

Canada: A French Colony's Tragic Past

# ARCHAEOLOGY

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March/April 2022

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## The Lost World Under the North Sea

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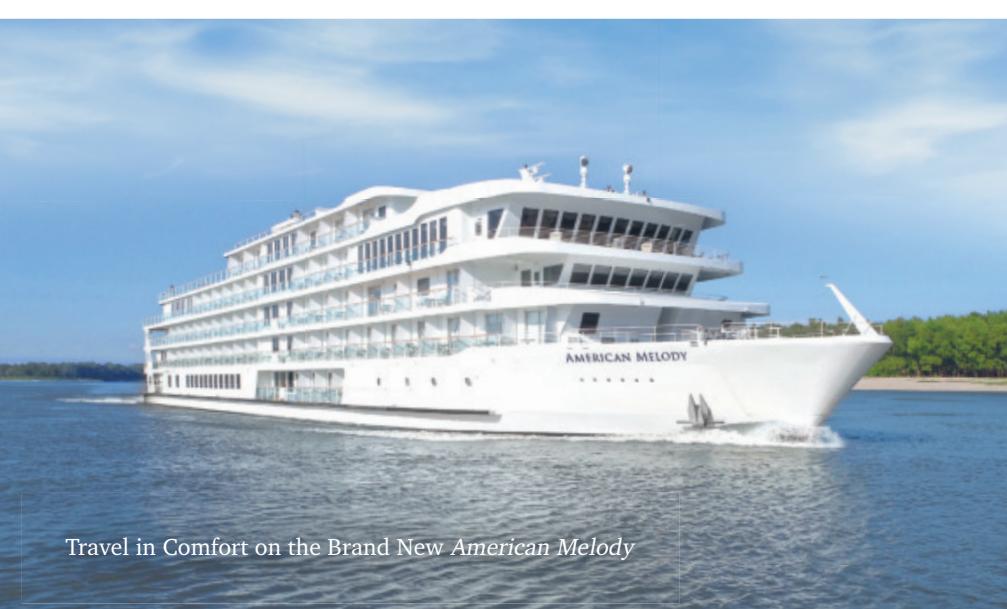
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Cover: A sculpted panel on the Arch of Constantine in Rome, Italy, depicts an emperor sacrificing to Hercules

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BY JASON URBANUS

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# AN INSPIRED LIFE

The last time I saw Martha—at some point, I'm not sure when, she stopped being Professor Joukowsky and was just Martha—she ran across the room calling my name and beckoning me with her huge smile and arms open wide. I had written some time before to tell her that I had been asked to be editor in chief of ARCHAEOLOGY, and that day she said, “I am so proud of you.” As she had every time I saw her since I was an 18-year-old student in her Introduction to Archaeology class, she made me feel like the most important person in the room. Martha stirred me with her love for the ancient world and encouraged me to follow my passion for the past, and it is her inspiration that led me to what I believe is the best archaeology job in the world.



Martha passed away on January 7, and the field of archaeology will, simply, never be the same. There will be many former Brown University students who will share their memories of her extraordinary generosity with her glorious, yet somehow very homey, house in Providence where you were always allowed to go study or read and have a cup of tea and a cookie—and use a home computer, a rare luxury at the time. Martha's generosity with her beautiful home, her wonderful books, her peerless experiences, and her boundless knowledge was abiding and unparalleled.

Martha was a consummate storyteller and she had more than eight decades of extraordinary stories to tell. She excavated in Italy, Greece, Turkey, and Jordan, where she unearthed the Great Temple at Petra. I know she would have loved this issue's articles about archaeologists still discovering far-flung connections between ancient Mesoamerican cultures, searching for lost landscapes in Nova Scotia and under the North Sea, taking a fresh look at a misunderstood Mesopotamian ruler, and rethinking one of Rome's most iconic monuments. Martha received her Ph.D. from the Sorbonne in Paris and would have particularly relished learning about the researchers investigating the history of Notre Dame Cathedral. I hope Martha always knew that it is thanks to her that generations of archaeologists, including me—and thus you, ARCHAEOLOGY's dedicated readers—are fortunate to have had the opportunity to explore the past with her.

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**ARCHAEOLOGY MAGAZINE**  
 36-36 33rd Street, Long Island City, NY 11106  
 tel 718-472-3050 • fax 718-472-3051

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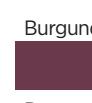


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## FROM THE PRESIDENT

# NEW VOICES

One of the great pleasures of the AIA's annual conference is the discovery of new voices, new topics, and new approaches in archaeology. This January we continued our new tradition of Society Sunday, the public program inaugurated last year to celebrate the AIA's 100-plus Local Societies. This event featured the presentation of awards thanking our lay enthusiasts and a fascinating public lecture by Debby Sneed of California State University, Long Beach, "Disability and Infanticide in Ancient Greece."



Feeding bottle  
from the Agora  
at Athens

Sneed dispelled the myth of widespread exposure of disabled infants by the Greeks, focusing on both literary and material evidence to show the efforts ancient families took to encourage their survival, including the production and use of special feeding bottles like the one shown here.

During the conference proper—successfully flipped to virtual thanks to heroic efforts by the terrific AIA staff—a compelling panel, "Current Events and Heritage Protection," organized by the AIA's Vice President for Cultural Heritage Brian Daniels, brought experts from the Smithsonian Cultural Rescue Initiative (SCRI) together with Afghan, Syrian, and Iraqi archaeologists and museum professionals. They addressed collaborative efforts in crisis areas, both to protect culture at risk and to tackle the results of deliberate destruction.

My own presidential plenary session focused on new and diverse voices and reinvigorated approaches to community-based archaeology across a broad geographical and historical span. A paper by Krish Seetah of Stanford University showed how archaeological science is elucidating palliative remedies used by the enslaved on the island of Mauritius. The building of millennia-scale databases of fishing practices in eastern Africa and southwestern Madagascar by Eréndira Quintana Morales of the University of California, Santa Cruz, and her Kenyan and Malagasy collaborators is helping fishing communities there address the impacts of climate change. We heard from Anthony Browder of the ASA Restoration Project about the African American-led excavation project at Luxor now in its second decade, which is providing new insight into ancient Egypt's Kushite nobility, whose contributions to ancient Egypt have long been ignored. Archaeologist Isabel Rivera-Collazo of the University of California, San Diego, talked about her own experience as a Boricua scholar who was born, raised, and trained in the Commonwealth of Puerto Rico. And María Nieves Zedeño of the University of Arizona shared how she works alongside member tribes of the Blackfoot Confederacy to produce knowledge that is co-created and thus of the greatest use to the community it is intended to serve. These highlights demonstrate the AIA's commitment to a more inclusive archaeology that stresses the importance of the past to our lives today.

It is with great sadness that I report the passing of Martha Sharp Joukowsky, AIA past president, professor of archaeology at Brown University, and longtime excavator at Petra. Few could match her knowledge of and enthusiasm for the field, and her vivacious and innovative spirit will be greatly missed by her many students and colleagues around the world.

A handwritten signature in black ink that reads "Laetitia La Follette".

Laetitia La Follette  
President, Archaeological Institute of America

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— The Jewellery Editor, 2021



Rating of A+



C.

## LETTERS

# FROM OUR READERS

### FACING THE PAST

I am an avid ARCHAEOLOGY reader. The January/February 2022 article "At Face Value" struck me for what the ancient artists kept in—wrinkles, under-eye bags, a double chin, uneven facial features, and messy eyebrows—3,000 years before the modern-day Realism movement was born. It may indicate the value placed on realistic depictions, especially for the subjects' journeys into the afterlife where they had to be recognized, or it may show that the people's conception of beauty was very different from our photoshopped culture today.

Anna Mandel  
New York, NY

I enjoy every issue of your wonderful magazine and am learning so much. After reading "At Face Value," I was wondering if any animals were in any of the portraits discovered, or perhaps even an animal with its own portrait?

Laurie DeFazio  
Sandy, OR

### *Conservator Marie Svoboda replies:*

To the best of my knowledge, there are no animals that are depicted on a human

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portrait mummy. The animals decorating mummy portraits mostly represent the gods: Bes, Thoth, Horus, etc. There are, however, millions of animal mummies—there is even an ibis mummy inside the Getty's mummy of Herakleides mentioned in the article. Again, most represent gods: cats are Bes, ibises are Thoth, hawks are Horus, and so forth. Some are painted on the exterior to look like the cat or ibis inside. Other mummified animals include crocodiles, snakes, and shrews. There have been some mummified dogs, too, that were possibly pets. Several cemeteries were dedicated to animal mummies.

### TREASURE HUNT

I subscribe to ARCHAEOLOGY because it publishes well-written, vivid reports like "Turning Salt Into Gold," January/February 2022. This typical article has enough archaeological detail to be intensely interesting while avoiding the tedium of professional journals. Story-like, exciting verbiage as well as excellent photographs and diagrams made this article an adventure! I could almost see myself carefully following the footsteps of ancient miners down into the cold, dark mine, passing a Bronze Age staircase—the oldest in Europe—seeing the well-preserved backpack, millennia old, and smelling the pungent smoke from centuries of torches. And the treasure I found was not salt but my subscription to ARCHAEOLOGY!

Blair Faulk  
Bulloch County, GA

### ARTISTIC TALENTS

It's hard not to think well beyond the artistic skill necessary to create the engravings in "Oldest Animal Art" (January/February 2022) and wonder what technology, metals, chisels, and ropes these creators had and how they utilized them to create these masterpieces. The ass on the side of the cliff required far more than a chisel and hammer to create. That story by itself would fill a book, I suspect.

Steve Restaino  
Norfolk, VA

### FURTHER THOUGHTS

First, thank you for such an informative magazine. I read with interest the article "Identifying the Unidentified" (November/December 2021) and a letter by Robert Sawyer of Long Beach, California, in the next issue. Knowing something of the social history of England, my country of birth, I would like to offer another scenario which might be of interest to your readers.

It is possible that the poor enslaved man was afflicted with mental illness which included violence, thus making it necessary to chain him. Madness was associated with witchcraft and demon possession, and it was well known that witches could not function around iron. Perhaps this poor soul was afflicted and was taken outside of his community, killed, and buried still in his chains to prevent the "evil" from rising and seeking vengeance on those of the village.

Liz Hancock  
British Columbia, Canada



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# DIGS & DISCOVERIES

KUBLAI KHAN'S FOLLY, BRONZE AGE GOLDEN BOWL, WINTER CANOE STORAGE...AND MUCH MORE

## POETIC LICENSE

λέγονται  
ά θέλουσιν  
λεγέτωσαν  
οὐ μέλι μοι  
σὺ φίλι με  
συνφέρι σοι

They say  
What they like  
Let them say it  
I don't care  
Go on, love me  
It does you good

The past can be a silent place for archaeologists. Despite recovering the belongings of ancient people, analyzing their diets, and even studying their bones, scholars can only imagine how they might have sounded. One way philologists investigate how spoken words were pronounced in antiquity is by tracing changing spellings, especially in non-elite texts. "In popular texts, spelling is more likely to be adapted to the sound of the word and less likely to be tethered to some conservative idea of 'proper' spelling," says classicist Tim Whitmarsh of the University of Cambridge. Another approach involves looking at surviving texts of all kinds, including poetry, to identify what they might reveal about how people spoke. Whitmarsh recently examined artifacts found across the Roman Empire, including 20 gemstones and a graffito on painted plaster in a house in Cartagena, Spain, all of which contain a popular short poem written in Greek. His conclusions may provide scarce direct evidence of a particular way that people spoke—one that persists in English and many other languages today—centuries earlier than previously known.

"Before the Middle Ages, many poetic traditions of the 'classical' cultures, such as Greek and Latin in what is now Europe, and Arabic and Persian further east, used a form of verse that was entirely different from anything we know of as poetry today," Whitmarsh says. Up to that time, poems followed the rules of classical meter in which the meter, or rhythm, of a poem is determined by the length of time it takes to say the verse's long and short syllables. "Think 'hope' versus 'hop,'" says Whitmarsh. This regular pat-



Graffito on painted plaster

tern of short and long syllables is known as quantitative meter, and differs from the qualitative, or stressed, meter of the Middle Ages and beyond. As an example of the latter, try reciting "Twinkle, Twinkle, Little Star," and note how some syllables are stressed—the "twin" in "twinkle," "li"

in "little," and "star,"—or "Mary Had a Little Lamb," where "Mar," "ha," "li," and "lamb" are stressed.

Previously, scholars agreed that the earliest unambiguous examples of stressed poetry are works composed by the hymnist Romanos the Melodist in the mid-sixth century A.D. But Whitmarsh suggests that the inscribed poem he has been studying, which dates to the second or third century A.D., was recited in stressed meter. This would mean people in the Greek-speaking Roman Empire were accustomed



Engraved gemstone

to stressed speech centuries earlier than previously thought. "This way of speaking must have been bubbling around in the oral tradition," says Whitmarsh. "Romans wrote hymns using the stressed accent not to innovate spectacularly, but to plug in to the way normal people were speaking. This is a rare glimpse of how people actually sounded."

Whitmarsh also believes the widely recited poem is evidence of an extraordinary crossover between popular culture and the written word in the form of a fashion statement. "From Spain to Iraq,

everyone wants this little gemstone and its poem," he says. The poem remained remarkably consistent through time and across the empire's vast expanse, and seems to have appealed to a literate, but not especially high-status, sort of person. The gemstones are made of glass paste and the language is vernacular and includes no adjectives or nouns. "It's about as simple as you can get," says Whitmarsh. "It's a kind of playground chat that starts in the middle of a conversation and has an easily reproducible rhythm that sounds like the main verse

of Chuck Berry's 'Johnny B. Goode.'" There was also an economic dimension to the poem's popularity and reach. "The Roman Empire produced wealth and opportunity that people had never had before and the chance to buy into culture and to travel and network in a way never before possible," he says. "This object spread like wildfire because the empire was an information superhighway."

To hear Whitmarsh recite the poem, go to [archaeology.org/greekpoem](http://archaeology.org/greekpoem).

—JARRETT A. LOBELL

## GONE FISHING

While on a recreational dive last summer in Wisconsin's Lake Mendota, Wisconsin Historical Society archaeologist Tamara Thomsen discovered an ancient dugout canoe carved from a single white oak. Resting on the lake bottom 27 feet underwater, the canoe contained seven notched stones of a type known as net sinkers that were used to hold down fishing nets. Photos of the canoe showed it to be in such pristine condition that Wisconsin state archaeologist James Skibo suspected it had been made recently. But radiocarbon dating showed it was in use around A.D. 800, likely by ancestors of today's Ho-Chunk Nation. Indigenous people in the region traditionally submerged their canoes in shallow water in the fall to protect them during the winter months and then recovered them in the spring. Skibo notes that in the past archaeologists have found ancient canoes that were likely stored in this manner. "This canoe, which was recovered in deeper water with net sinkers, has a different story," he says. "It likely sank while being used as a fishing boat." The canoe has been raised from the lake and is now being conserved.

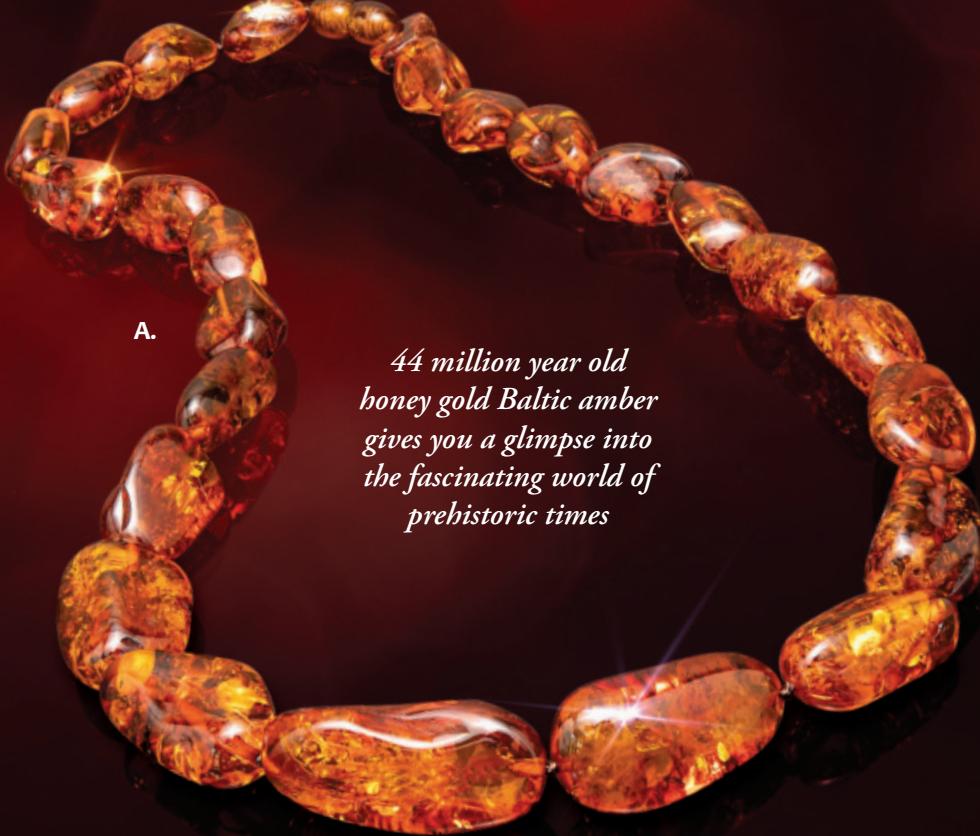
—ERIC A. POWELL



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## A SHINING EXAMPLE

**A**rchaeologists working on the site of a future railroad station at Ebreichsdorf, 18 miles south of Vienna, have discovered a golden bowl decorated with geometric motifs and an image of the sun with 11 solar rays. The bowl is 90 percent gold and measures two inches high and eight inches wide. Inside the vessel were gold bracelets, wires, and remnants of fabric. Over the past two years, a team led by archaeologist Michał Sip of the archaeological firm Novetus has also unearthed nearly 500 bronze artifacts including pins, daggers, and knives at the site, which was a swamp in antiquity. Like the gold bowl, all these objects are in excellent condition, suggesting that they were deliberately deposited during religious rituals of some kind.

The bowl and many of the other artifacts belonged to members of the Urnfield culture (ca. 1300–750 B.C.), who inhabited much of central Europe in the Middle and Late Bronze Age. It is one of only about 30 such bowls ever found. “This discovery was an absolute surprise,” says Sip. “This type of gold vessel, which is connected to bronze production centers in Scandinavia, is the first of its kind in Austria. I couldn’t believe what I was holding in my hands.” Sip thinks the bowl is evidence that long-distance trade networks in central Europe at the end of the second millennium B.C. were used more intensively than previously believed.

—JARRETT A. LOBELL

## OLIVEOPOLIS

**A**fter the Romans conquered the Phoenicians of northern Africa in 146 B.C., they allowed them to maintain their cultural traditions, but imposed a new economic system. The drastic cost of this was evident at Zita, a city in present-day Tunisia that was once famous for its olive groves. A team of American researchers and archaeologists



Forum, Zita, Tunisia

from Tunisia’s National Heritage Institute compared the quantity of iron slag and carbonized olive pits in soil from the city’s iron smelting workshops. When the Romans took over, they increased iron



Burned olive pit (two views)

production, but the problems didn’t begin until about A.D. 200. “We can see clearly in the archaeological record that they lost the balance between producing fuel and producing olive oil,” says archaeologist Brett Kaufman of the University of Illinois at Urbana-Champaign. He believes that plagues and political instability may have created economic pressures that led to shortsighted decisions. To feed Rome’s appetite for iron, the olive orchards that had sustained Zita’s economy for centuries were fed into the smelting furnaces, leading to the city’s collapse around A.D. 450. “It’s just shocking to think about the emotional cost for the people who realized that they were feeding an empire and losing their own city in the process,” says Kaufman.

—ZACH ZORICH

# KUBLAI KHAN'S SINKING AMBITIONS

Kublai Khan's horse-mounted warriors may have been the terror of the Asian steppe, but they were much less fearsome when they had to brave the waters of the Pacific to do battle. In 2017, locals on the Indonesian island of Serutu discovered a sandstone boulder carved with Chinese characters. In 2021, scholars published a translation of the inscription, revealing that it records the attempted invasion of the Singhasari Kingdom on Java by the khan's forces in 1293. Prior to the invasion, the fleet spent about a month on Serutu preparing for battle.

Hsiao-chun Hung, a specialist in Asian archaeology at Australian National University, who worked on the translation, notes that the inscription mentions 500 ships. Previously, scholars had been unclear how many vessels the khan had in his fleet. The inscription also betrays the invaders' optimism. It mentions "copper columns," which is an allusion to a battle the khan's armies had won in what is now Vietnam. "They think it will be very easy to conquer the Singhasari Kingdom," says



Inscribed boulder, Serutu, Indonesia

Hung. "Kublai Khan says they are just small islanders, they are just barbarians." A year later, the defeated invaders sailed back to China in what was left of their fleet.

