

Archaeology

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Riches of the Mayan Royals

New tomb discoveries containing the remains of early Mesoamerican kings and queens are filling in the blanks about their classic founding period.

BY MICHAEL Q. BULLERDICK

One of the common complaints of the archaeologist's profession is that few discoveries without a link to the Bible can be counted on to generate lasting enthusiasm outside academia. The ancient Mayans, however, have been an exception to this rule in recent years. In fact, judging by the waves of media hype and Google trends, the Mayans are hot—Justin Bieber hot. Not since Egypt's King Tut was introduced to the world in 1922 has a topic of archaeology been the focus of such mainstream curiosity.

Unfairly to Mayans, such intense interest can be traced in large part to a major falsehood about them—in this case, their so-called Doomsday prophecy for December 21, 2012. While based on misunderstandings of Mayan calendric cycles, the resultant buzz brought a windfall of funding for Mesoamerican studies that led, sometimes inadvertently, to discoveries of several royal burial sites. Now a handful of these are filling in the blanks about dynasties around the Mayan founding period.

A wealth of evidence suggests that what is generally referred to as “the Mayan Empire” was actually a collection of city-states along the Yucatán Peninsula that were unified, if only loosely at times, by cultures with very similar beliefs. As this civilization developed during three distinct phases from 2000 B.C. to A.D. 1500, it stretched across what is now central and southern Mexico to Belize, Guatemala, Honduras, and northern El Salvador. A great deal of what we know about the Mayans comes from comprehensive examinations of their awe-inspiring stone structures—pyramids and temples rivaling those of Egypt—but the rest has come about, more directly, from the Mayans themselves. Obsessive scribes, these Mesoamerican scholars graciously detailed much of their history and royal lineage. But while troves of recovered artifacts corroborate the epigraphic



BURIAL BOUNTY Within pyramid E in Nakum, Guatemala (above), and other previously well-explored ancient structures, archaeologists have recently stumbled upon the richly adorned tombs of several significant Mayan royals, including an unknown queen (below) whose head rested between ornately decorated sacred vessels.





WHO'S WHO Clues to the identity of tomb remains are often found among burial offerings: (clockwise from top) a vessel depicting Queen K'abel, a cup inscribed to an unknown prince of Uxul, and a jade vulture pendant that denotes King K'utz Chman's priestly status.

records of their prime years, there had remained a disappointing lack of hard evidence to back up accounts of their pivotal classic (A.D. 250–900) and pre-classic (2000 B.C.–A.D. 250) periods.

Those gaps are beginning to narrow, thanks to a handful of tomb discoveries made deep inside structures where—oddly enough—research had been ongoing for decades. Several of these found over the last six years contained the remarkable remains of previously elusive, though well-sourced, Mayan nobility whose vaults were often well concealed below more recently constructed ones that contained separate remains. These “secondary” individuals sometimes turned out to be genealogically related to the more deeply buried “primary” subjects, but most often they belonged to unrelated people thought to be sacrificial victims. Moreover, evidence from tombs of this type often suggested that the contents may have been relocated there. In fact, the resulting inconsistencies of several remains in terms of age, gender, skeletal completeness, and articulation can be accurately described as a kind of ancient mash-up.

At first glance, all this mixing and moving of bones seems profoundly ghoulish, but the Mayans did not fully embrace our modern belief that the dead should remain

undisturbed in cemeteries on the outskirts of town. To the contrary, they raised generational awareness and honored their ancestors in part by relocating some sacred remains to safer, more prominent “burial collectives” at the centers of thriving cities. These “upgraded interments” were constructed inside modified or new edifices built as the result of population growth and architectural advances.

A prime example of this is the one in Nakum (northeastern Guatemala) that held the nearly intact remains of an unknown Mayan queen whose skull rested between two sacred vessels. In 2011, a team from the Jagiellonian University Institute of Archaeology in Krakow, Poland, discovered the queen's 2,000-year-old burial vault after first detecting cracks in the floor of a 1,300-year-old upper vault that contained the sparse remains of a lesser royal.

