



dig™

Rome Lives Again!

**Grisly
Displays
of Victory**

**Bullfights
in the
Colosseum**

**THE LION THAT WAS
ROME**

Published in partnership with Archaeology magazine

ETERNAL ROME!

A politician's voice heard above the crowds assembling in the Forum, the ring of soldiers' hobnails pounding the streets leading out of the city, the roaring of lions in the grand Colosseum—just a few of the images that come to mind when anyone says the word "Rome." But are these images accurate? Well, *DIG* went in search of answers. And the finds are quite amazing! So, too, are the stories each site had to tell. "Eternal Rome" is bound to have a different ring to it after you read this issue. So, hop aboard *DIG*'s 21st-century chariot for the best spin through the city you've ever had—complete with Virtual Reality's recreations of the major sites!

ABOUT THE FRONT COVER:

"Roar! Be quiet a moment and heed my words as I use *DIG* to tell the tale of mighty Rome. I have seen much in the almost 2,800 years since Rome was born!"

Ancient Romans certainly would heed such a call, and reenactors such as this man representing a Roman soldier around 27 B.C. wants us to do the same. He proudly wears a lion headskin, the mark of an honorable soldier who has been named the standard bearer for his regiment. In battle, he carried his group's banner, an important rallying point in the midst of fierce fighting. (Photo: REUTERS/Alessandro Bianchi)



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DIG would like to thank **Diane Favro** (director of UCLA's Experiential Technologies Center), **Angela Murock Hussein** (archaeologist), and **Christine Testa Renaud** (chair of the Classics Department at Carthage College in Kenosha, Wisconsin) for their invaluable help with the issue.

8 **In the Beginning**
Here's where fact and fiction meet. Find out which is which!
by Angela Murock Hussein



8

12 **The Empire's Finest!**
Honoring the protectors of the empire is their goal.
by John G. Peine

14 **What's What With the Rostra?**
No need for a newspaper when you have the *rostra*!
by Sarah Linn

16 **Rome Lives Again!**
Here's how to see Rome as the ancients saw it.
by Chris Johanson

18 **Living Ruins**
Think the Colosseum "died" with the Romans? Then think again!
by Kim Zarins



12



16



20 **The Colosseum**
The elite had it all—
even porta-potties!
by Diane Favro

23 **Life in the 'Burbs'**
With these comforts, you'd definitely
call this "home sweet home."
by Christine Testa Renaud

24 **A Luxury Villa**
The saying "There's no place like
home" really fits this place.
by Christine Testa Renaud

26 **At-Home Comforts**
Different rooms for different
seasons—find out why.
by Diane Favro



20



26



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departments

2 Ask Dr. Dig

5 DIG Facts

6 Stones & Bones: City Finds,
Skull Facts, Dinosaurs

22 Games: Colossal Word Search
by Charles F. Baker

29 DIG Stuff

30 Index 2007

32 Awesome Art

33 art-i-facts:
The Digital Hypogeum
by Diane Favro

Back Cover What's This?
Peeking Through!

2



29



dig

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Dear Dr. Dig,

My theology teacher said the ancient Egyptians had burnt human sacrifices and used the ashes to heal people. He also said the Egyptians honored Hapi as the creator god and that Hapi and Osiris were the same god. Is he right?

—Anna, Web post

Your teacher is half wrong and half right! The ancient Egyptians did not practice any form of human sacrifice, and they did not use human ash to heal people. But the gods Hapi and Osiris do share some of the same functions. This does not mean that they are the same. Lots of Egypt's gods share responsibilities, but both Hapi and Osiris were fertility gods. There were other creator gods, including the solar gods Atum and Re.

Dear Dr. Dig,

My home-school co-op learned that the Aztecs used a beetle to make red dye, but we want to know how they would have made blue dye. Did they use a special plant, or some type of mineral?

—Jessie, Web post

The Aztec and Maya peoples used cochineal, made from the dried bodies of a cactus-eating insect (known to scientists as *Dactylopius coccus*), to make a bright red dye. They used a form of indigo, made by processing plant leaves, to make a blue color. They called this blue dye *xuiquilitl*.



Dirt, Mummies, Dentists, and More

Dear Dr. Dig,

Where did they put all the dirt that they excavated from Herculaneum and Pompeii?

—Emily Salmon, Idaho

In A.D. 79, the volcano Vesuvius erupted, burying the towns of Pompeii and Herculaneum under approximately 19 1/2 feet of rock and ash. Archaeologists started investigating the site in the 18th century, and they are still working there today. At first, the dirt was carried away in buckets by workmen. Then, it was moved in wheelbarrows. Finally, a small railway track was fitted to help move the heavy dirt. Archaeologists like to dump their “spoil” (unwanted dirt from the excavation) in spoil heaps as near to the site as possible without actually dumping it on top of the site. More than 200 years of excavations must have produced a great deal of spoil—it seems that some at least was dumped on the outskirts of the town. Some recent deep investigation trenches have been filled up with dirt again.



Dear Dr. Dig,

Who were the first people to purposely mummify their dead?

—Sy, Web post

The Chinchorro people of northern Chile and southern Peru deliberately mummified their dead between 6000 and 1500 B.C. This compares with the ancient Egyptians, who started to mummify their dead in approximately 3100 B.C.

ASK DR. DIG!

