsters take their shapes from our fears of the unknown—be it apprehensions about nocturnal noises from a forest, or worries over the ominous intentions of races in far-off lands described by returning sailors. Evidently, some monsters that first materialize on a remote continent find ways to migrate to one's own land and take up residence in a nearby wilderness or wasteland.

In the Middle Ages, Europeans believed that most monsters originated on other continents, and they often illustrated their maps and sea charts with images of the fantastic creatures in these half-legendary lands. The 13th-century Hereford *mapa mundi* (world map) is an outstanding example: Pictures of fabulous races and animals are distributed all over the globe, with India and Ethiopia displaying the main share. In India live the single-legged beings called sciapodes; the pygmies and the giants; the mouthless people; the manticore, or man-lion; and the unicorn. North of India, in Scythia and bordering countries and islands, there are horse-hoofed men, people with long ears and grotesque cannibals called Anthropophagi; in the Arctic are giant Hyperboreans; and in the Carpathian

foothills are the one-eyed Arimaspians, who were said to fight with the griffins. Ethiopia is inhabited by satyrs and fauns; by people with long lips and others with their heads in their chests; and by basilisks and gold-digging ants.

In the 21st-century entertainment world, we relish our own menagerie of monstrosity, from alien invaders to dinosaurs, dragons, ghosts, giants and robots running amok. Some, like Egypt's mummies, Arabian Nights genies and their cousins, the ghouls, clearly originate in the Middle East, which is fitting, given that it's the home of some of the earliest human civilizations.

But what about three of the most enduring and currently popular world-class monsters: the vampire, the werewolf and the zombie? These three particularly continue to terrify, thrill and intrigue us like no others. All three, it turns out, have traveled great distances to be with us. But in their modern forms, none has obvious family ties to the Middle East. The driven, blood-craving vampires and the vicious, shape-shifting werewolves originate in the folklore of Hungary, Romania and Greece—or so we are told. Zombies, classically viewed as resurrected corpses or “the undead,” derive from New World Voodoo traditions—or so we are told.

There is evidence, however, that all three in fact arose from the most ancient tales from the Middle East. As we shall also see, the closer we investigate, the more the Arabian *ghul* keeps leaping out from the shadows of history to drag us into its mythical lair.



The Epic of Gilgamesh, shown here in part of the 11th tablet, mentions several types of monsters, and an older Sumerian tale says Gilgamesh's father was a Lillu, or blood-sucking demon.

1970	1980	1990	2000	2010
<p>1968: Filmmaker George A. Romero revives the zombie in his cult classic “Night of the Living Dead.”</p>	<p>1976: Author Anne Rice introduces a new generation of literary vampires marked by beauty, sensuality and intense emotion in her novel <i>Interview With the Vampire</i>.</p>	<p>1994: Mike Nichols boosts werewolves into modern respectability with “The Wolf,” starring Jack Nicholson and Michelle Pfeiffer, set in modern-day Vermont and the publishing industry.</p>	<p>1999: J. K. Rowling's blockbuster <i>Harry Potter</i> uses the sympathetic werewolf, Remus Lupin, to draw a metaphor between werewolves and marginalized social groups.</p>	<p>2005: Stephenie Meyers takes young-adult pop-lit by storm with the first of her four <i>Twilight</i> fantasy-romance novels filled with young, attractive, romantic vampires and werewolves.</p> <p>2010: The TV series “The Walking Dead” proves a global hit in which survivors battle viral zombies bent on taking over Atlanta, Georgia and, of course, the world.</p>





family or loved ones. As a result, the *utukku* returns from the underworld to haunt whomever it encounters, seeking sustenance from its victims. Like the vampire of Eastern Europe, this creature is a persistent haunter that is very difficult to dislodge. Sometimes the *utukku* are blood-drinkers, while at other times they are said to imbibe the human life-force. While they are most often malevolent, on occasion they can be allies, and such an *utukku* appears as Ea-Bani, friend of Gilgamesh.

A particularly vivid description of a group of thoroughly evil, vampire-like *utukku* known as the Seven Spirits appears in a 3000-year-old Assyrian cuneiform incantation:

Seven are they!
 Knowing no care,
 They grind the land like corn;
 Knowing no mercy,
 They rage against mankind;
 They spill their blood like rain,
 Devouring their flesh [and] sucking
 their veins....
 They are demons full of violence,
 Ceaselessly devouring blood.

Translator R. Campbell Thompson, in his authoritative *Semitic Magic*, says the Seven Spirits’ “predilection for human blood ... is in keeping with all the traditions of the grisly mediaeval Vampires.” Thompson notes that these Seven Spirits reappear later in both

Palestinian and Syriac magic spells. A Syriac charm from Christian times quotes the Seven as saying: “We go on our hands, so that we may eat flesh, and we crawl along upon our hands, so that we may drink blood.” But the Assyrian incantations and their successors make it clear that vampirism was but one characteristic of these demons that also traveled with storms, like wind demons, and that ate flesh, like Arabian ghouls.

Earlier than the Seven Spirits were the blood-sucking vampire-demons of Sumeria. A manuscript recording the kings and dynasties of Sumer, dating from about 2400 BCE, asserts that the father of the Sumerian hero Gilgamesh was in fact a Lillu-demon. This Lillu was one of four demons in a class of vampires: The other three were Lilitu (manifested in later Hebrew tradition as Lilith), the female version of the vampire demon; Ardat Lilli (or Lilitu’s handmaid), who visited men at night and bore them ghostly children; and Irdu Lilli (Ardat Lilli’s male counterpart), who would visit women at night and make them pregnant. Lilitu was believed to be a beautiful, promiscuous vampire, similar to some 21st-century literary versions, partial to the blood of children, infants and young men. From Sumer, Babylonians and eventually Hebrews adopted versions of these legends, and similar traditions developed in northern Mesopotamia.

Many of the traditions in early Hebrew literature, including monster folklore, derived similarly from the beliefs of Mesopotamia. Although some scholars have claimed that there is no trace of vampires in early Jewish literature, this is not accurate. The book of Proverbs (30:15) refers to a “horse leech” or bloodsucker (Hebrew *‘alukah*): “The horse-leech hath two daughters, crying: Give, give.” Old Testament scholar T. Witton Davies says this creature is not a

Vampire!

The vampire is usually a revived corpse or quasi-living being that maintains its existence by drinking human blood.

Some experts assert that the vampire originated in ancient Egypt or India, but those connections are tenuous. The first creatures that actually fit the modern description of vampires appear in the surviving writings from the Fertile Crescent, in texts from Assyria in the north and the Akkadian and Babylonian empires in the south, as well as in documents of the earliest known Mesopotamian civilization, Sumeria.

Assyria, on the upper Tigris River, in what is now northern Iraq and parts of Syria, endured from about 2400 to 600 BCE and was ruled from Assur (or Ashur). The Assyrians adopted beliefs from their Sumerian predecessors, including belief in two classes of demons with vampire-like tendencies: the *ekimmu* and the *utukku*. The *ekimmu* were the angry spirits of persons dead but unburied, prowling the earth until they found rest beneath the ground—a characteristic phase of the traditional vampire.

An *utukku* was sometimes hard to distinguish from the *ekimmu*, but generally it was the spirit of a deceased person who had been buried but forgotten, not honored with offerings at its tomb by

common leech but instead “probably a vampire or blood-sucking demon,” and he notes that several other prominent scholars support this interpretation. One biblical translation, the Revised Version, offers a marginal note for “horseleech” that states, “Or, vampire.” The International Standard Bible Encyclopedia agrees that something similar to a vampire is intended in light of the similarity between the Hebrew word *‘alukah* and the Arabic *‘aluqah*, which means female ghoul. Indeed, the Jewish Encyclopedia of 1906 declares that the *‘alukah* is “none other than the flesh-devouring ghoul of the Arabs.... She has been rendered in Jewish mythology as the demon of the nether world ... and the names of her two daughters have in all probability, as familiar names of dreaded diseases, been dropped.”

Another popular vampire-demon of the Hebrews—borrowed, as we have seen, from the Mesopotamians—is Lilith. Early Jewish legends say Lilith was the first wife of the first human, Adam, created from clay rather than from Adam’s rib, as Eve later was. According to some accounts, Lilith refused to be subservient to Adam, and she abandoned him along the Red Sea coast, where she consorted with demons and bore vast numbers of demon (or *jinn*) children. She herself evolved into a night demon with an abiding hatred for human children, and she would come in the night to suck the blood of infants. She was also sometimes portrayed as a bird, often an owl.

Are these early Middle Eastern vampire creatures related to the more human-like European vampire, the folkloric creature popularized in 1897 by Bram Stoker’s novel *Dracula*? Could such beliefs have found their way into Eastern Europe? If we consider that ancient Greece may have been the gateway for the migration of a wealth of Mesopotamian ideas and legends, it may be so. There is growing evidence that Greece experienced a rich infusion of mythology and folklore from the Middle East between the 12th and ninth centuries BCE. Charles Penglase, author of *Greek Myths and Mesopotamia*, argues that the Homeric hymns and the poems of Hesiod, written in the seventh century BCE, show influences from the myths and religious beliefs of ancient Mesopotamia: “Mesopotamian religious and mythological material could have reached Greece at earlier periods, but the influence apparent in these works seems to be a result of contacts in the period of intensive interaction in the first millennium BCE, beginning in the middle of the ninth century BCE. The late Mycenaean time before the end of the twelfth century BCE has also been suggested by some as a time

In the Assyrian traditions, vampirism was often but one characteristic of demons that also traveled with storms and that ate flesh, like Arabian ghouls.



A woodcut portrait dated 1491 shows Transylvanian Prince Vlad Tepes III, whose cruelty in fighting the Ottomans earned him the sobriquet “the impaler.” He was neither a count nor did he drink blood: “Count Dracula” was created in 1897 by Irish author Bram Stoker.

of influence, owing to the extensive contacts between Mycenaean Greece and the Near East at this time.”

The Greeks developed their own version of the Mesopotamian vampire-demon Lilitu, which they called the lamia. Named for a demon born in Libya who terrorized Europe, the lamia had the face and upper body of a woman and the tail of a serpent. Lamias could disguise themselves as human women. They devoured children and sapped the life-force from men. Lamias became a staple of Greek folklore and spread to other European lands, including France, where a lamia named Melusine magically concealed her blue-and-white serpent’s tail, married a French nobleman and, repurposed as a “water fairy,”

became part of Europe’s colorful legendary tradition.

Romania has some of the richest vampire lore in Eastern Europe. Its scenic central region, Transylvania, bounded by the Carpathian Mountains in the east and south, was the setting for Stoker’s *Dracula*. Count Dracula, played in the 1931 movie version by Bela Lugosi, was Stoker’s vampirized rendition of an actual person: Vlad III Dracula of Transylvania, who lived from 1431 to 1476. A Wallachian noble who waged war against the Ottoman Turks, he became known as “Vlad the Impaler” for his reputed execution, many by impalement, of 20,000 or more Turkish soldiers—but no one has ever suggested he drank blood.

Romania may have absorbed some of its vampire traditions from Greco-Roman sources, which in turn had taken them from the Middle East. Romania and its heartland, Transylvania, were part of the Greek-influenced Thracian kingdom of Dacia from 86 BCE and then part of the Roman Empire from 106 to 271 CE.

It makes sense that the Romanian name for vampire is *strigoi*, derived from *strix*, the Roman and Greek word for “owl.” In Greek and Roman folklore, the *strix* was an evil bird, capable of shape-shifting, that fed on human flesh and drank human blood. Its exact nature remained something of a mystery, even to natural history experts like Pliny the Elder, but it appears to be another example of Mesopotamian influence, given that Lilitu—Lilith was a vampire and at times portrayed as an owl. In the British Museum, on a bas-relief known as the Burney Relief, an image of Lilitu from ancient Babylon appears, often dubbed “The Queen of the Night”: a human female figure with feathered bird wings and bird claws for feet.

Some vampire lore may also have entered Eastern Europe through the Turks. In Hungary, for example, the belief in vampires is said to date back to accounts from the 12th century that cite a demon called *izcacus*, or blood drinker. This word’s origin dates back before the Hungarians’ arrival in Europe from Central Asia in 895. Turkic culture expert Wilhelm Radloff says the word has its roots in ancient Turkish, which the Hungarians encountered during the late eighth century in regions between Asia and Europe. Migrating Turkic tribes may have acquired vampire lore from settled populations in western and Central Asia that had been influenced by the Assyrians and their successors.

Werewolf!

The earliest known literary account of a human transformed into a wolf appears in the Sumerian Epic of Gilgamesh, probably the oldest written story on Earth, dating back more than four millennia. Originally written in cuneiform script on 12 clay tablets, it is the story of Gilgamesh, king of Uruk in what is now Iraq. In the tale, Gilgamesh is courted by the goddess Ishtar, but he rejects her and reminds her of the tragic fate of her previous lovers:

You loved the Shepherd, the Master Herder,
Who continually presented you
with bread baked in embers,
And who daily slaughtered for
you a kid.
Yet you struck him, and turned
him into a wolf,
So his own shepherds now
chase him
And his own dogs snap at his shins.

Assyriologist Julius Oppert asserts that belief in the werewolf was a part of the ancient Assyrian worldview. Later, widespread belief in werewolves may have contributed to a psychiatric disorder in King Nebuchadnezzar II, who ruled from about 605 to 562 BCE, in which time he destroyed Jerusalem's First Temple and built the Hanging Gardens of Babylon, one of the original "seven wonders of the world." It also appears, from the Biblical Book of Daniel, that Nebuchadnezzar suffered from what psychiatric experts Harvey Rosenstock, MD, and Kenneth R. Vincent, ED.D., have described as "depression that deteriorated over a seven-year period into a frank psychosis, at which time he imagined himself a wolf."

This is more broadly known as lycanthropy ("wolfman-ism"), or delusions of being a wild animal (usually a wolf), and it is a disorder that has been recorded since antiquity. Among the earliest medical descriptions of it is one from the Byzantine Greek Paul of Aegina, a highly regarded physician of the late seventh century, who describes it with reference to the Greek myth in which Zeus turned King Lycaon of Arcadia into a raging wolf.

Like the vampire, the werewolf appears to be a migrant from the Middle East to Greece, where it surfaced in this legend. According to the most popular version, repeated by Ovid and other Greco-Roman authors, Zeus visited Arcadia in human form and dined with King Lycaon. The king doubted his visitor was Zeus and tried to test his divinity by serving him a dinner of human flesh. Zeus punished Lycaon by transforming him into a wolf.

Pliny, in his *Natural History*, relates another old Greek story about a man of the family of Antaeus, who was selected by lot and brought to a lake in Arcadia. There, he hung his clothing on



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a tree and swam across. When he reached the other side, he was transformed into a wolf, and he wandered in this shape for nine years, living with wolf packs. After the nine years had elapsed, if he had attacked no human being, he was free to swim back and resume his human shape. Set in Arcadia as it is, this tale may contain echoes of the Lycaon story.

Herodotus wrote of werewolf legends in his *Histories*, telling about such a tradition among the Neuri, a possibly Slavic people northeast of Scythia who had adopted Scythian customs. "It appears that these people practice magic," he wrote, "for there is a story current amongst the Scythians and the Greeks that once a year every Neurian turns into a wolf for a few days, and then turns back into a man again." Herodotus comments: "I do not believe this tale; but all the same, they tell it, and even swear to the truth of it."

This too may have roots to the east. The 18th-century Swedish historian Olof von Dalin wrote that the Neuri were a composite of Scythians, Greeks and Hebrews who accompanied the Budiner or "Shepherd Scythians" to the Swedish

islands around 400 BCE, in an exodus said to have been driven by the Macedonians.

By the Middle Ages, werewolves became no less accepted in the European worldview. They were seen as a threat to established order, and they were often described as sorcerers and heretics. “An accursed college,” Swedish Catholic ecclesiastic Olaus Magnus called them in the 16th century, “desirous of innovations contrary to the divine law.”

Werewolves, it turns out, have ancient kinship with vampires, and sometimes the legends overlap. In medieval Eastern Europe, particularly during the “plague centuries” (1300–1700), the bodies of persons executed for being werewolves were often cremated to prevent them from returning as vampires. In Hungary, Slovenia, Serbia and Bulgaria, the vampire has been linked to the werewolf, and in Serbia, the werewolf

and vampire are known collectively as a single creature, the *vulkodlak*.

Victorian folklorist Sabine Baring-Gould highlights this close relationship, too, and in so doing leads us toward more ancient ghouls. Baring-Gould describes a French historian’s account: “Marcassus relates that after a long war in Syria, during the night, troops of lamias, female evil spirits, appeared upon the field of battle, unearthing the hastily buried bodies of the soldiers,

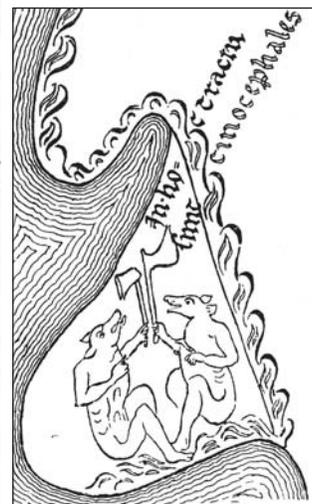


King Nebuchadnezzar II of Babylon may have suffered from a psychiatric disorder known as lycanthropy—the belief that one is a wild animal, most commonly a wolf. English artist and poet William Blake immortalized the king’s agony around 1805.

and devouring the flesh off their bones. They were pursued and fired upon, and some young men succeeded in killing a considerable number; but during the day they had all of them the forms of wolves or hyenas.” Baring-Gould felt there was “a foundation of truth in these horrible stories.” The devouring of human flesh is a particularly ghoulish characteristic, as we shall soon see.

The Arabs, too, have a werewolf in their folklore: the *qutrub*. The word is a corruption of the Greek *lykanthropos*, or wolf-man. Edward Lane, a translator of the *One Thousand and One Nights*, says the male ghoul is called by this name. In popular belief, the *qutrub* is either a man or a woman who is transformed into a wolf-like beast by night and who feeds upon corpses, but it is not a wolf per se.

