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COVER: In 1929, Charles and Anne Lindbergh photographed Pueblo del Arroyo, a great house in Chaco Canyon.

CREDIT: Lindbergh Collection, MIAC/Lab MIAC Cat. # 70.1 / 149

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Clearing The Fog Of War

Battlefield archaeology is an up-and-coming sub-discipline that is demonstrating that the use of modern archaeological techniques can add huge amounts of new, reliable data to the story of warfare. As every historian knows only too well, the chaos and obscurity of warfare lead to distorted histories. Adding modern archaeology to the mix helps to clarify events that are often misunderstood.

In this issue of American Archaeology (see “A Tour Of Civil War Battlefields,” page 26), we feature a tour of battlefields from southern Pennsylvania to central Virginia. Many of the dozens of Civil War battlefields in the area are now being preserved by the National Park Service, state parks, and others. These preserves are a treasure trove of information about America’s greatest conflict. Using developing technologies, archaeologists are beginning to add significant new information to the myriad accounts and histories of the conflict.

In the 1980s, NPS archaeologist Douglas Scott did pioneering work at the Little Bighorn battlefield in Montana using teams of volunteers with metal detectors to map the course of the battle. His work rewrote what happened at the famous conflict. Using similar methodology, Albuquerque archaeologist Matt Schmader was able to map and describe a battle that took place between Coronado’s army and pueblo natives in 1541.

The possibilities are endless.

This new field of study can only prosper if the sites of American military encounters are preserved, and the Conservancy has been working to do just that by preserving forts and battlefields across the country. But development and looting continue to take a toll. Armed conflicts play an essential role in the human experience and working to better understand them will pay enormous dividends.

Mark Michel

President

The possibilities are endless.
Letters

Doubting The Doubter
In the Spring 2017 News article “Study Concludes Canadian Site Is 24,000 Years Old” about the possible 24,000-year-old cuts made by humans on a horse jawbone, I keep thinking about the doubt expressed by archaeologist Gary Haynes that the scratches on a horse jawbone were human-made. How and why could all the scratches be the same type in a narrow parallel band if they were formed by nature?

It would be even more unlikely if the same situation were found repeated on other bones, and the questionable likelihood that they were done by nature’s hand grows greater yet if the cuts are all very likely spots where humans would carry out butchering.

Finally, if any cuts crossed one or more other cuts, wouldn’t that mean the crossing cuts were done at a different time...even just seconds apart, but not at one single swipe, or trample? How extraordinary for nature to have done all this repeatedly on bones that would have been likely sites for human butchering!

Phil Yost
Las Cruces, New Mexico

Very Ancient Geometry
A physicist-statistician might not know about Hopewell, but the editors of American Archaeology should have commented on her ignorance in the statement that her work produced the “first potential quantitative evidence of knowledge of advanced geometrical constructs in a prehistoric North American society.” (See “Ancient Architects Used Geometry,” page 10, Spring 2017).

A thousand years before Mesa Verde Ancestral Pueblo buildings, the Hopewell filled southern Ohio with dozens of complexes of precisely engineered pure geometric earthworks. These works, which from the air look like a textbook of Euclidean geometry, also used a standard measurement unit, and many were astronomically oriented.

Alice B. Keboe
Professor of Anthropology, emeritus,
Marquette University

American Archaeology welcomes your letters.
Write to us at 1717 Girard Blvd. NE, Albuquerque, NM 87106, or send us e-mail at tacmag@nm.net. We reserve the right to edit and publish letters in the magazine’s Letters department as space permits. Please include your name, address, and telephone number with all correspondence, including e-mail messages.

Editor’s Corner
It’s very possible that you’ve heard of Kennewick Man, but what about Gordon Creek Woman? Maybe you’ve read something about Spirit Cave Man, or possibly Arlington Springs Man, but more than likely the name Minnesota Woman means nothing to you. Have you heard of Leanne, or Shuká Káa?

In our feature “The Fates Of Very Ancient Remains” (see page 41) we acquaint our readers with these and other highly unusual individuals. What makes them so unusual is that they are among the few sets of human remains found in the U.S. that are 8,000 years or more in age. As our article explains, while these individuals have great antiquity in common, they often have very little else.

Though it’s likely that he was just another face in the crowd when he walked the earth some 8,600 years ago, Kennewick Man achieved posthumous celebrity. Scientists and Native Americans waged a protracted, expensive, and highly-publicized legal battle for the right to claim him. Though they lost in court, the Native Americans ultimately prevailed, and this long drama ended early this year when Kennewick Man was reburied.

Native Americans also engaged in a long legal battle to claim 10,600-year-old Spirit Cave Man, and they, too, recently prevailed. But meanwhile 11,000-year-old Leanne and her elder, 13,000-year-old Arlington Springs Man, have been in the custody of museums for decades. The Natives haven’t claimed them, and consequently the lawyers and media have ignored them.

Why the difference? As one archaeologist noted, “It’s case by case, tribe by tribe, and location by location.”

Michael Baruza
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Why Save Archaeological Sites?
The ancient people of North America left virtually no written records of their cultures. Clues that might someday solve the mysteries of prehistoric America are still missing, and when a ruin is destroyed by looters, or leveled for a shopping center, precious information is lost. By permanently preserving endangered ruins, we make sure they will be here for future generations to study and enjoy.

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Funds for the Conservancy come from membership dues, individual contributions, corporations, and foundations. Gifts and bequests of money, land, and securities are fully tax deductible under section 501(c)(3) of the Internal Revenue Code. Planned giving provides donors with substantial tax deductions and a variety of beneficiary possibilities. For more information, call Mark Michel at (505) 266-1540.

The Role of the Magazine:
American Archaeology is the only popular magazine devoted to presenting the rich diversity of archaeology in the Americas. The purpose of the magazine is to help readers appreciate and understand the archaeological wonders available to them, and to raise their awareness of the destruction of our cultural heritage. By sharing new discoveries, research, and activities in an enjoyable and informative way, we hope we can make learning about ancient America as exciting as it is essential.

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American Archaeology (issn 1093-8400) is published quarterly by The Archaeological Conservancy, 1717 Girard Boulevard NE, Albuquerque, NM 87106. Title registered U.S. Pat. and TM Office, © 2017 by TAC. Printed in the United States. Periodicals postage paid Albuquerque, NM, and additional mailing offices. Single copies are $3.95. A one-year membership to the Conservancy is $30 and includes receipt of American Archaeology. Of the member’s dues, $6 is designated for a one-year magazine subscription. READERS: For new memberships, renewals, or change of address, write to The Archaeological Conservancy, 1717 Girard Boulevard NE, Albuquerque, NM 87106, or call (505) 266-1540. For changes of address, include old and new addresses. Articles are published for educational purposes and do not necessarily reflect the views of the Conservancy, its editorial board, or American Archaeology. Article proposals and artwork should be addressed to the editor. No responsibility assumed for unsolicited material. All articles receive expert review. POSTMASTER: Send address changes to American Archaeology, The Archaeological Conservancy, 1717 Girard Boulevard NE, Albuquerque, NM 87106; (505) 266-1540. All rights reserved. American Archaeology does not accept advertising from dealers in archaeological artifacts or antiquities.
NEW EXHIBITS

BLM Anasazi Heritage Center
Dolores, Colo.—“Trowels, Trading Posts and Travelers” tells the story of the Wetherill family, who were early explorers in the Four Corners region and archaeological pioneers at now-famous sites protected in Mesa Verde National Park and vicinity. The Wetherills, a clan of Irish Quakers who emigrated to the Mancos area during the nineteenth century, are credited with first identifying the early Basketmaker culture (pre-Ancestral Puebloan) and with establishing trading posts in remote locations on reservation lands. This is the first time many of the archives and objects included in the exhibit have been on public display. (970) 882-5600 (Through March 2018)

Kansas Museum of History
Topeka, Kans.—Explore the stories of American Indians—the Kansa, Osage, Pawnee, and other native Plains tribes—through the award-winning museum’s exhibition “Early People.” A Wichita grass lodge replica, a Southern Cheyenne style tipi, a Cheyenne war lance, and a 5,000-year-old human effigy head are among the features and artifacts on view. (785) 272-8681, www.kshs.org/museum (Long-term exhibit)

Museum of Indian Arts and Culture
Santa Fe, N.M.—The stunning exhibit “Oblique Views: Archaeology, Photography, and Time” pairs large format aerial prints taken by renowned Arizona photographer and pilot Adriel Heisey with historic aerial photographs of archaeological sites and landscapes of the northern Southwest taken by Charles and Anne Lindbergh in 1929. Heisey rephotographed the Lindbergh images, matching the original perspective and often the time of year and day, highlighting the many changes that have occurred in the nearly ninety years that have passed. Pictures of Chaco Canyon, Canyon de Chelly, and sites in the northern Rio Grande Valley are among images included in this exhibition. (505) 476-1269, http://miaclab.org/current (Through June 19)