Dr. Dig is archaeologist Joyce Tyldesley, and she loves to talk to kids about her favorite subject—archaeology. She is eagerly waiting to answer your questions about the mysteries of Egypt, animals, early peoples, and anything else about the past. Just send them to:

Dr. Dig, *DIG* magazine, 30 Grove Street, Suite C, Peterborough, NH 03458 or send an e-mail to askdr.dig@caruspub.com (Please include your name, age, and town with your question.)

more

Dear Dr. Dig,

In ancient times, did people have dentists?

—Virginia, Web post

Yes, scientists have found archaeological evidence that teeth were being drilled in the Indus Valley, Pakistan, 9,000 years ago! The Babylonians believed that toothache was caused by the “tooth worm.” And the ancient Egyptians had dentists. But few people made regular visits to the dentist, and, as the ancients had little understanding of dental hygiene, many people lost their teeth at a very young age.

Stones & Bones

by Charles F. Baker

NEWS . . . DISCOVERIES . . . HISTORY . . . FACTS . . . CULTURES . . . ANIMALS . . . MYTHS . . . SCIENCE

DIGGING DEEP! DOWNTOWN FIND

At first glance, the downtown area of Mexico City, the capital of Mexico, seems the least likely place for an archaeological dig. Cars, trucks, people—all jostle each other as each heads for his or her destination. But when the call came from a construction team renovating a building that workers had uncovered bits of black basalt flooring and pieces of an ancient wall near the National Palace, archaeologists headed straight to the area. Many scholars had long believed that after the Spanish defeated the Aztecs in the early 1500s, they had built their city (present-day Mexico City) atop the ruins of a palace belonging to the conquered Aztec chief Montezuma. Now the new finds offer evidence that the archaeologists were correct.

Accounts tell of Montezuma's *Casa Denegrída*, or "Black House," right within the walls of the palace. It was here, in this windowless area, that the mighty

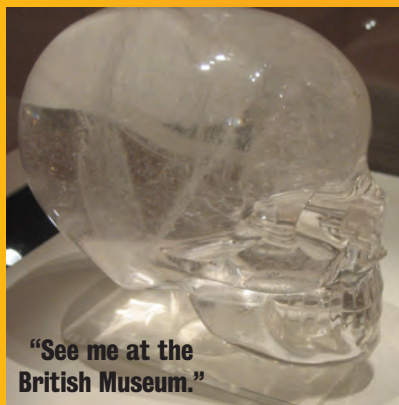


"Amazingly intact!"

Aztec chief was said to have gone when he wished to reflect on the advice given him by shamans and soothsayers. Check your newspapers and breaking-news Web sites for future details, especially since this room was part of a palace complex that housed a zoo and rooms for his wives and children.

FALSE FACTS!

HERE'S ONE FOR INDY!



"See me at the British Museum."

University (both in the U.K.) and the Smithsonian (in the USA) that says "No!" Since 1897, the British Museum has housed a life-size skull cut from a single block of crystal. While its exact origins were a mystery, its shape and details seemed to suggest that it had been fashioned in ancient Mexico. Surviving remains of Aztec art and

sculpture often featured human skulls. There was also documented evidence that the Aztecs thought crystal skulls had the power to heal. Wonder if there really are crystal skulls? Well, there's new research out from Cardiff University and Kingston

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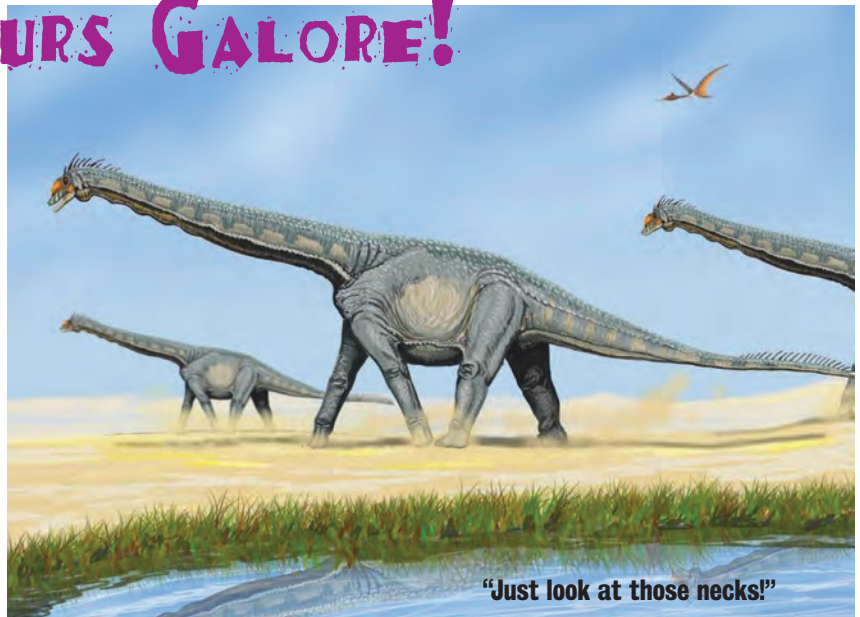
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WOW!

DINOSAURS GALORE!

2008 proved to be a banner year for paleontologists digging in Utah. Scientists from the Burpee Museum of Natural History (that's the museum in Rockford, Illinois, that houses the remains of "Jane," an 11-year-old *Tyrannosaurus rex*) were not surprised when they uncovered dinosaur bones—they had done the same on many previous digs. But all changed when they began unearthing what appeared to be—and did indeed prove to be—a group of partial and complete skeletons. At least two of the finds were meat-eating dinosaurs, and four were sauropods, the largest animals ever to roam the earth, some measuring as much as 130 feet long.