Qutrub was furthermore the Arabic term for lycanthropy. In the early 10th century, in his classic medical encyclopedia *Liber Continens* (*Al-Hawi al-Kabir*, often called *The Virtuous Life* in English), physician Abu Bakr Muhammad Al-Razi followed the tradition of Paul of Aegina and other classical authors, describing lycanthropy as a brain disorder or a psychosis rather than a physical transformation. He saw it as a kind of madness that compels a person to behave like a wolf. To treat the ailment, he prescribed opium to induce sleep, and baths and topicals to “humidify” the brain.



A history of Scandinavia dated 1555 depicts a “metamorphosis of men into wolves,” far left, and an inset from the Hereford *mappa mundi* in the 13th century, left, shows dog-headed men.



Zombie!

The classic zombie is a corpse revived by a sorcerer or magician, usually in the context of Haitian, Louisianan or West African Voodoo. The zombie then becomes entirely subject to the power of its master. In literature, zombies have been known to guard treasure, terrorize neighborhoods and, more generally, commit murder. The term “zombie” was popularized in the United States in 1929 in *The Magic Island*, a book about Haitian Voodoo by reporter and occultist William Seabrook.

In the 1980’s, Harvard ethnobotanist Wade Davis asserted a pharmacological basis for the Voodoo-based zombie of Haiti. He claimed that if two toxic substances entered the bloodstream simultaneously—pufferfish powder and a dissociative drug like datura—the effect could be a deathlike state in which the victim’s will would be subject to that of the Voodoo sorcerer. Other scientists, however, called this “overly credulous.”

It is important to note at this point that the classic Voodoo zombie is not one able to turn others into zombies, nor is it an eater of human flesh.

The modern articulation of the zombie, so popular today in TV shows, movies and video games, is thus quite a different creature. This new zombie, popularized in director George A. Romero’s 1968 cult-classic movie, “Night of the Living Dead,” is a revived corpse that relishes human flesh and, of that, the brain most especially. This zombie’s condition is caused originally by an outside agent—a virus from space, atomic radiation, mutagenic gas or other uniquely 20th-century malady—and from there it can usually be transmitted to living humans with a simple chomp of the fangs. In zombie tales of the early 21st century—film, video, print or computer game—the undead contagion spreads virally worldwide,

bringing on a “zombie apocalypse.” Yet all is not lost, because to overcome today’s zombie, beheading or violent destruction of its brain usually suffices.

This new zombie is proving vastly more popular—and lucrative to its entertainment-media sorcerers—than even

its most monstrous rivals. A recent Google search showed the word “zombie” garnering 318 million Web pages, while “vampire” collected a mere 80 million, with “werewolf” loping in third at 44.5 million.

The zombiemanía has reached the point where even a serious institution such as the US Centers for Disease

Control (CDC) has taken advantage of the pop-culture phenomenon

to promote emergency preparedness. The CDC’s Atlanta headquarters plays a role in the first season of

the TV series “The Walking Dead,” and last year, the CDC

posted a real article on its blog called

“Preparedness 101: Zombie Apocalypse” that

told readers how to prepare for a fictional zombie invasion and, in the process, “maybe ... even learn a thing or two about how to prepare for a real emergency.”

Curiously, when he filmed “Night of the Living Dead,” George Romero says he did not have zombies in mind at all. His creatures were envisioned as ghouls, he has recalled in interviews, the flesh-eating creatures of Arabian lore. His undead attackers are even called that in the film. But somehow the word “zombie” was the one that caught on, and before long, Romero himself was using it, including in the dialogue of his 1978 sequel “Dawn of the Dead.” (He went on to make four more zombie movies. Controversial in its day, in part for its graphic violence, “Night of the Living Dead” was recently selected by the US Library of Congress for preservation in the National Film Registry as a work of “cultural, historical or aesthetic significance”—lest it die an untimely death.

It is this ghoul-zombie that has the long history, and, like the werewolf, it goes back to the Epic of Gilgamesh and the king’s tensions with the goddess Ishtar, who thus describes her passage down to the underworld:

If thou openest not the gate to let me enter,
I will break the door, I will wrench the lock,
I will smash the door-posts, I will force the doors.
I will bring up the dead to eat the living.
And the dead will outnumber the living.

Horror novelist Jonathan Maberry has pointed out that, in “Dawn of the Dead,” Romero in fact echoed Ishtar with the line: “When there is no more room in Hell, the dead will walk the earth.”

Ghouls of the Arabian tradition—distinct from those Ishtar describes—are normally neither revenants or revived corpses, but rather an extreme form of another living species: the jinn, which in English became “genie.” The jinn, shape-shifters with various extra-human powers, are often associated with magic and sorcery.

But Arabian belief includes both good and bad jinn. Ghouls are obviously the bad sort, and though most times they view people as menu items, they occasionally prove allies—hardly a trait we expect in any modern movie zombie.

Many ghouls are portrayed in Arab lore as lurking in caves in remote deserts, waiting to snare and devour innocent travelers who may be passing by. The female ghoul, or *ghulah*, is very popular in folktales; she sometimes shape-shifts into a beautiful woman who marries an unsuspecting man and has children by him.

Matthias de Giraldo and M. Fornari, in their 1846 *Histoire des Sorciers (History of Sorcerers)*, tell of a legend about a ghoul in 15th-century Iraq: A Baghdad merchant's son married a beautiful young woman against the advice of his father. The young man soon discovered his bride was making mysterious nocturnal visits to a nearby cemetery. One night, he secretly followed her into a mausoleum, where he found to his horror a party of ghouls assembled with the spoils of graves they had violated, feasting on the flesh of long-buried corpses. Among them was his own wife, and this explained why, at home, she never touched her supper. The next day, the husband confronted her and, vampire-like, she tried to open his jugular vein to drink his blood, but he succeeded in throwing her down and, with a single blow, killing her. She was buried next day, but three days later, at midnight, she reappeared, attacked her husband again and once more attempted to suck his blood. This time he fled, and the following day he found her in her tomb, where he cremated her body, cast the ashes into the Tigris River and was free of her.

Such imaginative tales and romances from and about the Middle East, dating back to the Middle Ages and beyond, have often featured ghouls as grave-violators. Says Baring-Gould:

Of a moonlight night weird forms are seen stealing among the tombs, and burrowing into them with their long nails, desiring to reach the bodies of the dead ere the first streak of dawn compels them to retire. These ghouls, as they are called, are supposed generally to require the flesh of the dead for incantations or magical compositions, but very often they are actuated by the sole desire of rending the sleeping corpse, and disturbing its repose.

Not all ghouls disguise their hideous countenance. Palestinian-American folklorist Inea Bushnaq describes ghouls as the wildest and most repulsive-looking of the jinn, hairy, filthy and long of tooth with a sharp nose for the scent of human flesh. Unlike most of the eerily mute modern zombies, these ghouls talk: In the tales, they have a set entrance speech, which comes as the human hero stammers his "*salamu alaikum*" ("peace be with you"):

Lawla salaamak

Sabaq kalaamak

Had not your greeting
Come first before your speaking,
I would have torn your muscles each from each
And used your bones to pick my teeth.

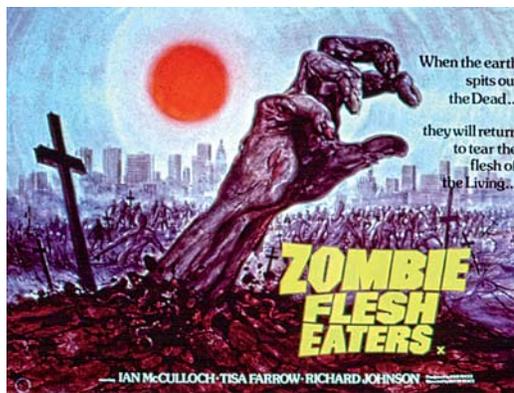
Here is another vivid ghoul, this time from a Yemeni folk epic about sixth-century Himyarite King Sayf ben Dhi Yazan. Most unregally, he is treed by approaching ghouls. The monsters are closing in:

And as he gazed, he saw an old man approaching ... hideous of countenance, his face round as a shield, his jaws and nose as great as a buffalo's, with fangs jutting out like pincers, and his ears as large as catapults; he had nails like daggers, the hair on his body was like the spines of the porcupine, and his eyes were like slits of red flame. Hideous and evil-smelling he was, his face smoldering with evil....

This is not exactly the shambling, blood-smearing, undead corpse of the modern zombie movie, but the effect is close enough. Interestingly, as the story unfolds, the no-less-hideous Queen of the Ghouls arrives, but she displays a rare sympathy and helps the king escape an impending ghoul apocalypse caused by her own people.

So we see that, throughout the imaginative visions of vampires, werewolves and zombies that haunt western pop and literary culture, there are deep echoes that reverberate all the way back to the earliest Mesopotamian civilizations. Up they came through those ages, into Arabia, Greece and Europe, vampires blending and morphing into werewolves, werewolves into zombies and so on in endless combinations—yet all three hark back no less to the oldest Arabian ghouls. While they have walked among the nightmares of far too many lands to claim purity in their Middle Eastern origins, it's nice—and perhaps prudent—to better know their lineage. Facts can be handy defenses, armor for the mind, when next sitting in a

dark theater, gripping the armrests, about to be horrified. 🌐



Top: Though not risen from the dead, cannibals appear in the Hereford *mappa mundi*. Above: In 1979, a movie poster entices viewers with a distant echo of the portentous words Ishtar spoke to Gilgamesh.



Robert Lebling (lebling@yahoo.com) is a writer/editor and communications specialist. He is author of *Legends of the Fire Spirits: Jinn and Genies from Arabia to Zanzibar*.



June Brigman (www.artwanted.com/juneart) has worked for Marvel and DC Comics, as well as *National Geographic World* magazine. For 15 years, she was the artist for "Brenda Starr, Reporter," a nationally syndicated comic strip. She currently works as a character designer for Teshkeel Comics on the "The 99" comic book series.



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Gilgamesh: M/J 96
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early trade routes: J/A 03



a walk through historic arab paris

Written by
Nancy Beth Jackson

Photographed by
Isabelle Eshraghi

We are standing in the heart of the Latin Quarter of Paris. Famous landmarks, such as Nôtre Dame Cathedral, the Luxembourg Gardens, the Cluny Museum, the Panthéon and the Sorbonne are within blocks. Yet hidden in full view around us is another Paris that is often forgotten in the bustle: historic Arab Paris.

For many, an Arab Paris may seem of more interest to journalists than historians. After all, it's only relatively recently that hundreds of thousands of Parisians speak Arabic as their first or second language, and that couscous, *mezze* and *shwarma* have become as common as *coq au vin*. So it's all too easy to overlook a history that began some 500 years ago, when France became the first Christian nation to establish a diplomatic alliance with the Ottoman Empire, initiating a flow of diplomats, intellectuals, tourists and students from the Eastern Mediterranean and North Africa to the French capital.

"By the end of the 18th century, relationships with the Muslim world were so common as to have become banal. People walked about Paris not even blinking when they saw someone wearing a turban, because they were so used to it," says Ian Calder, history professor and author of the 2011 book *Arab France*. Turbaned figures were simply part of the crowd in engravings, watercolors and oil paintings of the period—even in Jacques-Louis David's early-19th-century "Coronation of Napoleon," where the Ottoman ambassador can be spotted among the dignitaries.

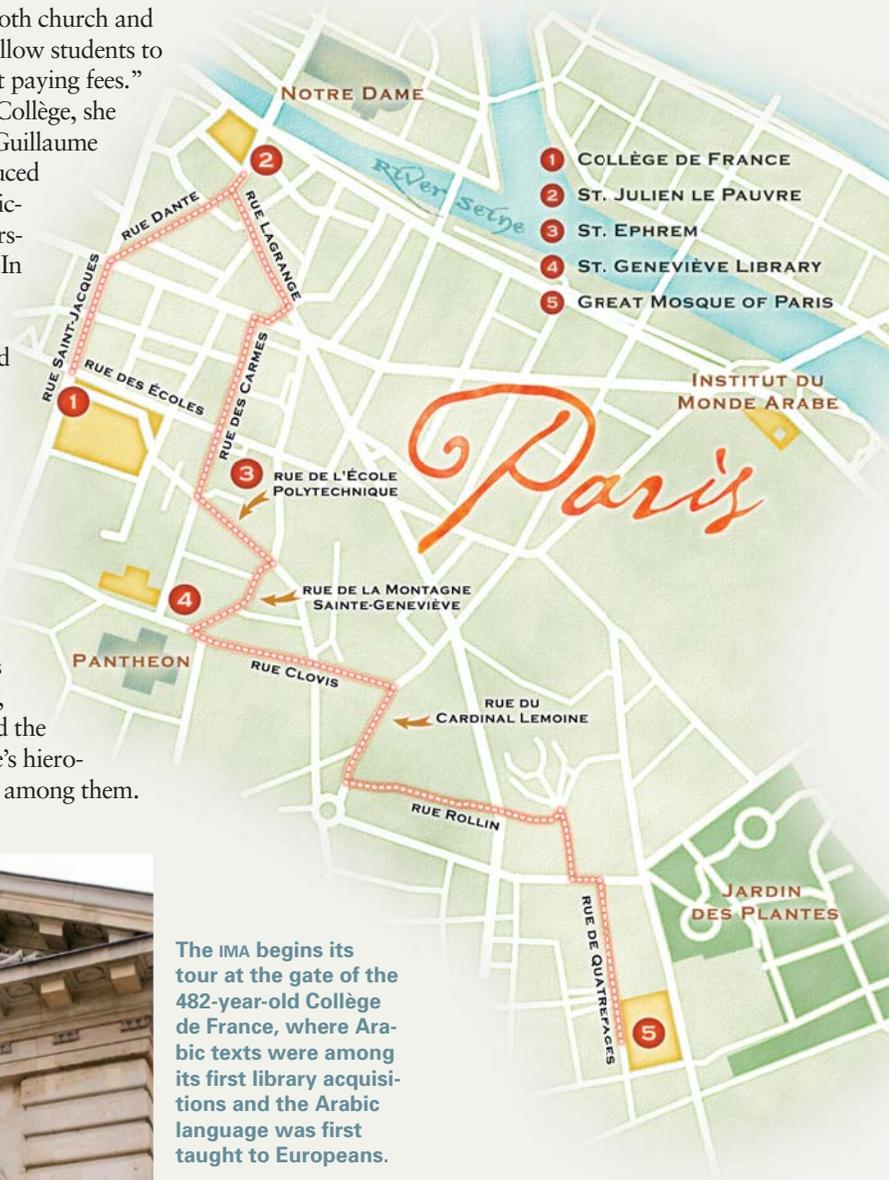
When the Institut du Monde Arabe (IMA, or Arab World Institute), a cultural partnership between France and 22 Arab countries, launched its 2½-hour walking tour of Arab historic sites in Latin Quarter six years ago, its primary goal was to educate the public by exploring France's historical links

to the Arab world. “Now our mission is also to help first- and second-generation French citizens to find and understand the roots of their grandparents’ language and civilization,” explains Mona Khazindar, IMA director general. Many participants come on school field trips, and the public tours are on Saturday afternoons from May to October, €16.70 (\$21) a head. Individual visits can also be arranged.

On the spring Saturday when we set out to explore historic Arab Paris, we meet our guide under a tree by the iron gate of the Collège de France, the Royal College until the French Revolution. François I established the institution in 1530 to encourage independent thinking and break old modes of academic inquiry. An art collector, he also nudged France into the Renaissance by bringing Leonardo da Vinci to Paris and, with him, the “Mona Lisa.”

“The Collège was established as an alternative to the Sorbonne,” explains our guide Anne Vincent, speaking in French. “The king wanted to free

scholars from controls on their research by both church and state and to allow students to study without paying fees.” It was at the Collège, she tells us, that Guillaume Postel introduced the first Arabic-language courses in Europe. In the following centuries, the Collège would become the cornerstone for the study of Oriental languages in France, and it would attract innovative scholars: Jean-François Champollion, who unlocked the Rosetta Stone’s hieroglyphics, was among them.



The IMA begins its tour at the gate of the 482-year-old Collège de France, where Arabic texts were among its first library acquisitions and the Arabic language was first taught to Europeans.





Second stop on the tour is St. Julien le Pauvre, a 13th-century church whose current Melkite congregation claims roots among Christian Arabs who followed Napoleon back from Egypt to France.

traveled Postel, the Arabic linguist who is sometimes called France's first Orientalist. The king sent him along as an interpreter, but also with the assignment of bringing back Arabic manuscripts, particularly scientific texts, to enrich the royal library. Among Postel's souvenirs was a thesis on Arab astronomy that is still part of the French National Library collection.

Before moving on from the Collège de France, Vincent nimbly fast-forwards to the 19th century by introducing us to Jean-

François Champollion, whose 1822 translation of the Rosetta Stone, found by Napoleon's troops in Egypt, opened millennia of Egyptian history and created the scholarly discipline of Egyptology. An archeologist by training, Vincent warms to her tale: Champollion had studied Arabic and other Oriental languages at the Collège de France, where he was

later appointed chair of Egyptian history and archeology. Also the first curator of the Louvre's Egyptian antiquities department, Champollion was part of what became a mania for things Egyptian. Winged lions, scarabs and other Egyptian motifs appeared in fashion, furniture and funerary art, particularly at Père Lachaise Cemetery, where Champollion himself is buried under an obelisk-shaped tombstone.

"The French were mad about the Orient," Vincent says. "There were sphinxes everywhere." Not to mention the Luxor obelisk at the Place de la Concorde, a gift in 1829 from Muhammad Ali, the Egyptian ruler who established a school in Paris where Egyptian youth could study military science, mechanics, medicine and other practical skills. (He also presented Charles X with a giraffe, a creature that hadn't been seen in Europe for over 300 years; an estimated one-eighth of Paris's entire population came to see "Zarafa" after she was installed in the zoo at Jardin des Plantes, the city's botanical garden.)

These were heady times in Paris. When a Moroccan delegation arrived in the winter of 1845–1846, the local press was abuzz. One journalist reported that "the envoy from Morocco has caught the imagination of Paris. Everything about him recalls the court of the Moorish kings of Granada and the brilliant Abencerrages of whom he is a descendant." Muhammad as-Saffar, a scholar traveling with the ambassador, chronicled their social whirl of dinners, concerts, balls, theater and tours around town. They received so many invitations that "we only accepted invitations from the royal entourage or men of state."