The following year, researchers from the University of Bonn and Mexico's National Institute of Anthropology and History (INAH) stumbled upon a vault just five feet under the floor of a southern room in the palace at Uxul, near Campeche, Mexico. This chamber hid the entrance to a 1,300-year-old, richly adorned burial crypt containing the remains of an unknown Calakmul-dynasty prince whose skull was also covered with a unique vessel. His royal title was confirmed by the inscription on a ceramic cup that read, “This is the drinking vessel of the young man/prince.”

A similar find in the Mayan capital city of Palenque, in the Mexican state of Chiapas, has yet to yield a sarcophagus, but the INAH team believes it has good reason to continue searching. Although the tomb in Temple XX was discovered in 1999, just 19 feet below the upper floor of the 60-foot-high pyramid, archaeologists were forced to wait 12 years before entering it until some much-needed structural stabilization was complete. Their leading hypothesis was that the tomb belonged to the fifth-century King K'uk' Bahlam I, the first ruler of the Palenque city-state and an ancestor of Pakal the Great, the historic emperor of the Mayan middle period. Pakal was found in 1952, buried nearby in the Temple of Inscriptions, which chronicled 200 years of the family dynasty.

Pictures of the tomb's interior that were taken using remote-controlled cameras in 1999 and 2011 paled in comparison with the actual reveal in 2012, which exposed an interior of magnificent murals that depicted the legendary nine black lords of the underworld standing out against an intense blood-red field. Bone fragments and burial offerings were also recovered, but the murals, which are similar in style and theme to Pakal's, are reason enough to suppose that a lower primary tomb containing the remains of a great royal such as K'uk' Bahlam I will eventually be located.

Far more significant than even these royal remains



DIGGING IN Archaeologist Olivia Navarro-Farr works carefully to expose the headdress of the seventh-century warrior queen K'abel.

Mayans honored their ancestors by moving sacred remains to safer, more prominent “burial collectives.”

were the ones from dual tomb discoveries in June 2012 that stunned archaeologists. The first was of a tomb in the royal city of El Perú-Waká in northwestern Guatemala containing the remains of K'abel, the legendary warrior queen (“Kaloomte”) of the classic era. Typically, the concealed tomb rested just 22 feet below the surface of another vault within a previously well-explored pyramid. A team from Washington University in St. Louis stumbled upon the tomb after deciding to focus on religious shrines. Although the remains are in poor condition, the key to identifying them came from among the vast burial offerings—a small alabaster jar carved in the shape of a conch shell detailed with the head and arms of a prominent woman and inscribed with both of K'abel's monikers: “Lady Water Lily Hand” and “Lady Snake Lord.” Additionally, anthropologists agree that the shape of the skull matches the queen's visage on plaques referring to her and her husband, King K'inich Bahlam II.

While such a find is hard to top, the second of the June

2012 tomb discoveries was momentous, despite its current lack of remains, for being the oldest ever discovered: the tomb of King K'utz Chman, who led the transition from pre-Mayan Olmec rule to an eventual Mayan dominance that began with his emphasis on written historical records and pyramid building. Inside the tomb, located at a dig in western Guatemala, local archaeologists have discovered burial jewels that included a jade pendant of a vulture, an apparent identifying marker. Carbon dating places the burial at the pre-classic Mayan period, somewhere around 770–510 B.C.

Undoubtedly, important data from the recent roundup of ancient royal tombs will aid archaeologists immeasurably during future explorations of the Mayan city of Hol-tun near Petén, Guatemala, which satellite 3-D imaging technology revealed under thick jungle in 2012. But the takeaway for known Mayan sites is equally compelling: even the most extensively explored and well-documented ruins may still hold a secret or two buried deeply, one below the other, within their cold stone interiors. Granted, this will require more funding and even more time. But time, at least, is something we still have in abundance—even if, during the run-up to December 21, 2012, many people around the world suspected otherwise.

CLOCKWISE FROM RIGHT: JUAN CARLOS PEREZ/EL PERU-WAKA ARCHAEOLOGICAL PROJECT; UXUL ARCHAEOLOGICAL PROJECT; TAK'ALIK ABAJ, ARCHAEOLOGICAL PROJECT/AP; EL PERU-WAKA ARCHAEOLOGICAL PROJECT

Where the Romans Built Grand Ships

For about a century, archaeologists have struggled to locate the Roman Imperial Navy's primary shipyard. A few notable candidate sites have been found—Monte Testaccio on the Tiber River near Rome, and another at neighboring Ostia—but none has been impressive enough to fit the bill of “fleet headquarters.” Until now, that is.