—ZACH ZORICH

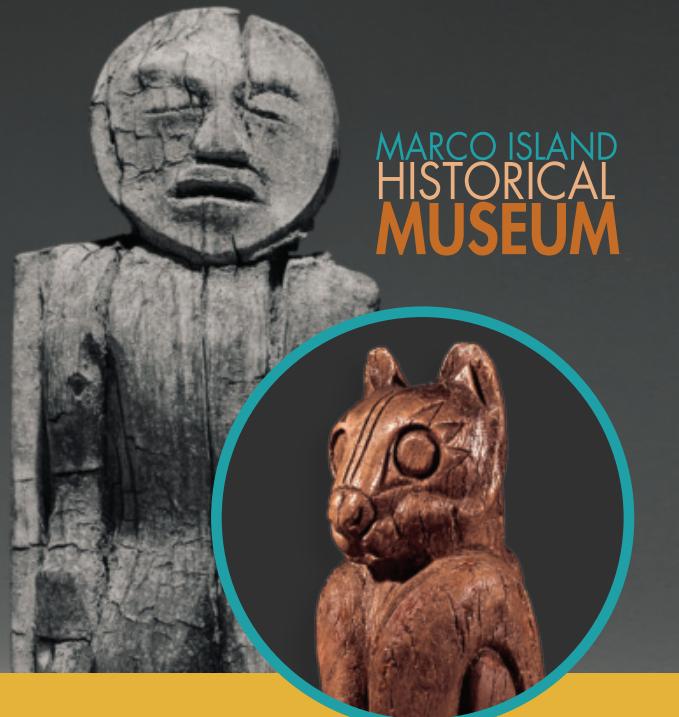
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# THE TREASURER'S TOMB

**A**t the ancient Egyptian necropolis of Saqqara, archaeologists have unearthed the tomb of Ptah-M-Wia, an economic minister under the 19th Dynasty pharaoh Ramesses II (r. ca. 1279–1213 B.C.). Like the adjacent burials of other officials of the period, the mudbrick tomb is laid out in the style of a temple, with an entranceway, two courtyards, and, at the western end, a chapel where funerary rites were performed. The plastered walls of one of the courtyards are decorated with paintings depicting the sacrifice of a bull and a procession of people bearing offerings. In the other courtyard, which contains Ptah-M-Wia's as-yet-unopened burial shaft, excavators found seven square pillars inscribed with the *djed* symbol,



Inscribed block, Saqqara, Egypt

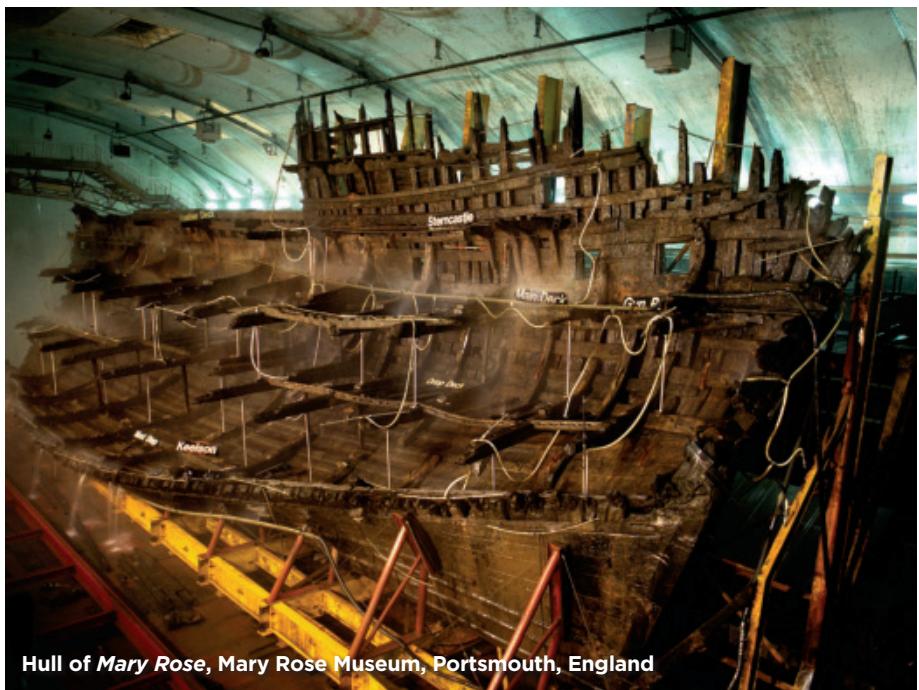
which is associated with Osiris, the god of the underworld.

Inscriptions on limestone blocks at the tomb's entrance list the various titles Ptah-M-Wia held throughout his career. "He was the head of the treasury of the temple of Ramesses II in Thebes," says archaeologist Ola El Aguizy of Cairo University. "He was also the head of cattle and head of offerings to all the gods of Upper and Lower Egypt." It's unclear how long Ptah-M-Wia lived, who his relatives were, and whether his tomb was built before or after those nearby. Says El Aguizy, "We have to uncover the rest of the tomb and go into the burial shaft to better understand his life and genealogy."

—BENJAMIN LEONARD



Tomb wall paintings, Saqqara, Egypt



Hull of *Mary Rose*, Mary Rose Museum, Portsmouth, England

## TUDOR TRAVELERS

**A**t least a portion of the life stories of eight men who served on *Mary Rose*, an English warship that sank in 1545 during a battle with the French navy, can now be told. They number among 179 sailors whose remains, along with thousands of artifacts, have been recovered from the wreck in the Solent, the strait between the Isle of Wight and the southern coast of England. A team led by archaeologists Jessica Scorrer and Richard Madgwick of Cardiff University conducted strontium-

and oxygen-isotope analysis of samples of the seafarers' teeth. This allowed them to determine where the crew members grew up and what they ate as children. Three of the individuals may have hailed from areas with climates warmer than Britain's, possibly the Iberian Peninsula or North Africa. The five other sailors appear to



Illustration of *Mary Rose*, ca. 1546

have been raised in western or southern Britain. This provides evidence of racial and ethnic diversity among the crew of *Mary Rose*, and in Tudor society more broadly, says Scorrer. The individuals have been given nicknames, including the Archer, the Cook, the Officer, the Purser, and the Young Mariner, based on objects found near their remains or the locations on the ship where they were found.

—MARLEY BROWN

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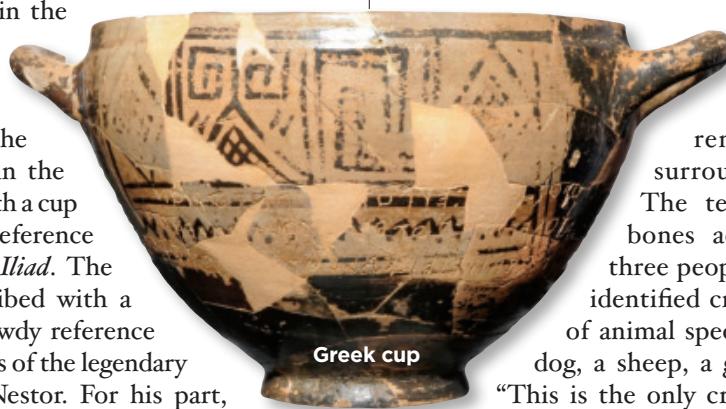
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# WHO DRANK FROM NESTOR'S CUP?

The eighth-century B.C. settlement of Pithekoussai on the island of Ischia in the Bay of Naples was the earliest Greek colony in the western Mediterranean, far from cities such as Athens or Sparta on the mainland.

Archaeologists excavating the remote colony's necropolis in the 1950s were surprised to unearth a cup bearing the earliest known reference to Homer's epic poem the *Iliad*. The clay drinking vessel is inscribed with a short poem that makes a bawdy reference to the aphrodisiacal properties of the legendary cup of the king of Pylos, Nestor. For his part, Homer describes Nestor's cup as "a beautiful cup...studded with golden nails," a striking contrast to the modest vessel from Pithekoussai.

In the years after its discovery, researchers believed the cup had



*I am Nestor's cup, good to drink from.  
Whoever drinks this cup empty,  
straightaway desire for beautiful-crowned  
Aphrodite will seize him.*

been buried with the cremated remains of a young person estimated to have been between 10 and 14 at the time of death. Recently, University of Padua bioarchaeologist Melania Gigante and her team reexamined the remains—and the questions surrounding the cup deepened.

The team found that the human bones actually came from at least three people, all likely adults. They also identified cremated bones from a variety of animal species in the burial, including a dog, a sheep, a goat, and probably a rooster.

"This is the only cremation burial at the site in which there are skeletal fragments from at least three individuals alongside faunal remains," says Gigante. "This makes the Tomb of Nestor's Cup even more unique."

—ERIC A. POWELL

## REFLECTING THE PAST

Researchers have determined that an obsidian mirror believed to have been owned by the sixteenth-century English polymath John Dee originated in the Aztec world. Dee served as a scientific adviser and astrologer to Queen Elizabeth I (r. 1558–1603). Like many Renaissance scholars, he was deeply immersed



Obsidian mirror

in occult practices and regularly attempted to communicate with spirits. One of the tools Dee is believed to have used in his magical pursuits is a circular obsidian mirror now in the British Museum. Notes attached to the mirror in the eighteenth century identify it as "The Devil's Looking-glass" and "The Black Stone into which Dr Dee used to call his Spirits."

The Aztecs used obsidian mirrors of this sort to divine the future, and a number of these objects were brought to Europe following the conquest of Mexico in the early sixteenth century. To determine whether Dee's mirror was one of these imports, a team led by archaeologist Stuart Campbell of the University of Manchester measured the proportions of various elements in the obsidian. The researchers found that the mirror's chemical signature closely matches that of obsidian from Pachuca, Mexico, one of the Aztec Empire's main sources of the volcanic glass. "This helps us understand the mirror as an Aztec object," says Campbell. "The fact that it already had Aztec associations of divination and being able to see what's not immediately apparent was seized on by John Dee and added value to the object from his point of view."

—DANIEL WEISS



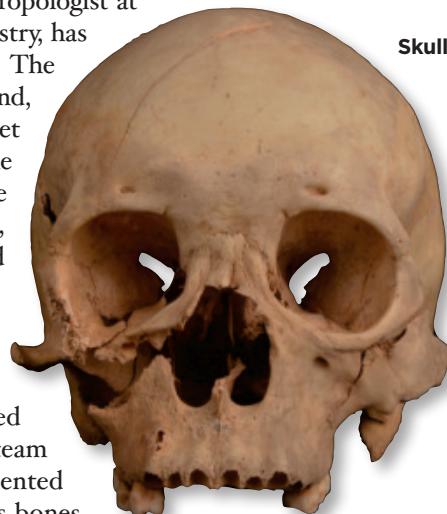
Skeleton, Ningxia, China

## MURDER WILL OUT

When archaeologists discovered the skeleton of a 25-year-old man partway down a looter's shaft in a large tomb in the Ningxia region of northern China, they initially believed he had been one of the robbers. However, a new analysis led by Qian Wang, an anthropologist at Texas A&M University's College of Dentistry, has revealed an even more sinister scenario. The man was found around six feet belowground, but the looter's shaft extends another 15 feet to the burial chamber floor. Given that the shaft appears to have filled in naturally, the team determined that the man was, in fact, the victim of a vicious assault that occurred long after the tomb was looted.

Radiocarbon dating showed that the man died during the seventh century A.D., whereas the tomb's inhabitants—a man, woman, and child—had been buried at least 700 years earlier. When the team examined the man's skeleton, they documented evidence of 13 sharp-force wounds on his bones. "He has cut marks on the top of his head, the back of his skull, and especially on his ribs," says Wang. "The right half of his face was almost cut off." Researchers concluded that the man was brutally assaulted and then thrown into the shaft—likely while still alive—in an apparently successful attempt to cover up the crime.

—DANIEL WEISS



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# CITÂNIA DE BRITEIROS, PORTUGAL

Covering roughly 50 acres on a high outcrop with sweeping views of the Ave River Valley, a hillfort site in northwest Portugal known as Citânia de Briteiros was home to more than 1,000 people between around 200 B.C. and A.D. 300. Archaeologists have been excavating the site, some eight miles north of the medieval city of Guimarães, since the 1870s. In addition to its seven-foot-thick defensive fortifications, they have unearthed ruins of at least 150 stone buildings connected by pathways. These include the remains of a large, circular structure measuring nearly 40 feet in diameter that is referred to as the “council house” because researchers believe an assembly of rulers may have used it as a meeting place. Hillforts such as Citânia de Briteiros that dot the western Iberian Peninsula are called castros, and the people who con-



structed them are known as the Castro culture.

The Castro people crafted elaborate gold and silver torcs, fashioned pendants featuring spiral and rosette motifs, and carved stone statues and engraved walls that decorated ritual bathing complexes. A bath complex dating to before the Romans annexed the region in 19 B.C. featuring a decorated stone slab and remnants of a system for pumping water from a nearby spring was discovered at Citânia de Briteiros

in the 1930s. According to archaeologist Mariah Wade of the University of Texas at Austin, many fundamental questions remain about the Castro culture. “Recent research is focusing on, for example, what people ate,” she says. “We still don’t know much about where these groups, which had to support large populations, planted crops.” Similarly, very few human



Bath complex ruins,  
Citânia de Briteiros, Portugal

remains associated with the Castro culture have been discovered, and scholars have little information regarding these people’s burial practices.

## THE SITE

A ticket to visit Citânia de Briteiros includes the price of admission to the Museum of Castro Culture in the nearby village of Briteiros. The museum provides an overview of the site and houses a number of objects uncovered there, including the monumental stone slab from the bath complex. Wade recommends taking a guided tour through the hillfort’s labyrinth of streets and structures, two of which were reconstructed in the late nineteenth century by Francisco Martins Sarmento, the first archaeologist to work at the site. The Martins Sarmento Society, a foundation devoted to his work and to the heritage of the Castro culture, operates the site and museum.

## WHILE YOU'RE THERE

Visitors to Citânia de Briteiros should spend a day in the well-preserved medieval city of Guimarães, considered by many to be the birthplace of modern Portugal. Stroll around the lively downtown to enjoy shopping and traditional Portuguese pastries, and visit the tenth-century Castle of Guimarães, a national symbol famous for its role in the struggle for Portuguese independence from the Spanish kingdoms of Galicia, Castile, and León.



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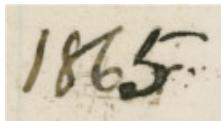
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## AROUND THE WORLD BY JASON URBANUS



**WASHINGTON, D.C.**: The National Archives holds a famous letter dated April 14, 1865, in which Abraham Lincoln pardons Private Patrick Murphy on a charge of desertion. The document is noteworthy because Lincoln was assassinated later that very day, suggesting that one of his last official deeds was saving a condemned man from death. New examination of the letter has confirmed that the number 4 in the year was erased and replaced with a 5. The letter was actually written in 1864, a year before Lincoln's death.

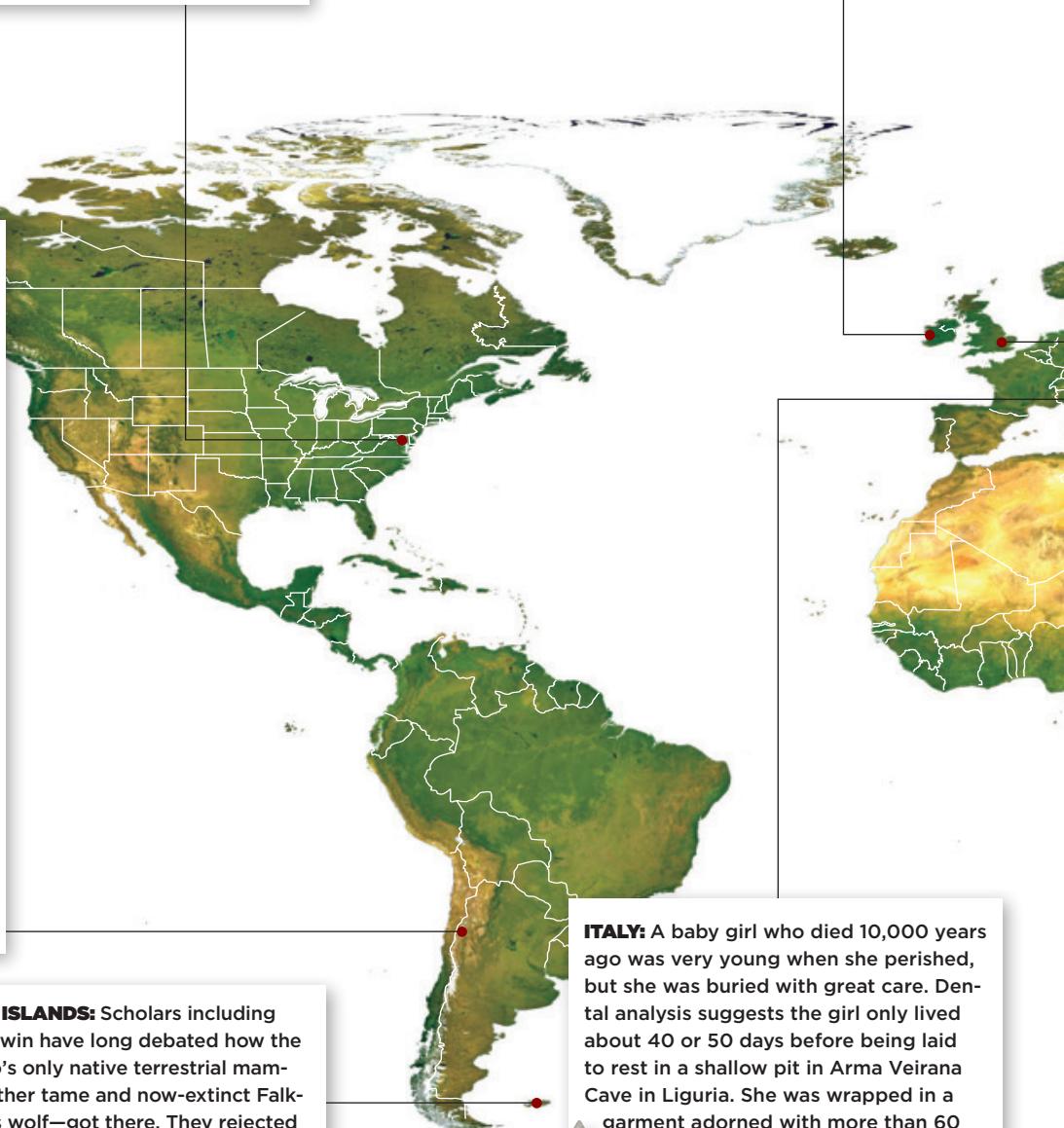


**ARGENTINA**: Archaeologists are able to extract DNA from human bones and teeth, but the process is destructive. A new, less-invasive method involves recovering genetic material from the scalps of people who suffered from head lice. DNA sequencing was carried out on 2,000-year-old mummies entombed in the Calingasta Caves using skin cells trapped in the glue-like substance excreted by lice on their hair. The results revealed that some of the local population migrated to the Andes from the Amazon rain forest region.



**FALKLAND ISLANDS**: Scholars including Charles Darwin have long debated how the archipelago's only native terrestrial mammal—the rather tame and now-extinct Falkland Islands wolf—got there. They rejected human introduction because the animal, also known as a warrah, was already present when Europeans landed on the islands' uninhabited shores in 1690. However, new evidence suggests that the Indigenous South American Yaghan people periodically visited the isles centuries earlier. It is possible these early seafarers, who are known for their close human-canid relationships, brought the first warrahs with them.

**IRELAND**: A pen discovered at the 11th-century ringfort of Caherconnell Cashel is believed to be the oldest such object ever found in Ireland. It was made from a hollowed-out bone and has a copper-alloy nib, which would have been dipped into an inkwell. Given that religious settings were more closely associated with literacy at the time, it is surprising that this writing implement was discovered in a secular setting.



**ITALY**: A baby girl who died 10,000 years ago was very young when she perished, but she was buried with great care. Dental analysis suggests the girl only lived about 40 or 50 days before being laid to rest in a shallow pit in Arma Veirana Cave in Liguria. She was wrapped in a garment adorned with more than 60 shell beads and pendants. This rare



Mesolithic female infant burial is believed to be the earliest of its kind found in Europe.