The glitter of that winter season was evident when as-Saffar described running into Egyptians, including two grandsons of Muhammad Ali, at the king's New Year's

Until François I, Europe still viewed the Levant as a Crusader battlefield, but François looked to the east primarily for commercial and strategic partners. Ignoring criticism from his fellow monarchs, he was the first to exchange ambassadors with the Ottoman Empire, which then stretched across North Africa to the Arabian Peninsula and north into Hungary. In 1536, he and Suleyman the Magnificent established an alliance that would last nearly three centuries. About the same time, France and Morocco also exchanged ambassadors.

In advance of the agreement with the sultan, Hayreddin Barbarossa, the powerful Ottoman admiral and governor of Algiers, dispatched a delegation to France in 1533. Bearing a lion and 100 Christian slaves as gifts for the king, a second delegation arrived the following year to coordinate Franco-Ottoman offensives against the Holy Roman Empire and to accompany the new French ambassador to Constantinople. With the ambassador

Along the way, the tour passes bookshops and cafés with long histories as gathering places for the Arab students and writers who made the city an Arab capital.





party. “In all, there were about 60 people sent there by Muhammad Ali to learn the sciences [that] one finds only there. These Muslims were not dressed like Christians, but wore long gowns covered with so much gold embroidery, pearls and precious stones that the cloth beneath could hardly be seen. Their buttons were studded with gems, and the girdles from which they hung their swords were heavy with gold. Their splendor was indescribable.”

But there was also a spiritual side to the Paris-Arab relationship. We dodge traffic as Vincent leads us down Rue Saint-Jacques for our second stop: St. Julien le Pauvre, a tranquil spot on the banks of the Seine across from Notre Dame. Outside this tiny church, which dates from the 13th century, a poster advertises classical music concerts. The church is known for its superb acoustics, but we are here to learn about its historic Arab connection. At first, it strikes us as strangely bare of the religious statuary so common in French churches, but Vincent explains that we are not standing in a Roman Catholic church: St. Julien has been a Melkite (Byzantine rite) church since 1889. Its congregation

can trace its beginnings to Christian Arabs who were among the hundreds of refugees who followed Napoleon back to France after his defeat in Egypt. She calls our attention to the *iconostasis*, the wall of icons and religious paintings between us and the altar. Services, considerably lengthier than in the Roman tradition, are conducted in Arabic.

We take a break from history outside the church, although it is hard to escape history in the Latin Quarter. Vincent

Until François I, Europe still viewed the Levant as a Crusader battlefield, but he looked east primarily for commercial and strategic partners.

points out that we are standing in the shade of a propped-up locust tree, reputedly planted in 1601, that is considered the oldest tree in Paris. A German tourist asks Vincent who, today, is an “Arab” in France. How can North Africans be called Arabs, he asks, if they are Berbers, and not, for example, from the Arabian Peninsula?

Fine woodwork reminiscent of the *mashrabiyyah* screens of Egypt and the Levant decorate the third stop on the tour, St. Ephrem’s Chapel, which since 1925 has offered rites in Aramaic and Arabic to France’s Syrian Catholics.

It’s a familiar question for Vincent that touches the heart of the tour’s educational mission. “It is defined by language. An Arab is someone whose language is Arabic,” Vincent begins. “There are 22 countries in the Arab world, but not all are ethnically Arab.” Most Arabs in Paris are from the Maghreb, the group of North African countries from Libya westward. *Mashriq* is the term for Arabic-speaking countries east of Egypt and north of the Arabian Peninsula. And Egypt is, well, Egypt. Because of France’s long colonial history, the majority of Arabs in Paris hail from Algeria, but when it comes to restaurants, she smiles, “the Lebanese are everywhere.”

Paris has at times been described as an Arab capital, because so many Arab students, writers and artists came to Paris as exiles in the early 20th century. “It was there and in Cairo that Arabic liberal thought had its early footing,” Fouad



Ephrem's Chapel, which since 1925 has been home to Syrian Catholics in France, with services in Aramaic and Arabic. Like St. Julien le Pauvre, its superb acoustics make it a popular venue for concerts.

At the top of the hill is another reminder of the centuries-old ties the City of Light has with the Arab world: Sainte Geneviève Library, named after the patron saint of Paris. Now part of the University of Paris, it may be the city's oldest library, begun in a Benedictine abbey in the sixth century, when monasteries prized Arabic manuscripts for their scientific and mathematical erudition. Reestablished as a scholarly library in the early 17th century, its first librarian was Jean Fronteau, an expert in Middle Eastern languages.

Our final stop is the Great Mosque of Paris, an early-20th-century contribution to the cultural relations between France and the Arabic-speaking Muslim world. It covers nearly a hectare (2½ acres), yet seems tucked away behind the Jardin des Plantes. We are taken by surprise when we turn a corner and find ourselves in front of an Arabic bookstore and a minaret soaring 33 meters (130') above a Moorish-style mosque.

The tour ends at the Great Mosque of Paris, whose early 20th-century minaret, left, reflects North African style, using a light stone that blends into the city's streetscape. The gardens are open to the public, and it is a popular site for weddings, below.

Ajami wrote in 1998 in *The Dream Palace of the Arabs*. Intoxicated by a spirit of liberty, in Paris they founded Arabic magazines and newspapers, Arab bookshops and publishing houses. They gathered in coffee shops to smoke *shisha* (waterpipes) and argue politics. Many were profoundly changed, like Tawfiq al-Hakim, who came from Egypt in 1925 in a red *tarboosh* and went home five years later in a blue beret to write pioneering plays in Arabic. "For the Orient, Paris has always been an intellectual capital. Beginning in the 20th century, generations of students wanted to

believe that the spirit could breathe on the banks of the Seine," observed Nicolas Beau, author of *Paris, Capitale Arabe*.

Leaving St. Julien le Pauvre, we begin a hike up and over Mount St. Geneviève, the highest point in the Latin Quarter, walking in the direction of the Oum Kalthoum Café and the Baghdad Café, where Arab students gather in the Latin Quarter today. Halfway up the hill, we pause for breath on rue des Carmes in the stone courtyard of the Corinthian-style St.



“When they built the mosque, they took elements from throughout the Arab world to create the ideal mosque. It has the only minaret in Paris, but there is no call to prayer. That would be impossible in the Latin Quarter,” Vincent says as we enter the courtyard through a massive bronze-studded oak door to find ourselves in a kind of neo-Andalusia. Walled with tile mosaic, the terrace is paved in white marble and filled with pools, fountains and flowers. Tourists can visit the public spaces anytime, but the areas for prayers, sermons and the reading of the Qur’an are restricted to Muslims.

The largest mosque in France and third largest in Europe, the Great Mosque was



The colorful walls of the mosque are ornamented using traditional patterns from Andalusian and Moorish *zillij* tilework.

ine (Moroccan stew) in the mosque restaurant, nibble on baklava or smoke shisha under fig trees in the patio, shop for North African souvenirs in the afternoon souk or even steam away your tensions in the domed *hammam*, or traditional spa. It’s no

inaugurated in 1926 by the president of France with the bey of Tunis and the king of Morocco on hand. Built to serve the religious needs of French Muslims, it honors the 100,000 Muslim colonial troops who died for France in World War I. But in addition to being an important religious center, the mosque is a highly popular enterprise among tourists and Parisians, Vincent points out.

You can eat lamb couscous or a *tag-*

coincidence that our historical walkabout ends here, very much in the present. We are ready for a plate of honey-soaked pastries and mint-infused black tea, which the waiters pour with a great flourish. 🌍



Nancy Beth Jackson, Ph.D., (nancybethjackson@gmail.com) is a journalist and journalism educator who has lived in Paris, Cairo and Abu Dhabi. She is now based in Alton, Illinois, a historic river town near St. Louis.



Isabelle Eshraghi (isaregards@hotmail.com) is a photojournalist who covers news around the world from Paris. Born to a French mother and an Iranian father, she has won several awards for her extended coverage of both women and men in the Middle East.

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IMA: J/F 89 Moroccan ambassadors J/F 12

🌐 www.imarabe.org

sampling arab paris

INSTITUT DU MONDE ARABE

Art museum, concert hall, research library, language center, gourmet restaurant, bookstore, classroom—the IMA is all this and more. On the edge of the Latin Quarter, it offers diverse, year-round cultural programs for adults and children, tourists and French, showcasing Arab cultures. You can find a wide selection of books, music and souvenirs in the ground-floor bookshop. The elegant Lebanese restaurant on the ninth floor opens onto a terrace with panoramic views of the city. A café and self-service restaurant offer Middle Eastern and North African dishes. METROS: Jussieu, Cardinal-Lemoine, Sully-Morland.

GOUTTE D’OR

Paris has no “Arab quarter,” but this neighborhood of small shops a few blocks north of the Gare du Nord comes close to being a North African *suq*, especially on Saturdays. Here you can browse for glittering fabric, kaftans in brilliant colors or somber shades and *hijabs* in a rainbow of hues. Cooks will want to stuff their suitcases with ceramic tagine cookers, gold-trimmed tea glasses



and couscous steamers. Food shops stock exotic spices and *harisa* chili paste, the butchers are halal, and El Andalousia bakes no croissants but plenty of Oriental pastries. Hungry? Try couscous or tagine at La Goutte d’Or, a neighborhood landmark for 35 years. METRO: Barbès-Rochechouart.

BARBÈS AND BELLEVILLE STREET MARKETS

You’ll hear vendors shouting in Arabic at almost every street market in Paris, but two of the most vibrant are the Barbès and Belleville markets, where the crowds reflect the diversity of the Arab world. The Barbès market is under the elevated Metro along Boulevard de la Chapelle on Wednesday and Saturday mornings. The Belleville market, in a neighborhood shared with Asians and North African Jews, stretches along Boulevard Belleville on Tuesdays and Fridays. On the north side of the

boulevard are Tunisian banks, Arab cafés and Carrefour de l’Orient, which sells furniture from North Africa. On the sidewalk, youths hawk jerseys celebrating Arab football teams. METROS: Barbès-Rochechouart, Belleville.

MAURITANIA CONSERVATION



A large flock of birds, likely terns, is captured in flight across the sky. Below them, a vast colony of similar birds is gathered on a sandy beach near the water's edge. The scene is set against a bright, overcast sky and a shimmering sea.

WRITTEN BY LOUIS WERNER
PHOTOGRAPHED BY KEVIN BUBRISKI

Yellow dunes and blue sea mark the mudflats and sandbars of the Banc d'Arguin, which begins on the west coast of central Mauritania and extends into the Atlantic Ocean for almost 150 kilometers (93 mi).



North of the Banc d'Arguin's tidal flats, teeming with fish and bird species, including black-backed gulls and pelicans (previous spread), the shoreline rises and becomes the wave-beaten cliffs (right) that offer a haven to monk seals (above). Near extinction in the 1990's, the seals' population is recovering, thanks largely to the protection they enjoy here.

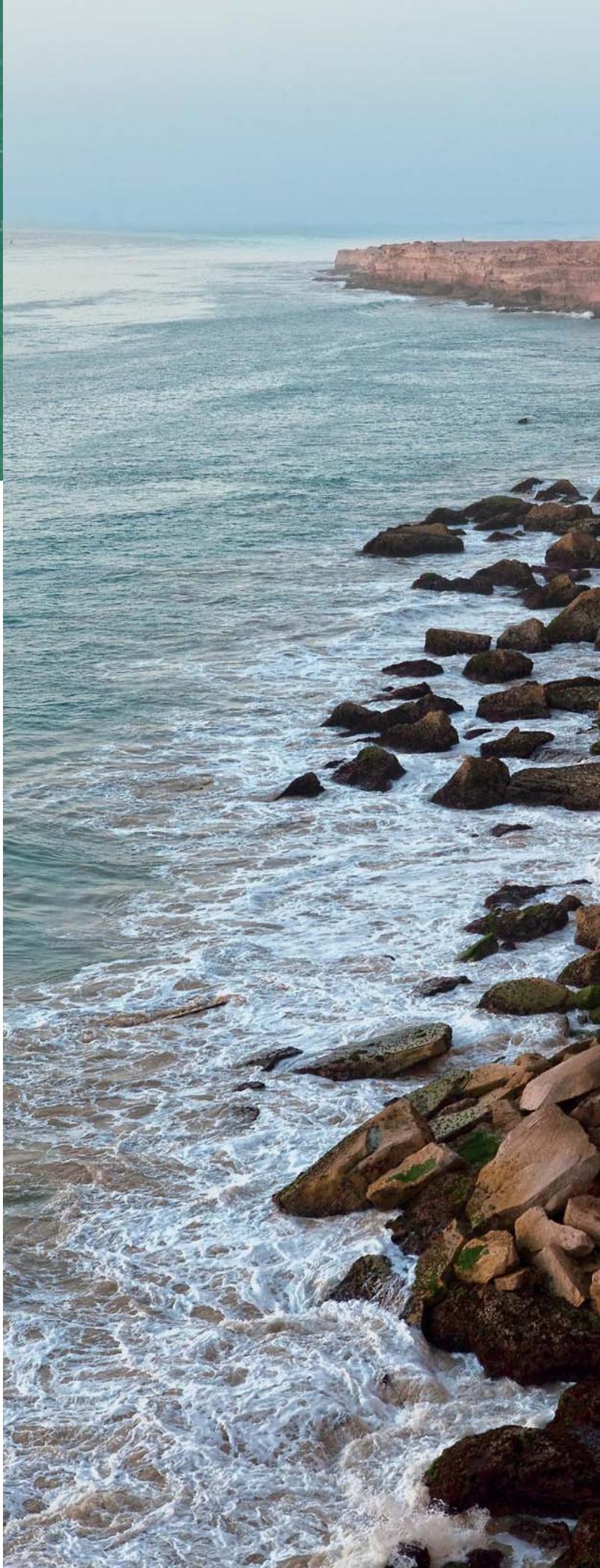
The Banc and its gulf, now part of the 1.2 million-hectare (4633 sq mi) National Park of the Banc d'Arguin, is proclaimed “notorious as a danger to navigation” on the General Bathymetric Chart of the Oceans, the authoritative atlas of undersea hazards, but its vast, shallow expanse is also one of the world's richest wintering sites for wading and water birds.

Try looking through the binoculars for ruddy turnstones, greenshanks, white pelicans, black-backed gulls, sooty shearwaters and grey herons. If you prefer pink, focus in on some 40,000 flamingos, whose delightful scientific name is *Phoenicopterus roseus*. Or just call them *nanya* in Hassaniya, the local Arabic dialect.

It is even more difficult to overlook the million-plus short-legged dunlins, also known as red-backed sandpipers; they make up at least a quarter of the species' total world population. According to the Cornell Lab of Ornithology, the dunlin calls out with a “raspy *krree*” and is “highly gregarious in winter.” The Banc's huge flocks confirm both statements. No wonder the bird's status at the International Union for Conservation of Nature (IUCN) is of “least concern.”

Add to the named species the occasional pipers, pipits and plovers, the snipes, storks and stints, also oystercatchers, godwits, cormorants and terns, and songbirds like warblers, wheatears and red-rumped swallows. Circling high above them all are the griffon and Egyptian vulture. All told, some three million birds, of some 300 species, can be found in the park in winter.

What makes the Banc unique is not only its network of shoals and flats, rich with seagrass and relict forests of *Avicennia africana*, West Africa's northern-most mangrove species, named after the 11th-century Persian polymath Ibn Sina. These waters are also the coastal confluence of the warm Guinea Current, which flows up from the south, and the cold Canary Current that flows





from the north. Their convergence causes an upwelling of colder water heavy with fish food, a rare event anywhere south of the Tropic of Cancer.

What is a boon to fish and sea life is thus also one to birds, and the complex food chains that result turn and twist upon themselves. Fish-eating jackals and ospreys meet seagrass-eating redknots and fiddler crab-eating whimbrels. Larger bonito and corvina feed on smaller sardines. At low tide, when some 500 square kilometers (193 sq mi) of mudflats are exposed, everyone seems to chase worms and crustaceans, which themselves are fattening on algae and plankton.

Théodore Monod, French naturalist

Top: In Teichott, one of the eight villages inside the park, Meimouna mint M'borik, right, is leader of the women's cooperative that arranges for tourists to live with local families. Park warden Bouthiaould Bah, above, monitors fishermen's compliance with regulations.



and expert on the Sahara, was one of the first to recognize the Banc's unique ecology, and in 1976 the Mauritanian government created the park to help protect it. Since then, the region has been named a UNESCO

heritage site and a “critical wetland” under the Ramsar Convention on Wetlands. The Swiss Fondation Internationale du Banc d’Arguin (FIBA) is among several organizations that support the park’s founding mission of harmony between the region’s human environment and natural conservation. While park rules restrict economic activity to camel herding and net fishing from sailboats, this year the government opened welcome centers at the park’s two entrances and trained ecotourism guides in the park’s eight villages, in addition to encouraging the production of fish-based products for export.

The eight villages within the park are home to some 1400 Imraguen, a name of Berber origin meaning something close to “fishermen,” even though they, like most Mauritians, speak Hassaniya. The most spectacular way to enter the park is along the 65-kilometer (40-mi) beach drive, which is passable only

at low tide. Cap Timiris, site of the park’s most populous village, Mamghar, is one of West Africa’s important headlands, as notable a landmark from sea as Dakar’s Cap Vert, Nouadhibou’s Cap Blanc, and Tarfaya’s Cap Juby. Here the fishing turns from semi-industrial outside the park

In R’gueiba, as in the park’s other coastal villages, fishing is vital to livelihood.

Below: The dry desert sun is ideal for drying fish. Lower: A girl carries home a fish fresh from one of the boats that typically send most of their catch to markets in other towns inland.



THE PARK’S MISSION IS TO PROMOTE HARMONY BETWEEN THE REGION’S HUMAN AND NATURAL ENVIRONMENTS.