Today, the area is high and dry, but, according to geologists who have been studying the area, some 145 to 150 million years ago it lay at the bend of a wide river. Most likely there was some feature in the riverbed, perhaps a section that rose above the surrounding areas. Such a raised area would have acted as a stop barrier to the corpses of



"Just look at those necks!"

dinosaurs and whatever else may have been carried downriver when severe weather caused the river's waters to overflow its banks.

Is there more to learn? Definitely! This stop barrier may have carried more than what has thus far been discovered, maybe even the bones of flying reptiles and mammals. If so, they could help answer many of the questions paleontologists still have about these now-fossilized ancients.

JOKE



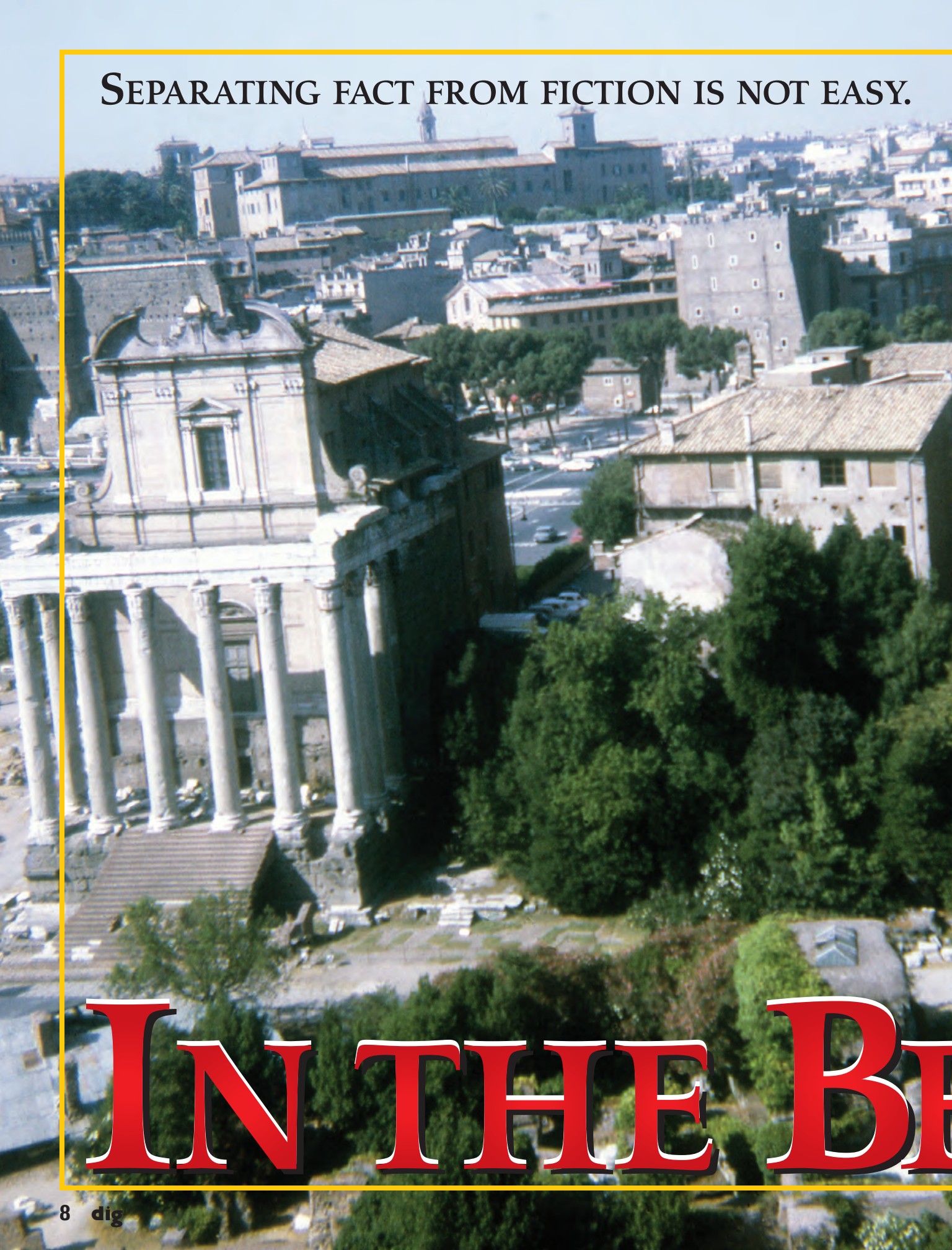
**1st Roman Soldier:
What is the time?**

**2nd Roman
Soldier:
XX past VII!**

—by Chip Baker

illustrated by Tom Lopes

SEPARATING FACT FROM FICTION IS NOT EASY.



IN THE BE



The Capitoline Wolf (see also page 10)

Legend has it that the city of Rome was founded on April 21, 753 B.C. And the Romans still celebrate the date as the city's birthday! The founders were the twin brothers Romulus and Remus, and the site was the spot where the boys had been abandoned as infants. A wolf, so the story goes, nursed the two until a shepherd happened upon them and brought them to his wife.

Records tell of a settlement on the Palatine Hill, overlooking the Forum area on one side and the Tiber River on the other. Because Rome was rebuilt frequently throughout its history, there is little evidence of this early period. Yet, excavations have yielded some valuable clues, and new data is uncovered every year. Among the finds is evidence of cemeteries that lay near the ancient city center and date back to around 1000 B.C.