Denver Museum of Nature & Science
Denver, Colo.—The fascinating, comprehensive exhibit “Native American Indian Cultures” introduces visitors to the incredible diversity of Native American groups and the practicality and artistry of their everyday objects. Among North America’s native peoples, the rich diversity in traditional and modern lifeways reflects the distinctive regional influences of environment and materials. Explore authentic reconstructed dwellings, including an Eskimo snow house, a Northwest Coast clan house, a Navajo Hogan, and a Cheyenne tipi. The exhibit also features beautifully crafted weavings, basketry, beadwork, and pottery. (303) 370-6000, www.dmns.org/exhibitions (Long-term exhibit)

Textile Museum of Canada
Toronto, Ontario, Canada—The special exhibition “Huicholes – A People Walking Toward the Light” examines the artistic legacy and cultural traditions of a people whose history dates back thousands of years. The Huicholes, known worldwide for their stunning yarn paintings and visionary beadwork, live primarily in the western Mexican states of Jalisco, Nayarit and Zacatecas. A highlight of the exhibit is a series of twenty-six highly symbolic, traditional yarn paintings by late Huichol artist-shaman José Benítez Sánchez, as well as other textiles, ceremonial objects, and photographs of Huichol village life and spiritual traditions. (416) 599-5321, www.textilemuseum.ca (Through September 4)
CONFERENCES, LECTURES & FESTIVALS

World Atlatl Day
June 3, Pueblo Grande Museum, Phoenix, Ariz. The museum and S.A.L.T. (Study of Ancient Lifeways and Technologies), will hold the annual atlatl demonstration and accuracy and distance competition. A stick with a hook on the end to hold the dart/spear, the atlatl is a weapon that predates the bow and arrow. The atlatl increased the distance, speed and force of the dart/spear and was used worldwide for thousands of years. (602) 495-0901, www.pueblograndemuseum.org

Arizona Historic Preservation Conference
June 14-16, Hilton El Conquistador Golf & Tennis Resort, Oro Valley, Ariz. This year’s conference theme “It’s In Our Nature” will focus on how nature affects preservation. Pre-conference workshops the first day will be followed by social networking events, breakout sessions, and informative keynote presenters. There will also be tours to local historic sites. (602) 568-6277, www.azpreservation.com

Plains Indian Museum Powwow
June 17-18, Center of the West’s Robbie Powwow Garden, Cody, Wyo. Dancers, drum groups, and artists from Northern Plains tribes gather to celebrate their vibrant cultural traditions and histories during this two-day event. Men, women, teens, and children compete in various age groups for more than $25,000 in prizes. The Learning Tipi is a popular educational program that invites visitors to discover the traditions of powwow. (307) 578-4102, http://centerofthewest.org

Pecos Conference
August 10-13, Rowe Mesa, Santa Fe National Forest near Rowe, N.M. Professional and avocational archaeologists, students, historians, and tribal members gather under big tents to report on research from across the greater American Southwest. There will be a reception on Thursday evening, a barbeque and dance on Saturday night, and field trips to local sites on Sunday. www.pecosconference.org

Santa Fe Indian Market
August 18-20, Historic Plaza, Santa Fe, N.M. The annual Indian Market, the largest and most prestigious Native American fine art show in the world, transforms the City of Santa Fe with nearly 900 of the continent’s finest native artists showcasing and selling their work. The market is a rare opportunity to purchase artwork directly from professional native artists and learn about contemporary native arts and culture. The plaza and Santa Fe Community Convention Center are the settings for a number of exciting events and programs. In partnership with the Smithsonian’s National Museum of the American Indian, the annual Native Cinema Showcase kicks off an almost week-long film festival on August 15th highlighting the contributions of native films and filmmakers. (505) 983-5220, www.swaia.org

Arizona State Museum
The University of Arizona, Tucson, Ariz.—The new exhibit “Woven Through Time: American Treasures of Native Basketry and Fiber Art” showcases more than 35,000 baskets and other stunning woven specimens from the museum’s collection, which was designated an American Treasure in 2011. This is the largest, most comprehensive, and best-documented collection representing the major indigenous basket-making groups of North America. The exhibit celebrates the region’s ancient and abiding native traditions, featuring millennia-old objects, basketry from the late 1800s and early 1900s, which was both a golden age for the craft and a time of unparalleled cultural trauma, and modern-day masterpieces that speak of cultural resilience and artistic survival. Tohono O’odham, Apache, and Hopi stories speak of the materials, technologies, traditions, and many functions basketry has served and continues to serve in native communities. (520) 621-6302, www.statemuseum.arizona.edu (New permanent exhibit)
Chaco’s Florescence Was Homegrown

Two studies show Chaco’s elites were natives, not outsiders.

A turquoise mosaic cylinder, several abalone and conch shells, approximately twenty shell bracelets, and two groups of turquoise beads were interred with one of the high-status individuals found in Room 33 of Pueblo Bonito.

Grandma was a very important person, and most likely a local girl with deep roots in the community. Those are key findings from two recent studies that provide fresh and surprising insights into the origins and social structure of the people who lived in the extraordinary great houses of Chaco Canyon in northwestern New Mexico from the early A.D. 800s until about 1130, when Chaco was abandoned.

One study used chemical isotopes in teeth to conclude that members of Chaco’s social elite were born and raised in the canyon and didn’t come from afar, as some researchers have speculated. The other used DNA analysis and radiocarbon dating to show that nine people buried in one richly endowed crypt shared mitochondrial DNA, suggesting that power was passed down through the maternal line for at least 300 years.

Researchers have long debated the origins of the people who built the dozen or so great houses. One common view, based partly on studies of architectural styles, is that they were immigrants from a region some 100 miles to the north. To test that idea, four researchers measured isotopes of strontium, oxygen, and lead in tooth enamel taken from sixty-one skeletons found in crypts in Pueblo Bonito, Chaco’s largest great house, and one of the oldest. Enamel forms in childhood, so it incorporates the isotopic signature of a person’s birthplace. And virtually all of the sixty-one individuals had isotopic signatures that mirrored the canyon’s, meaning they “likely were born in or near Chaco Canyon,” the team reported in the Journal of Archaeological Science: Reports in February. That suggests Chaco’s emergence “was more likely a product of local sociocultural dynamics than a result of migration of a group of new people.”

Another research team took a close look at the DNA of nine apparently high-status individuals buried in a Pueblo Bonito crypt known as Room 33, which also held a rich assemblage of turquoise and shell beads, flutes, and other ceremonial objects. To their surprise, all nine had identical mitochondrial DNA, which is passed along only by mothers, they reported in Nature Communications in February. And the scientists’ examination of nuclear DNA identified two likely family pairings: a grandmother and grandson, and a mother and daughter. “This is the best evidence of a social hierarchy in the ancient Southwest,” said one author, Stephen Plog of the University of Virginia, who also participated in the isotope study. —David Malakoff
A group of scientists have proposed that ancient humans occupied an area near San Diego, California approximately 130,000 years ago. The research team, led by Steve Holen, research director of the Center for American Paleolithic Research, published their findings in the journal *Nature*, causing an uproar among archaeologists who generally consider the earliest date for humans in the Americas to be less than 25,000 years ago.

The Cerutti Mastodon site was discovered in 1992 when road construction unearthed portions of a mastodon skeleton, including a massive tusk stuck vertically into Pleistocene sediments. Field paleontologist Richard Cerutti with the San Diego Natural History Museum made the discovery and was the first to call attention to the proximity of the mastodon bones to broken stones. This prompted a five-month archaeological excavation of the site led by the museum’s director of PaleoServices and curator of paleontology Thomas Deméré.

Many of the mastodon bones were strangely fractured, grouped, or missing, and several large stones were found in the same fine-grained sediment layer as the bones, molars, and tusks. The scientists believe that the stones are too large to have been transported by the weak current that deposited the surrounding layer of fine silt, suggesting that humans carried them there. The researchers conducted experimental bone breakage using hammerstone percussion on a dead elephant in Tanzania, and they came up with the same breakage patterns, which are distinct from breaks caused by heavy equipment.

Richard Fullagar of the University of Wollongong in Australia, an expert in Old World stone tool technology and use-wear, examined the stones and concluded that they are hammerstones and anvils that were used to break the mastodon bones. “This site has a constellation of evidence indicating a human association with extinct megafauna,” said Holen, He thinks the ancient humans were likely quarrying the animal bone for marrow and for use as tools.