Setting out in the shallows at high tide off Iwik village aboard a lateen-rigged boat named *Jadda* (“grandmother”), mate Yacoub ould Abdullahi, top, calls out to fellow fishermen. Above: Asseitu mint Khatri packages pressed, dried mullet roe (*poutargue*) for export from Mamghar village.

boundaries to artisanal inside the park, from motorboats to sailing craft. And here too is where, in the fall, the women’s cooperative turns out kilo upon kilo of the area’s best *poutargue*—pressed, dried mullet roe—during the annual yellow-mullet run along the coast. It is up to co-op member Asseitu mint Khatri to extricate the egg sac from the fish, grade the eggs, then press, dry, bag and freeze them for sale.

Poutargue is itself a loan word from the Arabic *boutaariqh*, found in the Egyptian colloquial dictionary as a verb meaning “to be swollen, as fish with eggs or a wallet with money.” Its origin may be from the Greek *tarichos*, meaning “dried fish.” Lately the Italian Slow Food Foundation is working with local women to market Mauritanian *poutargue* in Europe, where it may win favor over local but lower-quality dried gray mullet roe, a delicacy shaved onto pasta like aged Parmesan cheese.

From Mamghar across the Baie de Saint-Jean is R’gueiba village, home to the park’s only boatyard. Mohamed Fadel ould Mahfoud, president of the

boat builder’s cooperative, is one of eight trained ship’s carpenters who maintain the park’s authorized fleet of 114 sailboats. Power-sanding the ribs for a new, 11-meter (36’) boat—configured not unlike the ribs of the whale skeleton on display at the park’s headquarters—he explains the importance of the boats. “Without boats, and without wind, we would not eat,” he says.

Bouthia ould Bah, the Park’s *chef de poste*, or warden, has had to handle the occasional dead whale that has washed up on the beach during his 15 years here. But his job mainly consists of taking three radio calls a day, making sure fishermen use the required biodegradable nets rather than monofilament lines that can trap and kill wildlife, and counting the day’s catch. As it comes into the fishermen’s co-op, ice boxes keep tilapia, dorado (*n’tad* in Hassaniya), corvina, mullet (*zuwhol*) and bream (*hout al-abmar*, or “red whale”) fresh.

Quickly changing tides and shifting winds in the Baie de Saint-Jean give the working sail fleet both a challenge and an

advantage for corralling fish. Since the bay recently reopened, after a three-month fallow period at the end of last year, it is teeming again. To R'gueiba's fish market has come nearby Teichott village mayor Mohamed Lemine Teba, who is looking to buy bonito, considered the best food fish in these waters. Here it fetches up to three dollars per kilo. What these warm shallows do not offer, however, are the delicacies caught farther offshore or along the rocky Atlantic coast of Cap Blanc: octopus, lobster and cuttlefish.

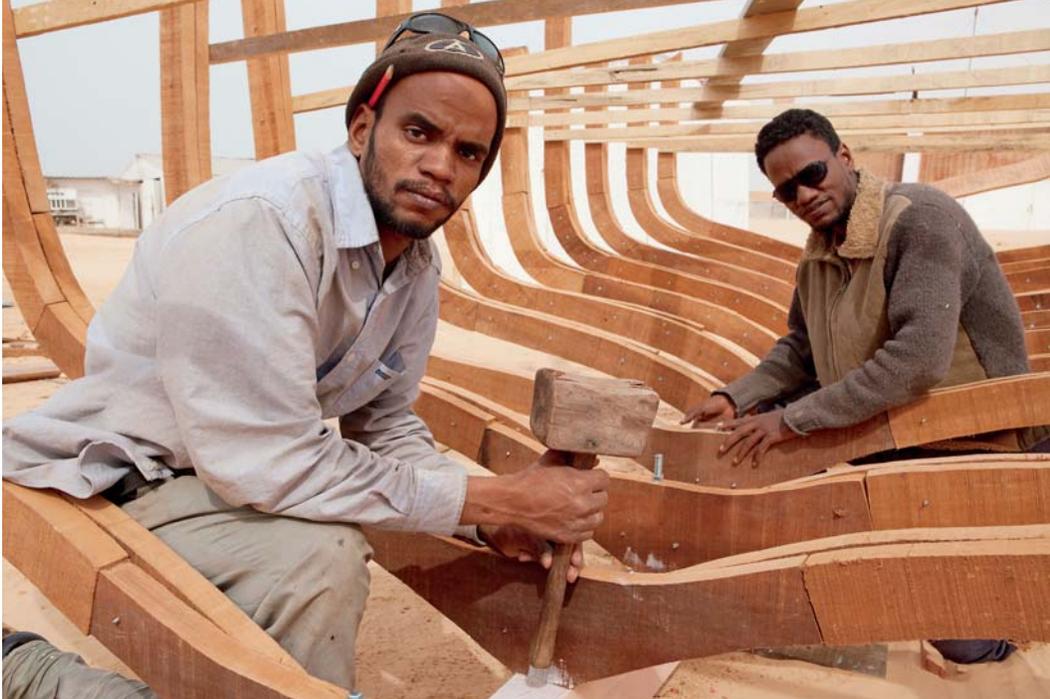
Teichott sits opposite the south end of Tidra Island, the park's largest, ringed at low tide with relict mangrove and sea-grass (*Zostera noltii*) beds. The former provide resting spots for egrets, herons and cormorants, while the latter shelters

THIS YEAR THE GOVERNMENT OPENED WELCOME CENTERS AND TRAINED ECOTOURISM GUIDES IN THE PARK'S EIGHT VILLAGES.

the birds' favorite fingerling prey. The village's sail fleet anchors far off the beach at low tide, so returning fishermen must wade 100 meters (330') to shore, fish trays balanced on their heads. Park warden Ely ould Bouyah rechecks the nets for prohibited small-mesh gauges that prevent the escape of smaller fish. The mullet catch ends by January, but it overlaps with catfish, which this winter can be found being gutted and deheaded, thrown into sand pits and covered with rock salt and a tarp for five days to preserve them. The barbed dorsal fins make it a tough job even for a gloved hand wielding a sharp knife. Gulls swoop overhead, waiting for offal buckets to be tipped in their direction.

Just up the coast is Iwik village, the Park's central headquarters, just by Tidra Island's northern end. Here Captain Deidah ould Jedeidu, with first mate Yacoub

Serving the fishing fleet, boats take shape in R'gueiba at the hands of Mohamed Fadel ould Mahfoud, top, while ship breakers, above, salvage metal from victims of the coast's notorious maritime hazards. Right: A driver for Teichott's ecotourism initiative chats with a member of the women's cooperative that is offering housing to visitors.



ould Abdullahi on board a boat named *Jadda* (“grandmother”), sets sail with a Canary Islander lateen rig rarely used anywhere but here. In this configuration, the yard is pushed around the mast when changing tack in order to maximize airflow, which requires constant fine-tuning with a bottom sail spar.

Deidah’s nautical terms are a mix of Spanish and Arabic: The sheet is a *cota* (from the Spanish *escota*); the yard is a *balanka* (from the Spanish *palenque*, “rail”); but he uses the Arabic words for anchor (*mirсах*) and fishnet (*shabaka*). Starting out from port at low tide means skirting the nearest mudflats, those they call Jinjan, which impede access to open lagoons and the rich fishing grounds around Tidra, Nair and Niroumi islands.

Some 10,000 spoonbills (*Platalea leucorodia*; *m’boye* in Hassaniya) come here from northern Europe in winter, and it seems that Otto Overdijk, from the Dutch conservation organization Natuurmonumenten, knows each one personally. Otto is the world’s foremost expert on the spoonbill, and he has been coming to the Banc d’Arguin for some 15 years from his base in the birds’ main summer nesting ground in Holland’s Waddenzee. He has personally banded some 8000 spoonbills, mostly back in his home country, each with a unique sequence of colored rings, three per leg, a configuration easily identified through the spotting scope he carries

around like a third eye.

His data set contains some 112,000 positive sightings, at both ends of the migration route, of some 14,000 banded birds. One bird banded in 1999 has been seen more than 100 times. Another, which he banded when it was less than three weeks old in June 2009 on Schiermonnikoog Island, stayed within 28 kilometers (17½ mi) of its nest until it started its first winter migration to the Banc d’Arguin. It was spotted here a year later and is likely to stay put for four years. Then, as an adult, it will return north to its own hatching site to breed.

Overdijk is not surprised to see a bird return to build its nest within a meter of its hatching place even after the four intervening years of its first African sojourn. Then it continues to make the migration an annual winter affair. (That bird hatched in June 2009 in Holland was last seen in the park on January 7, 2012, its band color code as readable to Overdijk as a familiar face: On the left leg, metal, yellow, blue; on the right leg, yellow flag (indicating Dutch-born), yellow, lime green.

In fact, 2500 spoonbills are yearlong residents, born here (indicated by a red flag band) and given the subspecies name *Platalea leucorodia balsaci*, while the others make the 4000-kilometer (2500-mi) annual migration, mostly to Holland, Denmark and Germany. Year-round residents have a completely black bill, while the winter visitors have a dull orange spot at its tip. On both, breeding plumage is an ochre chest patch, a red neck stripe and a yellow crop—an elegant combination.

Spoonbills usually lay four eggs, which incubate for 26 days. Chicks then spend seven weeks in the nest. Like most nesting water birds, spoonbills shift from tidal to diurnal rhythms,



From his office in Teichott, park warden Ely ould Bouyah oversees Banc d’Arguin National Park.

from sleeping at high tide and feeding at low tide, oblivious to day or night, to an incubating pattern in which the males take the night shift and the females take the day.

Overdijk knows all this because in July 2008 on Nair Island, just north of Tidra, he fitted one bird, which he nicknamed Abou, with an Argos satellite transmitter, whose location readings are accurate within 10 meters. Abou’s breeding habits were tracked over the following years by noting when its feeding habits changed from a tidal to a diurnal schedule. With its nest above the high tide mark, it no longer moved with the tides, only with the rising and setting of the sun.

Not all waders, however, are low-tide feeders. Above the high-tide line, beaches are pitted with the holes of fiddler crabs, who busy themselves feeding outside their lairs on full-moon nights when their chief predator, the whimbrel, can also be heard making noises that to human ears sound joyful. When caught out in the open, the crabs make a break for the nearest hole—which they often find occupied. Then they are pushed out from behind to a certain death, skewered on a whimbrel’s long, sharp beak.

Spoonbills and flamingos have an advantage over shorter-legged waders: They can feed longer on the rich mudflats as the tide comes in. There they are also safer from jackals and hyenas, whose splashy attacks are easily heard. Spoonbills also rely on the more skittish gray herons to act as sentinels. When the herons fly at the approach of danger, the spoonbills know they have just a few more moments to feed before they too must depart.

Familiar as he is with the end points of the spoonbills’ migration route, Overdijk



is most worried these days about their stopping places en route. Because the trip burns the caloric equivalent of 1200 grams of fat, but the birds are only able to fatten 600 grams above their average weight of 2½ kilograms (5¼ lbs), they must make a complex choice. They must either migrate in two equal legs of 2000 kilometers (1250 mi) each, stopping once in southern Spain to fully refatten themselves during a two-month rest, or they must stop every five days along the entire route, gaining some 50 grams at each layover. Such short hops lessen the fatal risk that the once-only feeders face if food at their layover turns out to be unavailable, yet it also requires more protection for their intermittent stopovers. “Where they stop on land in their migration is just as complex and delicate



Above and opposite, lower: **Some 10,000 spoonbills migrate into the park and feed along its shores each winter, while another 2500 live in the park year-round.** Right: **Sunset near Iwik.**



THE PARK'S LONGEST-DISTANCE MIGRANT TO DATE IS A RUDDY TURNSTONE THAT ARRIVED WEARING A BAND FROM CANADA.

a matter as where they fit into the aquatic food chain,” says Overdijk.

Spoonbills are not the park's longest-distance migrants. Overdijk has found a Canadian-banded ruddy turnstone here. Scotland's Highland Foundation for Wildlife tracked an osprey to the park from the Firth of Moray. And what of the red admiral butterflies flitting around the *Spartina* grass? They too have come to spend the winter far from the cold of northern Europe.

Two hundred kilometers (125 mi)

north of the park, just off Mauritania's chief fishing port of Nouadhibou, Hamdiould M'barek worries not about sea birds but rather about a single species of sea mammal, the monk seal (*Monachus monachus*), high on the IUCN's Red List as one of the most endangered animals in the world. He is field director for Spain's CBD-Habitat Foundation, and founder of the local group Annajah, which promotes fishermen's education and women's income projects.

Monk seals were once common both here and throughout the Mediterranean. Portuguese chronicler Gomes Eanes de Zurara, describing an expedition led by Afonso Gonçalves Baldaia in 1435 on behalf of Prince Henry the Navigator, wrote of seeing them in a bay just to the north of Nouadhibou: “And when he saw a huge multitude of sea wolves whose number reached five thousand, he ordered that as many as possible be killed and that the hides be loaded onto

Below: A pair of cormorants. Right: Banc d'Arguin ecotour guide Sidiould Ely and world spoonbill expert Otto Overdijk examine a spoonbill that Overdijk recovered from a sandbar. Overdijk has banded some 8000 spoonbills and compiled 15 years of spoonbill migration data.



his ships. Perhaps they were easy to kill, or perhaps his men were skillful, for great numbers were so slaughtered.”

Cap Blanc’s wave-beaten and cliff-lined Atlantic coast, dotted with sandy bottomed caves, is home to the world’s largest colony of this warm water-loving species. After a catastrophic die-off in 1997, probably caused by a red algae, the colony has rebounded in recent years. Last year, 55 pups were born, bringing the population close to 300. Conservationists

are guardedly optimistic that the species can survive, after having been eliminated from the Mediterranean.

Hamdi is responsible for a six-kilometer (3¾-mi) stretch of coastline on what was previously the seaward territory of Spanish Sahara. It is still laced with land mines, so his wardens watch their steps as they move along known safe routes to flagged observation posts. (In 1988, four conservationists died in a mine blast.) The wardens’ job is to wave off motor

launches that approach the coast and to report illegal lobster nets so the team’s motorboat patrol can remove them.

Little is known about the monk seal, but it is abundantly clear that the Arabic word for seal, *‘ijl al-bahr*, or “sea calf,” makes perfect sense, as *‘ijl* comes from the verbal root meaning “to be speedy.” One thing that Hamdi’s satellite tracking of three individual seals has shown is that males try to maintain exclusive breeding territories, not feeding territories as was previously thought. (The three seals that are currently tail-tagged are affectionately named Woody, Trebol and Champollion—not in honor of the French decipherer of the Rosetta Stone but to commemorate the last monk seal in the Canary Islands). The color-coded chart of their swimming patterns during breeding season, usually the first months of the year, show that they keep close to shore.

One dominant male may keep up to 30 females to himself. He typically makes 70-meter (230’), eight-minute-long dives for lobster and octopus during his three-day feeding forays, during which he must eat 10 percent of his 300-kilogram (660-lb) adult body weight each day. That’s followed by a two-day sleep-a-thon. Yet there remains little chance for an intruding male to make his move. Some repulsed juvenile males set off to explore farther shores, and some have turned up in the shallows of the Banc d’Arguin.

The team keeps a photo book of individual seals identified by their marks—either their coat’s spot patterns if they’re pups or their scars, caused by being surf-tossed against rocks, if they’re older. Some are given pet names based on the markings, such as Gaviota (“seagull” in Spanish, the working language on Hamdi’s team), Half Belt, Doughnut, Parenthesis and Nike—this for a swoosh-like scrape).

The log shows that Gaviota is 15 years old, and she has pupped eight times, producing five males and three females, always around the same day in August. Since a



The monk seals off the coast near Nouadhibou raised 55 pups last year, explains Hamdi ould M'Barek, right, field director for CBD-Habitat. Though critically endangered, their numbers are slowly rising. Far right: Salik ould Habib watches the coast for poachers and fishermen whose illegal nets might catch seals. Opposite, inset: This Moroccan freighter fell victim to the hazardous shoal coast in 2003.



pup's spots fade over time, wardens must watch closely for a distinctive rock-scrape pattern to emerge before its spots disappear completely. A full telephoto census of individual seals is taken along this coastline one week each month, in addition to the live video feed from the cave interiors that is recorded on computer hard drives. To fast-forward through the first three months of life in a monk seal pupping cave is surely to see a conservation success story in motion.

Luckily for observers, female pups are born with a black-spotted, square, white belly patch and males with a similarly colored arch-shaped patch, so it's easy to assign the correct sex to every newborn. Each pup is given a birth certificate

of sorts, with its sightings recorded by date and behavior. For instance, #575 was born to female #2032 on August 8, 2011, weighing 18 to 20 kilograms (40–45 lbs) and measuring one meter (39") long. Its first photo was taken a day later. Three months later, it was identified playing in the water near the cave, its sponge-like black birth hair, which would have become waterlogged had it dared to swim in its first two months of life, now shed and replaced with water-repellant gray fur.

While most of the seals stay along this limited stretch of coast, a few loners have taken off to points farther afield. One such pioneer has chosen to home-stead at the very tip of Cap Blanc, where an overlook gives the visitor a 270-degree

panoramic view west into the Atlantic, south into the Banc d'Arguin's gulf and east into Nouadhibou's Baie du Levrier. And here, high on the beach, sits the *United Malika*, a Moroccan freighter that ran aground in August 2003, now a hulk attended to by a crew of Malian ship breakers salvaging iron and steel by the kilogram.

Painted on its side is a poem, a lesson for sailors leaving home in search, as the last line has it, of profit in Moroccan and Mauritanian realms. The words apply as well to men aboard ship as they do to birds in the air and seals in the sea, even if the birds are flying to nests thousands of miles away, and the seals know better than to stray far from their pupping caves.

The Wreck of the *Medusa*

The sandbars of the Banc d'Arguin have caught many a ship over the centuries, but none more famous than the French frigate *Medusa*, run aground on July 2, 1816, some 60 kilometers (38 mi) from shore, while en route to the colony at Saint-Louis, Senegal. Four hundred soldiers, sailors and civilians were on board, including women and children.

Despite a reputation for incompetence, the captain had been restored to service following the downfall of Napoleon. Just out of sight of land, he ordered the ship abandoned. With only three lifeboats, he ordered a raft fashioned from the ship's timbers, and he had 150 men and one woman set on it. Breaking a promise to tow it to safety behind his own lifeboat, he ordered the raft cut loose soon after setting out, and it drifted farther out to sea.