The view from the Palatine Hill across the Forum area. Strip away the buildings and imagine the valley between the bushes as it was about 3,000 years ago—a burial ground between the settlements on the hills.

by Angela Murock Hussein

BEGINNING

A WOLF'S DEN

Also uncovered are cuttings for the foundations of round mud huts that would have had roofs of straw. These were found on the Palatine and date to the time of the founding of the city. A startling recent find is a cave, located underneath the Palatine Hill. Further analysis may prove the site was the very one the ancient Romans believed was the legendary den of the wolf that nursed the twins. This cave, called the “lupercal” (from *lupus*, which is Latin for “wolf”), was decorated and used as a shrine during the Roman Republic and Empire.

Just north of the Palatine settlement, in what is today the Roman Forum, there was a cemetery where the cremated remains of the ancient Romans were placed

Dr. Dig says:

For centuries, this bronze wolf was honored as an ancient sculpture

fashioned by the Etruscans, who flourished before the Romans took their territories. The damage to the back left leg and paw was, according to the Roman statesman Cicero, the result of lightning that struck in 65 B.C. The twins, Romulus and Remus, were fashioned during the Renaissance. But a news announcement in 2008 stated that radiocarbon testing dated the wolf to the Middle Ages.

If true, where then is Cicero's “wolf”?

in clay urns shaped like their round houses.

Recently, a team led by archaeologist Andrea Carandini uncovered a large structure at the foot of the Palatine.

Measuring 1,130 square feet, it is much larger than the typical houses on the Palatine and had an impressive façade and rooms



EARLY ROMAN HERO Fabricius

The Romans sent Fabricius to the city of Tarentum in southern Italy in 280 B.C. to negotiate the return of fellow Romans taken prisoner by the Greek commander Pyrrhus at the Battle of Heraclea. Pyrrhus tried to bribe Fabricius with gold and other enticements, but Fabricius refused to do anything dishonest. Impressed by his honesty and patriotism, Pyrrhus agreed to free his fellow Romans—and at no cost.



arranged around a large courtyard. The building most likely was used as the residence for someone of extremely high status, possibly a local ruler.

WHAT'S WITH THE “BLACK STONE”?

One of the longstanding mysteries in the Forum is a monument that even the ancient Romans could not identify with any certainty—the *Lapis Niger*. When archaeologists excavated the area under the pavement, they found a small shrine with artifacts dating from the

The Digital Lapis Niger

R.D. JUNE 21, 320

Lapis Niger means “Black Stone,” referring to a pavement surrounded by a low wall in front of the Senate House (Latin: *Curia*) in the Roman Forum. Dated to the first century B.C., it covers a much more ancient shrine below ground that contains the oldest surviving Latin inscription. Conflicting traditions held that the *Lapis Niger* marked the tomb of Rome’s founder Romulus or of the shepherd Faustulus, who cared for young Romulus and Remus or of Hostus Hostilius, the grandfather of Rome’s third king Tullus Hostilius.

—by Chris Johanson

fifth to the seventh centuries B.C. The shrine includes an altar with statue bases that once supported sculpted lions. There is also a stone, inscribed with a phrase that is written in a very old version of Latin and that includes references to a king. According to ancient Roman historians, Rome had been ruled by kings from the eighth century to the late sixth century B.C., and it is this monument that offers evidence that there may be some truth to the story of Roman kings. In the first century B.C., the time of

Julius Caesar, the altar and inscription were still visible. Soon after, however, they were buried and covered with the black stone paving.

ROME’S ROUTE 50

The land west of the Palatine Hill borders the Tiber River, a waterway the ancients used as a highway. Along its waters farm produce from the countryside made its way to the city. A close look at some market names in Rome reflects this early trade along the Tiber—the *Forum Boarium* (“cattle market”) and the *Forum Holitorium* (“vegetable market”).

In the *Forum Holitorium*, which now lies under the Church of Sant’Omobono, archaeologists have uncovered foundations of early temples. A small one dates to the sixth century B.C., the time of Rome’s legendary kings. This temple appears to have been constructed of wood, with terra-cotta roof decorations. Among the finds in this temple are pieces of Greek pottery and an ivory lion with an inscription written in Etruscan. According to the ancient Romans, the last three of Rome’s seven kings were Etruscans, a people living to the north of Rome at the time.

Angela Murock Hussein is an archaeologist who has worked on digs in Israel, Italy, Greece, and Egypt. She lives in Providence, Rhode Island, with her husband and son.

EARLY ROMAN HERO

Regulus

The Carthaginians lost to Rome in 256 B.C., but they were not about to surrender. Rather, they regrouped to fight again. When two forces met on the battlefield the following year, the Carthaginians won. They then sent a Roman named Regulus, whom they had taken prisoner, back to Rome to negotiate a treaty. Regulus was to return once the agreement was negotiated. Despite the protests of his fellow Romans, Regulus remained true to his word and returned to Carthage, where he was subsequently tortured to death.



Write to me!
askdr.dig@Caruspub.com





The Empire

by John G. Peine


Salve! ("Hail") from Legion XIII GMV!

Glinting silver-crested helmets, armored men in red tunics, blaring horns, and wind-blown banners—all a common sight in ancient Roman times. But, for the members of Legion XIII Gemina Martia Victrix (GMV), the scene is quite modern.