In September 2011 archaeologists from the University of Southampton and the British School at Rome, who had been excavating a site at Portus, Italy, for more than a decade, uncovered a massive rectangular building that was erected in line with a nearby hexagonal harbor basin. The crumbling ruin, which dates to the second century, runs along the basin's side and rests on thick, brick-faced concrete piers. The enormous structure—919 feet long, 190 feet wide, and six stories high—contains multiple bays that would have been used to build, repair, and house ships of up to at least 350 tons.

Beyond its grand scale, what makes the case for the Portus site as Roman Navy central is its location within a city that was a key maritime port even before the shipyard's construction between A.D. 110 and 117. Portus sits where the Tiber meets the sea, making it an ideal location for imports, troop transport, and a naval defense of Rome, just 20 miles away. Such a distance would have been convenient for seabound nobility, and the adjoining opulent palace unearthed in 2009 supports this theory. Inscriptions at Portus refer to a guild of prominent shipbuilders, and a mosaic that originated near Portus depicts a building with ships in each bay and a façade that is similar to that of the Portus structure.

Soon archaeologists will search for ramps used to launch the huge Roman ships, but it's likely they decayed centuries ago. Researchers will also look for clues to the date and cause of the shipyard's ultimate decline.



IN DRY DOCK A computer rendering shows Portus as it would have looked after being built during the reign of Emperor Trajan (circa A.D. 98–117).



Figuring Out Fire: Did It Happen 300,000 Years Earlier?

Fire—its discovery and controlled application—was an evolutionary game-changer for early humans. The prevailing theory places our mastery of it at roughly 790,000 years ago, but a recent analysis of deposits discovered in South Africa indicates this crucial event may have originated 300,000 years earlier, by a more ancient species of man known as *Homo erectus*. The deposits from Wonderwerk Cave, a site near the edge of the Kalahari Desert in Northern Cape province, included ash from burned grass, leaves, brush, and animal-bone fragments as well as flint and stone tools. Microscopic examination indicates they were burned at temperatures between 400 and 700 degrees Celsius—consistent with maximum heat output for the natural fuels and common for small campfires. Previous “earlier” finds—in Swartkrans, South Africa; Chesowanja, Kenya; and Geshert Benot Ya'akov, Israel—had been ruled inconclusive because they were situated out in the open, where they may have been started by lightning, or because they were found in caves filled with bat droppings, a combustible material. But the compelling evidence from Wonderwerk, an “indoor” setting that shows no significant quantities of bat guano, comes closest to satisfying the requirements for evidence that humans were capable of creating fire as opposed to simply transporting it.

CLOCKWISE FROM LOWER LEFT: IMAGE SOURCE/CORBIS; UNIVERSITY OF SOUTHAMPTON; DR. XU XING/INSTITUTE OF VERTEBRATE PALEONTOLOGY AND PALEOANTHROPOLOGY

Dino-Bird Ruffles Feathers

The theory that modern-day birds evolved from dinosaurs has held sway for over 150 years and rests on a handful of well-studied fossil specimens originating in Eastern and Central Europe and in Asia. Chief among these is *Archaeopteryx*, discovered in 1861 in Bavaria, Germany. Although clearly a dinosaur, *Archaeopteryx* possesses many anatomical features common to birds, including feathers, which elevated it to the iconic status of “proto-bird.” But now a much older specimen is challenging that status while raising questions about just what constitutes a “proto-bird.”