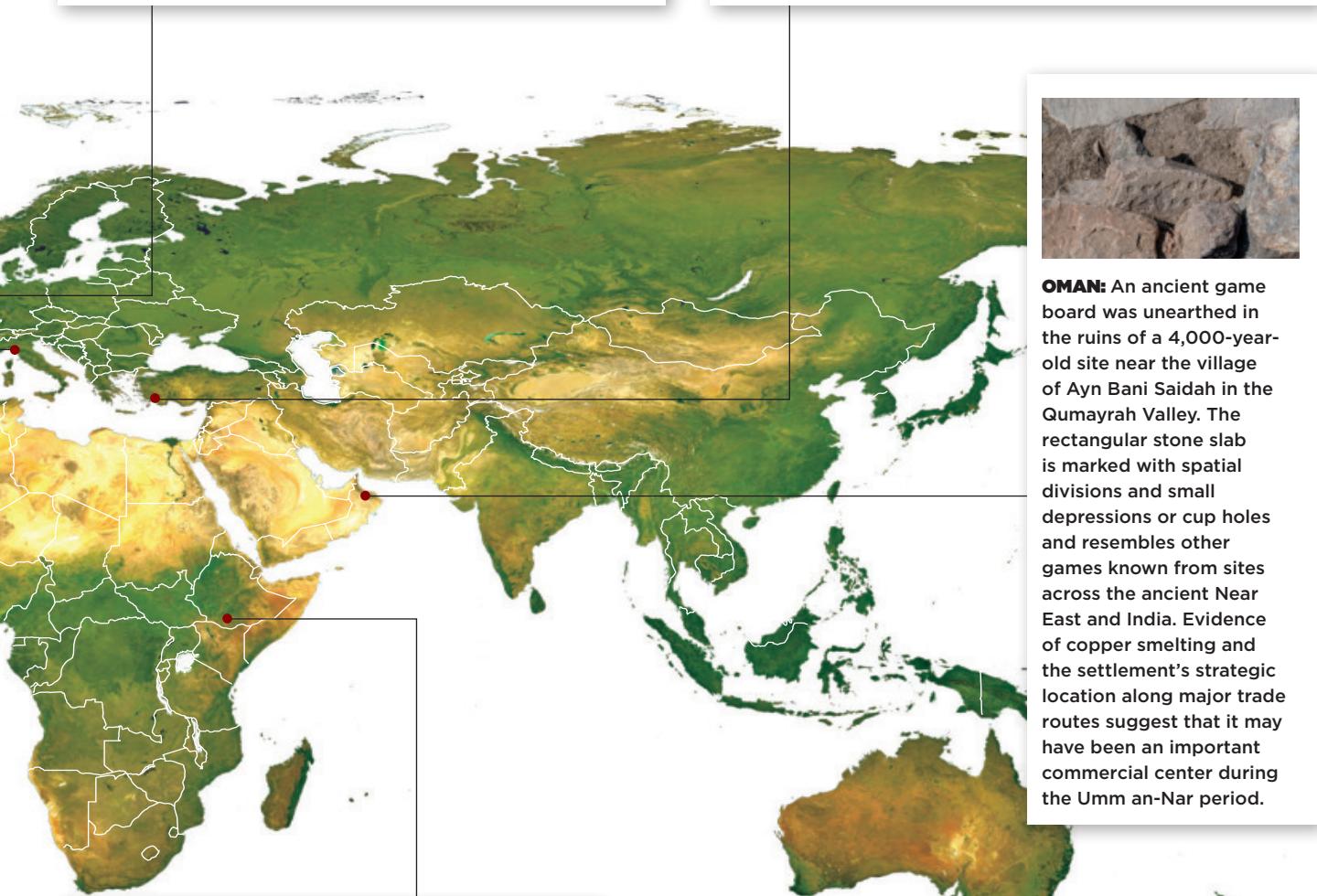


**ENGLAND:** Size, it seems, doesn't always matter. Despite the popular portrayal of medieval warhorses as massive, powerful beasts that tore across battlefields, they were actually much smaller than today's horses, and even than horses from the

Roman era or Iron Age. A study of 2,000 horse bones from 171 different sites ranging from the 4th through 17th centuries A.D. indicates the animals were in fact pony-sized. It's possible that traits such as speed, maneuverability, and temperament were more important factors than size during the breeding process.



**TURKEY:** A teenager and a dog buried in destruction layers at the settlement of Çeşme-Bağlarası are believed to be the first victims of the eruption of Thera, which occurred 3,600 years ago, ever discovered. The catastrophic explosion on the present-day island of Santorini, 140 miles away, triggered tsunamis that destroyed the coastal Bronze Age settlement. Evidence shows that survivors attempted to dig through the rubble to rescue those trapped—they only missed locating the young man and canine by about 3 feet.



**ETHIOPIA:** The Gedeo Zone in southern Ethiopia is home to Africa's largest concentration of megalithic stone stelae. Some of the 10,000 carved monuments reach heights of 20 feet. New dating of the monoliths found at the site of Sakaro Sodo indicates that they were created around the 1st century A.D., more than 1,000 years earlier than previously thought. Experts believe the stelae may have served as burial markers or to commemorate the transfer of power from one generation to the next.



**TASMANIA:** In the 1850s, a convict serving time at the Port Arthur penal colony surreptitiously buried a stash of silver shillings in a clay floor. He was never able to retrieve his treasure, which was recently found during excavations in one of the prison complex's metal-casting workshops. At the time, prisoners were strictly prohibited from carrying money, but one crafty inmate seems to have managed to dispossess an unsuspecting guard of his cash, which was equal to about a week's pay.

# THE LAST KING OF BABYLON

**T**HE FALL OF AN EMPIRE in antiquity was usually the result of complex, interconnected factors that lay beyond the scope of any one person's control. Nonetheless, traumatized contemporaries and later historians alike have often laid the fault at the feet of a single individual. "It's the last ruler who is usually blamed for an empire's downfall," says University of Toronto Assyriologist Paul-Alain Beaulieu. The enigmatic Neo-Babylonian king Nabonidus seemed destined for just such a fate after the Persian armies of Cyrus the Great marched through Babylon's gates in October 539 B.C. By deposing Nabonidus, whose reign was marked by eccentric political and religious choices, the Persians ensured

that he would be the last ruler of the Neo-Babylonian Empire (626–539 B.C.) and the last native-born Mesopotamian king.

For some 2,500 years, Mesopotamian cities, states, and empires had been ruled by their own, or by outsiders who adopted their ways. But after Nabonidus (r. 556–539 B.C.), the region was conquered by a series of foreign empires before Mesopotamia's great ancient cities such as Ur, Uruk, and Babylon finally withered away. Many sources from antiquity cast Nabonidus as the villain who brought about the downfall of Babylon, and by extension, Mesopotamia. "He was a controversial figure," says Beaulieu, "and perhaps a tragic one." Today, some scholars believe that, despite being variously portrayed in ancient texts as a mad usurper and a heretic whose apostasy



## Investigating the reign of Mesopotamia's most eccentric ruler

by ERIC A. POWELL

doomed an empire, Nabonidus may, in fact, have simply been a difficult personality with a singular political vision whose reign was cut short before he could realize his ambitions.

Ever since Assyriologists, who specialize in translating Mesopotamian cuneiform documents, mostly in the form of clay tablets, first began to read Neo-Babylonian records excavated in the late nineteenth century, Nabonidus has stood out as an unusual ruler. While the record is fragmentary, cuneiform tablets and inscriptions have helped scholars trace Nabonidus' unconventional career. A palace courtier, Nabonidus came to power in his 50s or 60s by way of a coup that may have been orchestrated by his son Belshazzar, who plays a central role in the Bible's Book of Daniel. In this biblical account, Nabonidus,



These ruins of the city of Babylon in Iraq date to the Neo-Babylonian Empire (626–539 B.C.). A 22-inch-high basalt stela (top) depicting Babylon's king Nabonidus (r. 556–539 B.C.) shows him wearing a conical hat and gripping a staff as he pays homage to the crescent moon of the god Sin, the winged disk of the sun god Shamash, and a star symbolizing the goddess Ishtar.



who is mistakenly identified as his predecessor Nebuchadnezzar II (r. 605–562 B.C.), is described as a mad king obsessed with dreams. According to the Book of Daniel, the king leaves Babylon to live in the wilderness for seven years. This depiction overlaps somewhat with Nabonidus' own inscriptions, in which he emphasizes that he was an especially pious man who paid heed to dreams as the divine messages of the gods. Nabonidus was also infamous in antiquity for abandoning Babylon for 10 years to live in the deserts of Saudi Arabia, where he estab-

lished a kind of shadow capital at the oasis of Tayma. This was a strange and unprecedented move for a Mesopotamian ruler. Nabonidus was also known for his near-fanatical devotion to the moon god, Sin, whom he raised to the status of the most important deity in the Babylonian pantheon. This came at the expense of Marduk, Babylon's longtime patron god, whom ear-

lier Neo-Babylonian kings had promoted as the empire's chief deity. Some scholars believe that by elevating Sin, a god whose main temples lay outside the city of Babylon, Nabonidus was perhaps attempting to unite a large and diffuse empire under the worship of a god who held more appeal than Marduk to people throughout the realm. "Nabonidus was a new man, with a new vision of the Babylonian Empire," says Beaulieu. Nabonidus' efforts to hold together his realm may have ultimately gone unrealized, but by exploring his reign, scholars can learn much about the final days of the Neo-Babylonian Empire. Nabonidus left behind some 3,000 cuneiform inscriptions, far more than any other Neo-Babylonian king. New readings of some of these tablets, findings from excavations at Tayma, and the recent discovery of additional inscriptions dating to Nabonidus' reign are all giving scholars a chance to tease out the ambiguities that lay at the heart of the reign of Babylon's last king.

**F**OR MOST OF THE THIRD millennium B.C., Babylon was just one of many Sumerian city-states that flourished in southern Mesopotamia. Older cities such as Ur, whose patron deity was the moon god, Nanna—later known as Sin—were much more powerful. Around 2000 B.C., Babylon began to acquire a reputation as a religious center and place of scholarship. By then its residents spoke Akkadian, a



Molded and glazed bricks (left) from Babylon's Ishtar Gate depict the *mušhuššu*, a mythological dragon-like creature associated with Marduk, Babylon's chief deity. Babylon's Esagila Temple (right) was home to a sacred statue embodying Marduk.

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Semitic language that had replaced Sumerian as the lingua franca of Mesopotamia. During this period, after the rise of what scholars today call the Old Babylonian Dynasty and the ascension of rulers such as Hammurabi (r. ca. 1810–1750 B.C.), Babylon became the region's most influential city. Previously a minor storm god, Marduk became its patron

and was gradually elevated to his position as one of the most powerful deities in the Mesopotamian pantheon.

Babylon's New Year festival, held during the spring, was Marduk's special holiday and the city's most important rite. The god's statue was carried from its home at the Esagila Temple to a series of other sanctuaries during 14 days of lavish rituals celebrated throughout the city. During this festival, the king's sacred right to rule was renewed for another year.

Throughout the second and early first millennia B.C., Babylon's status as Mesopotamia's leading city waxed and waned. Although it was sometimes seized by foreigners, these outsiders always eventually adopted Babylonian culture, becoming indistinguishable from the city's Akkadian-speaking citizens. After living under the kings of the Neo-Assyrian Empire (911–609 B.C.) for several centuries, Babylonians, led by a local chieftain named Nabopolassar (r. 626–605 B.C.), revolted and, after a protracted civil war, seized power, establishing the Neo-Babylonian Empire. This ushered



A stela depicting Nabonidus celebrates his rededication of the temple of Sin in the northern city of Harran. Throughout his reign, Nabonidus promoted Sin as the chief god of the empire.

was Marduk's totemic animal. In the last decade of the seventh century B.C., Babylonian forces conquered the final remnants of the Neo-Assyrian Empire to the north, including Harran, the home city of Nabonidus' family. At that time, his mother, Adad-guppi, a priestess of Sin, was brought to Babylon, perhaps with her son, whom she may have established at court in a position of influence.

Some tablets dating to the reign of Nebuchadnezzar II mention an official named Nabonidus, which might refer to the future king. Some of these texts

suggest Nabonidus was a contentious person with an abrasive manner. One states that he ordered the beating of a man who had made a seemingly innocuous inquiry about orders relating to the robe outfitting the statue of a god. But the future king was also, some sources report, a skilled diplomat. According to the fifth-century B.C. Greek historian Herodotus, Nabonidus may have negotiated a peace treaty between the Iranian people called the Medes and the Lydians of Anatolia.

After his lengthy reign, Nebuchadnezzar II was succeeded by his son-in-law Neriglissar (r. 560–556 B.C.), who sat on the throne for just four years. He in turn was eventually succeeded by his son Labashi-Marduk, who reigned for a mere two weeks before a coup deposed him and placed an already elderly Nabonidus on the throne.

**T**HE COURT RECORDS OF THE Neo-Babylonian kings have not been discovered. Thus, Assyriologists must use other texts, chiefly financial and real estate transactions, to piece together the political events of the day. For example, multiple tablets suggest that Nabonidus' son Belshazzar seems to have taken over many of Labashi-Marduk's real estate holdings, making him a prime suspect as the coup's mastermind. But who helped him put his father on the throne has been an open question. In search of the identities of those who were in Nabonidus' camp, University of Warsaw Assyriologist Małgorzata Sandowicz recently studied cuneiform tablets detailing real estate transactions that bear the king's imprimatur.

Sandowicz has found that many men in these records held high titles and were the kind of palace officials one would expect to find in close proximity to the king. A smaller number of men without titles seem to have been Nabonidus' more intimate associates. Some of them had held positions of power under Nebuchadnezzar II and Neriglissar. They seem to have retained the king's special favor, suggesting that these companions of Nabonidus could have been critical allies in the coup that installed him as king. Quite a few members of this royal



in a period that saw Babylon become an imperial capital as its armies conquered much of the territory previously ruled by Neo-Assyrian kings.

Nabopolassar was succeeded by his son Nebuchadnezzar II, who was known for his military conquests, including the capture of Jerusalem, and his building projects, which included the construction of the city's famed Ishtar Gate. The gate was decorated with colorful molded and glazed bricks, some of which depict a *mushussu*, the mythological dragon that

## ANCIENT ANTIQUARIANS

All Neo-Babylonian kings revered Mesopotamia's deep past, but Nabonidus' (r. 556–539 B.C.) obsession was particularly acute. "Usurpers often looked to the past for legitimacy," says Heidelberg University Assyriologist Hanspeter Schaudig. "With no royal lineage, Nabonidus sought to associate himself with great ancient kings." Tablets recovered throughout Babylonia, in modern-day Iraq, record that Nabonidus sponsored the renovation of temples and encouraged excavations to locate already-ancient artifacts.

One example of Nabonidus' commitment to exploring the past comes from the sun god Shamash's temple in the city of Sippar. Archaeologists digging there in 1881 recovered a small stone monument inscribed with archaic Akkadian writing. The text says that King Manishtushu (r. ca. 2269–2255 B.C.) renovated the temple of Shamash and substantially increased its revenues. Two inscribed clay cylinders found by archaeologists alongside the monument describe how it was discovered during a search of old store-rooms ordered by Nabonidus.

Below the monument was a clay box containing an

11-inch-high schist object now known as the Sun-God Tablet, along with two clay impressions of the tablet. The tablet celebrates the discovery of an antique clay image of Shamash during the reign of King Nabu-apla-iddina (r. ca. 886–853 B.C.). It also established the ancient privileges of the Shamash priests.

Discovering a monument dating to some 1,700 years before his reign must have been a source of great satisfaction to Nabonidus. But in the 1940s, Assyriologists realized that the "ancient" Akkadian writing was actually a much later Neo-Babylonian forgery. The priests of Shamash seem to have produced the monument in secret, and then presented it as a new discovery from the distant past. It's possible the image of Shamash whose discovery is described on the Sun-God Tablet was also a forgery. The priests were evidently not above faking antiquities to bolster their privileges. One tip-off to the cruciform monument's true nature might be found at the end of its almost 350 lines of cuneiform text in the phrase "this is not a lie, it is indeed the truth."—E.A.P.



Small inscribed monument



Box containing Sun-God Tablet and two clay impressions



Sun-God Tablet

retinue were Aramaeans, an ethnic group whose tribes lived across the Neo-Babylonian Empire. A native of the northern city of Harran, where many Aramaeans lived, Nabonidus may well have been Aramaean himself. At this time, the Aramaeans' Semitic language, Aramaic, was rapidly displacing Akkadian as the empire's leading language. "Aramaean are hard to identify in Babylonian records," says Sandowicz. "They often managed their affairs in the framework of their own tribal institutions. So the fact that they appear here as associates of the king is significant." If Nabonidus maintained close links with Ara-

maeans, that could indicate he might have been interested in keeping a power base outside the official Babylonian system.

Sandowicz notes that just as interesting as who is included in these real estate transactions is who is absent. She has found that those transactions bearing Nabonidus' stamp of approval include very few names of men belonging to the old, distinguished Babylonian families who had long been associated with the city's temples. Perhaps, she suggests, there was a power struggle between Nabonidus and these prominent temple families, one that foreshadowed a later religious schism.



A team (above) led by University of Barcelona archaeologist Rocío Da Riva rappels down a cliff face at the site of Sela in Jordan to study an inscription (right) depicting Nabonidus.

In the first three years of his reign, Nabonidus consolidated his rule. His inscriptions proclaim that he campaigned to the west, leading armies to Anatolia and the Levant. He seems to have allied himself with the Persian king Cyrus the Great (r. 559–530 B.C.), whose realm was under control of the Medes when his reign began. Nabonidus encouraged Cyrus to revolt against the Medes, a decision that would eventually come back to haunt him.

During this first phase of his rule, Nabonidus claims to have rebuilt the walls of Babylon, a boast made by nearly every Babylonian king, and to have ordered the rebuilding of temples throughout Mesopotamia. As part of these temple renovations, he was particularly interested in recovering ancient religious cuneiform dedications and statues, and ordered special excavations to hunt for them. (See “Ancient Antiquarians,” page 26.) He was already making the worship of Sin the centerpiece of his rule. In the second year of his reign, he rededicated the temple of Sin in Ur during a lunar eclipse. He also established his daughter as the main priestess there, evidence of how much he valued his personal connection to the god. Perhaps he wanted to be sure he had a close relative keeping an eye on the priests of the god to whom he was so devoted.



team of climbers who conducted a detailed study of the depiction and the degraded inscription that accompanies it.

The scene, like others depicting Nabonidus, shows him wearing a conical cap and praying to celestial symbols representing three deities: Sin; the goddess Ishtar, represented by a star symbol; and Shamash, the sun god. The inscription accompanying the scene is illegible, but Da Riva believes it commemorates a Babylonian victory over forces occupying an Edomite fortress at the site of Sela, which stood on a mountain top looming just a few hundred feet above the panel. Da Riva and her team found that the panel was almost impossible to see by anyone except those who walked up an ancient narrow staircase leading to the remains of the fortress at Sela. Seizing such a well-defended position may have been a matter of pride to Nabonidus and his army. Perhaps, suggests Da Riva, they situated the panel to mark the scene of a hard-fought battle as a way of reminding the Edomites of Babylon’s might.

After three years of rule, and without any clear explanation, Nabonidus abandoned Babylon. Leaving his son Belshazzar as regent, he disappeared for a decade to campaign in the wastes of northern Arabia. “We don’t know why he did this, at his age,” says Hanspeter Schaudig, a Heidelberg University Assyriologist. “It would have made much more sense for his son to lead the army and for him to stay at the capital to maintain power and oversee religious rites there.” It is possible that clashes with the priests of Marduk, and perhaps even with his son, impelled Nabonidus to quit Babylon. In his absence, the city’s New Year ceremony and the renewal of the king’s authority went uncelebrated for 10 years, and Marduk languished in the Esagila Temple. Later accounts may exaggerate the extent to which this troubled the Babylonians, but it probably was a source of great anxiety for many in the city.

Archaeologists continue to study clues that might explain Nabonidus’ mysterious distant sojourn. A depiction of the king engraved on a rock face almost 400 feet above a canyon floor in what is today Jordan shows that, among other things, he was busy campaigning in the lands to the west occupied by the people known in the Bible as Edomites. University of Barcelona archaeologist Rocío Da Riva recently led a



A weathered Nabonidus inscription was discovered in the summer of 2021 in Saudi Arabia. In this image, white lines trace the faint carving, which includes a snakelike symbol (far left) alongside the star of Ishtar, the sun disk of Shamash, and the crescent moon of Sin.

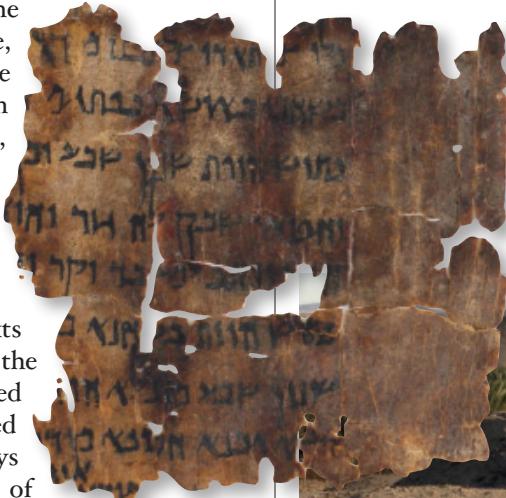
**S**OME 350 MILES TO THE southwest of Sela, a Saudi-German team now led by the German Archaeological Institute's Arnulf Hausleiter has been excavating at the oasis of Tayma since 2005. Before they began, Nabonidus' presence at the oasis was only known from the literary record. In surveys and excavations, however, they have found structures and inscriptions dating to the period of Nabonidus' residence there, and a number of artifacts bearing the king's name. The formal cuneiform inscriptions discovered by the team, including a weathered stela excavated from the site, are largely fragmentary, but are similar to the monuments Nabonidus erected at Babylon. This came as a surprise to Schaudig, who translated the Neo-Babylonian texts found at Tayma. "I thought out in the desert he would have commissioned inscriptions that would have expressed more independent thinking," says Schaudig. "But they repeat the form of ones from Babylonia."

A royal inscription identified on a rock face in the summer of 2021 about 200 miles southeast of Tayma near the Saudi Arabian town of Al Hayit provides further evidence of Nabonidus' activities in the area. The heavily weathered scene is similar to one found in the area in 2012 and shows Nabonidus paying homage to the symbols of Sin, Shamash,

this story. These fragments preserve a literary work known as "The Prayer of Nabonidus," which may have originally been composed by Judeans living in Babylon. Its author or authors suggest the king suffered from a severe skin condition and fled Babylon, perhaps to avoid polluting its sacred temples with his unclean body. Once in the desert, he prayed to the god of the

Judeans for relief. The source of this story could have been an urban legend that

**Fragments of a Dead Sea Scrolls parchment (left)** preserve a text known as "The Prayer of Nabonidus," which suggests the king fled to the desert to cure an ailment. The desert oasis of Tayma (below) was Nabonidus' headquarters for 10 years.



and Ishtar, as well as to a fourth symbol that resembles a snake. These two depictions are the only ones of Nabonidus that feature this symbol. It's possible that the snakelike symbol had special significance for the local Arabian people whom Nabonidus boasts of conquering.