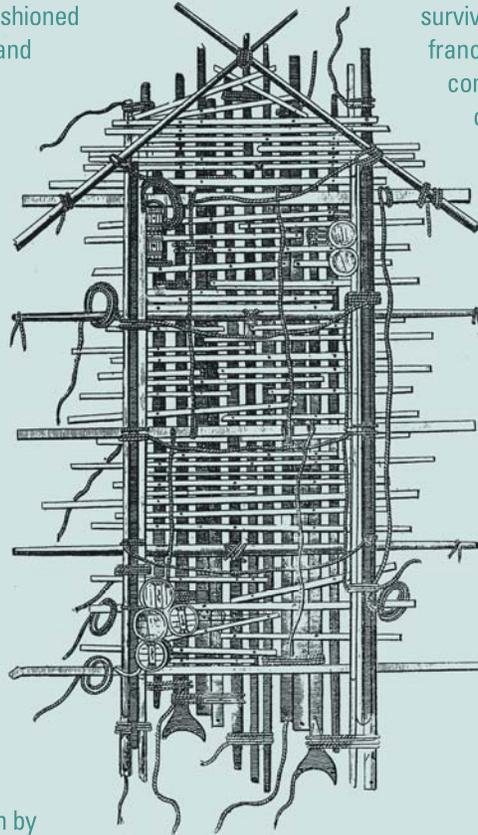
The captain's boat and the others made land, probably at Cap Timiris, where they were taken to safety by tribesmen loyal to Emir Zaid of the Traza tribe. Of those on the raft, only 15 survived the 13 days before their rescue by a vessel from Saint-Louis. Their story of cannibalism, murder and the withholding of water from those in need was so grim that it became a *cause célèbre* in France and, later, the subject of one of the Louvre's best-known romantic paintings, "The Raft of the *Medusa*" by Théodore Géricault, measuring five by nearly eight meters (16 x 23½').

More vivid than either the painting or the haunting drawing of the raft at right are two first-person accounts, one jointly written by two men on the raft, and the other by Charlotte

Dard née Picard, a young woman who came ashore in one of the lifeboats and walked to Saint-Louis with the tribesmen.

Contrary to the usual cultural stereotypes, these accounts show, on the one hand, the depravity aboard the raft and, on the other, the decorum of the local rescuers. Whereas it was the French captain who forced the lone scullery maid onto the raft to face certain death, the rest of the women who made it to the shore were protected gallantly by the tribesmen. At sea, the rescuers from Saint-Louis were initially searching not for survivors but for the *Medusa's* cargo of 90,000 gold francs, and they were later described by their own compatriots as "pillaging corsairs." A tribal *razzia*, or booty raid, would have followed a stricter rule of honor, noted Picard, who added that "the Moors, of whom we had been so afraid, instead became our protectors and friends."

Fast-forward 120 years to the experience of Odette du Puigadeau, who in 1933 landed in Nouadhibou, then called Port-Étienne, to study Moorish culture. For several years she wandered by camel some 15,000 kilometers (9300 mi) throughout Mauritania, during which, as she wrote to her mother, she felt like "a fish in water." Her book *Barefoot Through Mauretania* has recently been translated into English, but her *Arts et Coutumes des Maures (Arts and Customs of the Moors)* is still available only in French.



This engraving of the raft was drawn from the memories of survivors Alexandre Correard and Jean-Baptiste Henri Savigny, and was first published as the frontispiece in their 1818 account of their ordeal.



Louis Werner (wernerworks@msn.com) is a writer and filmmaker living in New York City.



Kevin Bubriski (www.kevinbubriski.com) is a documentary photographer and professor of photography at Green Mountain College in Poultney, Vermont.

We are shipmates sailing out across
the sea,
All speaking the same language,
All worshipping the same God.
All people are like brothers; to them
we give our greeting,
And our dirham and ouguiya, aglitter
both like gold. 🌐



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Entering Tawahin es-Sukkar, or "sugar millstone," the mill room lies straight ahead. Lower: Crushing sugar cane to extract its sweet juice is the first step of sugar refining, and this is still done at street shops throughout Jordan and other countries in the region, even though sugar cane has not been grown here for 500 years.



SUGAR.



The month is October and it's only 9:30 in the morning, but already we're looking for shade. Under an azure sky just south of the Dead Sea in Jordan, there's no hint of a breeze either. The only sound is a distant working tractor and the odd buzzing fly.

It wasn't always so quiet here. As I sit on a weathered stone grinding wheel the size of a tractor tire, my imagination runs back a thousand years to when this place bustled with hundreds of workers cutting, hauling, crushing, stoking, boiling, pouring—producing one of the planet's greatest life-changing foodstuffs: sugar. Along with quinine, potato, cotton and tea, sugar cane has been called one of the five plants that transformed humankind, and Tawahin es-Sukkar was a key location in its first mass production and global commercialization.

This place, along with several others on both sides of the River Jordan, had what sugar needed: fertile and irrigated farmland, labor to harvest and cut the cane, water power to drive the stone wheels to crush it, fuel to stoke the fires to boil it, minerals to clarify it, a ceramic industry to make the pots in which it crystallized and trade networks to market it. But before all that could happen, sugar cane had to be adapted to grow in a climate nature hadn't intended for it.

PLEASE

Written by Graham Chandler Photographed by George Azar

Probably even in its wild state, sugar attracted humans. “I think the desire for sweetness in humans does have an evolutionary basis,” says Sidney Mintz of Johns Hopkins University, author of the seminal 1985 book *Sweetness and Power: The Place of Sugar in Modern History*. “We are primates, descended from arboreal fruit eaters,” he says. “Sweetness may have been a signal of edibility, its taste eventually incorporated into the hominid taste apparatus.”

Ten thousand years back, in what is now New Guinea, botanists believe, sugar was first cultivated, and it came to enjoy the humid Melanesian environment. The taste of it caught on fast: Cane fields were soon sprouting in the Philippines, Indonesia, China and India.

All of these societies had honey, but they found sugar cane was different—and more desirable. As it spread, people learned to extract and process the sweet juice from its bamboo-like stems. Of the six known species of sugar cane, it is *Saccharum officinarum* or “apothecaries’ sugar” that has followed history to our tables. It grows up to 4½ meters (15') high and about five centimeters (2") around. Give it ample water and sunshine and you can almost watch it grow—a couple of centimeters ($\frac{3}{4}$ ") a day isn't unheard of.

Early processors, however, learned it was finicky. After taking a year to mature, sugar must be cut at its peak and the juice crushed out within a day, or else it “inverts” (ferments). And the juice must be boiled promptly and poured into pots. As the water content evaporates, the increasingly concentrated sucrose solution can

be left to cool. When it's supersaturated, it crystallizes and solidifies into the shape of its container, leaving behind a part of itself that won't crystallize—known to us as molasses, or treacle. Along the way it has to be clarified to be rid of impurities. These techniques became the specialty of the experts at Tawahin es-Sukkar.

Archeologist Richard Jones of the University of Glasgow and his team have chemically analyzed several samples from the site and find direct evidence of sugar elusive. “The biggest puzzle is that we have the building, the mill, the water channels, the thousands of sugar



Lower: Situated between the lowland fields that grew sugar cane and the highlands that provided water, Tawahin es-Sukkar is the site of excavations that have unearthed walls, aqueducts and, at right, water chutes whose height lent power to the water that drove the millstone and then flowed out to irrigate fields.



pots—but still we find it very hard to find even traces of sugar cane” because, he explains, “any sugar-containing lump is usually eaten away by microbial action or eventually dissolves away.” However, a 2011 botanical analysis, part of the site’s most recent excavations under the direction of Konstantinos Politis of the Hellenic Society for Near Eastern Studies, has disclosed evidence of actual sugar cane fragments for the first time, according to the society’s Web site. Jones has also discovered calcium-based materials that were used for clarification and has matched them with sediments from the nearby

Lisan peninsula of the Dead Sea.

And that place likely supplied more sites than just Tawahin es-Sukkar, because this is just one of the largest and best preserved of several dozen early sugar-production centers known along the Jordan Valley. Ruba AbuDalo investigated 10 of them for her master’s thesis at Jordan’s Yarmouk University. “The Jordan Valley is the most fertile region of Jordanian territories,” she says. Numerous archeological remains connected to sugar have been found all the way to the Mediterranean coast, and she has identified 34 sites in the Jordan Valley.

“The mills were built on the sides of rivers or streams because sugar cane relied on an exploitable water supply to operate the mills,” she explains. The leading source of evidence of sugar processing at smaller sites are pots shaped like inverted bells that

Tropical sugar cane never liked dry climates, so it was up to the Arabs to figure out how to cultivate it in sufficient quantity to justify the extraordinary efforts it required to process.

she says historian Nuwayri, in 1332, called *al-abaleej*, and that were used to drain the sugar solution to the molasses level.

The basic reduction technique of sugar refining has been known for almost as long as the plant. Around 327 BCE, Alexander’s general Nearchus, at the Indus River, wrote that “a reed in India brings forth honey without the help of bees,

from which an intoxicating drink is made, though the plant bears no fruit.” Historians believe northern India was sugar cane’s first center of innovation.

“Sugar crystallized from the juice of sugar cane 2000 years or more ago was often marked by both medical and religious overtones, as in India,” says Mintz. “As such, it was commonly incorporated into life-crisis ceremonies.”

The earliest known writings on sugar production come from around 500 CE in a Hindu religious document known as the *Buddhagosa*, which describes a sequence of steps similar to those still known today. Indeed the words *sukkar* in Arabic and *sugar* in English both derive from the Sanskrit *sakara*, meaning “gravel,” which at once evokes the granular result of sugar-cane processing.

By that same time, the Chinese, too, were growing sugar cane in their tropical regions. Eager to learn how to process it, Emperor T’ai Tsung sent a mission to India in 647 to learn, and soon sugar was being used as a preservative for shipping fruit and as a seasoning in Chinese cuisine. Indeed, the Indian influence was far-reaching: Byzantine emperor Heraclius, on seizing one of the Persian king Chosroes II’s royal dwellings near Baghdad in 627, called the sugar he found an “Indian” luxury.

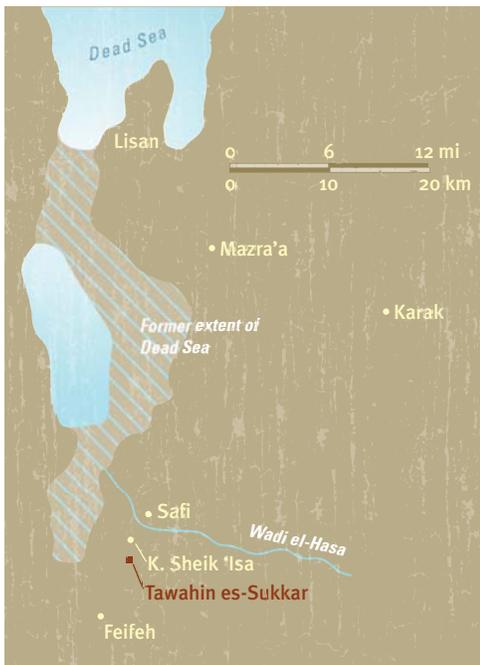
But just seven years later, Muslim armies defeated Heraclius, and with the Islamic conquests there and throughout the Middle East and North Africa, there also came the Arab agricultural revolution. At the heart of it were crops new to the Islamized regions, and one of them was sugar cane.

It was in Persia that the Arabs discovered the sweet plant, in the mid-600’s, following the fall of the Sassanid Empire. Sugar had probably come to the Sassanids by sea from India some time before that, because a Chinese source from the late seventh century mentions Persian sugar, though without making clear whether it was grown there or imported. Nonetheless, cane never really liked the hot, dry climates of Persia, so it was up to the Arabs to figure out how to cultivate it in sufficient quantity to justify the extraordinary efforts it required to process. Cropping patterns needed transforming, fertilizers needed developing and, importantly, irrigation technology needed a revolution of its own: Growing sugar cane outside its native climate is a challenge.

According to J. H. Galloway, professor of geography at the University of Toronto and author of *The Sugar Cane Industry*, the threshold low temperature for sugar’s satisfactory growth is 21 degrees Centigrade (70°F). Below that, growth slows, and at 13 degrees Centigrade (55°F) it stops. The plant thrives between 27°C (81°F) and 38°C (100°F). Most importantly, cane needs copious amounts of water year-round.

Arab lands had been irrigated for millennia, but sugar cane was the first crop that was not seasonal. For most crops, fields could lie fallow in the hot, dry summers. Not so sugar cane, which demanded that water be lifted out of rivers during low-flow periods. Reports from Egypt show that irrigation was needed some 28 times between annual Nile floods. This helped spur improvements to hydrological devices like the *noria*, or water wheel, and by the 11th century, “there was hardly a river, stream, oasis, spring, known aquifer or predictable flood that went unused,” says Andrew Watson of the University of Toronto, author of *Agricultural Innovation in the Early Islamic World*.

New fertilizers were needed too. Watson pored over the dozen or so agricultural manuals that were produced across the Arab world of the time. “The manuals recommended extensive use of all kinds of animal and green manures, as well as urging plowing, digging, hoeing and harrowing,” he says. Moreover, they made recommendations on sett spacing and furrow depths, and how to store



setts with a light soil covering—techniques still practiced today.

But more than water, fertilizer and tillage were required. Along with the diffusion of other contemporary crops such as sorghum, cotton and coconut palm—all part of the Arab agricultural revolution—sugar’s need for new technology and new harvesting cycles spawned political and social changes as they spread from east to west. Irrigation required capital.

Water rights and marketing demanded new laws to ensure dependability. And new tax regimes helped farmers using irrigation-intensive techniques by requiring a mere five percent of their produce in taxes, in contrast to farmers who used traditional gravity-irrigation: They had to pay fifty percent of their produce. New labor, too, which built, operated and maintained the irrigation complexes, worked and harvested in the newly intensified fields. This led to the introduction of sharecropping. “It is the singular contribution of the Arabs to have brought these conditions about in the years following the birth of Islam,” writes Galloway.

Watson contrasts the Arab agriculture with Europe’s of the time. The Arabs’ “economy was monetized and they produced and traded extensively with one another,” which enabled large-scale sugar production. But, I ask, what prompted them to go to such lengths to produce sugar? “Money and profits, I suppose,” he says. “It was quite unlike Europe at the time, where people were self-sufficient, but there wasn’t the same monetized trading economy.”

All these changes effected new ways of living, or what today we might call lifestyles. Watson reckons the higher income per unit of land, the availability of new land and the greater demands for labor all encouraged early marriage and larger families and thus broad changes in population. Indeed, the historical record shows villages popping up in newly farmed areas and becoming ever more numerous and populous. And cities grew, too, well fed by the increasing food surpluses.

As part of this agricultural revolution, sugar cane wasn’t restricted to the Jordan Valley. References to sugar-cane cultivation appear throughout the Nile Valley and Delta, in Syria, Palestine and across North Africa, as well as in Spain, Cyprus, Malta, Sicily and Crete. As Mintz puts it, sugar “followed the Qur’an.” Neither historians nor archeologists, however, have pinned down exactly when these industrial-scale sugar mills first appeared, for the record is sparse until the 10th century.

In Europe, by around 1100 CE, sugar was categorized with spices like pepper, nutmeg, mace, ginger and cardamom—exotic and pricey imports used sparingly, even by those who had the cash. Long before that, sugar was both a medicine and a spice in the eastern Mediterranean and across North Africa. Physicians from India to Spain had adopted it, and European doctors first learned uses of sugar through Arab pharmacology. The 11th-century Arabic-language medical manual *Qanun fi’l-Tibb*, by the Persian scholar Ibn Sina (Avicenna), remained a European authority until the late 1500’s. “As a medicine, sugar figured prominently in the antidotes—all of them bootless, of course—for the Black Plague,” says Mintz. Other uses appear bizarre today: “One prominent medieval medical use involved mixing the finest powdered white sugar with gold dust, then blowing the mixture into the eyes of those afflicted with certain eye maladies,” he says.

Medicine wasn’t sugar’s only use back then. Mintz writes of the 11th-century caliph al-Zahir, who celebrated feast days with table-sized models of palaces built of sugar, and of an Egyptian ruler who in 1040 reportedly used more than 73,000 kilograms (80 tons) of the stuff for a feast following Ramadan.

As such sweet decadence caught on with the European royal courts, it drove new and ever-more efficient production, especially in the nearby lands of the Mediterranean. Eleventh-century Crusaders had noted this commercial sugar boom in the Levant, where sugar was being refined at Tawahin es-Sukkar and elsewhere, and soon they themselves were in the thick of the commercial competition.

Nowhere is this more clearly to be seen today than in Cyprus, where remains of sugar production are the best preserved and the most intensively investigated by archeologists. I’m standing beside the A6 highway between Limassol and Paphos, on the rocky southwest coast of Cyprus, looking at a broken-down stone aqueduct cutting its way through an orange grove.

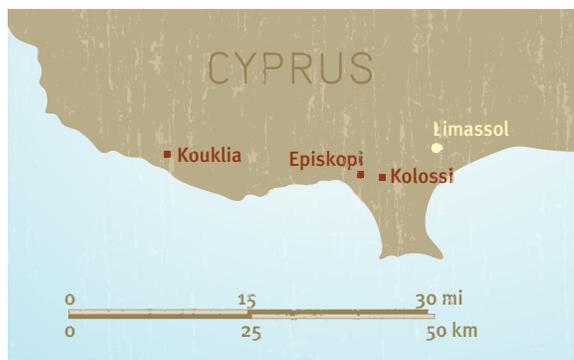
Seven centuries ago, it brought water from springs in the Oridhes forest to drive the mills and water the fields at the sugar-producing site of Kouklia.