Re-creating History

While the ancient Legio XIII served the Romans for 400 years, the modern unit began in 2001. Today it has 30 members—from Wisconsin, Illinois, and Iowa. A nonprofit organization, Legion XIII is devoted to the reenactment of ancient Roman life and the education of those interested in this period of Western history.

Among the 21st-century legionaires are a teacher, architect, computer specialist, prison



Soldiers of Legion XIII advance in *testudo*, or battle formation, protected by their shields.

re's Finest

guard, minister, art conservator, graphic artist, and medical technician. All share a passion for everything ancient Roman and see reenacting as a way to better understand the past.

Today's Legion XIII meets at fabricums, gatherings that occur a few days prior to an event such as an encampment, parade, or festival. Stories are shared, armor repaired and polished, marching drills practiced, and future plans made. While members are not required to speak Latin, this ancient language is used for the names of most equipment and for basic orders.

A Noble Beginning

The Roman general and statesman Julius Caesar founded Legion XIII in 57 B.C. Its modern counterpart, however, focuses on reenacting life in the first century A.D., when the Legion's members were on duty in northern Europe. At the time, most of the soldiers came from the Po River Valley in northern Italy and fought in Gaul (modern-day France). The unit was disbanded around A.D. 400.



Dr. Dig says:

A legion (*legio* in Latin) is a Roman military unit. In early Roman times, the Romans wrote the number 14 as XIII. Later, it was simplified to XIV, which is more familiar today.



A Legion XIII reenactor—in winter.

The legion had its share of military combat. While under Caesar's command in Belgium, it was almost destroyed. Later, after it joined forces with soldiers from the Martia Legion in 31–30 B.C., it acquired the name *gemina*, meaning “twin.” The Roman emperor Nero granted the legion the use of *Victrix* (“victorious”) for its role in suppressing the revolt of the British queen Boudicca in A.D. 60. The soldiers in the opening scenes of the

2000 movie *Gladiator*, which supposedly re-creates Rome around A.D. 180, belong to Legio XIII.

A Common Bond

Today's Legion XIII is one of several reenactment groups. While those re-creating Civil War military units have been common in this country for many years, those wishing to explore other time periods, especially ancient periods, had to turn for help to reenactment groups in England and Italy. Clothing, weapons, armor, and equipment are either handmade or purchased from manufacturers in India, Spain, and the United States. Where possible, authentic materials and methods are used. For more about Legion XIII, click on: www.legionxiii.com/index.html

John G. Peine, a member of Legion XIII GMV and an architect by profession, studied architecture in Rome and has designed buildings in the U.S. and Saudi Arabia.

From Settlement to Empire

Rome's legendary kings ruled from 753 B.C. to 510 B.C. The Republic followed, when the people elected their representatives. The move from republic to empire came only in 27 B.C., under the statesman Octavian, who became Caesar Augustus.

As Rome evolved, the lands it ruled continually increased. The expansion reached its height under the Emperor Trajan (A.D. 98–117). Just a few hundred years later, in 476, foreigners from the north took control of Rome and deposed Romulus Augustulus, the last emperor of the Western Roman Empire.

Key to Rome's rise to power were the thousands of soldiers who fought under the city's standards. Stationed in outposts, both near and far from the city, they spread Rome's ideals, beliefs, and culture. While the names of some are well known for their exploits, countless others are nameless. Today's reenactors, including the members of Legion XIII GMV, honor their bravery and devotion to duty, using archaeological finds and surviving records to help them re-create life when Rome's “finest” were safeguarding the empire.

What's Wh

by Sarah Linn

Rome's *rostra* are best known as platforms used for public speaking. And, it was from these platforms that such distinguished statesmen as Marcus Tullius Cicero (106–43 B.C.) addressed the people.

The term *rostrum*—singular of *rostra*, which is Latin for “beaks” or “prows”—refers to the bronze prows that were taken from ships captured by Roman forces. The first *rostra* were those taken in the naval battle at Antium in 338 B.C. (see opposite). The Romans affixed these to the platform in Rome that was connected to the Comitium, a circular area in the center of Rome where the early kings traditionally met on government business. As the Comitium was circular in shape, the platform had a curved back.

After the ouster of the kings, the area became a meeting place for the representatives of the Roman people. The Comitium and *rostrum* continued as a meeting place into the first century B.C. Men who wished to address the Roman people would mount the *rostrum* to speak.

As Rome's population increased, so, too, did the need for a larger Comitium. In 44 B.C., the statesman Julius Caesar dismantled the old *rostrum* and began building a new one in the northwest area of the Forum. Shortly after work began on the new structure, Caesar was assassinated. His nephew and successor, Octavian (later called Augustus) ordered its completion.

It was from the new *rostrum* that Mark Antony delivered a speech in honor of the murdered Julius Caesar. Not everyone, however, agreed with Antony, and Octavian, with two colleagues, joined

What With the Rostra?



The Digital Rostra

A.D. JUNE 21, 320
The speaker's platform in ancient Rome.

After Rome's decisive victory over the Latins in 338 B.C., General Gaius Maenius removed the bronze prows, or *rostra*, of conquered ships and placed them on the speaker's platform in the Roman Forum. Although the speaker's platform was subsequently moved and rebuilt, the nickname "rostra" remained and refers to any platform used by speakers.