One of the simplest explanations for Nabonidus' 10-year absence from Babylon is that he was endeavoring to extend the might of the empire to the south and trying to gain control of the valuable trade routes of western Arabia. Other explanations offered by ancient sources—apart from the idea that the king was simply mad—include the suggestion that Nabonidus suffered from some ailment he hoped time in the desert might cure. Parchment fragments of the Dead Sea Scrolls discovered in the Qumran caves of the West Bank offer a version of

arose in Babylon during Nabonidus' absence and may have also helped inspire the account of the mad king in the Book of Daniel. Perhaps it was whispered that the king fled to the desert to pray to Sin, the moon god, for a cure to a leprosy-like malady. Other Babylonian works suggest the god, by virtue of the moon's pitted surface, was able to cure diseases of the skin. Whether or not he had an illness that was relieved by his stay in Arabia, by 543 B.C. Nabonidus had returned to Babylon with his devotion to Sin undiminished.

**I**N THE LAST YEARS of his reign, Nabonidus commissioned a series of stelas and other inscriptions that emphasized the primacy of Sin. Some of the most vivid examples of his devotion to the moon god are inscriptions on stelas that celebrate his restoration of the god's temple in Harran and record the autobiography of Nabonidus' mother Adad-guppi, who is said to have died at the age of 102, just before the end of her son's reign. The inscriptions describe her service to the moon god, while at the same time taking the priests of Babylon to task for their alleged disrespect toward Sin. Nowhere do they mention Marduk. Instead, Nabonidus' inscriptions suggest that Sin was on the rise, perhaps as the one god who could unite the diverse and far-flung peoples living under Babylonian rule. "The moon was worshipped everywhere," says Beaulieu. "In the deserts where Nabonidus had just spent ten years, in his hometown to the north, and in the Levant."

Documents from this time also suggest that Nabonidus was threatened by the rising power of Cyrus, who had by then bested the Medes and supplanted them as Babylon's main rival. Some of these documents record that Nabonidus ordered statues of the patron gods of all the empire's chief cities to be brought to Babylon for safekeeping as a precaution against a Persian invasion.

Three cuneiform texts, the *Verse Account of Nabonidus*, the *Nabonidus Chronicle*, and the *Cyrus Cylinder*, give accounts of the last days of Nabonidus' reign that are not generous to the

king. They follow the march of Cyrus' army into Babylonia and the entry of his general Gubaru into Babylon itself in 539 B.C. "It only took two weeks," says Beaulieu. "It was probably the swiftest collapse of an empire in history." According to these accounts, the people of Babylon were fed up with Nabonidus' rule and welcomed the Persians with open arms. The texts say that Cyrus restored Marduk to his rightful status as Babylon's most important deity and that Nabonidus was sent into exile.

In these Persian period cuneiform accounts, Nabonidus' apostasy is invoked as an explanation for the fall of the city.



Three cuneiform works, the *Nabonidus Chronicle* (top left), the *Verse Account of Nabonidus* (top right), and the *Cyrus Cylinder* (above), portray the reign of Nabonidus in a harsh light.

They claim that Babylonians considered Nabonidus an utter failure as a ruler. But at least two rebel leaders who rose up against the Persians in the century after Babylon's fall styled themselves as "sons of Nabonidus," suggesting that the king's memory still enjoyed some goodwill in the city. Perhaps some even remembered Nabonidus not as a mad king, an absent ruler, or a moon-god fanatic, but simply as a Babylonian trying to reinvent his empire to ensure its survival, and as a man who ran out of time. ■

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Eric A. Powell is deputy editor at ARCHAEOLOGY.

To read more about Marduk, go to [archaeology.org/marduk](http://archaeology.org/marduk).

**S**TARTING IN THE EARLY seventeenth century, the French began settling the colony of Acadia—which stretched across what is now Prince Edward Island, Nova Scotia, New Brunswick, and south into Maine—where they established a number of prosperous agricultural communities. A key to their success was a system of dikes they created, particularly in Nova Scotia, that allowed water to drain out of the marshes but prevented seawater from flowing back in. Once rain washed the salt away from this reclaimed land, it became extremely fertile thanks to the rich organic material that had been deposited by the tides over thousands of years.

The great quantity of peas, wheat, and other grains, as well as livestock, which the Acadians consumed and exported, helped fuel population growth that is among the fastest ever recorded in human history, up to 4.5 percent per year. Between 1710 and 1730, the Acadian population doubled and then doubled again by 1755, when it reached around 14,000. The Acadians' ambitious land reclamation project reached its apogee at Grand Pré, or “great meadow,” a village founded by a group of extended families around 1682. Grand Pré overlooked a vast expanse of marshland abutting the Minas Basin, home to the highest tides in the world, which can rise more than 50 feet. The Acadians' expertise allowed them to tame the tides and

# PARADISE LOST

**Archaeologists in Nova Scotia are uncovering evidence of thriving seventeenth-century French colonists and their brutal expulsion**

By DANIEL WEISS

This patchwork of fields in Grand Pré, Nova Scotia, was tidal marshland when Acadian settlers arrived in the seventeenth century. The colonists reclaimed the land by erecting a system of dikes to hold back the tides of the Minas Basin, creating extremely fertile farmland.

transform this salt marsh into robust farmland.

In part because they created their own agricultural land, the Acadians had friendly, collaborative relationships with the Indigenous Mi'kmaq. In a place with such plenty, there was no need to compete for resources. There were even a significant number of marriages between the groups, which was unheard of in the New England colonies to the south, where Native peoples and Europeans were, at best, wary of each other. Heavily influenced by the Mi'kmaq, the Acadians developed a social structure based on communal cooperation that contrasted starkly with the rigid hierarchy they had known in France. This communal spirit was particularly helpful in organizing and car-

rying out the hard labor necessary to build and maintain the monumental dikes that held back the tides. "In France, if you were a peasant, you were under a nobleman's control and had no real freedom," says Rob Ferguson, a retired Parks Canada archaeologist. "When the colonists came to Acadia, they suddenly had control of their own lives. They had their own farms and they could sell their crops. There was intermarrying between levels of society that would never have happened in France. In a way, they really did have a paradise."

Regardless of their successes, the Acadians were repeatedly caught up in the geopolitical rivalry between France and Britain, with control of Nova Scotia passing back and





forth between the two empires multiple times. The Acadians endeavored to remain neutral, resisting attempts by both sides to win their fealty. They cultivated profitable trade relations with New England merchants, whom at least one source records they dubbed *nos amis les ennemis*, or “our friends the enemy.” Over time, the Acadians came to see themselves as an independent creole people, native to their new land and no longer bound to their home country. They would raise the French or English flag depending on whose gunships were coming to pay a visit. When the British took control of Nova Scotia for good in 1713, the French tried to entice the Acadians to move to Île Royale, modern-day Cape Breton Island, but most remained where they were, reasoning that the British were more likely to leave them alone. They were mistaken, however, and their position grew increasingly precarious. Suspicious of the Acadians because they were Catholic and friendly with the Mi’kmaq, British representatives pressured them to pledge an unconditional oath of allegiance to the Crown. The Acadians managed to fend off their demands for several decades, in no small measure because local British forces depended on their crops for sustenance.

Thus, when Lieutenant-Colonel John Winslow, a British military commander from Massachusetts, arrived at Grand Pré with a detachment of 300 troops on August 19, 1755, many local Acadians assumed this was just the latest attempt to secure their allegiance. When Winslow and his men set up camp in and around the parish church, Saint-Charles-des-Mines, and surrounded it with a defensive palisade, few Acadians panicked. And, on Friday, September 5, when Winslow summoned all men and boys older than 10 living in the village and the surrounding district to meet with him in the church, 418 residents showed up. They were greatly shocked, then, to hear the commander read a proclamation stating that they would have to forfeit their land, livestock, and most other possessions, and that they and their families would be forced to leave their land. Similar messages were delivered to communities elsewhere in Nova Scotia, and over the next few months, more than 6,000 Acadians living there were shipped to destinations throughout the Americas and Europe in overcrowded, inhumane conditions. The remainder fled to the peninsula’s interior to live with the Mi’kmaq, to French-controlled Île

Saint-Jean (modern-day Prince Edward Island), or to New Brunswick, which was contested territory at the time. Around 1,000 Acadians perished on the deportation journeys due to shipwreck or disease, and many others were separated from their families. Several thousand more Acadians were expelled from the region over the next few years. (See “From Acadian to Cajun,” page 34.)

Winslow was ordered to burn most structures at Grand Pré so that those who had escaped the deportation would be deprived of resources. Starting in 1760, new Protestant colonists began to arrive from New England and build their own structures on the landscape. In the early twentieth century, Acadian descendants constructed a number of monuments to their ancestors’ past. Two hundred fifty years after the Acadians were deported, evidence of their presence at Grand



An 1882 newspaper illustration depicts a coffin that antiquarians reportedly dug up from the Acadian cemetery near the Grand Pré parish church, Saint-Charles-des-Mines.

Pré is difficult to discern. Over the past two decades, Jonathan Fowler, an archaeologist at Saint Mary’s University in Halifax, has employed a range of methods to identify traces of the Acadian community that once thrived there, as well as of the forces that crushed it. “The scorched-earth policy of the British, who destroyed many of the Acadian settlements, has given rise to an archaeological landscape,” he says. “My work is about reconstructing a map of that world that has disappeared. We have old maps. We have a little bit of folklore. And we have, of course, archaeology.”

**A** SENSE OF TRAGIC LOSS pervaded Acadians’ memories in the decades after 1755, which is reflected in their term for the removal period, *le grand dérangement*, or “the great upheaval.” Most wounding was the widespread separation of family members. This sentiment was crystallized by Massachusetts poet Henry Wadsworth Longfellow in his wildly popular 1847 epic *Evangeline*. In it, he portrays the Acadians and their expulsion in highly romantic terms, describing Grand Pré as “the forest primeval,” evoking the “wail of sorrow and anger” that erupts from the men and boys in the parish church when they hear Winslow’s proclamation, and depicting the deportees as “scattered...like flakes of snow” in the driving wind. The poem focuses on a fictional young couple from Grand Pré, Evangeline and Gabriel, who are

separated on their wedding day. Evangeline spends the rest of her life trying to track down her beloved only to find him in an almshouse in Philadelphia on the verge of death. They embrace, lamenting the life together that was stolen from them, and he dies in her arms. She follows soon after, and they are buried side by side. “Once Longfellow’s poem became famous, people began visiting sleepy little Grand Pré,” says Fowler. “It was never really well known before, but came to be seen as a kind of holy place in Acadian history.”

Among those who made the pilgrimage to Grand Pré after Longfellow published *Evangeline* were amateur antiquarians, who dug up several wooden coffins from the Acadian cemetery near the parish church. One coffin was put on display at a local hotel and another was left at the town’s railroad station, where visitors took it away in parts as souvenirs. In the first decade of the twentieth century, Acadian descendant John Frederic Herbin purchased the land where the cemetery was located and marked it with a stone cross. Then, in the 1920s, a bronze statue of Evangeline was erected and Acadians built a memorial church on the purported site of the 1755 roundup. In 1982, Parks Canada established the Grand-Pré National Historic Site, encompassing the area surrounding the memorial church and Herbin’s Cross. That same year, Parks Canada archaeologists found four grave shafts just north of the cross, confirming that it marks the site of the Acadian cemetery.

Nonetheless, when Fowler began his archaeological project at Grand Pré, much about the site remained unknown. He hoped to find remnants of the Acadian dike infrastructure and traces of Winslow’s 1755 military camp. Most importantly, Fowler wanted to determine whether the memorial church marked the actual location of the original Acadian parish church. “That church has a strong sentimental meaning to the



The remains of an *aboiteau*, a key part of the Acadian dike system, were excavated in the Grand Pré marsh and dated to 1691 using dendrochronology.

Acadian people,” says Ferguson, who codirected the Grand Pré project with Fowler for its first few years. “It was where the great tragedy began.” Fowler’s work has been followed closely by Acadian descendants such as Marie-Claude Rioux, executive director of the Fédération acadienne de la Nouvelle-Écosse, or the Acadian Federation of Nova Scotia, some of whose ancestors lived in Grand Pré at the time of the deportation. “When the Acadians were expelled, the majority of their buildings and belongings were burned or disappeared,” she says. “When you dig and you find something that belonged to the Acadians, it brings that history back to light.”

**I**N MAY 2006, FOWLER was called to the Grand Pré marsh, where a machinery operator had unearthed a wooden sluice. This turned out to be an *aboiteau*, the linchpin of



Acadian artifacts excavated at Grand Pré include (clockwise from above) a silver cross; pieces of eighteenth-century redware pottery, most likely manufactured in New England; an eighteenth-century British wine bottle; and a burned sherd of redware pottery.



## FROM ACADIAN TO CAJUN

**W**HEN THE BRITISH DEPORTED thousands of Acadians from Nova Scotia and the surrounding region starting in 1755, they attempted to divide the exiles into small groups to prevent them from banding together and resisting or returning. Marginalized in their new communities, many Acadians ended up regrouping and settling in Louisiana. By 1800, more than 4,000 transplants were living in Nouvelle Acadie, or New Acadia, where they became known as Cajuns, a moniker derived from the pronunciation of 'Cadiens. However, little archaeological work has been dedicated to finding evidence of Louisiana's early Acadian settlers.

Among the most storied of these early arrivals was a group led by the brothers Joseph and Alexandre Brouillard. The pair had waged a legendary, if ultimately doomed, guerrilla campaign against the British in Nova Scotia after the initial deportations. In November 1764, they finally admitted defeat and left their homeland for the French colony of Saint-Domingue, modern-day Haiti. After a brief stopover there they continued on to New Orleans with nearly 200 compatriots, likely believing that it was also a French colony. However, the French had secretly ceded Louisiana



Bayou Teche, Louisiana

to the Spanish in 1762, but remained as caretakers of the colony until 1766. The acting French governor lauded Joseph Brouillard as a hero for his efforts against the British and offered his group land at Poste des Attakapas, west of New Orleans. Soon after arriving there, the settlers were devastated by an epidemic, possibly yellow fever. Alexandre died in September 1765, and Joseph died the next month at a camp known as Beausoleil, or Beautiful Sun, the brothers' shared nickname.

Mark Rees, an archaeologist at the University of Louisiana at Lafayette, leads the New Acadia Project and is attempting to uncover traces of Camp Beausoleil and two other clusters of homesites. These sites are thought to be located around the village of Loreauville on the natural levee of Bayou Teche, which was once a channel of the Mississippi River. Rees has excavated at a location he believes was one of these camps. Tin-glazed and other eighteenth-century ceramics have been found at three sites in all, including a location that may be Joseph Brouillard's final resting place. "The site is protected by the bayou on three sides and sits on the relatively higher ground of Teche Ridge," Rees says. "It appears to be the perfect strategic location for Camp Beausoleil."—D.W.



A detail of a 1748 map of Grand Pré and the surrounding area

Acadian dikeland agriculture. Essentially a hollowed-out white pine log, it was equipped with a valve that allowed water to drain out of the marsh but blocked seawater from entering as the tide rose. Sod, spruce brush, and wooden stakes were found packed around the aboiteau. The sod was densely matted with marsh grass whose roots grew together to help hold the dikes in place against the onslaught of the tides, while the stakes strengthened the structure, akin to how rebar reinforces concrete. "The preservation of the aboiteau was just stunning," says Fowler. "You could still see the ax marks, and the spruce boughs and marsh grass were still green. It was a really impressive sight." The aboiteau was dated to 1691 using dendrochronology, meaning it was put in place within the first decade after Grand Pré was settled. The sluice was found near the middle of the marsh, which is known to be where the Acadians began their land reclamation project. They then worked their way out, diking off the land section by section. By 1755, they had built nearly 19 miles of dike walls to reclaim nearly four square miles of tidal marsh and turned it into a network of highly productive fields.

The Acadians' agricultural plenty gave them access to luxury items through trade with New England merchants, evidence of which has been uncovered in the remains of Acadian houses excavated by Fowler and others. "Some of the Acadians were fairly wealthy, and we see that they're acquiring goods from England, from Germany, from Bohemia," says Ferguson. Among the artifacts Fowler has unearthed are British clay pipes, dishware from New England, and a silver cross, likely part of a ciborium, a vessel used to hold the Eucharistic bread. His and other excavations have yielded glass and ceramic items from across Europe, painting a picture of a cosmopolitan community.

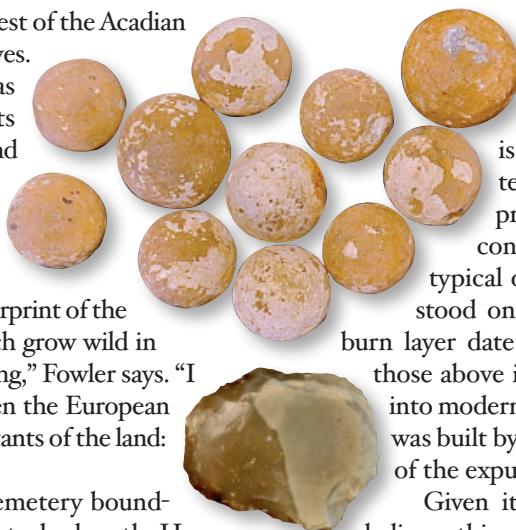
**W**HEN PARKS CANADA ARCHAEOLOGISTS identified grave shafts near Herbin's Cross in 1982, they unearthed nails and soil stains from the coffins, but the coffins and human skeletons had been eaten away by the site's acidic soil. Building on this discovery, Fowler has used

ground-penetrating radar to map the rest of the Acadian parish cemetery and located 289 graves. On two sides of the cemetery, he has identified thin lines that he interprets as fence lines demarcating its eastern and western edges. In one of these lines, Fowler unearthed carbonized seeds, including oats and peas, traditional staples of the French diet during the period, which he describes as “the fingerprint of the Acadians,” as well as blueberries, which grow wild in the area. “That shows a culture adapting,” Fowler says. “I can imagine the conversations between the European newcomers and the Indigenous inhabitants of the land: ‘Can I eat this, or will it kill me?’”

Just a few feet past the eastern cemetery boundary, Fowler found a thicker line of disturbed earth. He believes this demarcates where Winslow’s men built their palisade, a row of sharpened wooden stakes set in the ground, when they established their camp at Grand Pré in 1755. Winslow writes in his journal that he ordered that the palisade encircle the Acadian cemetery as well as the parish church. In this enclosed area, Fowler and his team have unearthed a large number of unfired musket balls, British gunflints, and gun parts, all left behind by Winslow’s troops. “The material that we’ve found is in a location that matches the description in the historical records for where the camp was located and, more specifically, where Winslow’s men pitched their tents,” says Fowler. “I recall feeling a kind of weight descend as we started pulling those musket balls out of the ground, with the knowledge that we were coming very close to the events of 1755.”

Still, the site of the parish church where Winslow read the deportation order remained elusive. “Our question was, did the people who built the memorial church to mark the spot get it right?” says Fowler. “There had been no professional archaeology done to ascertain whether that was true or not. It was all based on folklore and decisions that were made 100 years ago.” In surveys of Winslow’s camp, Fowler and his team had uncovered the cellars of two Acadian houses, but no foundations large enough to have been the parish church. Then, using magnetic sensing equipment, he detected a burned patch of ground measuring roughly 100 feet by 30 feet. When raised to a high temperature, iron, which

**Unfired British musket balls (left) and a British gunflint (below) excavated at Grand Pré were likely left by troops who arrived in 1755 to deport the Acadians.**



is abundant in soil, is magnetized. Fowler’s team carried out excavations of this footprint and determined that a timber building constructed using wattle and daub, which is typical of French colonial architecture, had once stood on the site. Artifacts unearthed below the burn layer date to the French colonial period, whereas those above it date to the late eighteenth century and into modern times, further evidence that the structure was built by the Acadians and then burned at the time of the expulsion or shortly thereafter.

Given its size, orientation, and location, Fowler believes this structure was likely the parish church. “It’s certainly the largest building of its kind in the vicinity and would have been large enough to hold the number of men and soldiers indicated in Winslow’s journal,” he says. The spot where the parish church appears to have stood lies some 175 feet east of the memorial church. On the surface, it looks like an undistinguished swath of lawn, and the burn layer detected by Fowler’s survey is barely visible to the naked eye. Still, for Rioux, as an Acadian descendant, the discovery of the church’s location is highly significant. “Every little element that is being found by archaeologists gives us a better understanding of what happened,” she says. “The fact that you can find proof that the church was there means we’ll be able to say, ‘This is exactly where the expulsion happened.’”

When the first New England colonists came to Nova Scotia five years after the Acadians were expelled, they encountered a landscape littered with bleached bones of livestock and burned ruins of houses. The dikes had fallen into disrepair due to neglect and storm damage, and the new arrivals had no idea how to repair them. To get the dikes up and running again, the provincial government turned to 2,000 Acadians who had avoided deportation but had surrendered or been captured in recent months. These Acadians, who had once reveled in their freedom to farm the land they had reclaimed from the sea and thrived on what they produced, were now put to work as poorly compensated laborers. With their help, the land would remain fertile and yield bumper crops for years to come, but the Acadians would have to stand by and watch as those who had taken their place reaped the rewards. ■

**In a trench at Grand Pré, archaeologists identified disturbed soil indicating a fence line (top right) that traced the edge of the Acadian parish cemetery and a palisade (above right) that enclosed the 1755 British military camp.**



Daniel Weiss is executive editor at ARCHAEOLOGY.