In 2014 U.S. Geological Survey scientist James Paces used radiometric dating to determine a date of roughly 130,000 years old for the mastodon bone fragments, tusks, and molars, suggesting that another hominid species such as Neanderthals or Denisovans came from Asia to North America. “This represents the beginning of a major paradigm shift in American archaeology,” Holen said.

“My overall feeling is the site has very strong evidence for human involvement and breaking of the
American archaeology

mastodon bones,” said Thomas Stafford, the head of Stafford Research in Colorado. “I saw the site several years ago and my immediate impression looking at the sediments and soil development was the bone bed had to be at least Sangamon Age, that is 90,000 years or older. This site and its publication deserve intense study and a major reconsideration of what we think we know about American and world prehistory.”

But the findings have been met with heavy skepticism, and even scorn, from other experts. Several Paleo-Indian archaeologists are planning to submit a formal response to the journal *Nature.* “This is a very provocative paper that purports to provide evidence of human occupation of the Americas some 115,000 years before the earliest well established evidence for humans in the Americas,” said Michael Waters of Texas A&M’s Center for the Study of the First Americans. “There are some quibbles with the dating. But most importantly, I am skeptical of the evidence presented that humans interacted with the mastodon at the site. To demonstrate such early occupation of the Americas requires the presence of unequivocal stone artifacts. There are no unequivocal stone tools associated with the bones at the site, which is likely just an interesting paleontological locality. Further, the study runs afoul of the mounting genetic evidence for the First Americans, which indicates that the first people to reach the Americas and eventually give rise to modern Native Americans arrived no earlier than 25,000 years ago.”

“Intriguing and ambiguous localities like Cerutti should be published and scrutinized,” said Thomas Dillehay of Vanderbilt University. “Unfortunately, this locality was excavated more than two decades ago and the database was never subjected to the intense taphonomical, geological, and archaeological review required in the field by a highly competent interdisciplinary research team. Some aspects of the contextual association, stone markings, and bone patterning are interesting, but the collective database is unconvincing and the argument for 100,000+ year-old humans in California is implausible. Claims of more than 100,000-year-old sites have been made before, especially in Brazil, and they faded away rather quickly after having been glorified by the news media.”

Holen agreed the idea is shocking, “All my education, everything I thought I knew…” he trailed off. “Traditional academic divisions in departments and their assumptions have hampered this kind of research,” he explained. “Paleontologists don’t normally recognize or collect evidence that might indicate a human association with extinct fauna, and archaeologists do not look in geological deposits this old, consequently lots of these sites in the past have gone unrecognized. Now we are breaking down the silence that’s confined these disciplines and getting archaeologists and paleontologists to work together. Older generation archaeologists are probably not going to change their minds,” he added. “The younger generation needs to take this up.”

—Tamara Jager Stewart
World’s Oldest Bedbugs Found In Paisley Caves

The insects fed on bats rather than humans.

Three different species of bedbugs have been identified in the same layer as Pleistocene animal bones and human fossilized feces in Paisley Caves in southern Oregon, one of the oldest sites in North America. The bedbug remains date between 5,100 and 11,000 years ago, which is far older than the 3,500-year-old bedbugs found in Egypt in 1999, which had been the oldest known bedbugs.

Archaeologist Dennis Jenkins of the University of Oregon’s Museum of Natural and Cultural History has been leading excavations at Paisley Caves since the early 2000s. Having heard that the crew had recovered numerous insect remains from the cave system, archaeoentomologist Martin Adams of the Portland-based firm Paleoinsect Research asked to examine samples from the cave complex. “It is unusual for a site to contain a lot of ancient insect remains, either because preservation of insects is poor or archaeologists don’t sample for insect remains,” said Adams. He sifted through materials from Cave 2, identifying the remains of fourteen cimicids, or bedbugs, most of which belong to three different species—Cimex pilosellus, Cimex latipennis, and Cimex antennatus—all of which are bat parasites.

The two species of bed bugs that parasitize humans are Cimex lectularius and Cimex hemipterus. Both species were once bat parasites that learned to feed on humans who lived in caves with bats in Europe, Asia, and Africa thousands of years ago. “For whatever reason, the (bats) were unavailable and the bugs needed something to feed on,” explained Adams. “Humans living in the caves were available, and so at least initially, they were a host of opportunity. However, when people left the cave environment, the bugs were able to go with them, adapting to human environments.”

Adams would like to know why the Paisley Caves bedbugs didn’t evolve into human parasites. “The fact that these bat parasites were located in a cave occupied by prehistoric humans is reminiscent of the way in which Cimex lectularius and Cimex hemipterus became human parasites. I believe that, just like in the Old World, the people living in Cave 2 were bitten by these bugs when the opportunity presented itself, but unlike lectularius and hemipterus, the Paisley cimicids did not transition to become human parasites. Why did this transition not occur at Paisley?” said Adams. “This is one of the questions I’d like to look into, if I can.”

Adams and Jenkins co-authored a paper on their research that appeared in the online version of the Journal of Medical Entomology.

—Tamara Jager Stewart
**Mammoth Tusk Found In Alaska**

The 14,000-year-old tusk could be from one of the last surviving mammoths on the Alaskan mainland.

Researchers found a 14,000-year-old mammoth tusk buried approximately five-feet deep on one of the last days of their dig at the Holtzman site in eastern Alaska. The site is located along the bank of a creek near the Tanana River, about eighty miles southeast of Fairbanks. This is only the second time a mammoth tusk has been found at an archaeological site in Alaska.

“The discovery contributes to a growing body of evidence suggesting extensive human use of the middle Tanana Valley during the late glacial period,” said Kathryn Krasinski of Adelphi University in New York. She surmised that this tusk could belong to one of the Alaskan mainland’s last living mammoths, which went extinct not long thereafter due to over-hunting by humans, or a quickly warming climate, or both. A small population of mammoths survived on Alaska’s St. Paul Island until roughly 5,600 years ago, and on Wrangel Island until about 3,700 years ago.

Krasinski and her colleagues Brian Wygal of Adelphi, Charles Holmes of the University of Alaska Fairbanks, and Barbara Crass of the University of Wisconsin, uncovered ivory and stone tools during a limited excavation in 2015, and consequently they returned to the site last year with a much larger team of researchers from numerous institutions.

The discovery of artifacts fashioned from mammoth ivory indicate that the tusk was an important raw material for tool production. The site also contains evidence of stone tool manufacture and the remnants of cooking hearths. Skeletal remains of bison, caribou, and even a few birds show that the people who inhabited the site consumed a variety of Pleistocene animals.

The researchers hope to learn if ancient humans hunted the mammoth or scavenged the ivory after the animal’s death. The tusk will be analyzed at the Adelphi University Archaeology Laboratory. Mammoth tusks contain carbon, nitrogen, and oxygen isotopes that reveal information about climate, diet, and the animal’s health over the course of its life, Wygal said. This is of interest to the researchers because it allows them to glimpse how the mammoth adapted to the warming climate and changing vegetation. This will inform the researchers about the role of climate change in mammoth extinctions. —Tamara Jager Stewart
Jago Cooper looks at an early sixteenth-century Christogram found in the dark zone of a cave on Mona Island in the Caribbean.
COMITY IN THE CAVES

When the Spanish arrived in the New World they often destroyed the natives’ religious symbols in order to convert them to Catholicism. But ancient inscriptions found in the caves of Mona Island suggest that the Spanish respected the natives’ religious symbols.

When Christopher Columbus visited the Isla de Mona, located halfway between Puerto Rico and Hispaniola, in 1494, he found its indigenous residents fishing and farming, part of a thriving Taíno culture that spread across much of the Caribbean. At only twenty-two square miles, Mona is roughly the size of Manhattan. But beneath its surface is another world: an astonishing network of tunnels and caves that often made it easier to get around underground than through the dense vegetation above.
Mona Island is one of the most cavernous places in the world per square mile. Over time, erosion has carved out thousands of spaces, from large cathedral-like rooms to tight tunnels, between a hard lower layer of dolomite and a soft upper layer of limestone. Some of these caves have water, the only permanent sources on the island, and one has twenty-two miles of tunnels, making it the largest coastal cavern in the world. On other Caribbean islands, early inhabitants used caves to deposit bodies and carve or paint symbolic images. Taíno folklore includes accounts of the first human emerging from caves.