All of this began with the discovery in 2011 of *Xiaotingia zhengi*, a fossilized dino-bird in Liaoning Province, China, that was the size of a chicken. In addition to the similarity in size to its hallowed fossilized friend, *Xiaotingia zhengi* exhibits dual anatomic traits: birdlike feathers, a wishbone, three-toed feet with long middle bones, and long forearms (perhaps allowing it to fly), mixed with a dino-like elongated skull, sharp teeth, and forearms ending in claws. These similarities, however, are a big problem for both proto-bird pretenders. Given that *Archaeopteryx* lived 150 million years closer to the rise of birds on earth, it should have evolved to a far more avian state than its predecessor, *Xiaotingia zhengi*. That it didn't places both creatures closer to the dinosaur side of the evolutionary timeline than to the critical proto-bird point. Computer modeling backs this up, fitting them both squarely in the Deinonychosauria branch of the late Jurassic and Cretaceous periods that also includes velociraptors. This classification effectively widens the gap between dinosaurs and birds.

ANGRY BIRDS Experts believe *Xiaotingia zhengi* may have looked like a bluejay on steroids.

GROUNDING: RECENT STUDIES SHOW THAT DESPITE **HAVING “WINGS,”** SO-CALLED PROTO-BIRDS LACKED FEATHERS STRONG ENOUGH FOR LIFTOFF OR SUSTAINED FLIGHT.





Twin Lion Statues of Turkey Retain Their Secrets

One of the greatest challenges that archaeologists face is getting to a rumored site or accidental discovery ahead of professional looters. That was the case in 2008 when rumors began to circulate about the discovery in Karakiz, Turkey, of twin lion statues carved out of monolithic granite. Local tomb raiders used dynamite to blast the giant markers in two and then dug below them and in the surrounding fields in search of the buried treasure they believed the lions were meant to guard. The looters walked away empty-handed, but the destruction they left behind is making it harder for archaeologists who, after finally securing funding, made it to the site in 2011 to properly excavate it and answer the prevailing questions: Why lions? Why there? And what were the markers intended to call out?

Carbon-dating techniques and the style of workmanship indicate that an Indo-European people known as the Hittites sculpted the statues around 1400–1200 B.C., according to archaeologists Geoffrey Summers and Erol Özen. Although similar in form and pose, the five-ton lions are stylistically different, a clear indication that they were sculpted by two different artists. After careful analysis, archaeologists and preservationists were able to cement the cracked pieces back onto the still-standing portions of the monoliths. Each revealed a detailed depiction of a lion captured in proud stride: its profiled form, bone structure, and forward-leaning gait. At first it even appeared as if the lions had been painted or stained to reflect the sandy color of lion fur, but closer examination proved the coloration was the result of centuries of oxidation.

Lions, including the Asiatic species depicted on the granite slabs, do not roam present-day Turkey, but the regal beast was well known and respected by the ancient people who inhabited Turkey and other parts of the Middle East. If the Hittites meant for the lions to guard a settlement, city, or palace, however, none has so far been found. Given their collective mass, it's not likely the statues were carved and transported to their current locations. One theory is that the lions are markers for now-underground wellsprings that the Hittites considered holy, purifying places worthy of such adornments. A stone basin measuring seven feet in diameter that was found near the lions seems to support this point. Future excavations will be undertaken to explore the theory.



LION'S DEN Lions, wellsprings, and the mountains near the statues were considered sacred by the Hittites.

THE HITTITES WERE AN ANATOLIAN PEOPLE WHO SPOKE AN INDO-EUROPEAN TONGUE. THEIR CULTURE'S ZENITH WAS DURING THE 14TH CENTURY B.C.



SERIOUS COIN X-rays of the fused block reveal that it also contains some gold and silver articles.

The Trove Forever Hidden From Caesar

Anyone who has ever tried out a metal detector has fantasized, if only briefly, about discovering buried treasure. For the persistent treasure-seeking duo of Reg Mead and Richard Miles, that dream finally became real after 30 years of traversing the same farm fields. And the treasure proved to be a major archaeological find: the largest hoard of Late Iron Age coins ever unearthed. The duo's stunning June 2012 find was located on Jersey, the largest of the Channel Islands, and consists of 50,000 silver and bronze coins. Early evidence suggests the coins date from the Iron Age, around 50 B.C., and originated in Armorica (Brittany and Normandy) but were probably buried for safekeeping from Julius Caesar's advancing army. A team of archaeologists and metallurgists is handling the painstaking chore of separating the coins that, over the centuries, had oxidized and been compressed into a solid, three-quarter-ton block. Estimates put the value of individual coins at about \$200, depending on condition, and the total estimate in the neighborhood of \$12 million to \$16 million. But the coins will not be sold—at least not in the short term. Questions of legal ownership have been raised because the Isle of Jersey, a British crown dependency, falls outside the reach of the Treasure Act, which places such finds in a government trust. Jersey's treasure laws are based on more complicated medieval property laws.