# SET IN STONE



New evidence reveals the surprising reach and influence of a little-known Mesoamerican culture

By MARLEY BROWN

**I**N AN EXHIBIT CALLED *La Grandeza de México*, or the *Greatness of Mexico*, at the National Museum of Anthropology in Mexico City, a stone statue of a woman holds pride of place. Including a base that was once buried in the ground, the statue stands some 6.5 feet tall and measures just over three inches front to back. The woman wears a long skirt that reaches her ankles and a loincloth decorated with three knots. Around her neck is an oval pendant of a type that would have been made from a decorated limpet shell. Most striking of her accoutrements is her headdress, which is tall, two-tufted, and flowing. Among its intricate parts is a diadem, which would have been strung with flat,

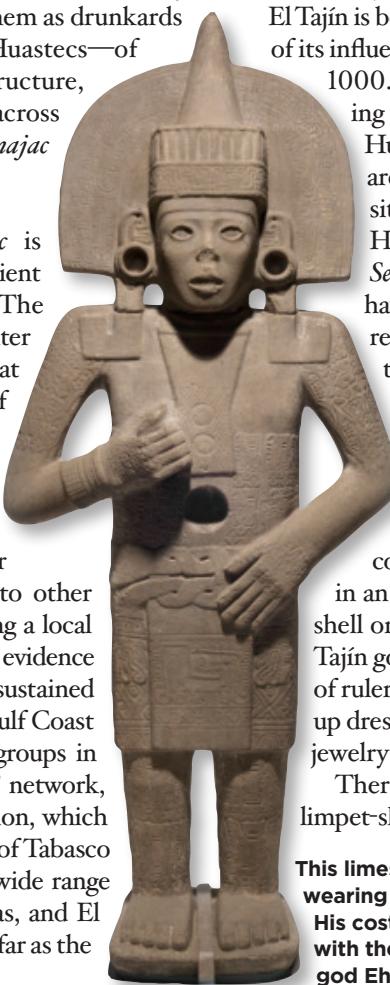
round beads, as well as tassels that echo the design of the tufts. Her torso is bare, and she wears armbands. Her hands are folded at her abdomen. She has arched eyebrows and a downturned mouth that is slightly open, as if she has just begun to speak. Her eye sockets are empty, but they may have originally been inlaid with colorful stones or black obsidian. She is unpainted now, but may once have been resplendent in green, yellow, blue, and red.

A limestone statue known as *La Señora de Amajac* depicts an elite woman from the Huastec culture of Mexico's Gulf Coast wearing an elaborate headdress and a pendant necklace.

The statue has been dated to the Mesoamerican Postclassic period, between roughly A.D. 900 and 1521, and is called *La Señora de Amajac*, or the *Lady of Amajac*, after the town of Hidalgo Amajac in the Gulf Coast state of Veracruz, where it was discovered by farmers clearing ground in a citrus grove in January 2021. *La Señora de Amajac* is similar to other statues found in the region. Researchers hope that analyzing motifs on the woman's costume and identifying the materials from which such clothing would have been made will reveal more about the little-known culture that created the statue—the Huastecs.

During the Postclassic period, the Huastecs occupied a wide swath of territory along the Gulf Coast of Mexico, including parts of the modern Mexican states of Veracruz, Hidalgo, San Luis Potosí, and Puebla. They left behind no writing. The region they called home, known as the Huasteca, was a cultural and linguistic melting pot. The term Huastec is also sometimes used interchangeably with Teenek, an Indigenous language that is still spoken in the region by some 170,000 people. Apart from sparse colonial-era accounts recorded by Europeans and others written by the Huastecs' Aztec rivals, who described them as drunkards and barbarians, the best record of the Huastecs—of their beliefs, their social and political structure, and their relationships with other cultures across Mesoamerica—is found in *La Señora de Amajac* and similar anthropomorphic statues.

**I**N THE MUSEUM, *La Señora de Amajac* is surrounded by works of art made by ancient cultures from across Mesoamerica. The placement is fitting. Art historian Kim Richter of the Getty Research Institute says that the Huastecs participated in a system of commerce and cultural exchange that spanned Mesoamerica, and that this exchange is reflected in the costume worn by *La Señora de Amajac* and in those portrayed on other Huastec statues. "These sculptures bear indications of strong cultural connections to other regions in Mesoamerica, while still expressing a local identity," says Richter. "There is ample artistic evidence from this period in the Huasteca of a sustained cultural dialogue with neighbors along the Gulf Coast in particular, as well as with more distant groups in central Mexico and Oaxaca." The Huastecs' network, says Richter, also extended to the Maya region, which includes parts of the current Mexican states of Tabasco and Chiapas, the Yucatán Peninsula, and a wide range of what is now Guatemala, Belize, Honduras, and El Salvador. They may even have made forays as far as the southeastern United States.



The Huastecs built several major ceremonial centers, including one at the site of Tamtoc, in what is now the state of San Luis Potosí, roughly 100 miles northwest of Hidalgo Amajac. There, archaeologists have discovered monumental structures and evidence of a sculptural tradition, including both statues and stelae, that date back to at least the early Classic period, around A.D. 200. Stelae from Tamtoc have stylistic similarities with some stelae from the major Veracruz city-state of El Tajín, some 140 miles to the southeast. That imagery, Richter explains, includes symbols relating to deities that the Huastecs and residents of El Tajín may have shared. "Monuments at El Tajín

include limited use of glyphs, which, with a few exceptions, are not typical of Huastec sculpture," says Richter. "This is most likely because the Huasteca region was so multiethnic and so multilingual that it just didn't make sense to convey ideas via text, but rather to convey common narratives and ideologies through imagery alone, particularly of people and costumes." Huastec elites, possibly wanting to project a cosmopolitan relationship with this major capital to the south, incorporated certain El Tajín-style motifs into their art.

El Tajín is believed to have begun to decline from the height of its influence by early in the Postclassic period, about A.D. 1000. Scholars suggest the Huastec culture was entering its prime around this same time. Discoveries of Huastec-style statues at sites in El Tajín's territory are evidence that Huastecs may have visited the site and the surrounding area. Iconography on Huastec statues from the period, including *La Señora de Amajac*, shows that Huastec elites may have deliberately borrowed from the El Tajín religious pantheon, possibly in order to bolster their political or spiritual authority at home.

Rex Koontz, an art historian at the University of Houston, has identified similarities between images on several Huastec stelae and statues and those portraying an El Tajín water deity. This god is depicted on a panel at El Tajín's ball court wearing a limpet-shell pectoral and engaging

in an act of self-sacrifice. "The Huastecs focused on shell ornaments that were related to very powerful El Tajín gods and incorporated them into their own ideas of rulership," says Koontz. "Later Huastec rulers ended up dressing as El Tajín gods and wearing the exact same jewelry seen at El Tajín."

There are examples of male Huastec statues wearing limpet-shell pectorals, but *La Señora de Amajac* is the first

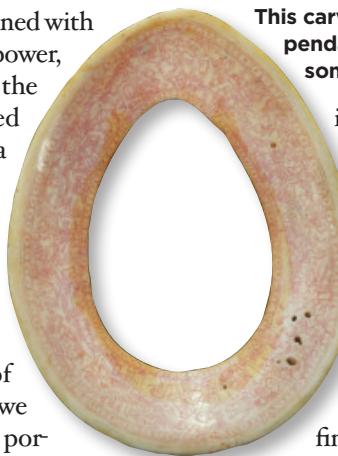
**This limestone Huastec statue depicts an elite man wearing a headdress and J-shaped ear pendants. His costume is embellished with motifs associated with the Mesoamerican feathered-serpent wind god Ehecatl-Quetzalcoatl.**

depiction of a female that Richter has seen adorned with such a pendant. This emblem of El Tajín status, power, and rulership may offer a clue to the role that the woman portrayed in *La Señora de Amajac* played in Huastec society. Archaeologist María Eugenia Maldonado Vite, who studied the statue on behalf of the Mexican National Institute of Anthropology and History, believes it depicts either a queen or the daughter of a powerful ruler. “*La Señora de Amajac* is wearing clothing and ornamental items that signaled her status and followed certain social customs and rules of the time,” she says. “This is just like the outfits we wear today.” Richter says that Huastec statues portraying females have been interpreted as representations of the Huastec fertility goddess Tlazoltéotl. However, the great variety of costumes seen in Huastec statues of women—they can range from nude to fully clothed and elaborately bedecked with jewels and regalia—suggests that the statues most likely depict real individuals rather than a particular deity.

Maldonado Vite says it’s possible that the statue was deliberately removed from its original location. Very few Huastec statues have been found in their archaeological context, as most were looted in the nineteenth century. Those that have been found in situ have been discovered on top of large platform mounds. The Huastecs, says Maldonado Vite, constructed settlements around monumental architectural complexes, in which one or more public squares were surrounded by administrative and ceremonial buildings and possibly housing for rulers. The Huastecs built structures atop large earthen mounds, which are sometimes all that remain of them. Researchers believe the highest levels of these buildings were likely reserved for elites. “The statues were clearly erected and displayed in elite spaces,” says Richter. “This underpins the



A carved panel decorating the ball court at the site of El Tajín in the Mexican state of Veracruz depicts a deity wearing a limpet-shell pectoral and engaging in an act of self-sacrifice.



This carved limpet or conch pectoral—the type of pendant worn by *La Señora de Amajac*—dates to sometime between A.D. 900 and 1200.

idea that they represent elites and were probably made for other elite individuals.”

**B**ECAUSE SO FEW HUASTEC sites have been excavated, there is less archaeological evidence in the form of foreign ceramics and other objects to tie the Huastecs into Mesoamerica-wide trade routes than there is for other cultures. Instead, by identifying the raw materials that would have furnished the finery depicted on Huastec statues, scholars can investigate the trade links that connected the Huasteca to other regions. Long, flowing headdresses such as that worn by *La Señora de Amajac* are interpreted as being made from the upper covert tail feathers of the male resplendent quetzal, a



A scene from the Codex Zouche-Nuttall, a painted manuscript probably made around the fourteenth century, depicts a ruler (right) wearing a headdress similar to those seen on Huastec statues.

bird native to southern Mexico and Central America. These possible quetzal feathers, as well as semicircular motifs and ray designs present in the statue’s headdress, have led Richter to compare it to the design of a large plumed crown from central Mexico that is commonly, but erroneously, referred to as Moctezuma’s Headdress. She also compares *La Señora de Amajac*’s headdress to one shown in a Mixtec painted manuscript known as the Codex Zouche-Nuttall, which was probably made in the fourteenth century.

The Huastecs are mentioned in the Codex Mendoza, which was made in the sixteenth century by the Aztecs and describes the history of the Aztec Empire and daily life before the Spanish conquest. The codex provides a list of materials, including cotton, cacao, textiles, quetzal feathers, and turquoise, that the Huastecs and other peoples sent to the Aztecs as tribute. “I have no doubt that the Huastecs were not only funneling these prized goods to the Aztecs but using them themselves and incorporating them into their costumes,” says Richter. “Their



territory was strategically located on trade routes along which all of these goods moved.”

Richter says that in addition to trade objects, forms of iconography and pictorial writing were shared by elites from many Mesoamerican societies during the Postclassic period. Imagery associated with certain gods, such as the Mesoamerican feathered-serpent wind god Ehecatl-Quetzalcoatl, is found at sites in central Mexico, the Maya region, and the Gulf Coast. Huastec carvers incorporated the attributes of Ehecatl-Quetzalcoatl into depictions of male elites on sculptures, including J-shaped or hooked ear pendants, collars, and shell motifs.

“The Huasteca in pre-Hispanic times was a region with diverse natural resources and fertile lands, which allowed for a large population to develop,” says Maldonado Vite. “For the same reasons, the region was the target of continual conquests from outsiders who wished to seize lands and the high-value commercial and luxury



**A Huastec statue depicts an elite woman wearing a headdress similar to the plumed headdress above. This type of headdress may have been made of quetzal feathers, which were exchanged across Mesoamerica.**

This headdress of gold and feathers from multiple species of tropical birds is called Moctezuma’s Headdress and is thought to have been made in central Mexico around the sixteenth century. Researchers compare it to a headdress depicted on Huastec statues.

products the Huastecs acquired through trade.” The Aztec Empire succeeded in conquering a substantial portion of the Huasteca around 1400. Much of what the Spanish learned about the Huastecs, and much of what is still written about them today, is based on Aztec accounts. The Huastecs may now have a chance to speak for themselves. In the fall of 2021, the government of Mexico City announced that a copy of *La Señora de Amajac* will replace a statue of Christopher Columbus at a roundabout on Paseo de la Reforma, an avenue that runs diagonally through the city. There, a statue of a woman who may once have been a Huastec queen will stand guard over an iconic thoroughfare less than two miles from the Templo Mayor, the main temple of the Aztec capital. ■

**Marley Brown** is associate editor at ARCHAEOLOGY.

# Exploring Notre Dame's Hidden Past

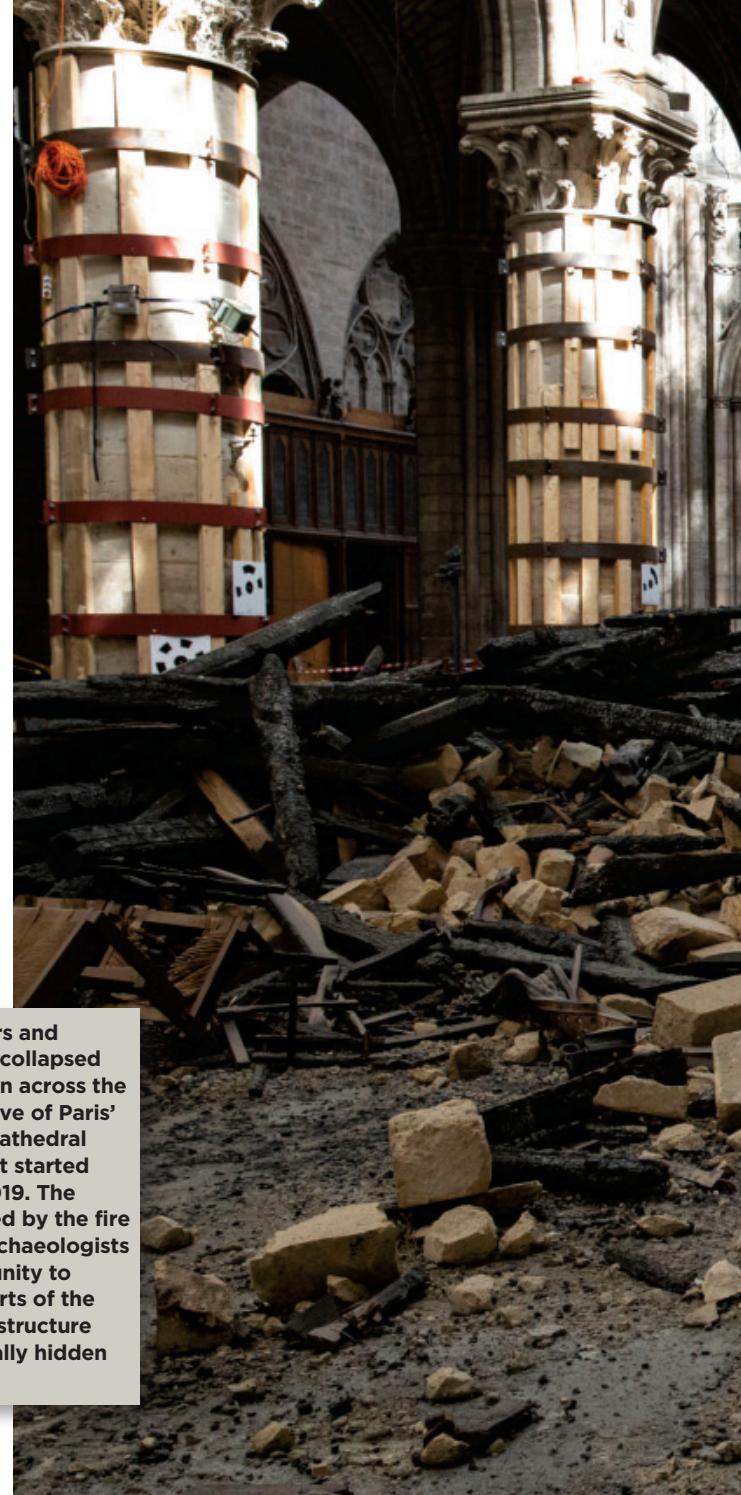
**The devastating 2019 fire is providing an unprecedented look at the secrets of the great cathedral**

By CHRISTINE FINN

THE FIRST MAJOR FIRE AT Paris' Notre Dame Cathedral burned through an August night more than 800 years ago. At the time, cathedral fires were not uncommon—the structures were tinderboxes of dry wood, textiles, hanging lamps, and burning candles. The twelfth-century chronicler Guillaume le Breton records that the inferno started when a thief broke into the cathedral's attic and, using ropes and hooks in an attempt to steal the candlesticks, set the silk hangings alight. Over the following centuries, there were almost certainly many more fires, but none as catastrophic as the one that began in the attic and engulfed the building on April 15, 2019. The cause of that conflagration remains uncertain; an electrical short circuit or damaged electrical cable in use during restoration efforts taking place at the time are the possible culprits.

For 15 hours, flames reaching nearly 1,200°F ate away at a large part of the cathedral's medieval wooden roof, which crashed onto the stone vaulting that forms its ceiling. The nineteenth-century spire that topped the building broke apart when the lead coating meant to protect it melted. The weight of the debris caused a ceiling vault to collapse, sending huge piles of burned wood and broken stone down to the marble floor of the nave. When the fire was finally extinguished, the scene was one of complete devastation and the atmosphere one of extreme concern. Parisians, along with those watching from around the world, wondered if the building was structurally sound, if the cathedral's spectacular stained-glass windows had survived, and if Notre Dame, which has been called the

**Burned timbers and stones from a collapsed arch are strewn across the floor of the nave of Paris' Notre Dame Cathedral after a fire that started on April 15, 2019. The damage caused by the fire has offered archaeologists a rare opportunity to investigate parts of the 800-year-old structure that are typically hidden from view.**



soul of the city—and of France—could ever be rebuilt.

The fire pared Notre Dame to its core, but the destruction is providing an unprecedented chance for scholars to investigate its history and reimagine its future. For archaeologists, the bent iron, burned roof timbers, and shattered stonework provide an opportunity to study a building that, despite its religious, architectural, and historic significance, is, in fact, poorly understood. Over time, the cathedral was modified to accommodate the requirements of a growing staff of clergy and an expanding congregation, as well as the increasing number of visitors to a building not designed for mass tourism, obscuring its medieval origins. Since the nineteenth-century renovation by architect



Eugène-Emmanuel Viollet-le-Duc, there has been little opportunity to study the cathedral's archaeological record.

Archaeologists and other specialists removed, sorted, and inventoried the collapsed remains from late April 2019 to spring 2021, after which the artifacts were transferred to rented warehouses in the northeast of Paris where they are available for study. What researchers have collected is considerable—about 10,000 pieces of wood, 650 pallets of stone, and 350 pallets of metal. “It’s impressive to have Notre Dame right there in front of us,” says archaeologist Dorothée Chaoui-Derieux of the French Ministry of Culture. “There is a certain emotion to have at hand blocks of stone that were previously

more than 100 feet up and about which little was known, or all this wood, some of which dates to the thirteenth century and still smells like burning from the fire.”

Chaoui-Derieux is chief curator of heritage at the Regional Archaeology Service based in the Île-de-France, the region including and surrounding Paris. She is part of a huge team that includes at least 100 researchers from the Ministry of Culture, the French National Center for Scientific Research, and the French National Institute of Preventive Archaeological Research (INRAP), all dedicated to studying and restoring Notre Dame. In addition to medieval archaeologists, experts in glass, metal, wood, and stone are investigating the materials



Scaffolding that had been erected for a renovation project melted in the 2019 fire. One of the cathedral's stained-glass rose windows, which were unharmed by the fire, is visible through an arch.

Notre Dame's builders used and discovering how their skill would safeguard the cathedral some eight centuries after it was constructed. This work will take many years, long past the planned reopening of the restored cathedral in 2024, and thus far, has raised more questions than it has answered. But the fire has led to an archaeological project like no other.

**T**HE HISTORY OF THE SITE that would eventually be home to the cathedral of Notre-Dame de Paris on the Île de la Cité, or City Island, is long and varied. Paris had its origins in the Gallo-Roman town of Lutetia, on the left bank of the Seine. It took its current name from the Parisii, a Gallic tribe that had permanently settled on the island by A.D. 25, although they may have inhabited it for centuries before as it was a convenient point at which to cross the river. The site was fortified in A.D. 308 by the province's Roman governor, and in the early sixth century A.D., the first king of the Franks, Clovis I (r. ca. A.D. 509–511), chose Paris as his capital and built a palace on the island. Later in the sixth century, Paris' first cathedral, the cathedral of Saint Étienne, or Stephen, the first Christian martyr, was built close to the south portal of the present-day cathedral. Many other buildings and monuments

were constructed over the next few centuries, most of which were torn down during eighteenth- and nineteenth-century development of the site, which included razing buildings deemed unsanitary during an 1865 cholera epidemic.