Mona, which is now part of Puerto Rico, is an uninhabited island that’s managed as a nature reserve. When Jago Cooper of the British Museum and his colleague, Alice Samson of the University of Leicester, arrived on Mona in 2013, they intended only to conduct an aboveground archaeological survey. “We kind of got sucked into the caves,” said Cooper. What they found quickly became the focus of their work: prehistoric people had left rock art in many of the caverns, usually by carving directly into the soft walls. With help from experts at the Puerto Rico Coastal Cave Survey and the Puerto Rico Department of Environment, Cooper, Samson, and team members from the U.K. and Puerto Rico pushed deeper into the “dark zone” beyond the reach of natural light. (The cave networks tend to be mostly horizontal, but getting to the entrances sometimes involved climbing up or down cliffs.)

The team eventually explored seventy cave systems over several field seasons and found that about thirty had some kind of rock art. Hundreds of yards underground, people had created geometric, humanoid, and anthropomorphic images by carving, rubbing, or otherwise removing the soft crust that naturally covers the walls and ceilings.

The carvers favored places where water accumulated, Cooper said, and in damp areas the surface could be soft enough to be carved with bare fingertips. Similar “finger-fluted” designs have been found occasionally in caves in Europe and the United States, but Mona is the only place in the Caribbean where the technique was used so extensively. Half a dozen caves also had painted and drawn motifs using charcoal and plant-based paints, but most images were carved. Taken together, the thousands of images in Mona’s caves make up the greatest diversity of native iconography in the Caribbean, according to Samson.

One cave in particular stood out. To reach the entrance to Cave 18, the researchers had to climb a steep cliff face on the south side of the island. From there a series of tunnels led through a large system with multiple chambers both large and small, many with seasonal pools of water. A little over 300 feet into the darkness, the designs began: hundreds of geometric motifs and indigenous icons carved into the walls, ceilings, and alcoves of ten cave chambers with tunnels and passageways connecting them, some 70,000 square feet in all.

Finger-fluting designs were extremely elaborate and include carvings of stylized faces with dramatic facial expressions. This might be a reflection of the known pre-Columbian practice of taking hallucinogens underground. “It’s quite a disorienting experience being there, and that sense of journey and sensory deprivation was important to them,” Cooper said. Some carvings depict ancestral beings called cemíes. One figure seems to be the pre-Columbian deity Guabancex, whose swirling arms show its connection to the power of hurricanes. Another flower-like face is identical to the Sol de Jayuya rock art image found in central Puerto Rico. Upside-down figures evoke bats with frogs’ legs.
Not all of the imagery in Cave 18 is indigenous. During the team’s second season exploring the cave, two students were replacing the batteries in a CO2 monitor in one chamber when they noticed what seemed to be European writing on the walls. They looked closer and found names, dates, and phrases in Latin and Spanish. “It was quite an extraordinary moment” to see European carvings next to the indigenous ones, Samson said.

There are over thirty historic European inscriptions, along with seventeen crosses, and they’re generally higher up on the walls than the indigenous carvings. Over half a dozen names and dates are clearly readable, including “Alonso de Contreras 1554,” “Myguel Rypoll 1550,” and “Alonso Pérez Roldan el Mozo 1550 August,” who carved his signature across more than ten feet of wall.

According to Cooper and Samson, the style of abbreviations, spelling, and letterforms are all indicative of the sixteenth century. When they checked Spanish colonial documents, they found that one signatory, Capitán Francisco Alegre, was the administrator in charge of royal estates that included Mona. The style of his signature on the cave wall matched ones in archival manuscripts. Pottery found nearby...
dated to the thirteenth to sixteenth centuries, and radiocarbon dates from charcoal are in the same general range: A.D. 1272-1387 and 1420-1458.

What were the Spanish doing down here deep underground, barely half a century after Columbus’ ships arrived? Three carved phrases suggest that religion was on their mind. One is “dios te perdone,” or “God forgive you” in English. Another, “verbum caro factum est,” is Latin for “And the Word was made flesh,” the first announcement of Jesus in the Bible (John 1:14).

The third inscription, “Plura fecit deus,” which is also Latin, means “God made many things.” This one is particularly resonant, Samson said, when you try to imagine what a Spaniard might be thinking as he gazed at the intricately carved walls and ceilings by flickering torchlight. “There is a sense of awe and wonderment: ‘many things’ as in, ‘more things than we ever knew of,” she said. She and Cooper think there was little chance the Spanish could have found these decorated caverns on their own. They had to be guided here, even if the caves were no longer being used for ceremonies.

The explanation for why the island’s residents would do that is complex, said Betsy Carlson of the archaeological consulting firm SEARCH. The sixteenth century was a time of incredible upheaval for the indigenous cultures of the Caribbean. Disease and mistreatment at the hands of the Europeans were already taking a toll on native populations. “There was not a lot of cooperation and respect going on,” said Carlson, who has worked extensively in Puerto Rico but is not a member of the research team. “There were certainly some good people and good relationships, but mostly the Spanish were there to earn money, colonize, and convert the Indians to Catholicism.”

The inscriptions in Cave 18 suggest something different from the prevailing accepted narrative of violence, oppression, and spiritual domination. “There’s no condemnation, no destruction of idols,” Samson said. Instead of scaling off the caves or desecrating the indigenous images, the Spanish added to them on multiple occasions, leaving words that suggest they were moved by what they saw.

“These crosses from Cave 18 represent the crucifixion of Jesus Christ. Jesus’ name is written in Latin beneath the central cross.

“Awestruck is probably a good word,” she said. “It certainly shows a mutual interest on both sides. It doesn’t mean everything was necessarily sweetness and light, but it was a different type of interaction. These types of conversations may have been going on elsewhere, but only on Mona do we get a glimpse.”

“No European going in there could not have been impressed by these cathedral-like spaces covered by indigenous iconography,” Cooper said. While native belief systems were being suppressed and replaced by Catholicism elsewhere in the Caribbean, here the meeting of two very different worldviews seems to have been respectful, at least for this handful of Europeans.

In Cooper’s opinion, the personal scale of the evidence is one of the most remarkable things about the rock art on Mona. “You hardly ever find evidence from the contact period for individual people engaging and trying to communicate,” he said. John Crock, a University of Vermont archaeologist who has worked at ceremonial cave sites elsewhere in the Caribbean, agreed. Chronicles and documents offer a filtered version of history, but “this is first-person, individual stuff, no mediation,” said Crock, who is not involved in the Mona research. “It’s amazing, without exaggerating. Archaeologists have begun to look at the agency of indigenous people, how
they influenced the early colonists and Europeans as much as they were influenced. This is one of those places where you can see that in almost real time.

In the mid-sixteenth century, only a few thousand Spanish were in the Caribbean at the time, and they were mostly on the larger islands. The encomienda system of forced labor was being phased out, and colonists were still greatly dependent on local populations for food and labor. Mona’s residents were pressed into exporting products like cassava bread and supplying water to European ships, and they made finished goods like cotton shirts and hammocks. The islanders may have pursued alliances with people in power like Francisco Alegre to continue this trade.

In any case, the timing of the European inscriptions puts them at a critical moment in the colonization of the Americas and the meeting and merging of two very different cultures, Cooper said. The same year that Miguel Rypoll and Alonso Pérez Roldan el Mozo were carving their names in the cave wall, King Charles V of Spain organized the Valladolid debate, a moral and theological discussion of how to treat the indigenous inhabitants of the New World. This was the birth of a new cultural identity, said Cooper, pointing out that Francisco Alegre’s son was part of the first generation born in the Caribbean. “This is about the formation of all new American identities, so the tone of this engagement is crucial.”

The analysis of Mona’s cave art is just beginning, he said. “We’ve collected about 100 Ph.Ds. worth of data already.” They are concerned about the impact visitors could have on the rock art; the walls are soft enough in places that even brushing against them can leave a mark, and there have been some recent acts of vandalism. “We’ve been thinking about ways to let people go in without actually being there,” Cooper said, such as creating 3-D virtual models. “But it’s not cheap.”

The island is popular with nature lovers and campers, especially scouting groups; its wealth of endemic plants and animals has earned it the nickname “the Galapagos of the Caribbean.” Cooper and Samson are working with the Puerto Rican government on a heritage management plan, and they said the Department of Natural and Environmental Resources of Puerto Rico is doing an excellent job of monitoring the number of visitors.

This summer Cooper and Samson plan to explore more caves on the north coast with their multi-national field team. Victor Serrano-Puigdoller, a master’s-degree student at the Centro de Estudios Avanzados de Puerto Rico y el Caribe, has worked two field seasons on the project. “As a Puerto Rican, these groups of people that visited and lived in Mona Island are my ancestors,” he said. “Their story is of utmost importance. Most Puerto Ricans are unaware of how rich their history is. Projects like this help reestablish the lost pieces of our history.”