THE HOARD OF 50,000 COINS

WAS FOUND OXIDIZED AND FUSED TOGETHER INTO A GIANT BLOCK WEIGHING THREE QUARTERS OF A TON.

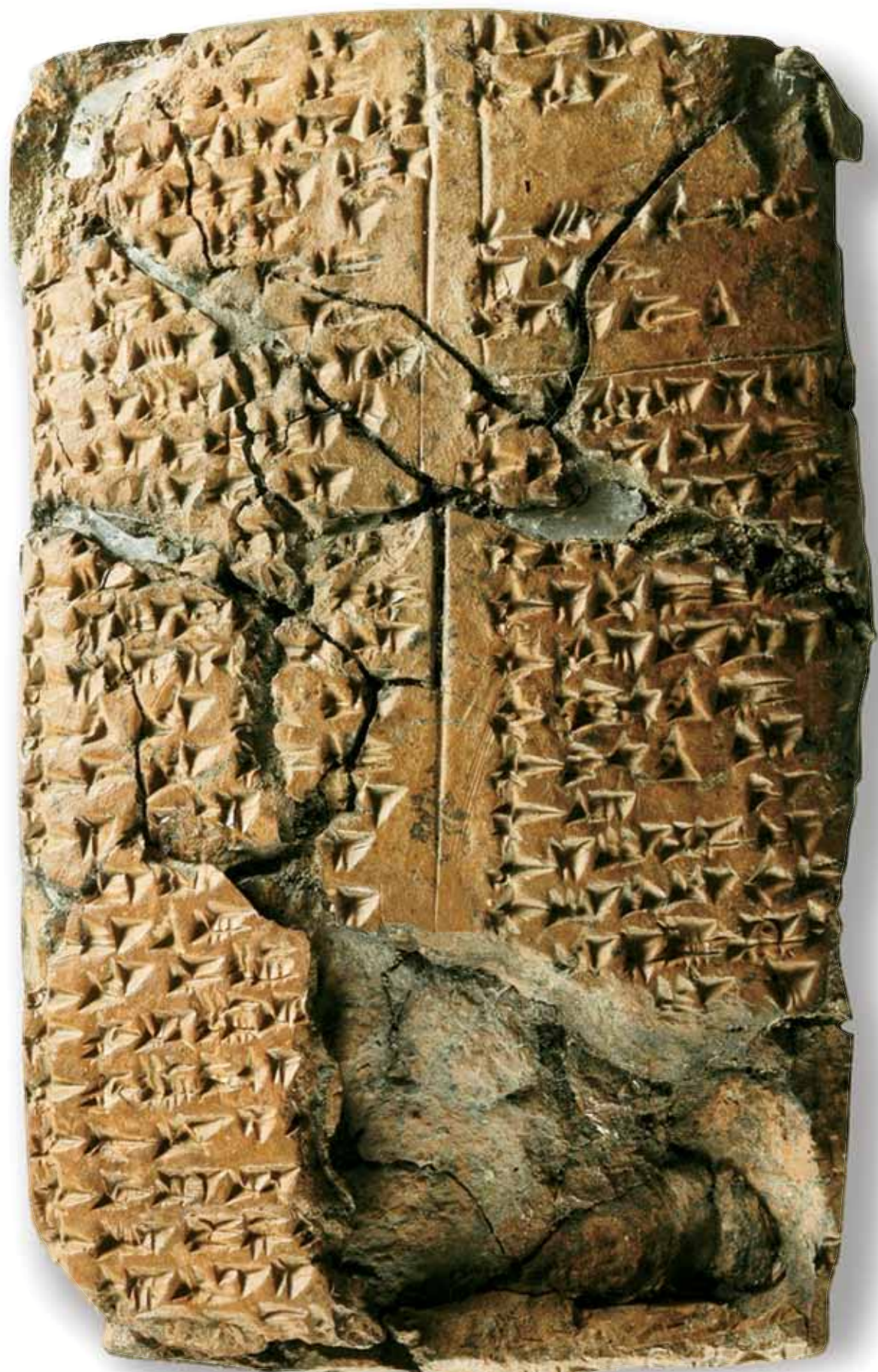
Shakespeare's Curtain Rises

"All the world's a stage," wrote Shakespeare. But where in the world is the one he and his players first strode upon? The site has eluded archaeologists for a century, so its accidental discovery in June 2012—as if on cue for worldwide Shakespeare festivities already underway—represented a plot device worthy of the bard himself. The site was discovered by a construction crew working on a Hewett Street community-redevelopment project in Shoreditch, east of London's business district. Although Shakespeare is properly associated with the Globe Theatre, he spent some of his early professional years (1597–99) at a tiny round playhouse while the Globe was under construction. Much of the venue has survived intact; however, the position of two surviving gallery walls indicates that the famed stage is currently located under the foundation of a modern tavern. Upon its completion in 1577, the rough-hewn theater was formally named the Curtain after the long road that fronted it. Contemporary accounts, however, reveal it was referred to more frequently as the "Wooden O" after a characterizing line from *Henry V*, which premiered there. *Romeo and Juliet* opened there too, followed by works from other notable playwrights before the theater went into decline. Its exact location was lost to history somewhere between 1622 and 1640.



DOWNSTAGE Shakespeare's Curtain Theatre was located just five feet below modern street grade. His first audiences, peasant "groundlings," would have paid a penny per head to be entertained there.

CLOCKWISE FROM LOWER LEFT: GEOFFREY SUMMERS/AMERICAN JOURNAL OF ARCHAEOLOGY (3); JERSEY HERITAGE (2); MUSEUM OF LONDON ARCHAEOLOGY



TOOLS OF THE TRADE Although they date to 1,000 years ago, the Viking chieftain's rust-encrusted iron sword, ax head, and brooch pin display a remarkable level of metallurgy.

A Clay Tablet's Mysterious Language