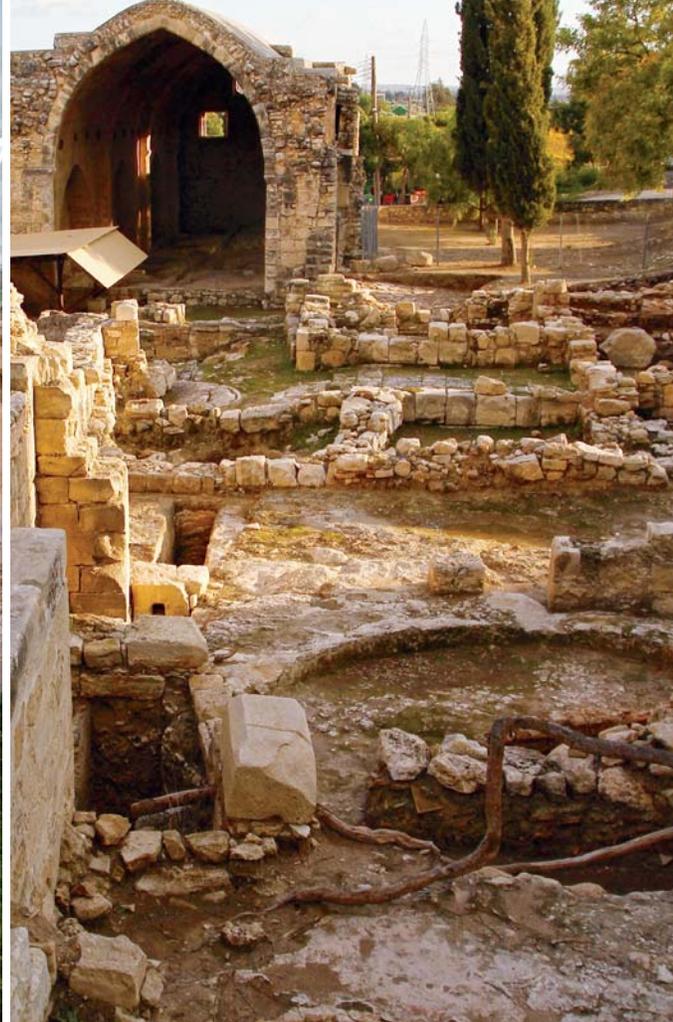
Kouklia’s process paralleled that of Tawahin es-Sukkar. The water was channeled into a narrow sluice down a steep incline into an underground vault, where a stone nozzle focused the stream onto a wooden water wheel. You can stand straight in this huge room and see shoulder-high scrapes on its walls from the wheel that must have been nearly five meters (16’) across. In the far corner of the room there’s a channel wide enough to walk through where the water would flow off to irrigate the cane fields after doing its work at the wheel, which drove a giant stone grinding wheel above.

This was large-scale industrialization of its era: Enough sweet juice was pressed out to keep eight massive copper cauldrons boiling, and the brick-lined, fire-blackened hearths are still there to see. From the cauldrons, the hot syrup was poured into three sizes of cone-shaped molds, broken shards of

which still lie scattered about. Eastward down the scenic coast road past Petra, near the vast antenna networks of the Royal Air Force base at Akrotiri and more fields of orange and grapefruit, lie two more, similar early sugar production sites—Episkopi and Kolossi.

Slim and chic in designer denims and swept-back salt-and-pepper hair, Marina Solomidou-Ieronymidou’s piercing brown eyes light up when she reveals her enthusiasm for these sugar sites she





Throughout the eastern Mediterranean and Levant regions, sugar cane milling began with a millstone that was rolled about on a circular base, powered by a horizontal, underground water wheel. Left to right: Tawahin es-Sukkar, Koukklia and Kolossi, Cyprus.

has excavated over a 17-year stretch. Curator of antiquities at the Cyprus Museum, just outside the Paphos Gate of the old walled city of Nicosia, she says she'd love to be back out there in the field. "There's so much more to do, more puzzles to get into," she says.

At their production peak in the late 1400's, she explains, these were efficient commercial sites. "At Episkopi, the Italian traveler Pietro di Casola in 1494 saw 400 workers there," she says. "There must have been an equal number at Kolossi." Those teams were prodigious. "In 1532 the total production of sugar in Cyprus was 3000 quintals," she says—30,000 kilograms, or 33 tons.

Save for their implied scale of operation, these Cypriot sites are remarkably similar to Tawahin es-Sukkar, demonstrating much of the same technology: The channeling of water through a nozzle driving an underground, horizontal water wheel that drove an above-ground grinding wheel; liquid collection methods; boiling facilities; shards of similarly shaped sugar pots. But historians aren't yet sure where that system was *first* constructed. Startup dates for sites in the Levant haven't been as conclusively determined as for the Cyprus sites, but Solomidou-Ieronymidou reckons the technology originated in the Levant and traveled west. "As the invention of sugar production started in the Levant, I suppose the horizontal water wheel system originates also from that area," she says. "It advanced in Cyprus through the Crusaders when they settled on the island in the late 12th century."

By the early 1300's, the British upper classes were hooked on sugar, and at two shillings a pound—about \$78 in today's money—using it showed you could afford the luxury.

She tells me the majority of the sugar from Cyprus was exported to Venice, and that the well-to-do Cornaro family was a major owner of Cypriot production. With production well under way, by the early 1200's more and more sugar was finding its way into continental Europe. By the early 1300's, the British were some of the first to get hooked. But at two shillings a pound—or about \$78 in today's money—using sugar showed you could afford it.

So consumption remained largely restricted to royal courts and nobility, much of it carried out with ostentatious swagger. As among the Arabs, elaborate sculptures were created for social events—so much that Marie-Antoine Carême, an 18th-century French chef, once declared sugar sculpting the primary branch of architecture. Dinner guests were regaled with spectacular confectionery renderings of entire castles, people, flowers and animals, all of which they ate. But for the working classes, the first English cookbooks recommended sugar be used in the older ways, as a spice, not a sweetener, in small amounts for meat, fish and vegetable dishes along with ginger, saffron and cinnamon.

What kept sugar prices lofty was that, unlike the Levant, Cyprus and other Mediterranean lands were actually marginal places for cane. Even with irrigation and adherence to the Arab manuals, the



Cypriot sugar mills at Kouklia, above and Kolossi, below, were laid out similarly because of the technology of the refining process: milling, boiling, molding and separating. Other areas served as stockrooms, workshops and fuel supply areas. One contemporary account estimated the number of workers in a large sugar mill at more than 400.

cooler winters and occasional frosts meant the sugar cane here was less mature at harvest, and hence lower in sugar content. Moreover, by the time of the Arab conquests, much Mediterranean forest had been over-exploited by other energy-hungry industries like ship-building, metallurgy, pottery and glass, resulting in a scarcity of fuel for boiling sugar vats. Bagasse—the residue of the cane after milling—wasn’t employed as a fuel until later in tropical America.

And during the 14th and 15th centuries, as war and plague decimated agricultural labor, Mediterranean island estates put more slaves to work—mostly prisoners of war from Greece, Bulgaria, Turkey and the Tatar coasts of the Black Sea. Galloway writes that “the link between sugar production and slavery, which was to last until the 19th century, became firmly forged in Crete, Cyprus and Morocco.”

These problems drove production westward, first to the near-Atlantic Madeira Islands, Canary Islands and Azores. By the mid-1400’s, Madeira was Europe’s leading sugar supplier. Columbus, on his second voyage to the New World in 1493, picked up some cane plants in the Canary Islands and planted them on the island he called Hispaniola.

It was an instant success, as sugar cane there found heat, humidity and rainfall much like its indigenous New Guinea. By 1516, the first commercial sugar shipments were on their way to Europe. Production costs in the Caribbean were low compared to the Levant and the Mediterranean, as there was no need for irrigation and fuel was abundant. It was the death knell for Old World sugar production.

The only resource in short supply was labor. The Caribbean islands’ indigenous Taino were in rapid decline from European

diseases and persecution. So it was African slaves, who were already being imported for work in mines, who were forced to toil on the sugar plantations. By the 1530’s, Santo Domingo counted 34 mills and 200 slave plantations.

Sugar bloomed similarly on islands like Jamaica, Puerto Rico and Cuba, and Brazil’s growth took off thanks to Portuguese experience from Madeira and the Azores. By 1710, there were 528 plantations in Brazil. But it was England, writes Mintz, that fought the



most, conquered the most, imported the most slaves and went furthest and fastest in creating a New World plantation system for sugar production.

In fact, it was in the 17th and 18th centuries that sugar became part of the English character, part of the “essence of Britishness.” In 1660, England consumed 1000 hogsheads of sugar and exported 2000. Forty years later, imports were 100,000 hogsheads and exports 18,000; by 1753, exports had dropped to just 6000. (One hogshead is about 240 liters, or 63 gallons.) To support this growth, more than a quarter million slaves were landed in Barbados between 1701 and 1810, and 662,400 in Jamaica alone. Sugar had become the biggest single engine of the slave “triangular trade” that linked Britain and Africa to the New World: European cloth, firearms, gunpowder and alcohol were shipped to West Africa to pay for the purchase of slaves, who were sent in chains to the West Indies and sold at the quayside, where the same ships loaded sugar, rum and molasses for the trip back home. The resulting lower prices made sugar popular across the social spectrum, and new tastes developed. Sugar improved chocolate, as well as coffee and tea. These drinks had long been thought bitter by Europeans, but it was cheap sugar that by the late 17th century enabled chocolate drinking, coffeehouses and the custom of afternoon tea to trickle down to the middle classes.

To Mintz, there are yet more connections. “The decisions to sweeten them remain largely hidden from us still,” he muses. “All three beverages are bitter, yet none were drunk sweetened in their places of origin.” Tea and coffee contain caffeine, and chocolate, too, is a mild stimulant. All became popular in an era of growing industrialization, he points out, when long factory hours, urban life and the lack of a cow were all among the new experiences encountered by proletarian families. “The first pause that refreshed antedated the cola drinks by centuries,” Mintz says. Sugar became common in porridge, breads and desserts, and it began to be associated with the milestones of British lives, especially weddings, birthdays and funerals.

But increasingly, all that sugar was taken with more than a few lumps of guilt. That the ratio of slaves employed to sugar produced was 10 times that of other plantation crops like tobacco or cotton, and that three-quarters of all slaves out of Africa were destined for sugar plantations, all made sugar less sweet to the popular palate. A member of parliament reportedly described Jamaica as “a place of great wealth, a den of tyrants, and a dungeon of slaves.”

A turning point came in 1801. Britain and France were at war, and France, tired of running the Royal Navy’s gauntlet back to Europe, needed a closer source of sugar. That year, the first successful beet sugar production began in France. Chemically identical to cane sugar, beet sugar within 15 years threatened the tropical-sugar trade and by 1830 supplied more than half of the

continental market. By 1880 it had overtaken cane in world trade.

Though Britain abolished slavery in 1834, and Cuba and the United States did so in 1865, the sugar-producing lands of the New World were left without schools, major roads, water supplies, sewage and other critical infrastructures. Newly freed slaves had no other place to go and few new sources of livelihood. As Mintz writes, “Sugar—or rather, the great commodity market which arose demanding it—has been one of the massive demographic forces in world history.”

Cane sugar could never have been what it was without Tawahin es-Sukkar and its progeny in the Levant and Mediterranean. The importance of this role is such that the new Jordan Museum, under construction in Amman, has chosen Tawahin es-Sukkar as one of its key permanent diorama exhibits.

“The Ayyubid–Mamluk period is generally connected with war and the Crusades,” says the museum’s director general, Faris Nimry. “It is important to show the other face.” Tawahin es-Sukkar was picked, he says, because “the sugar industry was a major part of Jordan’s economy at the time, and it reveals several aspects of that. They were the first large-scale organized sugar plantations known.” It also demonstrates the political capacity for the administration of such a large-scale industry, as well as economic and social impacts, he adds.

Today, sugar is mostly under attack again, accused of enabling if not causing global overindulgence in that peculiarly modern food group, the “junk foods.” But not everyone agrees. In Amman, just east of the imposing Arab Bank, past the gold shops on Al-Malek Faisal Street, in a tiny shop—a stall, really—an operator feeds raw-cut sugar cane stalks into an electric crusher while hawking glasses filled with fresh cane juice. His sign proclaims it “enhances virility, improves eyesight and digestion and strengthens body and mind.” At half a dinar, that seems like a sweet bargain. 🌍



In Jordan and the Levant, the 12th to 15th centuries are “generally connected with war and the Crusades. It is important to show the other face. The sugar industry was a major part of Jordan’s economy.”



Free-lance writer **Graham Chandler** (www.grahamchandler.ca) focuses on topics in archeology, aviation and energy. He received his doctorate in archeology from the University of London and lives in Calgary, Alberta.



Photojournalist and filmmaker **George Azar** (george_azar@me.com) has covered the Middle East since 1981. He is the author of the books *Palestine: A Photographic Journey* (University of California Press, 1991) and *Palestine, A Guide* (Interlink, 2006) as well as director of the film “Gaza Fixer” (2007).



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archeology in Jordan: M/A 00, M/J 00
Arab agricultural technologies: M/J 06



Sweetness and Power: The Place of Sugar in Modern History. Sidney Mintz. 1986, Penguin Books, 978-0-14-009233-2, \$16 pb.

The Sugar Cane Industry: An Historical Geography From Its Origins to 1914. J.H. Galloway. 2005, Cambridge UP, 978-0-521-02219-4, \$61 pb.



FOR STUDENTS

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

FOR TEACHERS

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—THE EDITORS

Curriculum Alignments

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Julie Weiss (julie.w1@comcast.net) is an education consultant based in Eliot, Maine. She holds a Ph.D. in American studies. Her company, Unlimited Horizons, develops social studies, media literacy, and English as a Second Language curricula, and produces textbook materials.

CLASS ACTIVITIES

This issue's Classroom Guide gets down to basics: *What do living things need in order to survive?* The most basic answer is, of course, "a hospitable environment." But it gets more complicated than that. Which creatures survive, and which ones don't, has everything to do with how well or poorly they adapt to their environment. In this edition of the Classroom Guide, you'll look at how various adaptations serve various living things.

Theme: Survival

What constitutes a suitable environment for different living things?

All creatures need a suitable environment to survive. Begin thinking about suitable environments by focusing on the species you know the best: human beings. As a class, brainstorm a list of characteristics of the environment that people need in order to survive. For example, we need air. If the atmosphere were made of carbon dioxide, like Venus's atmosphere, we couldn't survive. Now you come up with the other features of a human-friendly environment. Have a volunteer write the ideas on the board or chart paper. As you come up with each characteristic, state why it is necessary. For example: Humans need air in order to breathe.

Read "Nature's Best-Dressed" and "Mauritania's Conservation Coast." Then divide the class into groups of five. With your group, consider the sea slugs. Using the article as your guide, brainstorm a list of what constitutes a suitable environment for the sea slugs described in the article. Here's a hint. Nathalie Yonow found all the sea slugs she wrote about in one specific location. To come up with your list, all you need to do is identify what it is about that location that makes it a good place for sea slugs to live. Create similar lists for some of the animals described in "Mauritania's Conservation Coast," such as spoonbills, flamingos and monk seals. What is it about the environment of that place that suits so many different species so well?

Theme: Adaptations

We humans can alter our environments so that they suit us better (or at least so that they seem to suit us better). For example, we dam rivers so we can live in places that might otherwise be too dry. Other creatures don't alter their environments so dramatically; they adapt to them. In this section of the Classroom Guide, you'll give close attention to some of those adaptations.

How does adaptation work?

Adaptations among species occur over long periods of time and often involve physical changes. It works like this: Let's say there's an area with very tall trees, and most of the edible leaves are near the top. Animals that can reach those leaves—say giraffes—are likely to survive in that area. Animals that can't reach the leaves move to another area for food, or they die out. Over generations, the animals that are best suited to the tall-trees location are the ones that survive there. Think about human beings and some of the things that set us apart from many other animals. For example, the humans who could digest lactose—an enzyme found in milk—would be the ones who thrived once cows were domesticated.

How do different species adapt to different environments?

Most human adaptations at this point in history are technological (at least as far as we know). For example, we might install air conditioners so that our buildings stay cool, even in a climate that might otherwise be uncomfortably hot. With the class, brainstorm a list of ways that people adapt to different environments. When you've got a good list, check to see if any of the adaptations actually involve changes to human bodies. (For example, people living near water haven't adapted to fishing by developing gills to better catch fish underwater, but people who live at high altitudes do tend to have larger lungs to cope with the thinner atmosphere.) When you look at the world today and imagine it in the future, which adaptations do you think will be most useful to help humans survive? Why do you think so?

Look again at "Nature's Best-Dressed." This time, pay particular attention to some of the physical adaptations that sea slugs have made over the millennia. Go through the article and highlight or circle these adaptations. Do the same with the spoonbills and monk seals on Mauritania's coast.

What purpose does an adaptation serve?

Now that you've identified the adaptations, think about how each helped a species survive. With your group, focus first on the sea slugs. Make a three-column chart. In the left-hand column, list each of the adaptations you highlighted in the article. In the middle column, for each adaptation, ask the question, "What purpose does that adaptation serve?" For example, some nudibranchs have evolved so that they look like sponges. What purpose does their looking like sponges serve? Other sea slugs have evolved to have stripes. What purpose do

the stripes serve? Fill in the second column of the chart in this manner. Do the same thing with the spoonbills and monk seals in Mauritania. When you're done, look at your chart and ask yourselves: What basic survival needs are served by these various adaptations? In the right-hand column, write down the survival need each adaptation serves. For example: "Being striped helps protect a sea slug from predators." That's what you'd write in the third column. By the time you're done, you should be able to see that there are a few basic survival needs, and all the adaptations help the creature meet those needs. What are those needs?

How do humans affect adaptations among other species?

Sometimes humans enter the changing relationship between species and environments. Read "Sugar, Please." The article points out that sugar is a thirsty crop: It needs a lot of water to grow. How, then, did sugar thrive in the Jordan River Valley, "in a climate," as writer Graham Chandler says, "nature hadn't intended for it"? According to the article, what does sugar cane need in order to grow and thrive? Given that those conditions didn't exist naturally in the region Chandler writes about, how did humans intervene? How does the article describe what sugar cane required in order to thrive along the Jordan River? Which of those characteristics existed in nature there, and which involved human beings? With human intervention, which do you think changed more: the sugar cane or the physical environment? Write a few sentences explaining how the adaptations involved in growing sugar cane in the Middle East differ from the adaptations among sea slugs, spoonbills and monk seals. What benefits do you see to human intervention? What possible drawbacks do you see?