In 1163, the bishop of Paris, Maurice de Sully, began work on a new cathedral built of Lutetian limestone at the island's eastern end on the ruins of two earlier churches, including that of Saint Étienne, and, farther down, ruins of a temple dedicated to Jupiter dating to the city's Roman period. The current Notre Dame Cathedral measures 427 by 157 feet, soars 115 feet high, and can hold more than 6,000 people. It was mostly built by 1245, but not completed for another century.

Its role as a useful river crossing played a part in its selection for the new place of worship. At the time, many of the thousands of pilgrims who traveled each year from France to the holy site of Santiago de Compostela in Spain, as well as Crusaders who set out for Jerusalem, crossed the Seine. Many stopped on the Île de la Cité, making it an even more important religious site. It became the seat of the archbishop of Paris, which it remains today. It also became a lively commercial and residential area, home to clerics, servants, and merchants. In the thirteenth century, Notre Dame's importance was burnished

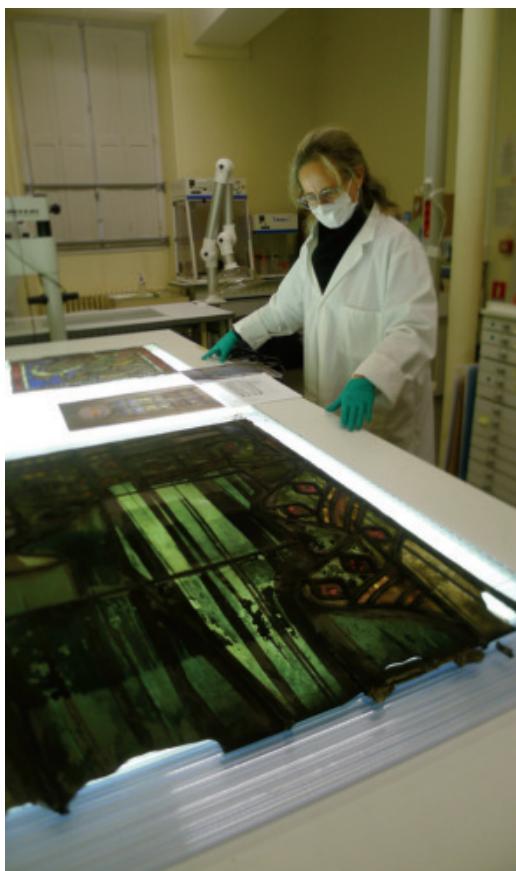


when relics from the Passion of Christ, including the crown of thorns, were brought to Paris from Jerusalem and placed in the cathedral. The building also housed a thirteenth-century tunic of Saint Louis. The crown, tunic, precious sets of candlesticks, and other relics were among the first objects saved from the 2019 fire. A copper rooster that had crowned the spire and contained relics of Saint Geneviève, the city's patron saint, was found by a restorer sorting debris on the street.

Notre Dame is built in the Gothic style, which was widely adopted between the mid-twelfth and sixteenth centuries across Europe. The size of Romanesque-style buildings constructed prior to and in the mid-eleventh century was limited by engineering challenges that had yet to be solved. By the time Notre Dame was built, architects had begun to find solutions to these problems, and the soaring, cavernous cathedrals of medieval Europe could be constructed.

The primary innovations that allowed gigantic Gothic cathedrals to stand, even though their walls are pierced with numerous huge stained-glass windows, are rib vaults and flying buttresses. Rib vaults are much lighter than the groin or barrel vaults that hold up Romanesque cathedrals. Because they are composed of diagonal, crossing arched ribs, the building's thrust—the outward pressure of a vault or arch—can be distributed out to the corners of the vault and down to the ground on thin columns and piers. Masonry buttresses on the cathedral's exterior—called flying because they are high on the wall—carry the tremendous thrust of the vaults and roof, making the high ceilings of Gothic churches possible. The massive cruciform interiors of these cathedrals could then be divided into the main aisle, called the nave; the arms that cross the nave, or transept; the space between the nave and the altar, called the choir; and additional aisles and chapels.

**A**S NOTRE DAME BURNED through the night and the sounds of raging flames, cracking stone, and falling roof beams filled the air, many lining the Seine held their breath for the sound of shattering glass that would signal the destruction of the cathedral's stained-glass windows. They were especially concerned about the immense circular windows—called rose windows because they resemble multi-petaled flowers—that are a defining feature of Gothic architecture. Throughout the medieval period, the designs for these windows were adapted to play with light and color, creating patterns as



**Glass specialist Claudine Loisel studies images of a nineteenth-century stained-glass panel from the cathedral that depicts King David.**

complex as carpets.

Notre Dame's rose windows sit over the north, south, and west portals and were completed in the early to mid-thirteenth century. They are the only windows in the cathedral to retain their original medieval glass. As daylight came up on smoldering embers, reports started to arrive from people who had trained their binoculars on the windows for hours: They were intact, thanks not least to the skills of the Parisian firefighters who had averted further disaster by aiming their hoses away from the glass as water pressure could have caused the windows to explode.

Though the rose windows were unharmed, colorful stained-glass panels by later artists that were part of Viollet-le-Duc's restoration did sustain some damage. After the fire, a panel depicting King David was brought to the Historical Monuments Research Laboratory, 15 miles from Paris, where glass specialist Claudine Loisel examined it for evidence of cracks due to intense heat. "There is some damage, but nothing catastrophic," she says. "Overall, the stained-glass windows are all in a good state of conservation with only a few occasional thermal breaks."

Glass is only one of the materials used in Notre Dame that specialists are now studying. The immense amount of lead used for the cathedral's medieval



**The nineteenth-century spire (below) that topped Notre Dame broke apart and collapsed in the fire. A copper rooster (left) that had crowned the spire was found by a restorer on a nearby street.**





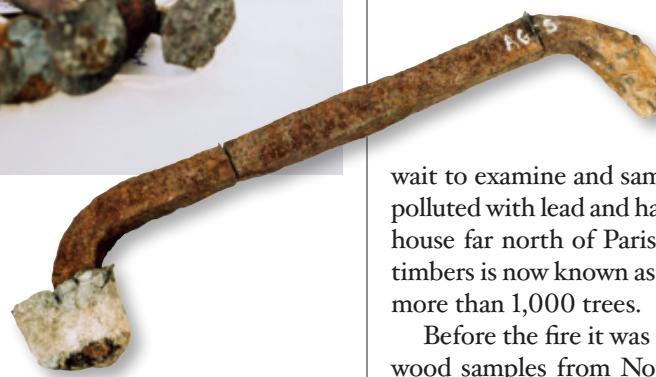
**Medieval nails (above) and a medieval staple (right) are among the large quantity of metal construction materials recovered from the cathedral after the fire.**

construction and nineteenth-century spire is both a curse and a blessing for modern scholars. During the fire, the heated lead emitted toxic fumes that lingered for months. But lead can also provide evidence of the provenance of materials and of the methods builders employed. Medieval archaeologist Maxime L'Héritier leads the group working on the metal from Notre Dame. Because of the poisonous emissions from the lead, he had to wait six months to access the cathedral's interior. He was finally allowed in, wearing a protective suit and using a respirator. "I remember the shock the first time," L'Héritier says. "We are researchers, but humans, too."

At the time the cathedral was built, lead was commonly used for roofing in major monuments, providing sealing for stones and the staples or metal pins inside columns, and as decoration. "Lead was a prestige material and lead workers were very important in medieval times," says L'Héritier. "Nails, staples, and iron pins can all be sealed with mortar or by pouring in molten lead which solidifies. In Notre Dame, most examples we saw, though not all, are sealed with lead." Hundreds of lead samples have been taken for isotope analysis and other chemical experiments. Researchers will also be able to track how lead materials were reused during past renovations and which ones might be reused as part of the current reconstruction.

The cathedral's nails, many of which were recovered from the burned remnants of its upper sections, are a significant part of the archaeological evidence. By studying the nails, researchers may be able to date some of the changes and repairs undertaken since the thirteenth century.

One major discovery after the fire is that staples were used throughout the entire construction process of Notre Dame.



These staples are currently being dated and analyzed to better understand where they came from, how they were made, and how they were used in the building. This will give scholars more information about the city's trading system during the medieval period. "Unlike other medieval buildings studied so far, many different iron sources seem to have been called for at Notre Dame," says L'Héritier. "These artifacts are keys to better understanding the Parisian iron market in medieval times."

One of the largest groups of researchers is now working on the wood recovered from Notre Dame. These archaeologists and dendrochronologists also had to

wait to examine and sample the burned timbers, which were polluted with lead and had to be removed to a dedicated warehouse far north of Paris. The collection of burned medieval timbers is now known as "the forest," and includes wood from more than 1,000 trees.

Before the fire it was difficult to obtain permission to take wood samples from Notre Dame, and dendrochronologists had dated just 70 samples. But the fire created an opportunity for more samples to be taken, possibly enabling researchers to answer questions about the chronology of the cathedral's interior. "We know that the frameworks of the choir and nave are medieval, and that the transept's framework dates from the nineteenth century," says Chaoui-Derieux. "It's now interesting to see whether they underwent several construction phases, and whether wood was replaced in certain sections."

**O**NE OF THE MOST DAUNTING challenges of the current work is surveying and documenting the cathedral's stones, many for the first time. This task falls to a 30-person team led by architectural historian Yves Gallet of Bordeaux Montaigne University. "What made an impression when I first went back to the cathedral after the fire was the direct access to the upper levels and vaults," says Gallet.

"There is a real opportunity for research, as well as to do something to help in the restoration of the monument."

The team's first objective was to assess what was origi-



**A stone (above left) from the cathedral shows signs of burning from the fire. Stones (above) from a vault that collapsed during the fire are now being cataloged by researchers.**

**Temporary wooden support structures  
have been erected to help fortify Notre  
Dame as it is restored and renovated.**



nal and what had been redone later in the north arm of the transept. The south arm was completely remade by Viollet-le-Duc in the nineteenth century, and initial indications from studying the stonework are that the frame of the north rose window was as well. Previously it was believed that the north window is just as

## LAYERS OF HISTORY

Scaffolding that had been erected for a restoration project at Notre Dame melted into the building during the April 2019 fire. Before workers removed this scaffolding, archaeologists had a unique opportunity to dig at the site. During this project, archaeologists from the French National Institute of Preventive Archaeological Research, overseen by Xavier Peixoto, dug three test pits. Two revealed little of interest, but the third brought to light a 10-foot-high medieval limestone quay wall that predates the Gothic church begun in 1163 and provides new evidence of the earlier history of the site.

The wall had first been discovered in 1918, at which time the lower part was dated to the pre-Roman Gallic period and the upper part to the Roman era. But according to Peixoto, the entire wall is medieval and dates to the end of the eleventh or first half of the twelfth century. "It's an important find because it's earlier than the cathedral and the episcopal palace of its builder, Maurice de Sully," Peixoto says. "Its position seems to indicate that the location of the episcopal palace of the 1160s was further north than previously thought, and not under the new episcopal house built by de Sully."

On top of the wall the team found a layer of fill corresponding to the period of the Gothic cathedral's construction that Peixoto interprets as landfill needed to build up the ground to construct the new episcopal palace. Atop the fill layer, the team uncovered construction debris relating to work to extend the palace in the

sixteenth century and a buttress dating to the 1300s that was found in a layer corresponding to eighteenth-century renovations of the cathedral. These discoveries provide evidence of the long and complicated history of Notre Dame that has until now rarely been seen.—C.F.



Notre Dame excavation



it was originally constructed in the thirteenth century. "It was a shock, in a way," says Gallet, "to realize that here, too, Viollet-le-Duc had to replace all the blocks around the rose."

Gallet's group has made additional significant discoveries since the fire. Part of their work is to identify notations left by the stonecutters, either to mark the stones they had cut themselves so they could be paid for their work or to indicate the direction in which a stone was to be laid. Analysis of the voussoirs—wedge-shaped stones used to form arches—recovered from the floor of the nave after the double arch above collapsed has shown that stonemasons carved crosses on one side. This detail has allowed researchers to redate the construction of the vaults. "These crosses were not used in the Île-de-France until after the 1220s," says Gallet. "This led to a rethinking of the chronology of the site."

There are also more modern marks. Close examination of the keystone, or central voussoir, in the south arm of the transept revealed the engraved date 1728. The inscription is not visible from below, and no one had ever documented it. "Until now, the scientific literature made no mention of these marks. It's therefore a novelty, and one which places Notre Dame in a very different perspective," says Gallet. "This is an unexpected date because art historians have always believed that this keystone dated either from the Gothic period or from the nineteenth-century restorations. We're still thinking about the best interpretation."

Perhaps the most extraordinary thing that Gallet's team has learned thus far is what role medieval craftspeople played in saving Notre Dame during the fire. "What protected the cathedral were its vaults," Gallet says. "Most of them resisted the fire, which was remarkable, especially as examination of the vaults since then confirms that the ribs are very thin, only around six inches thick, and had to support a 42-foot-wide vault that was 100 feet aboveground." The only major vault that collapsed did so because it was unable to withstand the sudden weight of the crumbling upper section of the spire. "The vaults played the role of firewall," says Gallet. "If there had been no stone vaults, the flaming beams of the roof would have fallen to the ground and shattered the stones of the supporting piers. And then the whole cathedral would have collapsed."



These pieces of decorative stonework from the cathedral depicting cherubs were damaged during the fire. They are now being restored before being replaced.



Burned timbers from Notre Dame's roof, along with other material salvaged after the fire, have been moved to a warehouse for further study.

**A** BUILDERS' CRANE NOW HOVERS over Notre Dame, a stark reminder on the skyline of where the cathedral's spire once stood. The metal scaffolding erected during the restoration work that was taking place when the fire started melted into and became part of the building. It has now been removed. Apart from continuing work on the thousands of artifacts recovered from the site, there may be other opportunities to learn more about Notre Dame, especially when the work of rebuilding gets fully underway. For example, if the renovation requires excavations to anchor temporary support structures, researchers might be able to study Notre Dame's original foundations, or perhaps even earlier remnants. (See "Layers of History," page 46.) "It's known that there were iterations of the building before the construction of the Gothic cathedral," Chaoui-Derieux says. "But few remains

of these buildings have been unearthed."

In the autumn of 2020, INRAP archaeologists carried out a geophysical survey in the cathedral's basement. A few feet under the paving they detected features they identified as part of the cathedral's nineteenth- and twentieth-century heating networks. Chaoui-Derieux describes certain other masonry finds as "archaeological anomalies," and says it's possible that they could belong to a previous version of the cathedral, or could even be vestiges of Roman structures. Once again, the unique circumstances of the fire enabled this investigation. "It was indeed the first time this was done at Notre Dame, and probably one of the last," Chaoui-Derieux says. Nevertheless, the possibilities continue. "What intrigued me at Notre Dame when I was a student was those parts of its history that we do not see—the earlier cathedral, the buildings of the early Middle Ages—in short, everything which disappeared with the construction of the Gothic cathedral," says Gallet. "This is one more step in our treasure hunt." ■



Huge holes were created in the ceiling when the cathedral's spire collapsed, taking down parts of the medieval wood roof and stonework.

# A Monumental Imperial Biography

**How Constantine's architects pieced together the past  
to create a new vision in the heart of Rome**

By JARRETT A. LOBELL



The Arch of Constantine was dedicated in A.D. 315 at a busy intersection along the Triumphal Way, near the Colosseum. It celebrates the emperor Constantine's (r. A.D. 306-337) victory over his rival

Maxentius at the Milvian Bridge outside Rome. The majority of the sculpted decoration was taken from monuments to earlier emperors of the second and possibly third centuries A.D.





*For the Emperor Caesar Flavius Constantine the Greatest, pious blessed Augustus, because by inspiration of divinity, in greatness of his mind, from a tyrant on one side and from every faction of all on the other side at once, with his army he avenged the republic with just arms, the Senate and Roman People (SPQR) dedicated this arch as a sign for his triumphs.—Dedicatory inscription, Arch of Constantine, Rome*

**T**HE PINNACLE OF AN ancient Roman general's or emperor's military career was to be awarded the right to parade through the streets of Rome to celebrate his victories on the battlefield and flaunt the spoils of war in an extravagant display known as a triumph. During these grand spectacles, Romans watched as senators clad in brilliant white togas trimmed in purple made their way through crowded, noisy streets, followed by trumpeters and scores of other musicians, bulls to be slaughtered for feasts, and exotic animals captured in far-off conquered lands. Shackled prisoners, many of whom would later be executed, were hauled through the city, and heaping mounds of booty—gold and silver, marble statues, and more—were piled high on wagons pulled by draft animals. People craned their necks as the victorious general rode by in a four-horse chariot covered in laurel, the symbol of

once 57 triumphal arches in Rome and more across the empire. Yet little is known about the vast majority of these monuments from contemporaneous or later sources, and no remains of them survive. Only three of the city's triumphal arches still exist, the largest of which is the Arch of Constantine.

The arch celebrates the emperor Constantine's (r. A.D. 306–337) victory over the usurper Maxentius (r. A.D. 306–312) at the Milvian Bridge just outside Rome on October 28, A.D. 312. For six years, the two had reigned as co-emperors. This battle brought an end to nearly a century of civil war and cemented Constantine's place as the sole ruler of the Western Roman Empire. Sole rulership of the Eastern Empire would come 12 years later, at which time he became the ruler of the entire empire. The monument rises 69 feet high and measures 85 feet wide, and its decorations represent three centuries of imperial history. It has long been clear to scholars that much



One of the arch's reliefs—now suggested to have been reused from a monument to the emperor Diocletian (r. A.D. 284–305)—shows Constantine (far left) entering Rome. Diocletian's head was removed and replaced by a head of Constantine, which has since fallen off.

The inscription at the top of the arch honors the emperor's victory over Maxentius. It is surrounded by sculptures of Dacian soldiers made for a monument commemorating victories of the emperor Trajan (r. A.D. 98–117).

victory, holding a scepter and wearing a purple tunic, a decorated gold toga, a laurel wreath, and a gold crown. He was followed by his troops, whom ancient sources describe as singing loudly and shouting victory chants.

Celebrating great military victories did not always end there. On occasion, the Senate also voted to build a monumental arch to celebrate the commander's conquests. There were



This scene from the arch depicts Constantine (center) giving money to his subjects. The separately carved head of the emperor is missing, and many people are shown without legs or feet, possible evidence that the panel was taken from a monument to Diocletian and reused.

of the arch's sculpture came from monuments dedicated to the earlier emperors Trajan (r. A.D. 98–117), Hadrian (r. A.D. 117–138), and Marcus Aurelius (r. A.D. 161–180). Other decorative elements of the arch were created at the time it was built. These include the dedicatory inscription along the top of both sides of the structure, as well as the winged victory figures flanking the central passageway and several reliefs inside the central passageway, some of which depict the sun god, Sol. The monument was topped by a gilded bronze statue of the emperor in his chariot.

Scholars have always believed that the six slabs of the frieze, which are above the two small arches at both the monument's front and back, as well as on each of its two sides, are also Constantinian-era components. But University of Pennsylvania archaeologist C. Brian Rose has a different idea. "I always wanted to look into the problem of why the emperor's heads were clearly re-carved and why the legs and feet of so many people depicted on the frieze are missing," he says. "The more I read, the more interested I became and the more I thought these reliefs must be reused elements from some other monument." This would, says Rose, mean rethinking more than a century of scholarship and creating a new biography of the arch.

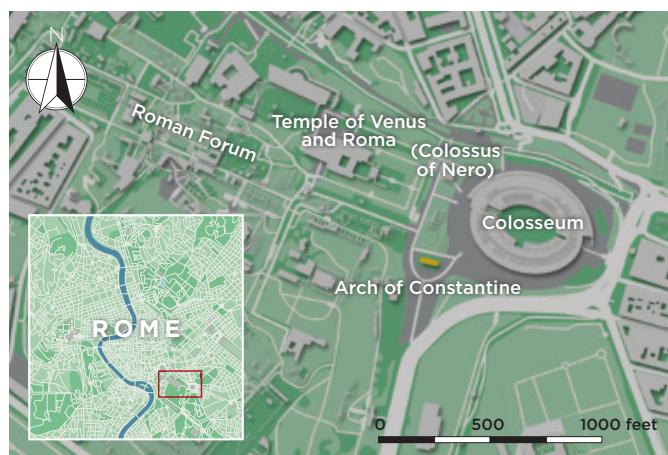
In reconsidering the monument's creation, scholars are also investigating how ancient viewers would have experienced it, and indeed this entire quarter of the city, which was packed with monuments dating from all periods of Rome's past. By Constantine's time, Rome had a 1,000-year history, and very little space remained in the city center for his architects to honor him. How they solved

this problem and created a uniquely Constantinian space is a testament not only to their skill, but also to their understanding of the complex realities of the late Roman Empire, where awareness of the past was one way to ensure success in the future.

**R**EPURPOSING PIECES OF architecture or architectural sculptures, often called *spolia*, or spoils, in new buildings was extremely common in ancient Rome. "There were monuments all over the city that either were torn down, falling down, or were never completed," says Rose. "Pieces from these monuments were often warehoused and reused later." This was especially the case after a fire devastated the city in A.D. 198.

The greatest challenge for the senators who voted to fund the construction of Constantine's arch was that they had only three years to complete it after the emperor's victory over Maxentius so it would be ready for his *decennalia*, the celebration of 10 years of rule. "I think they used spolia because they wanted to do it quickly and cheaply," Rose says. While the arch itself was purpose-built for the emperor, the builders would have searched their warehouses for scenes to showcase his virtues and military prowess. They eventually located nearly all they required.