Julian Smith is the author of Smokejumper: A Memoir by One of America’s Most Select Airborne Firefighters. He is a frequent contributor to American Archaeology.
Everyone knows about the famous aviator’s trans-Atlantic flight, but far fewer people are aware of his contributions to archaeology.
Charles Lindbergh’s Little-Known Passion

By Tamara Jager Stewart

In the fall of 1929, the Lindberghs flew with archaeologist Alfred Vincent Kidder over the Yucatán and Charles took photographs of Chichén Itzá that are still considered some of the finest taken of the site.
IN 1927 AN OBSCURE U.S. AIR MAIL PILOT named Charles A. Lindbergh completed the first solo trans-Atlantic flight from New York to Paris, thereby achieving world-wide fame. Virtually everyone knows about Lucky Lindy’s historic flight in the Spirit of St. Louis. But few people know that Lindbergh was also a pioneer in the field of aerial archaeology. Vocational historian and writer Erik Berg has extensively researched Lindbergh’s life and aerial archaeological surveys, bringing to light his efforts to help locate and document ancient sites and landscapes.

“Lindbergh always had broad and varied interests and his fame from the 1927 Atlantic flight opened a lot of doors for him to indulge those interests,” said Berg. “His interest in archaeology stems from spotting Maya ruins in the jungle while flying over the Yucatán in the winter of 1928-29, scouting possible air routes for Pan-American Airways.”

Shortly after spying the stone ruins from his plane, Lindbergh visited the Smithsonian Institution to find out more about them. He was sent to John Merriam, the director of the nearby Carnegie Institution of Washington (now the Carnegie Institution of Science), who described their ongoing archaeological investigations in the Maya region of southern Mexico, and at Ancestral Puebloan cliff dwellings and settlements in Canyon de Chelly in Arizona, and Chaco Canyon and the Pecos Valley in New Mexico. Lindbergh quickly volunteered to photograph these areas when flying nearby.

“Lindbergh was always looking for new uses for aviation, and since he was already flying through both these regions as part of his airline work, he volunteered his time and plane,” explained Berg. “For Lindbergh, it was both a way to indulge in a new interest, archaeology, and further the cause of aviation as a tool for science.”

Having consulted with Merriam and other colleagues, the noted archaeologist Alfred Vincent Kidder of Carnegie came up with a list of sites and features for Lindbergh to photograph. Kidder was especially interested in the layouts of sites as well as land erosion patterns and geological formations. He also hoped to discover sites. On July 6, 1929, just a month after Lindbergh’s highly publicized marriage to Anne Morrow, the newlyweds flew over Chaco Canyon, Canyon de Chelly, and Canyon del Muerto. Anne was impressed by the vast Southwestern landscape. “Desolate country but very thrilling, over deserted canyons where the river has dried up, we saw the ruins of old Indian cities along the river bed,” Anne wrote to her mother. Anne was fascinated by the land and people; she marveled at the Navajo hogans that were still in use.

HAVING LEARNED TO FLY, ANNE APPARENTLY piloted the two-seat, open cockpit Curtiss Falcon biplane some of the
Trucks associated with a University of New Mexico field school at Chetro Ketl are seen in the bottom half of this picture. Chetro Ketl is one of the great houses at Chaco Canyon.
The Lindberghs photographed Chaco Canyon one month after their celebrated marriage. The buildings around Pueblo Bonito were the home, trading post, and other structures of rancher Richard Wetherill, who tried to homestead the area around 1900.
time while Charles leaned out to take photographs. At other
times it’s likely they reversed their roles. Charles appears to
have piloted the larger Sikorsky S-38 “flying boat” that they
used to survey southern Mexico, though it’s possible they
occasionally switched roles during this project.

Lindbergh was developing transcontinental air routes
for the newly founded Transcontinental Air Transport and
Pan-American Airways, so his planes were not optimized for
aerial photography. “It was not as maneuverable and as slow-
ly-flying as they might have wanted, and you sometimes see
parts of the aircraft in the frame of their images,” said Adriel
Heisey, a pilot and renowned aerial photographer. Heisey
is featured in the rephotography exhibit “Oblique Views:
Archaeology, Photography and Time,” in which his modern
rephotographs of Southwestern sites stand alongside Lind-
bergh’s original 1929 images.

“In my case, I use an aircraft that is chosen, if not
designed, for its suitability for handheld photography,”
Heisey said. “Like the Lindberghs’, it is open to the wind, but
I can fly much slower than they did, giving me more time
to compose and explore creative variations. Also, because
my plane is so light and nimble, I am able to fly it myself,
even while shooting. In another sense, however, there is a
delightful commonality in how we work. They were told of
ruins in remote locations, and then had to find them in a vast,
nondescript landscape with little more than a verbal sketch.”
The Lindberghs returned to New Mexico on July 23rd, landing in a field next to Forked Lightning Ruin near the village of Pecos, where Kidder was excavating. The Lindberghs immediately hit it off with Kidder, his wife, and their children, and they stayed with the Kidders at their field camp for a week. The Lindberghs loved this respite from the press and public that constantly hounded them back home. During that time, the Lindberghs flew across northern New Mexico, including the archaeologically rich Pecos Valley, Galisteo Basin, Chama Valley, and Pajarito Plateau, as well as the living pueblos of Santo Domingo, San Felipe, Santa Clara, Taos, and others, where Kidder was interested in comparing prehistoric and modern pueblo settlement layout.

Before heading back east from their week at Forked Lightning Ruin, the Lindberghs flew to Canyon del Muerto in northeastern Arizona, where Carnegie Institution archaeologist Earl Morris was excavating. The Lindberghs were delivering pictures they had taken of Canyon del Muerto and Canyon de Chelly as well as mail from Kidder to Morris. While landing in a narrow meadow near the edge of the canyon, they clipped part of a wing strut on tree branches. Morris’ crew was stunned to see the couple walk up to their excavation, where they had just unearthed the mummified remains of an ancient weaver, buried alongside his tools and exquisitely well-preserved turkey blankets—Morris’ biggest find of the field season.

“There were a lot of studies and excavations done at Chaco Canyon and Canyon de Chelly during the late 1920s, and at the same time, the post-World War I roadway building boom combined with railroad tourism was opening up much of this area to the general public in a way that had not happened before,” Berg said. “It was a very exciting and dynamic period in the Southwest and I think the Lindbergh survey captures and symbolizes that on many levels.”

The Southwest aerial survey was such a success that in October the Lindberghs and Kidder met in Belize to spend a week surveying the jungles for sites. In the Sikorsky S-38, with Kidder as passenger, they flew over Tikal and Uaxactun.
in Guatemala, and then north along Mexico’s Yucatán Peninsula to Chichén Itzá and the surrounding area. They photographed Chichén Itzá’s temples and pyramids and explored the Island of Cozumel and parts of Belize. Kidder sent word of the trip’s success to his wife via telegraph: “just wound up in five days’ flying eight year’s worth of mule back.”

Kidder and the Lindberghs made future plans for aerial surveys, hoping to trace the prehistoric roads around Chaco Canyon, the ancient Hohokam irrigation canals in the Phoenix area, remote sites rumored to lie in Arizona’s Lucachukai Mountains, and areas in Belize and Guatemala where the rough terrain and thick vegetation made exploration nearly impossible. But soon after their return from Central America, the Lindberghs learned of Anne’s pregnancy, which quickly changed the course of their lives, preventing them from performing additional aerial surveys for the Carnegie Institution.

“Although the Southwest survey failed to achieve all the extensive goals that its participants had intended, it was certainly not a failure,” Berg wrote in his 2004 award-winning Journal of Arizona History article about Lindbergh’s surveys. “As one of the first systematic aerial surveys of prehistoric sites in the United States, it had demonstrated the value of using aircraft to rapidly reconnoiter large regions and to provide quicker access to remote ruins…. The scientific publications surrounding the surveys caught the attention of other archaeologists and helped lay the foundation for aerial photography as a tool of modern archaeology.” In early 1929, Kidder and Morris had begun advocating for a national monument that would protect Canyon de Chelley from vandalism. This was declared in 1931, an accomplishment Berg partly credits to the awareness the Lindberghs’ flights raised about the area’s great cultural significance.

“I consider Lindbergh’s aerial surveys to be among his important achievements,” said Maxine McBrinn, curator of the Museum of Indian Arts and Culture in Santa Fe, New Mexico, and editor of the Lindbergh-Heisey rephotography exhibit’s accompanying volume Oblique Views: Aerial Photography and Southwest Archaeology. “He was inspired by his curiosity about what he saw as he flew, both about man-made and natural sites. I admire very much his reaching out to the Carnegie Institution to satisfy his curiosity and even more his offer, once he talked to Kidder and the other staff there, to photograph sites to help their research. The photographs have gained a new worth today as we consider not only the layouts of the sites and how they fit into the greater landscape—two of the benefits of an aerial perspective—but also how they fared in the past eighty years.”