What purpose do elements of human culture serve?

So far, you've been focusing on adaptations that facilitate physical survival. Now shift gears and think about what, beyond basic survival, helps human beings thrive. Think about elements of human cultures, specifically stories, and ask the question you've been asking about physical adaptations: what purpose(s) do they serve? Read "Monsters From Mesopotamia." While the article traces the development of vampire, werewolf and zombie stories, one thing is certain: Monster stories seem to be everywhere, and so perhaps they serve some purpose for human beings. What do you think that purpose might be? The article gives some thoughts on the subject. Reread them, and discuss them

with your group. Then think about your own experience. Do you like vampire, werewolf and zombie stories? If so, what do you like about them? Once you've answered that, go a step farther. Say, for example, you like vampire stories. Ask yourself: What purpose does being scared by a story serve for me? Discuss your answers with your group. If you don't like this kind of story, talk about why you don't like it. If, for example, you don't like them because they're not realistic, ask yourself what purpose realistic stories serve for you.

Bringing It All Together

Now it's time to have a little creative fun. What if you think about the well-dressed sea slugs in the context of the vampires, werewolves and zombies described in "Monsters From Mesopotamia"? In other words, write your own horror story, but instead of one

of the monsters you've read about, make your central character one of the sea slugs. It only takes a little creative exaggeration of their adaptations to make them into (fictional) invincible monsters of folklore. For example, some sea slugs have brightly colored tentacles that distract predators from their vital organs. If a predator bites off one of the tentacles...the slug can grow another one! Scary in itself, if you're that slug's prey, and true. But what if the tentacles were also poison? What if the predator died *and* the slug grew another tentacle? The possibilities are frightening—and abundant. Write your own story, creating a scary underwater-monster-slug as the central figure. Remember that your story needs to have the elements that define a story: a plot with a beginning, middle and end; a setting; characters; and conflict and resolution. Illustrate the story, if you'd like, or animate it if you've got the technology and the time. Share your work with the class.

VISUAL ANALYSIS

Analyzing Visual Images

Look at the photographs that accompany "Nature's Best-Dressed." They're extraordinarily beautiful. If you wanted to share them

with someone far away, you could snap a photo with your smartphone and email it. But what if you needed to *describe* it, rather than *show* it, to someone who couldn't see

it? Even in this electronic age, there's value in being able to use words to describe something beautiful. Just take a look at a good poem or novel, and you'll see that descriptions of beauty can themselves be beautiful. Try it yourself. Choose one of the photos of the sea slugs and write a paragraph (or a poem) that describes it. Read out loud what you write to a partner, and have that person identify which picture you've described. Share your description with the class, if you'd like.



Current July

Buried Finds: *Textile Collectors in Egypt.* From about 1880 to 1930, large quantities of textiles from the late Roman, Byzantine and early Islamic periods were excavated, mainly from burials in the cemeteries of the Egyptian cities of Panopolis (Akhmim) and Antinoë (Sheikh Ibada) and of the Fayum. Excavations, often unsystematic, in search of textiles and grave goods were overseen by professional and amateur archeologists, but also by dealers and collectors. The result is thousands of fragments and relatively few complete textiles in museum collections, and scanty evidence regarding find sites and burial context. Archeologists, dealers and collectors frequently organized textiles into albums composed of paper boards onto which fragments were sewn. Two examples are among the exhibits on view in this exhibition. Metropolitan Museum of Art, **New York**, through July 15.

The Body Revealed explores representation of the body and the nude in Arab visual arts, a theme so little discussed or exhibited that one might suspect that there is no material to exhibit. In fact, this little-known genre of Arab painting offers many surprises, a rich iconography and much to discuss. A large selection of works in a variety of media provides opportunities to examine the theme. Institut du Monde Arabe, **Paris**, through July 15.

Ann Dunham's Legacy: *A Collection of Indonesian Batiks* showcases 20 batiks collected in the 1960's and 1970's by Ann Dunham, after she moved to Indonesia with her husband and her son, Barack Obama. During her time there as a scholar and anthropologist, she helped women in the local craft industry through micro-credit and small enterprises, and also developed a deep interest in batik and the lives of batik makers. The pieces she collected were acquired from both bustling city streets and quiet villages, and reflect the daily lives of the people around her at the time. The exhibition also delves into the history of batik, how it is made, worn and collected, as well as its alluring array of patterns and motifs. Islamic Arts Museum **Malaysia, Kuala Lumpur**, through July 20.

Words articulates graphic designer, photographer and artist Rajie Cook's deeply felt concern for human rights in general and the Palestinian question in particular, using graphics, film and sculptural assemblage. Jerusalem Fund Gallery, **Washington, D.C.**, through July 20.

Feu de Joie. Iranian artist Farhad Moshiri continues to draw upon the traditionally feminine technique of bead embroidery for its ornamental qualities, which he combines with thick layers of acrylic paint and gold leaf. In these new works, the artist is playing on the concept of happiness, which, for him, provides opportunities for sarcasm and cynicism. His works draw on the advertising esthetics of the 1950's and the popular western icons of comics, and the artist thus places Iranian craftsmanship and pop culture in ironic confrontation with each other. Galerie Emmanuel Perrotin, **Paris**, through July 28.

The Art of the Anatolian Kilim: *Highlights From the McCoy Jones Collection* showcases two dozen Turkish flatweaves dating from the 15th to the 19th century and exhibiting a variety of design types and regional styles, as well as superb examples of artistic and technical skill. De Young Museum, **San Francisco**, through July 29.

Order and Disorder: *Alighiero Boetti by Afghan Women* displays 25 pieces designed by the Italian artist along with documentary photographs of the women who embroidered them, as well as with examples of the traditional Afghan textiles that inspired the artist in his use of embroidery as a medium. Fowler Museum at UCLA, **Los Angeles**, through July 29.

Current August

Contemporary Indonesia is a group exhibition of eight of that country's most seminal and talented artists. Indonesia is one of the most culturally and religiously diverse countries in the world and, in the last two decades, has experienced extensive political change and globalization. The result has been more provocative, challenging and critical work from its artists, whose audience has expanded globally. The artists included in this exhibition are FX Harsono, Nyoman Masriadi, Eko Nugroho, J. Ariadhitaya Pramuhendra, Agus Suwage, Ugo Untoro, Entang Wiharso and Yunizar. Ben Brown Fine Arts, **London**, through August 4.

Egyptomania explores the Egyptian revivals of the 18th, 19th and early 20th centuries through objects including Georgian garden sphinxes, 19th-century "Aegyptian" furniture and Art Deco perfume bottles with pharaoh-head stoppers. Museum

Second Skins: Painted Barkcloth from New Guinea and Central Africa

juxtaposes two separate traditions of fabricating vibrantly graphic clothing from the inner bark of trees: one shared by diverse peoples who live in and around the Ituri rainforest in the Democratic Republic of the Congo and the other produced by the Ömie of Papua–New Guinea in the South Pacific. Focusing on 20th-century and contemporary iterations of possibly ancient traditions, the exhibition explores barkcloth's contemporary "migration" from the body to the gallery wall, highlighting the genre's artistic inventiveness and the differing ways the two traditions have interacted with the international art market. Fowler Museum at UCLA, **Los Angeles**, through August 26.

of Fine Arts **Houston**, through August 5.

The Dawn of Egyptian Art brings together some 175 objects gathered from the Metropolitan and 12 other museums to illustrate the origins and early development of ancient Egyptian art. During the Predynastic and Early Dynastic Periods (ca. 4000–2650 BCE), people living in the Nile Valley began recording their beliefs in paintings, sculptures, and reliefs made for their shrines and tombs. These works of art capture the evolving worldview of these early Egyptians. Images of people, animals, and landscapes, some of which give rise to hieroglyphs, include forms and iconography that remained in use throughout the art of Pharaonic Egypt. Catalog. Metropolitan Museum of Art, **New York**, through August 5.

Fascinated by Blue and White: *Chinese Porcelain in Islamic Painting.* Long before the European obsession for Chinese porcelain began, the attractive high-fired wares were one of the treasured imports in the Islamic Middle East. Blue and white Chinese porcelain especially fascinated everyone who laid eyes on it. Since their first appearance in the Middle East in the 14th century, blue and white wares have been eagerly collected, copied, exchanged and—especially in the Indo–Persian world—displayed in "porcelain houses" (*chini-khane*). The exhibition presents a selection of Islamic paintings, primarily from 17th- and 18th-century India, that focus on the elegant blue and white porcelains as prestige objects. The paintings are shown together with a selection of ceramics, both Chinese blue and white porcelain and Persian and Ottoman Turkish ceramics, made in homage to the allure of Chinese blue and white. Pergamonmuseum, **Berlin**, through August 12.

Patriots & Peacemakers: *Arab Americans in Service to Our Country* tells true stories of heroism and self-sacrifice that affirm the important role Arab-Americans have played in the United States throughout its history, contributing greatly to society and fighting and dying in every US war since the Revolution. The exhibition highlights service in the armed forces, the diplomatic service and the Peace Corps. Personal narratives tell of Arab-American men and women of different national and religious backgrounds. Arab American

National Museum, **Dearborn, Michigan**, through August 12.

The Next Generation: *Contemporary Iranian Calligraphy* presents works by six emerging contemporary artists whose traditional schooling has served them solely as a point of departure in the creation of their present oeuvre, in which they use the traditional medium of calligraphy to discover new avenues for their contemporary artistic expression. Participating artists include Mohamed Bozorgi, Hadieh Shafie, Behrouz Zindashti, Aghighi Bakhshayeshi, Habib Faraj Abadi and Abolfazi Shai. Galerie Kashya Hildebrand, **Zurich**, through August 18.

Maharaja: *The Splendors of India's Great Kings* spans the period from the early 18th century to the mid-20th century, bringing together over 200 magnificent objects to explore the extraordinarily rich visual culture of India's last royal families. The exhibition examines the changing role of the maharajas ("great kings") within a social and historical context, and reveals how their patronage of the arts, both in India and Europe, resulted in splendid and beautiful objects symbolic of royal status, power and identity. **Virginia** Museum of Fine Arts, **Richmond**, through August 19.

Evening Ragas gathers more than 60 photographic portraits, interiors and landscapes by British photographer Derry Moore that form an inspiring portrait of pre-modern India. Tasveer Galleries, **Kolkata [India]**, through August 28; **Bangalore**, October 12 through November 2.

Current September

The Civilizations of Turkey: *Emperors in Istanbul* explores the rich cultural heritage of Istanbul from its days as the center of the Hittite civilization, one of the four great ancient civilizations, to its days as capital of the Greek and Roman Empire and the Eastern Roman Empire, and finally the Ottoman Empire. On display are 187 important Turkish treasures from the Topkapı Palace Museum and other institutions, including artifacts from Troy, Anatolia and Persia, as well as Greek and Roman sculptures, holy relics of the Eastern Roman Empire and works of art from the court of the Ottoman sultans. National Museum of **Korea, Seoul**, through September 2.

Diana Al-Hadid: *Trace of a Fictional Third* features a single new monumental sculpture that interweaves landscape, architecture and the human figure. Al-Hadid makes complex sculptures that seem in a state of flux, suggesting both incompleteness and decay. Underlying her large-scale, baroque forms are a wide array of influences, including ancient Biblical and mythological narratives, Arab oral traditions, Gothic church construction, western painting, Islamic ornamentation and scientific advances in physics and astronomy. The exhibition is accompanied by a selection of new, heavily worked graphite drawings that shed light on Al-Hadid's creative process. **Virginia Museum of Fine Arts, Richmond**, through September 2.

Art is the Answer! takes a special look at the diversity and vitality of Lebanon's contemporary art scene through the display of works by 20 of the country's leading artists and designers. The exhibition coincides with the launch of the annual Boghossian Foundation Prize for young Lebanese artists. Participating artists include Fouad Elkoury, Nadim Karam, Ranya Sarakbi, Taline Kechichian and Hiba Kalache. Boghossian Foundation, Villa Empain, **Brussels**, through September 2.

Picturing the Past: *Imaging and Imagining the Ancient Middle East.* The West's perception of the ancient Middle East has been formed by countless engravings, paintings, architectural reconstructions, facsimiles, models, photographs and computer-aided reconstructions of monuments and sites. This collection of 40 examples of art depicting ancient sites examines how preconceptions, the perceived audience and artistic conventions have informed us about the ancient Middle East and how some of the more imaginative reconstructions have obscured our understanding of the past. Catalog. Oriental Institute, University of **Chicago**, through September 2.

Contemporary Iranian Art From the Permanent Collection presents seven works by six Iranian artists from three generations. Of the six—Monir Shadrody Farmanfarmaian, Parviz Tanavoli, Y. Z. Kami, Shirin Neshat, Afruz Amighi and Ali Banisadr—four live and work in the United States, while two continue to work in Iran. Although the works demonstrate the diversity of concepts, styles, techniques and modes of expression seen in Iranian contemporary art, each work reflects an intrinsic connection with Iran and addresses issues of identity and gender, political and social concerns and nostalgia for, and pride in, a rich artistic and cultural heritage. Metropolitan Museum of Art, **New York**, through September 3.

Genghis Khan: *The Exhibition* tells the story of the Mongol warlord who conquered half the known world. Under his rule, the empire grew to be the size of Africa—four times the size of the Roman Empire at its largest. But Genghis is also revered as an innovative leader and statesman who brought unity, stability and religious tolerance to most of Asia and parts of Europe. Highlights of the exhibition include jewelry, ornaments and musical instruments, weapons such as battle axes, scimitars, lances, longbows

and crossbows, and such other military essentials as steel stirrups and silk underwear. Field Museum, **Chicago**, through September 3.

Gems of Rajput Painting features the museum's superb collection of paintings made for the princes of Rajasthan and the Punjab hills (known as "Rajputs"). The kingdoms of these art-loving princes shared a common elite culture, though, by the early 1700's, each court had developed its own distinct painting style. The exhibition represents four of Rajput painting's central themes: heroic narratives, women and romance, Krishna and Hindu devotion, and courtly life. Museum of Fine Arts, **Boston**, through September 3.

Norway & Morocco: *Photographs by Sandra Jordan* shows the quiet beauty and timeless nature of these two contrasting lands, from the vast open space of the Arctic to the myriad alleyways and walkways of Fez and Chefchaouen. 10GS, **London W1**, through September 6.

Object Atlas: *Fieldwork in the Museum* presents objects from the museum's ethnographic collections side by side with new paintings, films and three-dimensional installations created by seven international artists who undertook "fieldwork" in the museum. One artist's installation is based on floral elements from Indonesia together with hats, headrests and belts from Africa; another artist presents paintings related to mythical prehistoric stones from Papua-New Guinea; a third based his work on historical inventory cards from the museum. Weltkulturen Museum, **Frankfurt**, through September 16.

Documenta (13). The 13th edition of Documenta, a non-commercial contemporary art exhibition that takes place every five years, investigates art as a form of research. Middle Eastern art has a considerable presence in this edition, which presents works providing varying interpretations of the role of art in today's uncertain and constantly shifting world. Participating artists from the Middle East include Emily Jacir, Akram Zaatar, Wael Shawky, Etel Adnan and Jala Toufic, among others. ① <http://d13.documenta.de>. Various venues, **Kassel, Germany**, through September 16.

Worlds Within Worlds: *Imperial Paintings from India and Iran* brings together Mughal and Persian paintings and manuscripts. Created in workshops formed by the greatest Mughal patrons—Akbar, Jahangir and Shah Jahan—they reveal how Mughal artists of the 16th and 17th centuries built on Persian cultural heritage in a constant play of tradition and innovation. The exhibition's title refers to the complex layering of multiple images within single folios, the many references to Persian and European styles and subjects, and the emperors' sense of themselves as world rulers. Freer and Sackler Galleries, **Washington, D.C.**, through September 16.

Gifts of Recognition: *Modern and Contemporary Art from the SOAS Collections* draws on the School's remarkably rich but little known artistic collection concentrating on modern and contemporary art. The exhibits include modern Japanese calligraphy; modern and contemporary Chinese paintings; a wealth of

material from Southeast Asia; works by seminal figures of modern Indian, Bengali and Pakistani art; Iranian and African paintings; and a small selection of modern European paintings associated with Asia and Africa. Brunei Gallery, SOAS, **London**, through September 22.

Fifty Years of Urban Walls: *A Burhan Doğançay Retrospective* presents works spanning the career of the renowned Turkish artist who has, since the early 1960's, examined the social, cultural and political transformation of modern and contemporary urban culture through the use of walls. The exhibition presents 126 works of Doğançay's spanning 14 distinct series and periods of the artist's oeuvre in which he examines the complex and protean alternative history of urban life. **Istanbul Modern**, through September 23.

Paradise Imagined: *The Garden in the Islamic and Christian World* explores the art of gardens and the cross-fertilization of garden imagery between East and West. Gardens have functioned as spaces of invention, imagination and mythmaking, as well as places of repose and recreation, for different cultures across time. Using the pages of some 22 illustrated herbals, poetry and epic and sacred texts from the museum's collections, the exhibition focuses on the transmission, exchange and assimilation of garden imagery and metaphors between the Islamic and Christian worlds in the late medieval and early modern eras. The show addresses the image of the garden as an expression of love, power, philosophy, spirituality and knowledge, evoked through word and image. Walters Art Museum, **Baltimore**, through September 23.

Beauty and Belief: *Crossing Bridges With the Arts of Islamic Culture* aims to bridge differences and inspire insight through beauty, and address the question, "What makes Islamic art Islamic?" Tunisia-born project director Sabiha Al Khemir has assembled over 250 works from 40 lenders in the us and nine countries in Europe and the Middle East, including unique manuscripts from the Royal Library in Morocco. The exhibition represents a journey through Islamic culture from the seventh century onward, combining historical and geographic background with successive sections of calligraphy, figurative imagery and pattern, but it makes a point of touching on the present day, also including works by contemporary artists. Brigham Young University Museum of Art, **Provo, Utah**, through September 29; **Indianapolis Museum of Art**, November 2 through January 13, 2013; **Newark [NJ] Museum**, February 13 through May 19, 2013; **Portland [OR] Art Museum**, June 15 through September 8, 2013.