The eight statues along the top of the arch were taken from the Forum of Trajan in Rome and depict enemy soldiers captured during his victorious early second-century A.D. campaigns against the Dacians in what is now Romania. Four slabs just under the arch's roof and in its central passageway also depict scenes of the Dacian Wars. Between the Dacian soldiers, there are sculpted panels from a monu-



ment to Marcus Aurelius, possibly a triumphal arch. On the south side, the panels portray the emperor undertaking military duties such as welcoming an allied king, addressing his troops, and carrying out sacrifices before battle. On the north side, the panels include images of the victorious general returning to Rome accompanied by Mars, the god of war, and distributing funds to the populace. The eight sculpted roundels, or circular panels, on the arch were originally part of a monument built for Hadrian and show him hunting and performing sacrifices to Silvanus, the god of the woods; Diana, the goddess of the hunt; the god Apollo; and the semidivine hero Hercules. All the heads of Hadrian in these roundels were recut to transform them into a young Constantine. Although the ancient builders had these elements in hand, there was still the frieze for them to consider. Rose believes that, like the other sculptures, its panels were there for the taking.

**T**HE ARCH OF CONSTANTINE's frieze is composed of six carved marble slabs depicting different scenes, five of which include the emperor: his *adventus*, or formal entry into Rome; an *oratio* in which he delivers a speech in the forum; a *liberalitas* in which he gives money to his subjects; a battle by a river; and troops besieging a walled city. The sixth shows a marching army.

When viewed from afar, these scenes are easily recognizable. Upon closer examination, however, four of them reveal some puzzling details—namely that the emperor's heads were carved separately and that the legs and feet of many of the people depicted in the reliefs are missing. If the panels were carved expressly for Constantine's monument, Rose reasons, why would the emperor's head have been crafted separately, something that Roman sculptors never did? “The carving of heads as part of a relief's surface is a feature of every imperial relief that has ever been found,” Rose says. “If they were carved separately, they would have been much less likely to remain attached.”

Rose suggests that at least four of the panels on the arch—the river battle, *adventus*, *oratio*, and *liberalitas*—were, in fact, taken from an unfinished triumphal monument, likely an arch, commissioned for the *vicennalia*, or 20 years of rule, of Diocletian (r. A.D. 284–305) in A.D. 303. During construction of the

new arch, Rose argues, Diocletian's heads were removed and replaced with heads of Constantine, which, not incidentally, have now fallen off these four panels. And as to the missing legs and feet? Rose believes they were cut off in the process of removing the panels from the existing monument before being reinstalled on the new arch. “I think that when they cut them off, they did it relatively rapidly,” he says. “They knew that it didn't really matter if they had feet because it would be so high up no one would see this from the ground anyway.”

It is unusual, too, Rose explains, that the frieze's scenes do not form a continuous narrative, as is the case on every other known triumphal arch. “An arch's frieze normally shows a triumphal procession,” he says. “I wouldn't expect that there would be six scenes from different places at different times if they were made for the arch.” The scenes depicting Diocletian were easily adapted to show Constantine. The Battle of the Margus River, which pitted Diocletian against his rival emperor Carinus (r. A.D. 283–285) in what is now Serbia—the first civil war scene ever included on a Roman triumphal monument—was transformed into the conflict at the Milvian Bridge pitting Constantine against Maxentius several decades later. And the scenes of the victorious emperor's arrival in Rome, his speech, and his largesse, says Rose, were as appropriate for Constantine on his tenth anniversary as they had been for the earlier emperor on his twentieth.

**W**HEN COMPLETED, THE massive arch stood proudly near the end of the Triumphal Way, the ancient route of triumphal processions, amid a multitude of other imposing structures. These included earlier triumphal arches, the Colosseum, which dates to the first century A.D., and Hadrian's Temple of Venus and Roma, Rome's largest temple. This was one of the most heavily trafficked intersections in the city, and the arch was likely one of the most viewed monuments in Rome.

Past scholars have interpreted the reliefs as intended to link Constantine with the so-called good emperors—including Trajan, Hadrian, and Marcus Aurelius—of the second century A.D., a period of peace and stability. But Rose doesn't believe the average viewer would have been sensitive to this message.



This relief was made expressly for the arch and shows Constantine (center) and his army besieging a city. In this panel, the emperor's head was carved as part of the original design and, although damaged by age and weathering, has remained attached.

ing or have been disturbed by, or even aware of, the reuse of parts of a monument to Diocletian, an emperor who reigned at the end of the chaos and turbulence of the third century A.D. “I very much doubt if anyone who saw the arch would have known all of the monuments from which the sculptures came,” says Rose. “The heads were recut, and the point was to convey the virtues of the new emperor, not link him to any specific emperors of the second century.” Art historian Elizabeth Marlowe of Colgate University agrees that while they may not have recognized the particular monument from which a sculpture or panel came, nevertheless people would have been aware that they were taken from an earlier structure. “I think people would have known that those reliefs were older,” she says. “Constantine did so much in this part of the city to connect old Rome with the new Rome under his rule that I think this was a space where a viewer would expect to see that.”

Constantine decided not to clear out room in this highly symbolic area of the city to create his own forum, as many of his predecessors had. “He was the first emperor to see the center of Rome as a historical landscape and to think of it as an inherited architectural heritage to preserve and, when appropriate, to make his own,” Marlowe says. “Constantine was picking pieces of Rome’s long, imperial history and repackaging it—and himself—in a self-conscious way.” For example, the massive basilica built by the emperor’s rival Maxentius not far from the Colosseum was rededicated to Constantine, its entrance and orientation shifted, and a huge, seated statue of the new emperor placed in the structure to “offer the spectator a totally new, Constantinian experience of the building,” says Marlowe. This stands in stark contrast, for example, to the treatment given to the Domus Aurea, or Golden House, the gargantuan private palace built by the emperor Nero (r. A.D. 54–68) on the Palatine and Esquiline Hills overlooking this part of the city. After Nero’s suicide, his successors largely covered over the Domus Aurea and turned the new space into a public park. Other parts of the palace were torn down to make room for the Colosseum.

Marlowe believes Constantine also fashioned another very deliberate link to Rome’s past when selecting the location of his arch. To accommodate the arch in this densely packed, monument-filled area, Constantine’s architects made the unusual decision to erect it in an open space next to the Colosseum, at an odd angle to the Triumphal Way, not straddling it, as many previous arches had. “We think of the Roman notions of space as right angles and grids and symmetry,” Marlowe says. “The idea that they would build this monument even a little bit off-center radically defies our ideas of what Roman architecture and city planning were about.” Because the arch was not centered on the road, Marlowe explains, the emperor was able to mark the location with a Constantinian stamp.

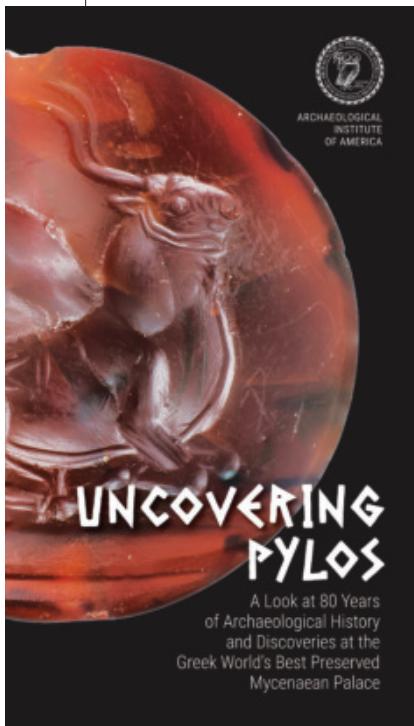
At the time, a 125-foot-tall gilded bronze statue stood just



A round panel from the arch was made for a monument to the emperor Hadrian (r. A.D. 117–138). It shows the emperor (mounted at right) on a wild boar hunt. The earlier emperor’s head was re-carved to look like Constantine.

over 350 feet from where the arch was to be erected. The colossus had originally been created to loom over the Domus Aurea and depicted Nero, or perhaps Nero as the sun god, Sol. It was moved to its location near the Colosseum by Hadrian during construction of the Temple of Venus and Roma. Rather than tear down the statue, which by that point had stood for 250 years and was likely a beloved landmark and symbol of pride for the city, Marlowe says that Constantine sited his new arch—itself a monument jammed with references to the past—so that a passerby walking down the Triumphal Way would see the immense statue framed by the new monument. “At some point the colossus would have been perfectly framed by the arch’s center passageway and would have lined up directly with a huge gilded bronze figure of Constantine in his chariot on the arch’s roof,” she says. “As you got closer, the glowing statue would have appeared to almost be descending until it completely filled the space of the arch. This would have gone a long way toward reassuring Romans and the Senate that Constantine respected the past, and toward cementing his relationship to Sol, a long-revered deity with whom he wanted to be identified.” When one finally reached the arch, it would have come as no surprise, then, to see Sol represented in many locations on the arch along with Constantine and the previous emperors. “The arch is something new and old at the same time,” Marlowe says. “It is, in fact, a microcosm of the whole city and its history.” ■

Jarrett A. Lobell is editor in chief at ARCHAEOLOGY.



ARCHAEOLOGICAL INSTITUTE OF AMERICA

# UNCOVERING PYLOS

In 1939, an archaeological team led by University of Cincinnati professor Carl Blegen unearthed the first traces of what would soon be recognized as the ancient Greek city of Pylos and the fabled Palace of Nestor. Celebrated as one of the greatest discoveries of its time, it would forever change the study of Aegean prehistory. The 3,200-year-old ruins are the best-preserved

Mycenaean palace complex ever excavated in Greece, and the hundreds of inscribed Linear B tablets found there have provided archaeologists with a unique window into how these Bronze Age centers functioned.

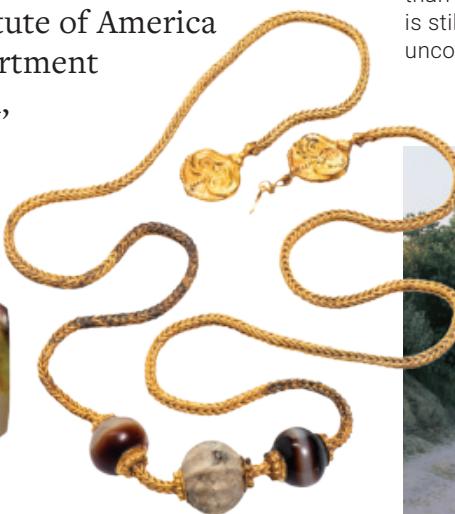
Almost eight decades later, the legendary site continues to reveal its incredible hidden treasures. Additional discoveries in 2015 and 2017 would once again indelibly change the field of Aegean Bronze Age archaeology: the grave of the so-called Griffin Warrior and two monumental tholos tombs. The burials contained a trove of finely crafted objects that have provided even more new information about the people who lived and died in Pylos thousands of years ago. These new discoveries continue to prove what an exceptional place ancient Pylos once was, and that, although the site has been investigated by archaeologists for more than three-quarters of a century, there is still much to be learned today while uncovering Pylos.

The AIA has created *Uncovering Pylos*, a special publication highlighting the history and archaeology of this ancient site.

**To receive your copy of *Uncovering Pylos*, make a \$25 donation to the Annual Fund. Go to [archaeological.org/donate](http://archaeological.org/donate)**

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The AIA thanks Richard C. MacDonald for his generous support of the *Uncovering Pylos* Project.



A tree stump from an ancient submerged forest that is at least 6,000 years old protrudes from a beach at low tide at Pett Level in Sussex, England.

LETTER FROM DOGGERLAND

# MAPPING A VANISHED LANDSCAPE

**Evidence of a lost Mesolithic world lies deep beneath the dark waters of the North Sea**

by JASON URBANUS

**O**n a September night in 1931, the British fishing vessel *Colinda* was sailing 25 miles off the Norfolk coast of England near the North Sea's Leman and Ower Banks. Trawlers like *Colinda* operated by dragging nets across the sea floor, scooping up everything in their path—fish, shells, seaweed, or otherwise. As the crew hauled up their net from a depth

of 120 feet, the boat's skipper, Pilgrim Lockwood, noticed a large block of peat among the catch. As he smacked it with his shovel to break it up and toss it overboard, he hit something hard, which he later recalled sounded like striking metal. Upon examination, Lockwood noticed an unusual object embedded in the clump. It was 8.5 inches long, with a barbed edge, and

appeared to resemble some sort of prehistoric harpoon carved from bone or antler. Its discovery would soon alter the field of European prehistory and open the doors to a vast now-submerged landscape hidden beneath the North Sea. After the last Ice Age ended, this became the heartland for generations of European hunter-gatherers before it disappeared under the

## LETTER FROM DOGGERLAND



sea 8,000 years ago. Today, this lost world is known as Doggerland.

Experts from the British Museum who examined the Colinda harpoon, as it came to be called, determined that it likely dated to the Mesolithic period (10,000–4000 B.C.), the era of the hunter-gathers who lived just before the advent of agriculture. Archaeologists wrestled with the question of how such an object had ended up more than 20 miles offshore at the bottom of the North Sea. It seemed unlikely that prehistoric mariners could have dropped it during a fishing expedition, given the limited long-distance seafaring capabilities they possessed at the time.

The scientific world was shocked the year following the artifact's discovery when pollen analysis carried out on peat extracted from the Leman and Ower Banks indicated that, although it lay 120 feet below the sea, the deposit had formed in a freshwater environment, not a marine one. Whoever had lost the harpoon had done so while walking across land. This revelation was groundbreaking. Although some scholars had theorized that the North Sea was once much lower, as evidenced by the remnants of ancient forests that occasionally protrude out of tidal flats at places such as Pett Level in Sussex, England, the Colinda harpoon was the first tangible piece of evidence suggesting that an extensive landmass had

once connected Great Britain to the continent. "It's an important object because the idea became clear that not only was this a landscape that was not always sea," says Luc Amkreutz, curator of prehistoric collections at the National Museum of Antiquities in Leiden, "but that it must have been one inhabited by humans."

Throughout the later twentieth century, further evidence of this drowned world continued to be dredged up by fishing nets, as trawlers raised bone, antler, and stone artifacts that had lain along the seafloor for thousands of years. In the late 1990s this mysterious Mesolithic land finally received a name. The term Doggerland was coined by University of Exeter archaeologist Bryony Coles, who named it after Dogger Bank, a submerged sandbank 60 miles off the English coast frequented by Dutch fishing vessels known as doggers.

This was an area of the North Sea that was proving particularly bountiful in Mesolithic artifacts. However, Doggerland remained frustratingly inaccessible to archaeologists as the deep, murky waters of the North Sea impeded exploration by divers. By the beginning of the twenty-first century, 70 years after the discovery of the Colinda harpoon, there remained just as many questions about Doggerland as answers. The investigation into it had reached a dead end. "People said, 'We know there is something out there, but we can't do anything about it, so let's move on,'" says University of Bradford archaeologist Vince Gaffney. Doggerland remained tantalizingly close, yet still very far away.

Before researchers could determine if and where any archaeological sites might have survived within Doggerland, they had to figure out where its people lived. The North Sea basin covers tens of thousands of square miles, stretching from

England to Scandinavia. Since it was nearly impossible to formulate an accurate idea of what Doggerland's landscape looked like when the last Ice Age ended, it was challenging to know where to even begin looking. According to Gaffney, even with all the technology available today, very little is known about Earth's oceans and seafloors. "We know more about the surface of the moon," he says.

To try to solve this nagging problem, Gaffney and a small group of colleagues turned to a resource not commonly used by archaeologists—offshore commercial oil and gas companies. For decades, the petroleum industry had conducted seismic reflection surveys of the North Sea to locate and map mineral deposits. To do this, sound and shock waves are transmitted from a ship and aimed at the seafloor. As they strike different contours, subtleties, and anomalies in the Earth's crust, the seismic waves are reflected back to the ship at different frequencies and recorded. This data can then be used to produce 2-D and 3-D maps.

Gaffney acknowledges that the team's unlikely appeal to the petroleum industry seemed like a long shot. This was especially the case as the technology was designed to probe deposits much deeper under the seafloor, and it was far from certain that it could be used in the way the researchers hoped. "We were a bunch of nobody archaeologists going in and saying, 'We are looking for a land that nobody has ever seen. Could you just give us some of your data, which cost hundreds of millions of dollars to collect, and can we have it for free?'" Gaffney says. Fortunately for him, he had a colleague who had a contact



The antler spearpoint known as the Colinda harpoon was scooped up by a fishing trawler in 1931 near the Leman and Ower Banks of the North Sea.



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## LETTER FROM DOGGERLAND

at one such company, Petroleum Geo-Services (PGS).

PGS agreed to hand over what it considered a tiny amount of data on an area of 2,300 square miles. It was the largest geophysical survey ever made available to archaeologists. Within weeks, the outlines of a huge river that ran across the Dogger Bank 10,000 years ago began to appear on a computer screen. This was the very first image of Doggerland. To the surprise of many, more and more of the landscape was gradually pieced together. "People thought we were misinterpreting the data because we were archaeologists," Gaffney says. "But at that point, we knew it was going to work."

In the 15 years since those early images came to light, researchers have obtained increasing amounts of data. The map of Doggerland has expanded, and it now encompasses an area of more than 17,000 square miles. Computer models have revealed thousands of miles of rivers and coastline, dozens of freshwater lakes and estuaries, and many hills and valleys. Soil and pollen analysis of sediment cores and peat samples has provided further information about the region's climate, vegetation, and wildlife.

The floor of the North Sea is now recognized as the largest well-preserved prehistoric archaeological landscape in the world. It would have been a paradise for the bands of hunter-gatherers who followed the retreating ice sheets into the region to settle there. They, however, were not Doggerland's first inhabitants. Millennia prior to their arrival, the North Sea basin had belonged to Neanderthals, who lived there for hundreds of thousands of years. During the last Ice Age, between roughly 125,000 and 15,000 years ago, Doggerland was part of the cold and dry



A map of Doggerland as it looked around 11,000 years ago at the beginning of the Holocene Epoch. The red outlines mark today's coastlines of Great Britain and Europe.

mammoth steppe. Because vast quantities of water were trapped in glacial ice sheets, the North Sea was around 450 feet lower than it is today. It was a mostly treeless, grassy plain that attracted mammoths and woolly rhinoceroses as well as herds of reindeer, horses, and aurochs.

After tens of thousands of years of dramatic shifts in the climate, with alternating warm and cold periods, around 10,000 years ago temperatures began to steadily climb. This marked the end of the Ice Age and ushered in today's current warm period, known as the Holocene Epoch. As the glaciers melted, water inundated Doggerland, creating rivers, lakes, and marshes. Trees sprouted, growing into forests of pine and birch, and later, oak, hazel, and elm. Mammoths, woolly rhinoceroses, and saber-toothed

A perforated pick made from the leg bone of an aurochs was dredged up from Brown Bank.



cats gradually disappeared and were replaced by countless new species. Gone, too, were the Neanderthals. In this blossoming landscape, Mesolithic hunter-gatherers arrived and flourished. "During the Holocene, Doggerland was a wooded environment, but with really extensive coastlines and enormous wetlands. These were the richest areas to live in," says Amkreutz. "There were forest resources—deer, wild boar, and berries—but also fish, migrating birds, otters, and beavers. It was a Garden of Eden for them, a wetland wonderland."

Until recently, Mesolithic peoples have remained something of an enigma to archaeologists and have been largely overlooked. The people of the earlier Paleolithic period are lauded for their finely crafted stone tools and sophisticated art, such as the cave paintings in Lascaux, France, while the Neolithic age, which followed the Mesolithic, saw the widespread introduction of agriculture and the first permanent settlements. Because Mesolithic societies were mostly nomadic, they left behind very few identifiable archaeological sites. Their material culture consisted largely of small arrowheads and points, which scholars have considered unimpressive compared to those of the Paleolithic people who preceded them and the Neolithic people who followed. "They didn't create beautiful cave art and they didn't have settlements like the Neolithic farmers," Amkreutz says. "In most cases, only the lithics survive, so it's a very difficult story to tell." However, recent research into Doggerland is beginning to finally reveal their story in ways that were not previously possible. The mapping of the Doggerland landscape has been one step that has helped provide new insight into the Mesolithic era and its people. Another step has been close analysis of the objects they created and used every day.



**These large and small barbed spearpoints and arrowheads were carved from bone and antler by Doggerland's Mesolithic inhabitants.**

In the nearly a century following the Colinda harpoon's discovery, fishing vessels have recovered many additional Mesolithic artifacts. Hundreds more have been plucked from beaches in the Netherlands. Over the past 50 years, Dutch authorities have carried out immense land reclamation projects, both to reinforce the sandy barriers of their low-lying coastlines and to expand harbor infrastructure in and around Rotterdam. This has involved extracting massive amounts of sand from the bottom of the North Sea and redistributing it along the Dutch shoreline. During this process, archaeological evidence is sucked up along with the sand and sprayed onto the

beaches at places such as Sand Motor and Maasvlakte I and II, where they are then harvested by collectors and brought to the attention of experts such as Amkreutz. "I am sometimes amazed by the sheer number of finds," he says. "If you assume this is a vast natural landscape, it is quite surprising how many of the objects have been touched or made by human hands."

Artifacts found by collectors include stone tools such as arrowheads, axes, hammers, and adzes, as well as almost 2,000 barbed points made from bone or antler. These beach finds, combined with those netted by fisherman, have created an astounding inventory of objects that



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## LETTER FROM DOGGERLAND



**A boat with an attached dredger sucks up sand from the seafloor and sprays it along the shore at Sand Motor in the Netherlands to create and reinforce the coastal barrier.**

were used by Doggerland's inhabitants. In the past these artifacts were commonly disregarded by archaeologists since they lacked context, but that has changed. "Until about 10 or 15 years ago, they were deemed rather worthless," says Amkreutz. "But there are new techniques that are allowing us to get a lot of data out of these finds."