Almost 1,000 years before Christ, the Assyrian city of Tushan—part of an empire stretching from modern-day Iraq and Iran through southeastern Turkey—was a bustling, ethnically diverse center for trade. More than a dozen known languages were spoken, and of these only one remains silent: that of the Assyrian-conquered Zagros Mountain people. But a clay tablet unearthed in May 2012 in Ziyaret Tepe, Turkey, may give voice to the Zagros people once again. If that's the case, it's a happy accident: like a kiln-fired clay pot, the tablet was protected against the ravages of time after being hardened in a fire near the end of the eighth century B.C.

Once part of a royal archive, the earthen tablet is inscribed using cuneiform characters. Its content is a partial list of names along with what appears to be an incomplete chronicle of the Zagros people's forced relocation from their home in the mountains of Iran to southeastern Turkey. Archaeologist and project epigrapher John MacGinnis of England's McDonald Institute for Archaeological Research has identified approximately 60 contemporaneous names out of the 144 listed on the tablet. Seventy-five percent of the tablet's content, however, is documented in the unknown language. MacGinnis's analysis will continue, but initial findings favor the Zagros hypothesis while ruling out other contemporary languages—from Mushkian, an equally obscure tongue, to Shubrian, the most common.

CUNEIFORM, ONE OF THE EARLIEST FORMS OF WRITING, WAS INVENTED BY THE SUMERIANS (30TH CENTURY B.C.) AND MODIFIED BY THE ASSYRIANS.

Burial Boat for a Viking VIP

Unique to a Viking's view of the afterlife was a belief in Valhalla, where those who died in battle were rewarded with further glorious battle. Such beliefs were no doubt held by the Viking chieftain whose remains and burial boat were recently discovered in Scotland. Arranged around him were the tools of his "pious" trade—sword and hilt, ax and shield, spear, sharpening stone, food pots, and a drinking horn—proving he was suited up and ready to play.