“Even with all the support Lindbergh received,” said Heisey, “it was his own passion for the subject, and his belief in the inherent value of the aerial perspective, that brought it all into existence.”
BY 1860, AFTER DECADES OF DISCORD between northern and southern states over economic policies, state’s rights, and the role of slavery, the United States had become a divided nation. Southern states, which relied heavily on slave labor, wanted to expand slavery to new states joining the Union, but northern states opposed this.

Soon after the election of President Abraham Lincoln, who pledged not to expand slavery, Southern states began seceding from the Union. The Union refused to recognize their secession, and the South fired the first shots of the Civil War at Fort Sumter, South Carolina, in April, 1861. The war took a tremendous toll. According to the National Park Service, Union forces suffered 642,427 casualties (killed, wounded, and missing), and the Confederates 483,026.

A considerable amount of the fighting took place on the battlefields featured on this tour, most of which are managed by the National Park Service (NPS). Many of the parks encompass a number of battlefields that are located throughout a large geographic area. This tour highlights some of the major battles and historic structures at each destination. (There are battlefields and other Civil War sites in this region that are not part of this tour.)

I began my trip at Petersburg National Battlefield, which also includes the Eastern Front, Western Front, Five Forks Battlefield, and Grant’s Headquarters at City Point. In June 1864, following their defeat at Cold Harbor, Union troops moved south to Petersburg, an important supply center for Richmond and Lee’s army. After a failed attempt to take...
Petersburg, the Union began a nine and a half month siege of the city that eventually cut off five railroads and major roads to Richmond and Confederate commander General Robert E. Lee’s supply lines from the south. The Union’s successes here led to Lee’s surrender in Appomattox in 1865.

From the visitor center at the Eastern Front, you can hike to the Battle of the Crater, where the Union tunneled under the Confederate lines and exploded a mine. Using remote-sensing technology, archaeologists have identified and mapped the location of the tunnels.

I then went to Union commander Ulysses S. Grant’s Headquarters at City Point (now known as Hopewell), the Union’s supply center. Here you can see Grant’s cabin, located on a point overlooking the confluence of the Appomattox and James rivers, and tour the Appomattox Plantation. About 5,000 Union soldiers are buried at nearby Poplar Grove National Cemetery. About 30,000 Confederate soldiers are buried at Blandford Church Cemetery in Petersburg.

My next destination was Richmond National Battlefield Park. The park’s visitor center, known as the Civil War Visitor Center at Tredegar Ironworks, is located on Tredegar Street in Richmond, Virginia, the capital of the Confederacy.
Overlooking the James River amid the ruins of Tredegar Ironworks, the largest producer of Confederate munitions, the visitor center provides information about ten battlefields surrounding the Richmond area that are connected by an eighty-mile driving loop. You'll find maps and exhibits about battles, troop movements, and civilian life. Among the personal objects, weaponry, and other battlefield artifacts on display, a pair of sunglasses, possibly worn by a sharpshooter, and a field communion kit, caught my attention. The grounds include industrial artifacts and machinery, and a statue of President Abraham Lincoln commemorating his visit to Richmond a day after it fell to Union troops in 1865.

Next door is the American Civil War Center, a privately-funded museum that presents an overview of the war and its legacies from the perspectives of the Confederacy, the Union, and African-American slaves. Other nearby sites that you may want to visit include the Chimborazo Medical Museum and the White House and Museum of the Confederacy, which offers guided tours of the executive mansion of Jefferson Davis, the president of the Confederacy, and an extensive artifact collection that tells the story of the formation of the Confederacy and the effects of the war on the South. On Monument Avenue, statues and monuments honoring vanquished Civil War heroes tower above the

*Manassas National Battlefield Park was the site of the war’s first significant conflict, the First Battle of Bull Run, which took place in 1861. The Second Battle of Bull Run was fought here the following year. The Confederates won both battles.*
intersections from Allen to Belmont avenues.

Wanting to see some of the nearby battlefields, I headed east to the Cold Harbor Battlefield. During the two-week battle at Cold Harbor, the Confederates defeated Union troops trying to capture Richmond in 1864. The intricate, well-preserved hand-dug trench works here are some of the best examples of field fortifications in the nation. You can explore the trenches either by car or on foot. The Garthright House, which was used as field hospital, and a Union cemetery are nearby. I then went to Gaines Mill Battlefield, where the heaviest fighting of the Seven Days’ Battles in 1862 took place.

From there I continued on to the Fredericksburg Battlefield Visitor Center, which is the main visitor center for the Fredericksburg & Spotsylvania National Military Park. Located halfway between the Confederate capital in Richmond and the Union capital in Washington D.C., Fredericksburg and Spotsylvania was the site of four battles—Fredericksburg, Chancellorsville, the Wilderness, and Spotsylvania Courthouse—from 1862 to 1864. The exhibits in the Fredericksburg visitor center provide an introduction to all the battles. The artifacts include a ramrod lodged into a piece of wood, possibly by a soldier who forgot to remove it before firing his musket, and the remains of a shoe, including the bones of its owner’s foot, pierced through by a bayonet.

Chatam, an eighteenth-century plantation home overlooking the city and the Rappahannock River, is a short drive away. (Directions are available from the rangers.) It was used as a Union headquarters and field hospital, and Clara Barton, who later founded the American Red Cross, tended the wounded here. Archaeologists have discovered the foundation to the plantation’s smokehouse and domestic artifacts from the Civil War period.

From there I made my way to the Chancellorsville Battlefield Visitor Center. Many experts believe that Chancellorsville is the battle described in Stephen Crane’s Red Badge of Courage. The battlefield where Confederate General Thomas “Stonewall” Jackson was wounded by friendly fire is behind the visitor center. After his left arm was amputated at a field hospital, Jackson was taken by horse-drawn ambulance to Guinea Station, a Confederate supply base, to recover. The plantation office building where he died from pneumonia six days later is now the Stonewall Jackson Shrine.

During the Spotsylvania Courthouse Battle, soldiers engaged in the war’s most intense hand-to-hand combat at the Bloody Angle, a section of the Confederate trenches. A hatchet and other artifacts recovered by archaeologists from that battle site are on display at the Chancellorsville visitor center.

From Chancellorsville I drove to Manassas National Battlefield Park. This is where the First Battle of Bull Run, the war’s first major conflict, took place in 1861. Both sides thought this would be the only battle and that the war would be over quickly. Civilians drove their buggies to the nearby heights of Centreville to watch it unfold. At the end of the day, the Confederates won, but over 900 young men lay dead on the fields. The horror of war sank in, and people realized that it was not going to end quickly. Behind the visitor center there is an easy walking tour of the battlegrounds and the rebuilt Henry House. Archaeologists discovered the
footprint of the original house, where an eighty-four-year-old woman who refused to evacuate was mortally wounded by artillery fire.

I then went to the interpretive center at Brawner’s Farm, where the Second Battle of Bull Run began nearby in 1862. Archaeologists discovered the foundation of the farmhouse that stood here during the battle and domestic artifacts. Bullets and spent cartridge caps unearthed on the field identified the position of a Union infantry regiment from Indiana. Medicine bottles and military items from Georgia and Maine were also discovered during excavations around the Robinson House, home of a free African American, which was used as a field hospital.

Back in the car, I drove to Monocacy National Battlefield. The Battle at Monocacy, in 1864, played a crucial role in delaying Confederate troops sent to capture Washington D.C. during the South’s final invasion of the North. Although the Union lost, the battle gave them time to reinforce their defenses around the nation’s capital and force the Confederates back to Virginia.

Fighting took place on several farms within the park, including Best Farm, where archaeologists have discovered the footprints of six dwellings that were part of a slave village on the L’Hermitage Plantation, which was sold in 1827. Interpretive signage shows where the village was located. Archaeologists also unearthed middens, garden plots, and other features and artifacts that shed light on the diet and activities of the slaves.

I passed through Frederick, where the National Museum of Civil War Medicine is located, and then travelled west to Harpers Ferry National Historical Park. Located at the foot of the Blue Ridge Mountains, Harpers Ferry was a small industrial town where the U.S. Armory was located. It changed hands eight times during the Civil War. The NPS has restored part of the town to the way it appeared at the time of John Brown’s Rebellion in 1859. Brown was an abolitionist who led a raid on the armory to secure weapons for a slave revolt. He was captured, tried for treason, and hung.