Researchers are now studying the stone, bone, and antler projectile points to learn which materials were preferred and where they were sourced. They are analyzing how these tools were made and hafted, and how they evolved and changed shape over time. The remains of butchered bones suggest how animals were hunted and which species were consumed. Amkreutz and his colleagues are even

starting to learn about the people themselves and their behavior. Because the oxygen-free conditions of the North Sea's deposits preserve organic materials extremely well, they are able to extract DNA from human skeletal remains found on the seafloor. This is providing information about individuals' sex, age, and physical characteristics, while isotope analysis is producing data about their diet and geographic origins. Some evidence, such as strange postmortem cut marks on human bone fragments, suggests that Doggerland's Mesolithic people may have even performed rituals on their dead. "We are going to try and squeeze out every bit of information we can from these displaced finds,"

Amkreutz says.

— even though  
— there  
— have been

**The jawbone and teeth of a Mesolithic hunter-gatherer that lived in Doggerland around 8,300 years ago were extremely well preserved by the oxygen-free environment under the North Sea.**

tremendous advances in the study of this lost world in recent years, one element has remained elusive—evidence of the sites where people lived in Doggerland. "We now have a good idea of this landscape," says Gaffney. "We've got the animals and the plants. We have to start looking for the people. It has taken us 15 years, but we are now at the point of being able to prospect a settlement. There is one out there somewhere."

Doggerland was, by any estimation, the most attractive landscape in northwestern Europe for Mesolithic hunter-gatherers and perhaps the continent's most



**A 13,000-year-old aurochs or bison bone etched with a zigzag design was recovered near Brown Bank.**

densely populated region at the time. Because of the seemingly inexhaustible resources present there, normally mobile Mesolithic societies may have been encouraged to create permanent or semipermanent settlements. While relatively few Mesolithic sites have been located on land, if Doggerland was indeed the heartland for these early Holocene communities, it stands to reason that many archaeological sites may lie beneath the North Sea. Finding them, though, is no easy task. According to Gaffney, there are no known archaeological settlement sites from any period anywhere in the world located more than eight miles offshore. Pinpointing an archaeological site amid a North Sea landscape of tens of thousands of square miles is

*(continued on page 62)*

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## LETTER FROM DOGGERLAND

(continued from page 60)

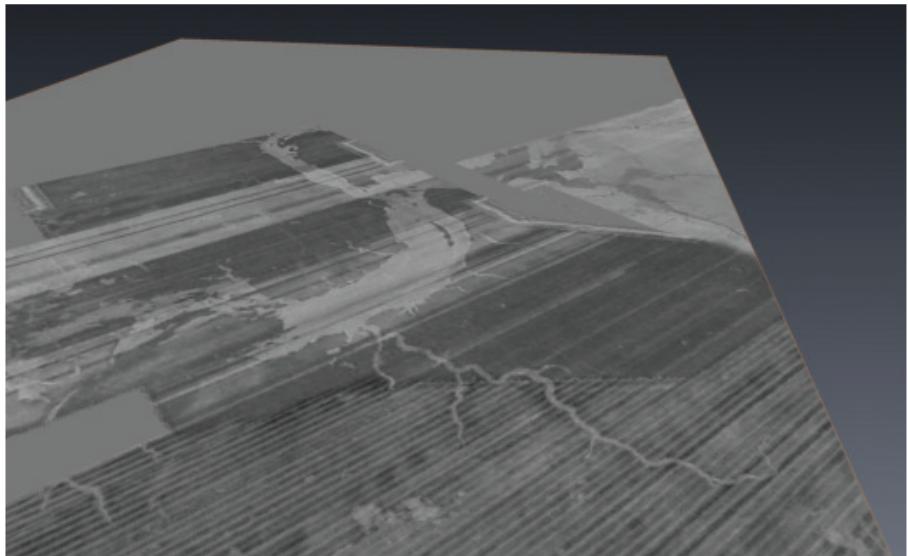
akin to finding the proverbial needle in a haystack—if that haystack were also located deep below the ocean’s surface.

But seismic data has now given archaeologists a much better sense of Doggerland’s topography. They know where its rivers, lakes, and coastlines were located, and where its forests were found. They can use this information to speculate about where people may have lived. To Gaffney, the strategy does not deviate much from how he approaches terrestrial landscapes, even though Doggerland lies hundreds of feet underwater. “First we conduct a large-scale assessment, then zoom in on areas of interest,” he says. “I am a landscape archaeologist and I have only ever treated Doggerland as a bit of land. It just happens to be beneath the sea.”

Gaffney and his team knew that the places they were most likely to encounter human activity were located on what had once been high ground close to rich wetland resources. A few years ago, they settled on two target



A research team on the North Sea deploys an instrument that emits sound waves aimed at the seafloor to generate a computer model of its topography.



An image created using seismic data shows one of Doggerland’s many river channels. It was likely the location of human activity.

areas for their first attempt at locating a submerged Mesolithic site. One was a shallow, 15-mile-long seafloor ridge known as Brown Bank, where a wealth of archaeological objects, including a 13,000-year-old engraved aurochs bone, had been snared by fishing trawlers in the past. The other was an area along a now-submerged river channel and estuary off the Norfolk coast known as the Southern River. Although the weather did not fully cooperate, cutting the team’s time at sea short, they were able to scoop up sediment deposits from the Southern River estuary site. When they examined the material, they were stunned to find it contained a fragment of a stone tool known as a hammerstone. The artifact itself may not be terribly substantial, as it is just a few inches across, but its impact could be revolutionary. It is the first time that archaeologists have successfully prospected an archaeological site in a deep-sea environment. They have essentially removed layers of hay from the haystack, making the needles easier to find. “This is a real moment,” Gaffney remarks. “If we are on the cusp of doing this in the North Sea, we are

on the cusp of doing it anywhere. You could take the methodology and transplant it anywhere.”

This new type of research into Doggerland has the potential to once again dramatically alter the field of European prehistory. “We have a completely intact landscape with a state of preservation that we can often only dream of on land,” Amkreutz says. “I think we will have a lot of exciting discoveries to come. We are barely scratching the surface.”

In the end, the same forces that transformed Doggerland into the paradise that it was for Mesolithic hunter-gatherers—climate change and melting glaciers—also spelled its demise. When the Ice Age ended and water began to inundate the North Sea basin, it didn’t stop for thousands of years. Over a 3,000-year period, the sea level rose an average of six feet every century. Doggerland was drowning. Around 6100 B.C., a massive tsunami caused by an underwater landslide off the coast of Norway struck Doggerland, exacerbating the situation. Dogger Bank, one of the highest points on the landscape, was one

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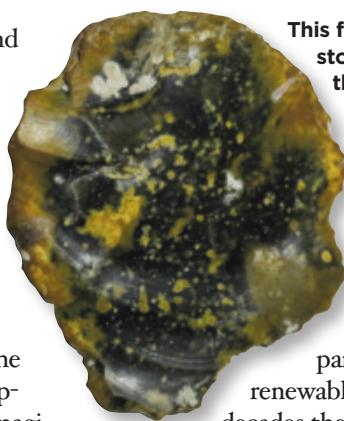
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## LETTER FROM DOGGERLAND

of the last pieces of dry land to survive. It temporarily existed as an island before it, too, slipped under the sea. The richest landscape in northwest Europe had vanished. A short time later, so would the last of the Mesolithic hunter-gatherers.

Over the past century, the story of Doggerland has captured people's minds and imaginations, as mythological stories about apocalyptic floods and lost worlds often do. But this story is real. "It's kind of like an Atlantis," says Amkreutz. "It's a drowned world, but we have tangible remains coming from it. You can't see it anymore, but it's really close."

However, just as this hidden world



This fragment of a hammer-stone was discovered at the Southern River estuary site.

and its people are finally beginning to be revealed by archaeologists, Doggerland finds itself in danger of being lost again. As part of efforts to create renewable energy, in the next two decades the southern North Sea will be almost entirely covered with wind farms. Not only will archaeologists no longer have access to Doggerland, but the network of cables slated to be laid across the North Sea's floor will cause irreparable damage to the archaeological sites there. Both Gaffney and Amkreutz believe that the energy

project is essential and should not be halted, but say that there needs to be dialogue between archaeologists and developers in order to help protect and preserve Doggerland's unique archaeological landscape. "The point is not to stop anything, because we need green energy," says Gaffney. "But we have to work with developers in the same way we do on land. If we don't act now, large areas of seascapes will never be available for research, essentially ever. It's a massively important part of the story." In the meantime, scholars are doing all they can to document the lives of the people who lived in this vanished landscape before it potentially disappears once more. ■

Jason Urbanus is a contributing editor at ARCHAEOLOGY.

# DISPATCHES

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FROM THE AIA

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## ANNUAL MEETING MOVED ONLINE

The AIA's 123rd Annual Meeting, our yearly gathering for scholars to discuss and present the latest research and discoveries in archaeology, classics, philology, and related fields, was planned as an in-person event for the beginning of January 2022. Unfortunately, as in 2021, we were compelled to convert the meeting to a completely virtual event in response to the continuing COVID-19 pandemic. Fortunately, we had intended the 2022 meeting to be a hybrid event, so the transition to fully virtual, though challenging, went as smoothly as possible. Regardless of the last-minute changes, the meeting was a wonderful success and participants safely logged in from all over the world to attend the AIA's governing board meeting, academic workshops, social gatherings, colloquia, and paper sessions.

## AIA ANNUAL AWARDS

Each year, the Institute recognizes and honors individuals, projects, and publications for their excellent work and outstanding contributions to archaeology at the AIA awards ceremony. Congratulations to the 2022 AIA award winners:



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- Martha and Artemis Joukowsky Distinguished Service Award: **Nancy de Grummond**, Florida State University
- Outstanding Public Service Award: **Neil Brodie**, University of Oxford
- James R. Wiseman Book Award: *Life and Death in the Roman Suburb*, by **Allison L. C. Emmerson**, Tulane University
- Anna Marguerite McCann Award for Fieldwork Reports: *Landscape History of Hadramawt: The Roots of Agriculture in Southern Arabia (RASA) Project 1998–2008*, edited by **Joy McCorriston** and **Michael J. Harrower**
- Felicia A. Holton Book Award: *Archaeology from Space: How the Future Shapes Our Past* by **Sarah Parcak**, University of Alabama at Birmingham
- Award for Outstanding Work in Digital Archaeology: **Constructing the Sacred: Visibility and Ritual Landscape at the Egyptian Necropolis of Saqqara**, award accepted by Elaine A. Sullivan, University of California, Santa Cruz
- Excellence in Undergraduate Teaching Award: **Pamela Gaber**, Lycoming College
- Graduate Student Paper Award (first prize at the 2021 Annual Meeting): “The Brother-and-Sister Stele Sphinx Has a Vagina,” by **Tara Trahey**, Institute of Fine Arts, New York University

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## SOCIETY OUTREACH GRANTS AND LOCAL PROGRAMMING

The AIA's Society Outreach Grants provide support for Local Societies to organize and present innovative programs that highlight archaeology and enrich their communities. Here are two recent examples of Society programs:

### AIA Tallahassee Society: Roman Archaeology for the Lighthouse of the Big Bend

The AIA-Tallahassee Society participated in Lighting the Way to Archaeology, an annual International Archaeology Day outreach event for children with visual disabilities, at the Lighthouse of the Big Bend. Society members provided students with tactile experiences involving clay, 3-D printed pottery, and artifacts from ancient Italy. Volunteers spent time with students and discussed Roman archaeology and the Latin language with hands-on experiences and short lectures.

### AIA Nashville Society: Art Cart—Polychromy at the Parthenon

The AIA-Nashville Society developed a program that included an art cart and a Zoom presentation to introduce polychromy to visitors at the Nashville Parthenon in Centennial Park. The program promoted public understanding and appreciation of a colorful ancient world and how archaeologists study ancient color. Participants explored color in ancient Greece through in-gallery talks, stories, and take-home materials.



# DISPATCHES FROM THE AIA

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## ARCHAEOLOGY ABRIDGED



The 2022 season of Archaeology Abridged kicked off with presentations by Kate Liszka in January and February. Liszka, the Benson and Pamela Harer Fellow in Egyptology and Associate Professor of History at California State University, San Bernardino, discussed amethyst mining in ancient Egypt and the extremes and dangers that thousands of ancient Egyptians faced in acquiring the beautiful purple stones for the pharaohs.

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## ARCHEOCON

One of our largest public outreach events, ArchaeoCon has been growing in popularity since we first introduced it at our 2019 Annual Meeting in San Diego. Started as an in-person event, the pandemic forced us to go fully virtual in 2021, and the results were incredible. What had originally been an event attended by 300 to 400 people who lived nearby became an international event of close to 1,000 people. In 2021, people from five continents logged in to listen to speakers, participate in workshops, and browse the online resources and activities that had been designed for the event.

ArchaeoCon 2022 is scheduled for Saturday, March 5. Our lineup of speakers and interviews include explorer and TV personality Josh Gates, Egyptologist Kara Cooney, maritime archaeologist James Delgado, and archaeologist Debby Sneed. You will also be able to join Italian archaeologist Ilaria Patania in the kitchen and follow along while she re-creates ancient bread found at Pompeii.

For tickets and more information, visit [archaeological.org/archaeocon](https://archaeological.org/archaeocon) and see the ad in this issue of *ARCHAEOLOGY*.

## ARCHAEOLOGY ABRIDGED PREMIUM

On March 10, 2022, we will host our second Archaeology Abridged Premium talk. Archaeology Abridged Premium features speakers who were first introduced to you through our regular Archaeology Abridged series. Our Premium series offers the opportunity to hear more from these excellent speakers and is a fundraiser for the Institute. Archaeology Abridged Premium talks are free to AIA Supporting members and \$5 for nonmembers.

Our second Premium talk features Elizabeth M. Greene, Associate Professor and Canada Research Chair in Roman Archaeology at the University of Western Ontario. Her presentation will transport us to Vindolanda and Hadrian’s Wall in northern England to hear updates on her research examining hundreds of artifacts from daily life that help us understand the people who populated this site nearly 2,000 years ago.

## SOCIETY SUNDAY KICKS OFF AIA PROGRAMS IN 2022

Two days into the new year, the AIA’s Societies Committee hosted Society Sunday for members and representatives of the Institute’s 106 Local Societies. The event is an annual celebration to acknowledge the wonderful work that Societies do to promote archaeology in their local communities. It also recognizes the many volunteers who run AIA Local Societies. The 2021 Annual Meeting’s virtual format allowed us to experiment with new versions of the program and encourage more people to attend than is possible for an in-person event, and thus we held the event online again in 2022.

The highlight of the 2022 program was a presentation by Debby Sneed, “Disability and Infanticide in Ancient Greece,” in which she challenged the commonly held belief that the ancient Greeks disposed of children born with disabilities. Drawing on archaeological and historical evidence, Sneed argued that, generally, children were taken care of and nurtured regardless of their condition at birth. Sneed’s presentation was followed by a gathering for Society representatives at which Society officers could discuss the challenges of the last year and prepare for the next.

Local Societies provide opportunities for people to engage with archaeology and archaeologists in their local community and beyond. During the last two years, Societies have demonstrated resilience as they continued to fulfill their mission and employed creativity, innovation, and resourcefulness while transitioning from in-person events to virtual programming. If you are interested in joining an AIA Local Society, become a Supporting member and get to know archaeology enthusiasts in your area.

## MEMBERSHIP

All AIA programs are supported by AIA members and our generous donors. AIA Supporting members receive access to special benefits such as the AIA Travel Discount Program and AIA MemberDeals. Become an AIA member today at [archaeological.org/join](https://archaeological.org/join).

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Eggshells may not seem like the best material with which to make something built to last, but ostrich eggshells can withstand the weight of a bird of up to 350 pounds sitting on them during incubation. For the Paleolithic hunter-gatherers living in eastern and southern Africa, an ostrich nest was a wealth of material, and once the chicks hatched, the shells left behind didn't require special skills to collect, explains archaeologist Jennifer Miller of the Max Planck Institute for the Science of Human History. "The shells are extremely strong and an ideal material to make something, like beads, that you want to be durable but lightweight," she says. According to Miller and Max Planck Institute paleoclimatologist Yiming Wang, tracing where Paleolithic ostrich eggshell beads are found—and when they disappear from the archaeological record—tells a story of changes in the landscape upon which people depended.

Miller and Wang have cataloged and analyzed 1,516 beads and found that, even though they were made by groups separated by as much as 2,000 miles, styles that people developed early on remained nearly unchanged for a period of more than 15,000 years—rare, very ancient evidence of cultural behavior shared by people living across a wide landscape. "Using symbolic items like these beads to communicate is one of the unique traits of our species," Miller says. "The beads were valuable and could have been traded for other goods or given as gifts the way they still are today."

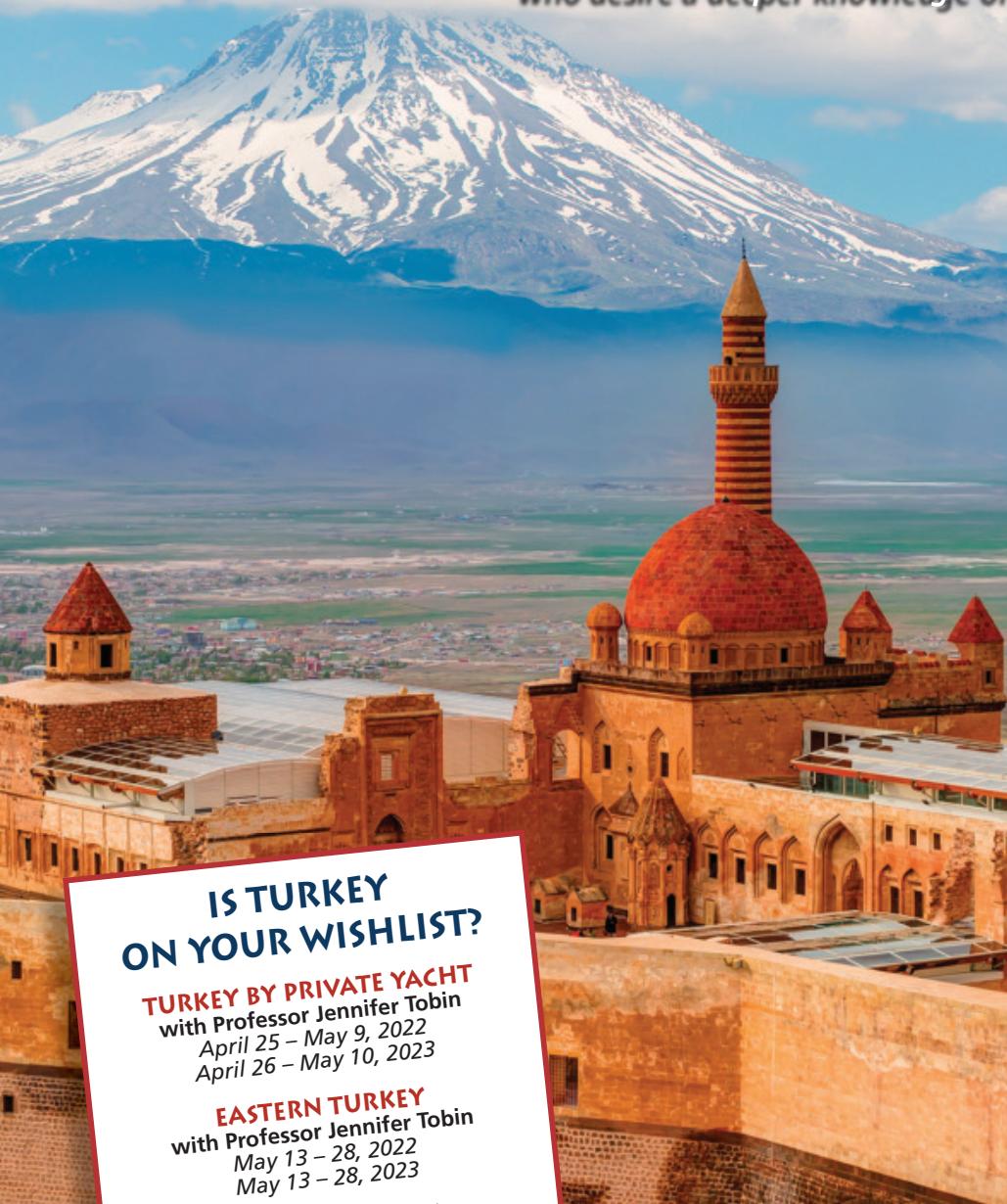
About 33,000 years ago, these beads disappeared in southern Africa, but were still commonly made in the continent's east. Wang suggests that this might signal varying ways people adapted to climate change. Increased rainfall led to flooding of the Zambezi River catchment, which bridges eastern and southern Africa. This flooding may have blocked connections between the east and south. While the east remained fertile, Wang explains that after the climate shifted, the south may have only supported smaller population groups in which people no longer needed to invest in something like making beads.

WHAT IS IT	Beads
CULTURE	Paleolithic
DATE	Ca. 50,000 to 33,000 years ago
MATERIAL	Ostrich eggshell
FOUND	Africa
DIMENSIONS	About 0.4 inches in diameter



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