The spectacular discovery, the first on the British mainland, was made in 2011 on the Ardnamurchan Peninsula, a landing spot on the primary north-south sailing route between Ireland and Norway at the time the chieftain met his end approximately 1,000 years ago. Just how he died will likely remain a mystery, since only partial remains were present within the boat's detailed earthen impression, but there is enough evidence for archaeologists to form a picture of the ancient warrior's life. That he was buried in ceremonial fashion and laid to rest with his possessions—items that would have been extremely valuable to others—solidifies his status as an important man or chieftain. Radioactive isotopes from the Viking's bones should determine more about his age, origins, and genetics, and an analysis of wood slivers should reveal the species of trees the boat was made from and where it may have been constructed. Additional analysis of the artifacts, including hundreds of metal boat rivets and dozens of iron pieces, will provide supporting data about the Vikings' craftsmanship and their lives in general.

FROM LEFT: DR. JOHN MACGINNIS/MCDONALD INSTITUTE FOR ARCHAEOLOGICAL RESEARCH; JEFF J. MITCHELL/GETTY IMAGES



Are These Richard's Bones?

Few historical figures have been as maligned as England's King Richard III. But if an analysis of a skeleton discovered in 2012 under a parking lot in Leicester, England, proves it to be the missing king, members of the Richard III Society hope renewed curiosity about him will help restore his reputation. No less a dramatist than Shakespeare is responsible for expanding the view of a ruthless, grotesque Richard that had become conventional wisdom between the time of the king's death in 1485 and the writing of *Richard III* in approximately 1591.

But history is also influenced by the victors—in this case the Tudor family, whose killing of Richard, the last of the Plantagenet kings, won them the crown in the Wars of the Roses. The Leicester remains are those of an adult male of Richard's age (about 32) at the time he died. The back of the skull reveals it was cleaved with a bladed instrument, which accords with written reports about the manner of his death. An examination of the spine asserts the strongest link: an obvious curvature known as scoliosis, which the Tudors exaggerated mercilessly. The remains were uncovered in the choir chamber of the Friars Manor ruins, the spot listed as Richard's burial site in a prominent period report. Researchers plan to compare mitochondrial DNA from the remains with DNA from one of the king's descendants to see if they can confirm a match.



IN THE DEEP BOSOM ... *The precise location of the Friars Manor ruins was unknown until 2012.*

IT JUST AIN'T SO ...



GARDEN OF STONE *Urn after urn at Carthage contains the cremated remains from multiple children of varying ages from several different families.*

Child Sacrifice Debunked

Among the world's more gruesome tourist attractions is the Tophet of Carthage (in modern-day Tunisia), an ancient burial ground containing the charred remains of 20,000 infants interred there between 730 and 143 B.C. Not a trace of adult remains has ever been found in the site's acre-size field, just infants, young goats, and lambs—which has led to its reputation, beginning with anti-Carthaginian propaganda from Greek and Roman enemies, as a place of barbaric, ritual child sacrifice.

Now interpretations of the Carthage curiosity are becoming far less ghastly, thanks to Jeffrey Schwartz of the University of Pittsburgh, whose study of the site was published in *Antiquity* in 2011. Schwartz asserts the

Tophet was merely a cemetery reserved for infants who died mostly of natural causes and were buried there after cremation. Carthaginians, it seems, did not view children under the age of 2 as full-fledged people because they were incapable of holding religious beliefs. And if infants were not worthy of adult-style burial, Schwartz postulates, how could they be deemed worthy of sacrifice? He argues that the preponderance of prenatal evidence found at the Tophet indicates that the deaths cannot be attributed to live sacrifice. Schwartz examined 348 urns containing 540 individuals from the Tophet. By measuring cranium sizes and tooth development, he found that nearly 20 percent of the infant Carthaginians died as the result of spontaneous abortion or from stillbirth. As for the goats and lambs, Carthaginians routinely offered these prize animals to their god Ba'al Hammon, including them to ensure a loved one's easy passage into the afterlife or to seal a prayer for the next child to be granted a longer life.

CLOCKWISE FROM TOP LEFT: GETTY IMAGES; DARREN STAPLES/REUTERS; DENNIS G. JARVIS