Numerous shops and buildings, accessible by tram from the visitor center, have been restored based on archaeological and historical research. Some are now used as museums where you can learn about John Brown and slavery, and the battle that took place there in 1862, during which 12,700 Union soldiers were captured, the most during the entire war. There were also contraband camps, where slaves lived under the protection of Union troops. Archaeologists have analyzed the site of the armory, which was torched by Union troops in 1861 in an unsuccessful effort to keep it out of Confederate hands. Boarding house privies have also been excavated, revealing objects such as broken rosaries and bottles discarded by tenants. Walking tours of the town and battlefields led by the staff archaeologist are offered occasionally. A driving tour of the battlefields features scenic overlooks.

My next stop was Antietam National Battlefield. The 1862 battle at Antietam, the bloodiest one-day battle in U.S. history, left 23,000 men dead, wounded, or missing. The
Union held the field, ending the South’s first invasion into the North. Five days later, Lincoln issued the Emancipation Proclamation, abolishing slavery. In the visitor center a drum found on the battlefield caught my eye, and I learned that drummer boys as young as thirteen participated in battles. About a hundred objects that a farmer recovered while plowing a field where the battle took place are also on display, including buttons, bayonets, bridles, bullets, and other war debris.

During an attack in 1863 known as Pickett's Charge, the Confederates incurred 5,000 casualties in a single hour at Gettysburg National Military Park.

At Piper Farm, one of the battle sites on the driving tour around the park, archaeologists conducted excavations before trees were planted to re-establish the orchard that
The McLean House still looks as it did on April 9, 1865, when Grant and Lee agreed on the terms of surrender.

During the Battle of the Crater at Petersburg National Battlefield, Union forces tunneled under Confederate lines and exploded a mine. This is the entrance to the tunnel.
The remnants of Fort Stedman at Petersburg National Battlefield are seen here. Confederate forces captured this Union fort in the early morning of March 25, 1865, only to have Union soldiers reclaim it a few hours later.

was here during the war. The locations of spent and unfired bullets helped them map the position of a Union infantry regiment in detail as the soldiers advanced and retreated across the orchard. At another battleground, the remains of a young soldier in his late teens were excavated after they were partially unearthed by a groundhog. A button identified him as a New York State soldier. The remains of three other New Yorkers discovered on Bloody Lane, a road where 5,500 soldiers were killed or wounded in a mere three hours’ time, were also excavated. They were identified by their rosaries and rifles as members of the Irish Brigade.

At the Pry Field Hospital a short drive from the visitor center, you can learn about field medicine and view surgeon’s kits, amputation tools, medicine bottles, and reproductions of ambulances. My guide told me that it took ten minutes to amputate an arm and fourteen minutes to amputate a leg. There was no time for restorative surgeries.

Gettysburg National Military Park was my next destination. In July 1863, the Union and Confederate armies met by chance here and fought for three days at numerous locations around the town of Gettysburg. During the last Confederate attack, known as Pickett’s Charge, they suffered 5,000 casualties in one hour before retreating. In the end, a total of 51,000 men were dead, wounded, or missing. There was so much carnage that the dead were buried hastily, or not at all. Union soldiers were later reinterred on land that became the Soldiers National Cemetery while the Confederates were removed and buried in cemeteries in the South about a decade after the war.

During his Gettysburg Address at the Soldiers National Cemetery a few months later, Lincoln gave meaning to their sacrifice: “...we here highly resolve that these dead shall not have died in vain—that this nation, under God, shall have a new birth of freedom—and that government of the people, by the people, for the people, shall not perish from the earth.”

In the expansive visitor center, the Cyclorama sound and light show features a restored floor-to-ceiling, panoramic painting of Pickett’s Charge created in 1884. There is an astounding display of weaponry and extensive themed exhibits encompassing the entire war and its aftermath. For a fee, guides will ride with you on an auto tour of the park. You can also explore the battlefields on horseback or bicycle.

From Gettysburg I went to the Virginia Museum of the Civil War and New Market Battlefield State Historical Park. In 1864, the Union army invaded the Shenandoah Valley and took control of Southern farms, cutting off Confederate food supplies. To help repulse the Union troops, the Virginia Military Institute Cadet Corps marched from Lexington to join the Confederate army. The cadets fought in the Battle of New Market, which was one of the last Southern victories.

The museum houses one of the most extensive
collections of Civil War weapons in the state. Body armor cut off a wounded soldier, pieces of the Cadet Corps’ battle flag, and a bullet removed from a cadet’s wound that he turned into a gold-plated watch fob also captured my interest. While touring the battlefield, you can also see the Bushong Farm, which served as a field hospital.

I then headed south to my last destination, Appomattox Courthouse National Historical Park. After a final battle at Appomattox, Robert E. Lee’s surrender to Ulysses S. Grant on April 9, 1865, marked the end of the war. Five days later, President Lincoln was assassinated. The last Confederate general surrendered his army at Texas about a month later. The McLean House, where Lee signed the surrender papers, still looks as it did that day. The house was reconstructed over the original foundation, which was unearthed by archaeologists. Other restored or reconstructed buildings, including a courthouse, jail, tavern, slave quarters, law offices, and store, offer a sense of time and place. After touring the battlefields where so many soldiers had died, I felt a sense of relief as I walked down the street where the Confederates stacked their arms after the surrender. Should you be interested, you can also visit the nearby Museum of the Confederacy—Appomattox, which is part of the American Civil War Museum.

PAULA NEELY is a frequent contributor to American Archaeology. Her article “Looking for the Lost Colony” appeared in the Fall 2016 issue.

If You Go

1. Petersburg National Battlefield  
   www.nps.gov/pete/index.htm

2. Richmond National Battlefield Park  
   www.nps.gov/rich/index.htm

3. Fredericksburg & Spotsylvania National Military Park  
   www.nps.gov/frsp/index.htm

4. Manassas National Battlefield Park  
   www.nps.gov/mana/index.htm

5. Monocacy National Battlefield  
   www.nps.gov/mono/index.htm

6. Harpers Ferry National Historical Park  
   www.nps.gov/hafe/index.htm

7. Antietam National Battlefield  
   www.nps.gov/anti/index.htm

8. Gettysburg National Military Park  
   www.nps.gov/gett/index.htm

9. Virginia Museum of the Civil War and New Market Battlefield State Historical Park  
   http://vmi.edu/museums-and-archives/virginia-museum-of-the-civil-war/

10. Appomattox Court House National Historical Park  
    www.nps.gov/apco/index.htm
The Sustainable Archaeology project in Ontario, Canada, strives to preserve the province’s cultural heritage and make it accessible.

A person wearing a virtual-reality headset can view this 3-D, sixteenth-century Iroquois longhouse created by SA Western.

Curing The Curation Problem

by Tom Koppel
Tall white steel shelves are gradually filling up with green boxes in a new archaeological repository in Ontario, Canada. Each box is stuffed full of archival plastic bags containing artifacts, soil samples, animal bones, and other items from sites in the country’s most populous province. Many represent collections gathered decades ago. Radio frequency tags track the locations of boxes, so no box gets misplaced.

The repository has two facilities—one at McMaster University in Hamilton, and the other at Western University, in London—and together they can accommodate some 80,000 boxes, each box just over three-cubic feet in volume. With their labs and staff, the repositories are the heart of Sustainable Archaeology (SA), a project that is partnered with related initiatives like Digital Antiquity in the United States, Archaeological Data Service in the United Kingdom, and Ariadne in Europe.

SA aims at nothing less than a transformation in the practice and public face of archaeology in Ontario. By applying advanced technologies, its ultimate goal is to mine the archived collections for new kinds of information and to better disseminate that knowledge to the archaeological community and the public. SA Western specializes in digital imaging, including 3-D modeling and printing of artifacts, and x-ray-based CT scanning of object interiors, and virtual reconstructions of archaeological sites and structures. SA McMaster’s forte is microscopic work and analysis of excavated materials for chemical indicators like DNA or stable isotopes.

“The SA effort to pull together physical collections from past field work into centralized repositories at Western Ontario and McMaster is exemplary,” said Francis P. McMannon, the Executive Director/Research Professor for the Center for Digital Antiquity. “The recognition by SA leadership of the necessity for proper care and curation of the digital
data and information from these investigations is equally important. We have appreciated very much his perspective and support.”

SA’s origins lie in a crisis in the storage and curation of Ontario’s archaeological heritage. “Most of the archaeology in North America today is done by private sector companies” rather than academic teams, said archaeologist Aubrey Cannon, the director of SA McMaster. Often known as cultural resource management (CRM) archaeology, it has burgeoned since the late 1970s in response to laws that require prior test digging, and where appropriate, a full excavation, whenever land is slated to be disturbed by construction or other development. In Ontario, over ninety percent of the digs (20,000 to 30,000 projects in the last 30 years) are by licensed archaeological consultants. In some provinces, the resulting collections must be archived at designated universities or museums. In Ontario, however, “when they drafted the legislation, they made a provision that the materials were to be in the care of the license holders” in perpetuity, and with no extra money for long-term care, Cannon said. “That was a really bad decision.”