—by Chris Johanson



forces against the pro-Caesar troops. Each of the three men affixed to the *rostrum* the names of their enemies, condemning each to death. Among the names included on the list was Cicero's. After his execution, his head and right hand were fastened to the *rostrum*.

Octavian ordered another platform built.

To it he attached the prows of the vessels he defeated in 31 B.C., when his forces routed those of Antony and Cleopatra at the battle of Actium off the coast of Greece.

Sarah Linn, a graduate student at the University of Arizona with an interest in Bronze Age jewelry, has dug at Mt. Lykaion in Greece.

ROME LIVES AGAIN!

**COME TRAVEL BACK IN TIME!
SEE THE ANCIENT CITY OF ROME,
TALK TO ITS INHABITANTS,
AND EXPERIENCE THE LIFE
OF AN ANCIENT ROMAN.**

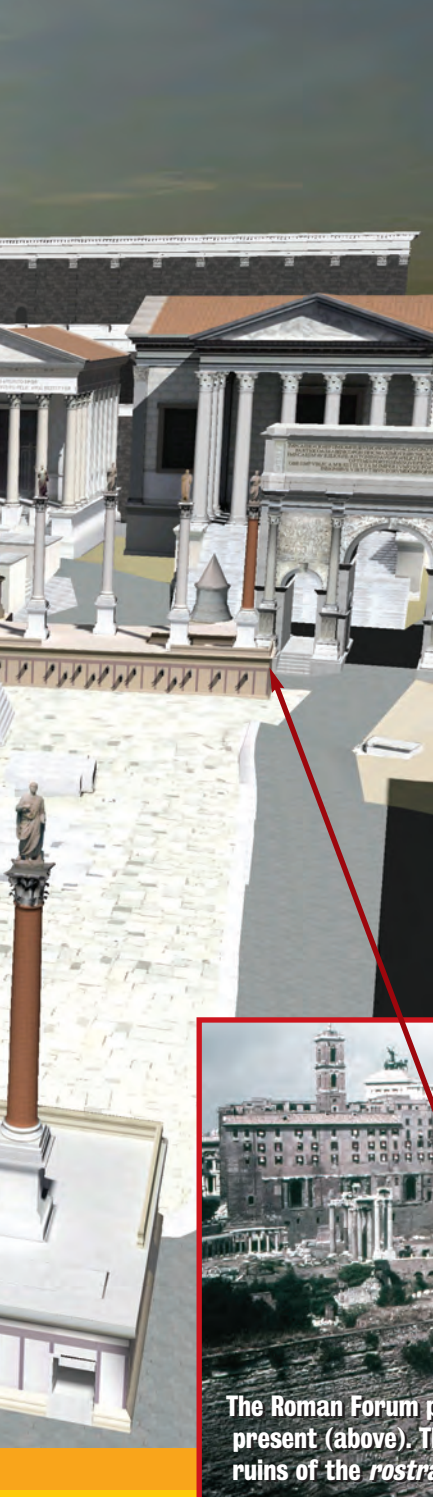
Such a sign at an amusement park would be sure to attract people of all ages. But, what would they see? Most likely, a Virtual Reality (VR) show. And, even though VR cannot transport you physically back to the past, it can let you explore the past visually in new and extraordinarily useful ways.

JOYSTICKS AND GYROSCOPES

VR is a combination of digital technologies that gives the user a sense of being “somewhere else.” The technologies range from simple desktop computers to fully Immersive VR helmets and rooms that resemble *Star Trek’s* holodeck, complete with 3D images and soundscapes that trick the mind into thinking it is moving within a fully realized, three-dimensional world. Interactive devices, such as simple joysticks and more advanced, magnetically and ultrasonically tracked gloves and wands equipped with gyroscopes, let you move through and interact with a virtually created world.



The Digital Roman Forum is the creation of a multidisciplinary project that uses the tools of VR to examine archaeological evidence and hypothetical reconstructions. To develop the program, teams of students and professors at the University of California at Los Angeles (UCLA) and the University of Virginia (UVA), working in conjunction with a scientific committee of experts, evaluated the available evidence. The latter included plans, sections,



The Digital Roman Forum

A.D. JUNE 21, 320

The digital reconstruction of the civic center of ancient Rome shows what scholars today know about each of the buildings in the Forum.

—by Chris Johanson



The Roman Forum past (opposite) and present (above). The arrow links the ruins of the *rostra* with the VR view.

elevations, representations on coins, wall paintings, and similar structures. Based on their evaluations, team members then built their interpretation of how Rome might have looked on A.D. June 21, 320.

BUILDING IN SPACE

The process of making the reconstructions is as valuable as the VR experience. Building in three-dimensional digital space rather than

drawing on paper, the researchers must address questions that onsite archaeologists do not always explore: gaps in the evidence, access to upper floors, natural lighting, sightlines, and the spaces between structures.

The teams first created the individual monuments with virtual building blocks covered with textures. Each individual reconstruction project required extensive onsite data collection and much study in libraries throughout the world. For example, excavation reports from digs in 1901 might be combined with hypothetical drawings made by scholars in the 1950s. Evidence and sources, however, were often at odds with each other, and it was the job of the committee to evaluate the evidence and decide how to fill in the gaps. The team members' interpretations represent what we know today about each monument. Since many of the reconstructed buildings are now mounds of rubble, scholars may evaluate the evidence differently. Thus, the resulting alternative reconstructions turn the VR model into an experimental laboratory.