The Horse: *Ancient Arabia to the Modern World* traces the animal's story across thousands of years of human history, displaying exhibits that range from newly excavated Saudi rock carvings—which may move the date and place of first domestication thousands of miles south and thousands of years back—to a miniature Persian gold chariot with four horses, made around 2500 years ago, to Victorian engravings of famous racehorses. Because a skilled archer on horseback was the most dangerous weapon in any war before the development of artillery, the exhibition also

includes two complete sets of Islamic and western horse armor. The wild horse was domesticated at least 5000 years ago, initially for meat and later for transport, transforming how far a man could travel and how much he could carry. The exhibition traces the evolution of the elegant, swift Arabian horses, whose distinctive arched necks and tails can be seen in Assyrian sculptures, Egyptian wall paintings and ancient Greek vases. British Museum, **London**, through September 30.

Beyond the Horizon: *Space and Knowledge in the Cultures of the Ancient World* addresses questions about the understanding of space in the ancient cultures of the Mediterranean region. Even in antiquity, man would observe his environment, adapt himself to the natural conditions it imposed and shape it according to his needs. Through the development of writing, he was able to create new forms of organization, to preserve and pass on knowledge and to archive information. The observation of the heavens, reflected in early records from the Near East, Egypt and Europe, and the mapping of the world, reflected in text and illustration, are covered in two sections of the exhibition. More than 400 objects create a panorama of the journeys of the gods, physical and spiritual realms, curses, oracles, even sound spaces, allowing visitors to immerse themselves in the lived reality of antiquity. Pergamonmuseum, **Berlin**, through September 30.

Pergamon: *Panorama of the Ancient Metropolis* displays a wide variety of sculptures, mosaics, coins, ceramics and metal devices—along with a monumental 360° panorama—to present a vivid picture of life in the glittering ancient city, home of the famous Great Altar, with its depiction of the gods' battle against the giants. Most of the 450 exhibits, presented in their original architectural and functional contexts, have never been displayed before. Paintings, historical photographs and archival documents provide insight into the history of the discovery and research of the site. Pergamonmuseum, **Berlin**, through September 30.

Current **October**

The Museum of Optography: *The Purple Chamber* is the latest installment of Derek Ogbourne's ongoing investigation of the idea that a final image can be imprinted on the retina at the moment of death and retrieved post-mortem. Ogbourne's exhibition consists of drawings, paintings, photography, film, sound, video art and objects that blur the boundaries between art, science and history and highlight the relationship between the imagination and death. **Sharjah [UAE] Art Foundation**, through October 3.

Orient and Occident: *Austrian Artists Traveling East* assembles works by painters who set out for faraway countries in the 19th century to seek new artistic challenges. Initially, they chose their subjects for their documentary significance and described them with great precision. Yet gradually, their paintings and drawings came to reflect the visual charm of the foreign lands, the pictorial translation of sunlight and the rendering of heat, as well as the changes brought about by these phenomena in the natural landscape. One of the

most important Austrian painters active in the East was Leopold Carl Müller, who spent nine winters in Egypt, painting numerous market scenes and figural subjects. Alois Schön, Alphons Mielich, Ludwig Libay, Bernhard Fiedler and a number of other Austrian artists also traveled to eastern countries, and a few, such as Rudolf Swoboda and Hermann von Königsbrunn, even got as far as India and today's Sri Lanka. The exhibition presents views of Hungary, the Balkans, Greece, Constantinople, Egypt, the Holy Land, India, Sri Lanka and the Indian Ocean. Austrian Gallery Belvedere, **Vienna**, through October 14.

Arab Express: The Latest Art From the Arab World introduces contemporary Arab art to Japan. On display are works by 34 artists from the Arabian Peninsula and surrounding Arab countries. From lifestyles to identity, the rapidly transforming Arab world displays a diversity of cultures that cannot be overstated. The traditions, religion, customs and aesthetics that constitute that diversity are vividly reflected in the work of the region's artists, including in this exhibition Tarek Al-Ghoussein, Ahmed Mater, Halim Al-Karim, Meera Huraiz, Zena el Khalil, Rula Halawani and Atfal Ahdath. Mori Art Museum, **Toyko**, through October 28.

Current **November**
Gold From Java—Silver from Batavia. The legendary Indonesia of the past comes to life in the sumptuous gold jewelry of pre-colonial Javanese court culture. The mystical power of gold was used to attract good luck and protect the wearer against the forces of evil. The museum is simultaneously exhibiting unique silver objects made in Batavia in the 17th and 18th centuries for functionaries of the Dutch East India Company (VOC). The objects include tableware, betel boxes and commemorative salvers. A characteristic of Batavian silver is the combination of western forms and oriental motifs, or of objects rooted in the culture of the East but bearing western-style decoration. Gemeentemuseum, **The Hague, Netherlands**, through November 4.

Khalil Saleeby 1870–1928: A Founder of Modern Art in Lebanon is the first public exhibition of work by the renowned Lebanese artist, drawn from an important private collection of more than 60 paintings by Lebanese modernists that was donated to AUB earlier this year. Saleeby is considered to be a pioneer in Lebanese impressionist and modernist painting. He trained in Europe

under John Singer Sargent before returning to Lebanon to teach; many of his students, such as Omar Onsi and Saliba Douaihy, became renowned names in Arab modernist painting. American University of **Beirut** Art Gallery, through November 15.

Shadow of the Sphinx: Ancient Egypt and Its Influence explores the unparalleled impact on the modern western imagination of ancient Egyptian culture: its writing, its art, its religion and its funeral practices. The exhibition presents Egyptian artifacts—jewelry, coffins, portrait masks—together with such European and American objects as paintings, movie posters, porce-

artifacts from the time of Cleopatra VII, taking visitors inside the modern-day search for the elusive queen, a search that reached from the desert sands of Egypt to the depths of the Bay of Aboukir near Alexandria. The exhibition includes statuary, jewelry, everyday artifacts, coins and religious tokens from the time around Cleopatra's rule. California Science Center, **Los Angeles**, through December.

Current **January and later**
Disappearing Heritage of Sudan, 1820–1956: Photographic and Filmic Exploration in Sudan documents the remnants of the colonial experience in Sudan from the Ottoman, Egyptian and

and the diffusion of Buddhism. At the root of this transnational connection is the empire established at the end of the fifth century by the Huns, which extended from Afghanistan to the northern plains of India. Over the next century, trade routes connecting India to the western reaches of the Central Asian Silk Road continued to link these distant communities, facilitating ideological exchange. Metropolitan Museum of Art, **New York**, through February 10.

The Antikythera Shipwreck: The Ship, the Treasures, the Mechanism presents the objects recovered in 1900–1901 and 1976 from the legendary shipwreck off the islet of Antikythera, the focus of the first major underwater archaeological expedition. The wreck dates from 60 to 50 BCE, though items in its cargo go back to the fourth century BCE. The luxury glassware, the statue of Hermes and other items shed light on trade in the eastern Mediterranean and the taste of the rising Roman elite near the end of the Hellenistic Era and Rome's democratic period. Most exciting, however, is the so-called Antikythera Mechanism, a device that comprised at least 30 gearwheels as well as dials, scales, axles and pointers. It is the earliest preserved portable astronomical calculator, and displayed the positions of the Sun, the Moon and most probably the five planets known in antiquity. Used to predict solar and lunar eclipses, it showed an accurate multi-year calendar and displayed the dates of the recurring Pan-Hellenic games that took place at Nemea, at Isthmia, at Delphi, at Dodona and at Olympia. National Archaeological Museum, **Athens**, through April 28.

Coming **July**
Nermine Hammam: Cairo, Year One is the first UK solo show by this Egyptian artist. Her works are intricate composites of layered images and symbols, using a distinctive esthetic that combines digital manipulation and painting to form a rich and highly personal tapestry. The exhibition features two of her most recent series, "Uppekha" and "Unfolding," which look at the recent civil unrest and uprisings in Egypt. "Uppekha" resets images of Egyptian soldiers taken in Tahrir Square against utopian landscapes of verdant fields, snow-peaked mountains and still waters, examining youth in war, masculine frailty and notions of power. "Unfolding" consists of stylized Japanese landscapes intersected with explicit footage of police action following Egypt's 2011 revolt. Using the form of ancient Japanese screens allowed the artist to explore the power of suggestion and artfulness and gave her emotional distance. Mosaic Rooms, **London**, July 20 through August 24.

The Colonial Eye: Early Portrait Photography in India presents an extensive and important collection that includes not only the work of such well-known photographers from the second half of the 19th century as Samuel Bourne, Shepherd & Robertson, A. T. W. Penn and John Burke, but also many lesser-known or anonymous practitioners of ethnographic photography, genre portraits of artisans or portraits of Muslim nobility, maharajas and clan heads, some of whom chose to be portrayed in their own palaces. Photography Museum, **Berlin**, July 20 through October 21.

Journey of the Line explores the dimensions of Arabic calligraphy today, displaying a broad spectrum of contemporary work alongside traditional Arabic calligraphy. Exhibited are works ranging from the school of *hurufiyya* to those encompassing new typefaces which have developed traditionalist styles into a more modern esthetic. The exhibition shows the remarkable fluidity, adaptability and continuing relevance of Arabic calligraphy to artistic practice today. Participating artists include Hassan Massoudy, Hilal Kazan, Nassar Mansour, Samir Sayegh, Farah Behbehani and Nja Mahdaoui. Athr Gallery, **Jiddah**, July 30 through August 30.

lain, jewelry and furnishings, all inspired by real or imagined aspects of ancient Egypt. Munson Williams Proctor Art Institute, **Utica, New York**, through November 25.

Faces of the Middle East is a collection of photos by Hermoine Macura that documents people from across the Middle East and examines the region's common thread of humanity. The photos demonstrate the rich variety of cultures, ethnicities, religions and social groups that compose the Middle East and prove that the region is not in fact a monolithic culture. Macura strives for improved awareness and understanding of the Middle East, and for increased dialogue and appreciation among peoples. Busboys and Poets, **Washington, D.C.**, through November 27.

Current **December**
Rostam 2: Return is a series by Tehran-born artist Siamak Filizadeh, acquired by the museum in 2011, that relies on playful consumer and pop-culture iconography. Filizadeh uses images derived from the *Shahnama (Book of Kings)*, a 50,000-couplet poem pivotal to Persian culture and dating back to the first century CE. In his retelling of the classic tale, Filizadeh bypasses its universalities in favor of more specific commentary. Through his skillful blending of anachronistic and contemporary details, he effectively transports the viewer from the mythical realm of Iran's greatest champion, Rostam, to his own take on the kitsch consumerism and popular culture of present-day Tehran. **Los Angeles** County Museum of Art, through December 2.

Cleopatra: The Search for the Last Queen of Egypt features nearly 150

British periods. This photographic and video project by Frederique Cifuentes explores the mechanics of empire, highlighting colonial architecture, design and construction—official buildings, private residences, cinema houses, railways, irrigation canals and bridges—and the impact they had on Sudanese society before and after independence in 1956. It also helps us understand the ways in which people appropriated and used the buildings after the end of the colonial period. Oriental Museum, **Durham [UK]** University, January through March 2013; University of **Khartoum, Sudan**, September through December 2013.

Tutankhamun: The Golden King and the Great Pharaohs features more than 100 artworks, most of which have never been shown in the United States before this tour. These spectacular treasures—more than half of which come from the tomb of King Tutankhamun—include the golden sandals found on the boy king's mummy; a gold coffinette that held his stomach; golden statues of the gods; and King Tut's rings, ear ornaments and gold collar. Also showcased are objects associated with the most important rulers of the 30 dynasties that reigned in Egypt over a 2000-year span. The exhibition explores the splendor of the pharaohs, their function in both the earthly and divine worlds, and what "kingship" meant to the Egyptian people. Pacific Science Center, **Seattle**, through January 6.

Buddhism along the Silk Road illuminates a remarkable moment of artistic exchange, drawing together objects from India, Pakistan, Afghanistan and the western reaches of Central Asia—regions connected in the sixth century CE through trade, military conquest

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Gods on Swings and Dancers in Trance: *Bronze Art from Tribal India* displays extraordinarily powerful stylized bronzes from Bastar, a region in central India that is home to a majority of tribal people. The artworks show mighty gods, processions and possessed dancers that are the products of a living, complex but little-known culture. Museum Rietberg, **Zurich**, July 20 through November 4.

Coming **August**
Nomads and Networks: *The Ancient Art and Culture of Kazakhstan* provides a comprehensive overview of the nomadic culture of the peoples of eastern Kazakhstan's Altai and Tianshan regions from roughly the eighth to the first century BCE. With more than 250 objects on loan from Kazakhstan's four national museums, the exhibition provides a compelling portrait that challenges the traditional view of these nomadic societies as less developed than sedentary ones. Artifacts on view in the exhibition range from bronze openwork offering stands, superbly decorated with animal and human figures; to petroglyphs that marked important places in the landscape; to dazzling gold adornments that signaled the social status of those who wore them. Freer and Sackler Galleries, **Washington, D.C.**, August 11 through November 12.

Coming **September**
My Rock Stars: *Volume 1* is a new body of photographic work by Hassan Hajjaj that showcases people who inspired him as an artist. His subjects have in common is that they embody their passions: What they do defines them and becomes their passport to life. Hajjaj's series brings studio photography into the streets and acknowledges creativity in all its forms. Third Line, **Dubai, UAE**, September 12 through October 18.

Spirituality in the Qur'an is the theme of the 17th Annual Women's Retreat sponsored by the New Mexico Muslim Women's Association. The guest speaker is Dr. Yamine Mermer. ① 505-898-1788 or womensretreat@daralislam.org. Dar al Islam, **Abiquiu, New Mexico**, September 14 through 16.

The Sultan's Garden: *The Blossoming of Ottoman Art* chronicles how stylized tulips, carnations, hyacinths, honeysuckle, roses and rosebuds came to embellish nearly all media produced by the Ottoman court beginning in the mid-16th century. These instantly recognizable elements became the brand of an empire that spanned seven centuries and, at its height, three continents, and was synonymous with its power. Incredibly, the development of this design identity can be attributed to a single artist, Kara Memi, working in the royal arts workshop of Istanbul. The exhibition unveils the story of this artist's influence and traces the continuing impact of Ottoman floral style through the textile arts—some of the most luxurious and technically complex productions of the Empire. Textile Museum, **Washington, D.C.**, September 21 through March 10.

Coming **October**
Roads of Arabia: *Archaeology and History of the Kingdom of Saudi Arabia*. The study of archeological remains only really began in Saudi Arabia in the 1970's, yet brought—and is still

bringing—a wealth of unsuspected treasures to light: temples, palaces adorned with frescoes, monumental sculpture, silver dishes and precious jewelry left in tombs. The exhibition, organized as a series of points along trade and pilgrimage routes, focuses on the region's rich history as a major center of commercial and cultural exchange, provides both chronological and geographical information about the discoveries made during recent excavations, and emphasizes the important role played by this region as a trading center during the past 6000 years. Elegant alabaster bowls and fragile glassware, heavy gold earrings and Hellenistic bronze statues testify to a lively mercantile and cultural interchange among distant civilizations. More than 300 works—sculptures, ceramics, jewelry, frescoes—are on display, dating from antiquity to the beginning of the modern period, the majority never before exhibited. Sackler Gallery, **Washington, D.C.**, October 20 through February 20.

Diadem and Dagger: *Jewish Silversmiths of Yemen* celebrates Yemeni Jewish silverwork dating from the 18th and the 19th centuries, highlighting the ways Jews both shared and contributed to Islamic art and culture while maintaining their Jewish identity. From the revelation of Islam in the seventh century, Jewish and Muslim communities coexisted in Yemen, although few Jews live there today. Yemeni Jewish craftsmen created superb silver pieces characterized by elaborate granulation and filigree for Muslim and Jewish clients: headpieces, bracelets, necklaces and belt buckles as well as *khanjars* (daggers) for the Muslim elite. Many of the 25 objects on display are dated and

bear the name of both the Jewish silversmith and the Muslim ruler of the time. Walters Art Museum, **Baltimore**, October 27 through January 13.

The British in Palestine: 1917–1948: *Palestine under the British Mandate*. Brunei Gallery, soas, **London**.

Coming **November**
Ataman: *Mediterranean Dramaturgies* includes four of Turkish artist Kutlug Ataman's latest video installations. Sperone Westwater, **New York**, November 2 through December 22.

Art Istanbul is dedicated to contemporary Turkish cultures. The first iteration of this new art fair collaborates with commercial galleries, auction houses and public museums. **Istanbul**, November 19–25.

Little Syria documents the rich history of New York's first Arab-American community. From the late 19th century through the mid-20th century, an area of Manhattan's lower west side was the home to a vibrant and productive community of early Arab-Americans. Dubbed the "heart of New York's Arab world" by *The New York Times*, the Washington Street neighborhood was where many participants in the first wave of Arab immigration to the United States got their start. Their experiences, all but lost to living memory, parallel those of other immigrant groups of The Great Migration period. Arab American National Museum, **Dearborn, Michigan**, late fall.

Coming **December**
Amarna 2012: *100 Years of Nefertiti*, an extensive special exhibition on the

Amarna period, allows Nefertiti's time to be understood within its cultural-historical context. All aspects of this fascinating period are illuminated and explained—not only the period's theology and art, but also everyday life in the city, ancient Akhetaton. Founded by the monotheist Pharaoh Akhenaten (Amen-hotep IV) to establish a new capital with places of worship for his own 'religion of light,' the city was built within three years and populated in the year 1343 BCE. At the beginning of the 20th century, extremely successful excavations took place there under the direction of Ludwig Borchardt, and the finds were shared between Cairo and Berlin. The exhibition illuminates the context of the discovery of the bust of Nefertiti in the workshop of the Egyptian sculptor Thutmose, along with numerous related objects, including even the pigments and tools used by the sculptors. Along with the exhibition's main focus on archeology, it also critically examines the history of the depiction of the bust of Nefertiti both as an archeological object and as a widely marketed ideal of beauty. Visitors can experience the Amarna period as a social, cultural-historical and religious phenomenon. Neues Museum, **Berlin**, December 7 through April 13.

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

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