HOW CELL PHONES HELP

The future of VR in archaeology will likely be more portable and more realistic. As computing tools advance, the sense of realism and immersion will improve. In addition, digital reconstructions will also connect

directly to field experience. In fact, there are already projects that let users point a portable media device, such as a cell phone, at archaeological remains to see views of the reconstructed buildings over time. Using this technology, the person onsite can experience the past and present at the same time.

Chris Johanson, whose research centers on the Roman funeral, ancient topography, interdisciplinary geo-temporal studies, and digital humanities, is a faculty member of the Classics Department at UCLA.



The Digital Colosseum

R.D. JUNE 21, 320

The towering exterior of the Colosseum rose approximately 170 feet in height. On the upper level, wooden poles were set in sockets to support an awning.

The Colosseum

by Diane Favro

The Flavian Amphitheater is more commonly known as the Colosseum, a name that traces its origins to the nearby colossal statue the emperor Nero had fashioned of himself. The huge structure rose 170 feet in height and held approximately 50,000 people. The most important citizens—including senators, magistrates, and the emperor—sat on soft cushions atop the lowest stone benches. This area offered the best views and easiest access. Less important Romans—including women, slaves, and the poor—were directed

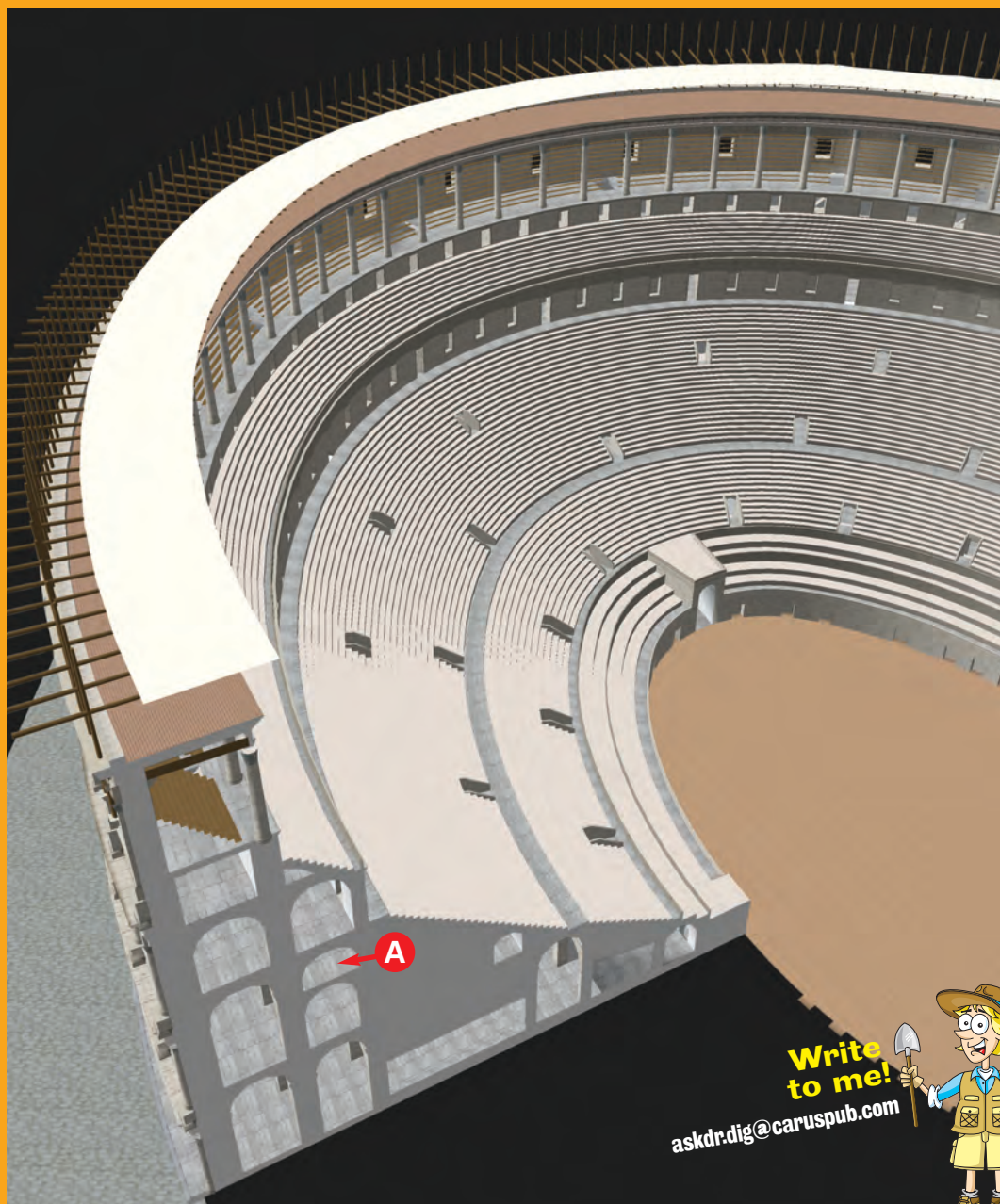
to wooden bleachers at the uppermost levels. With no public elevators, they had a long and arduous climb to these seats, located at the height of a 16-story building. From this lofty position, they had to squint to see the action in the arena far below.

The architects of the Colosseum carefully designed the circulation paths. When exiting, the nonelite spectators were funneled through a narrow, relatively low, vaulted passage seen in the cutaway view at right (A). The resulting congestion slowed the progress of low-status

um

Computer model showing a cutaway view of the Colosseum. The upper two levels may have been added in a second building phase and were reached by passing through a much smaller vaulted tunnel.

—by Chris Johanson



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spectators, leaving ample time for important citizens to exit from the lower seats.

Many ancient sources describe a great cloth awning, or *velarium*, that covered the amphitheater and provided shade from the hot sun. A special brigade of sailors was assigned to unfurl the sail-like covering. At the upper level, 240 brackets are thought to have held wooden poles for the awning, yet how the rigging functioned is uncertain. Modern experimental re-creations of Roman awnings over amphitheaters have not functioned well.

This digital reconstruction uses the maximum size of wooden timbers available in antiquity and shows a possible arrangement of the awning. Yet,

as you can see, this solution would have sheltered only the less important spectators and thus is questionable. The designers provided spectators with other amenities such as drinking fountains supplied by lead pipes and public latrines cleaned with running water pumped to locations along the vaulted corridors beneath the seats. Such facilities were not necessary on the lower levels, where the more important citizens had slaves who provided food and drink, as well as chamber pots.

Diane Favro is a professor of architecture and urban design at UCLA and director of the UCLA Experiential Technologies Center. Her research focuses on ancient Roman architecture and urbanism and the uses of digital technologies for teaching and research.

We want to hear from YOU!



Digging Dinosaurs in Utah

by Charlie Epting

I recently had an opportunity to go to Utah with the Dinosaur Institute/Los Angeles County Museum of Natural History as part of the 2008 Thornbury Expedition. The trip was led by the museum's well-known paleontologist Dr. Luis Chiappe.

My dad and I were there for several days, during which we excavated 150-million-year-old fossils, prospected for fossils, and jacketed fossils in the hot desert sun. "Jacketing" is a simple but time-consuming procedure that involves covering a fossil with burlap strips dipped in plaster to protect the fossil on its trip back to the museum. We also helped to excavate bones in a quarry that had been exposed, including the humerus bone of a giant sauropod.

I am 14 years old and I dream of being a paleontologist. This was truly an amazing experience that makes me want to do this kind of work much more in the future. It was incredible working with Dr. Chiappe and his team from the Dinosaur Institute. They are doing some very important work and I'm eager to see how it enhances the L.A. Natural History Museum.

Editor: Charlie, *DIG* looks forward to having you write on your work—once you're a palaeontologist!

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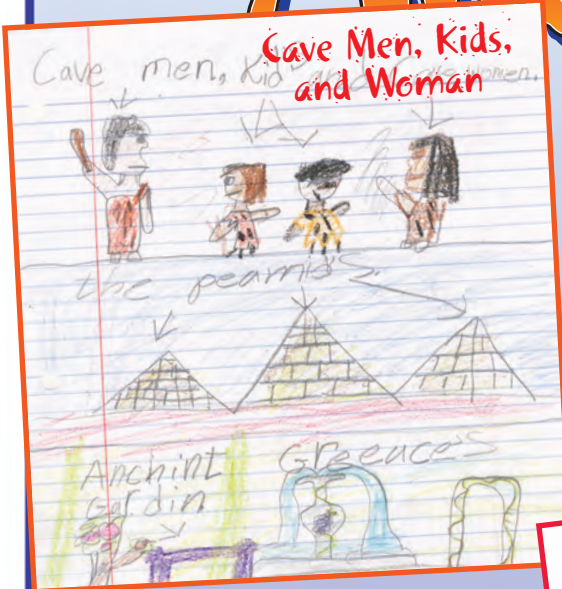
Charlie Epting poses next to the sauropod bone that he helped excavate in Utah. Today, the bone is being prepared at the Los Angeles County Museum of Natural History.

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Answers:

Page 22: Colossal Word Search:

I	D	L	A	B	I	N	N	A	V	E	L	A	R	I	U	M	V
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The Latin name for the "wild beast fight" held in arenas is **VENATIO**, and the two contenders in such a battle are the **BESTIARIUS**, and **WILD ANIMALS**.

THE DIGITAL HYPOGEUM

Fantastic factoids about ancient sites, historical objects, and amazing discoveries

Many different types of presentations occurred in the Colosseum. Best known are the bloody fights between gladiators. Contrary to common belief, however, a wounded performer hoped the crowd would signal thumbs down, not up, to indicate that they, the fighters, should throw down their swords and that he be allowed to live. Presentations in the Colosseum also included reenactments of important battles, circus acts (one well-known performance included an elephant walking a tightrope), and fights between exotic animals such as rhinos, tigers, zebras, and camels.

Covered with sand, the Colosseum's main floor (a) was called the *arena* in Latin—the root of our English word for a staging area. Beneath were service corridors, rooms for the gladiators, storerooms, cages for wild animals, ramps, and more than 28 mechanical lifts that were operated with counterweights and winches. Known as the *hypogeum* (b), this area was dank and dark, lit by candles and oil lamps and filled with the horrifying smells and the roars of animals. An underground tunnel led directly to a nearby school for gladiators.

Recently, an archaeological team from the German Archaeological Institute carefully studied the *hypogeum* and the ingenious pulleys and levers designed to open gates and hoist cages (c) and scenery from the shadows up to the arena floor with split-second precision. The animals and scenery would burst into the sunlight as if by magic, causing the crowds to gasp in fear and amazement.

—Diane Favro