It has resulted in thousands of collections ending up in people’s basements, offices, or private lockers. In some cases the collections are dispersed to a wide range of public institutions. Poor storage conditions have led to deterioration. Even when a collection is properly stored, Cannon said, “generally it is difficult to access” by researchers, “and its long-term security is in question.” The unpublished reports on the work are so poorly disseminated they are derided as “gray literature.” Sometimes, when a CRM archaeologist dies, the collections are accidentally disposed of.

Archaeologist Neal Ferris, director of SA Western, is all too familiar with these problems from twenty years spent regulating CRM contractors for the Ontario government.
prior to his professorship at Western. Archaeologists have been “overly focused on the digging of a site,” he said, and then they’re inclined to “stick (the collection) on a shelf somewhere.” Consequently, the research value of these damaged or hidden collections is ultimately lost.

When the federally financed Canada Foundation for Innovation (CFI) announced a grant competition, Cannon and Ferris joined forces to propose the SA project. “CFI is the principal funding body for large-scale research infrastructure” in Canada, Ferris said, “but it’s not alone in its contribution.” With matching funds from the government of Ontario and additional monies from the two universities, the project was launched in 2009 with C$9.8 million for the initial buildings and high-tech instruments. There was further money to cover salaries and other expenses during the early years.

SA is only now up and running. “We built a building and acquired equipment,” said Ferris, which involved difficult purchasing decisions as scanning and other digital technologies evolved. “And we had to learn to use that equipment.” “It’s taken more time than we’d initially expected,” Cannon agreed. “But it’s coming along steadily. So we’re ready to go.” In fact, both labs are already applying their advanced technologies to collections held by their respective universities and the Museum of Ontario Archaeology. (Western’s curation facility is located off-campus at the museum.) With glitches in the complex SA database and software largely ironed out, the two facilities are poised to receive and catalogue collections from CRM contractors.

These have not been pouring in, however. The main reason is money. SA hopes to become self-supporting by charging substantial one-time fees when artifact collections from CRM digs are turned over for permanent storage. The fees are based on a sliding scale that takes into account the type of assemblage. It may consist of freshly excavated materials, which they refer to as an anticipatory collection, or materials that were excavated many years ago that they call legacy collections. Another consideration is how much work a collection requires. “A legacy collection that dates back many years can be in pretty rough shape,” said Ferris. “The storage facility it was in may not have been adequate. There could be contamination in the boxes. There could be mold or water damage.” Some need extensive cleaning “to ensure that they’re not causing damage to other collections already in the facility and that they’re going to be stable” over many decades, he said.

SA’s curation fees start at around C$100 per box. The fees can be considerably higher if the collection is in poor condition. Understandably, “contractors are reluctant to pay,” Cannon said, “particularly for legacy collections from years ago.” That money would be “coming out of their operating revenues, or pension plans, or whatever.” Renting a storage
locker is much cheaper. Some recent CRM contracts, however, cover the costs for anticipatory collections, and a “limited number” have been received, Ferris said. In 2014, seventeen percent of Ontario archaeologists surveyed included curation costs, such as per box deposit fees, in their project budgeting, according to Ontario’s Ministry of Tourism, Culture and Sport.

SA has also waived fees for particularly valuable legacy acquisitions. One such collection is that of Merle Franklin, a self-taught archaeologist who worked along a river with “a rich archaeological history spanning thousands of years,” according to Ferris. He kept excellent field notes. When he died, “the collection was going to be dispersed by his estate,” Ferris said. An anonymous donor “realized what a special record this was, bought the collection, and donated it to SA.” Volunteers have spent more than a year doing 3-D scans of the artifacts (mostly stone tools and some pottery) in SA Western’s lab, rotating them on a turntable while a twin-lens digital camera captures multiple images.

To make the information publicly accessible, selected diagnostic artifacts as well as the collection’s original written reports will be scanned and entered into a detailed and searchable database that will be available online for free. SA has an advisory committee consisting of indigenous representatives and archaeologists to establish policy guidelines on how to care for collections and what is appropriate for inclusion in the online database. In case of objections, the items in question will be omitted from the database and may instead be repatriated. Ferris noted that during a recent large scale repatriation of human remains and artifacts in Ontario, SA was approached by the First Nation involved to create 3-D scans of culturally sensitive artifacts slated to be reburied. “The First Nation felt that the record of these objects needed to be preserved as 3-D models, because their unique information would have been otherwise lost to the community.” The indigenous community, rather than SA, retained the digital models.

SA is also creating virtual environments of the past. The first project involved building a realistic sixteenth-century Iroquoian longhouse complete with textured wooden poles, sleeping platforms, and a hearth. Visitors wearing a gaming-style virtual reality headset will be able to immerse themselves in these environments, built from archaeological data. “These environments allow users to visualize the past as lived spaces, not as broken sherds and archaeological features in the ground,” said Ferris. The virtual, 3-D environments allow researchers to “explore, test, and consider the implications of those above ground dimensions of ancient life not otherwise knowable from the archaeological record.”
The researchers are armed with technologies that, in many cases, did not exist when some of SA’s collections were first recovered. For example, SA Western has a micro CT scanner that “allows us to explore the internal architecture of any object at high, micron-level resolution,” Ferris said. “And it’s all non-destructive.” He has a Ph.D. student currently using that scanner to study ceramics from a variety of indigenous sites dating back 800 years. It allows her to look inside clay pots in three dimensions and see exactly how they were made.

“She is able to see things like the void spaces, or little pockets of air, that are created in the process of forming the ceramics and firing the clay,” said Ferris. Such details reflect how the ancient potters shaped their ceramics, employing artistic methods they learned from the generation before while also incorporating their own innovations. By scanning ceramic vessels that were likely produced by one or two generations of artisans, the student gains deeper insight into this important traditional craft. “That’s the cool thing here,” Ferris added. “It’s not only that we’re making the artifacts accessible, we’re doing the value-added research that can be brought to bear on these existing collections.” This research then becomes part of the database that can be accessed by the public.

Cannon thinks SA should soon make it possible “to do research without actually having to access the collections at all,” to do “the kinds of syntheses and comparative studies that would have been very difficult, if not impossible, in the past.” In part, this was “because you couldn’t get access to the materials. The goal is to be able to do that kind of work online, at least to some level.”

Today, “much more information can be extracted from the existing material without going back to the site,” he said. This reduces the need for new digs and makes the legacy collections especially valuable. “I’ve been doing it, and my graduate students have been doing it. We’ve been building careers on the basis of not excavating.”

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To some Native Americans, the repatriation and reburial of very ancient human remains is simple justice. To many archaeologists and other scientists, it’s akin to reburying the Rosetta stone. “Every burial is a potential loss for science to learn about America’s past and for Native Americans to learn about their ancestors,” said Eske Willerslev, director of the Copenhagen-based Center of Excellence in GeoGenetics, where studies of ancient human DNA are reshaping what is known about the peopling of the Americas. “But science can no longer ignore the wishes of native communities. If we take a confrontational approach, science will lose. And so will they.”

Earlier this year 8,600-year-old Kennewick Man, whose remains were discovered more than twenty years ago in eastern Washington, was repatriated to the Colville, Yakama, Umatilla, and Nez Perce tribes, who claimed him as their ancestor. The tribes then reburied the skeleton at a secret location in the Columbia River Basin. The tribes had waged a long, costly, and highly-publicized legal battle to take custody of Kennewick Man under the Native American Graves
Protection and Repatriation Act (NAGPRA), which they lost in 2004 when the court ruled they could not prove a connection to the skeleton.

But recent DNA analysis by Willerslev’s laboratory in Denmark showed that Kennewick Man genetically resembled today’s Native Americans more than any other living people. Consequently, the U.S. Army Corps of Engineers, Kennewick Man’s custodians, concluded that he was in fact Native American, and the Corps began the lengthy process of repatriating the skeleton. Wanting to hasten the process, Congress passed a law that expedited the transfer of the skeleton.

The Corps’ conclusion was sharply at odds with the conclusions of earlier studies of Kennewick Man’s skull and stature that showed him to be quite different from today’s Native Americans. Similar differences between DNA and osteological studies have marked other investigations of the most ancient remains.

Last year, DNA analysis also determined the fate of another very ancient skeleton, a desiccated mummy called Spirit Cave Man, who was found in a cave in western Nevada in 1940. Spirit Cave Man was initially thought to be a few thousand years old, but in 1994 improved dating methods showed the mummy to be 10,600 years old, among the oldest human remains ever found in North America. The Fallon Paiute-Shoshone tribe had claimed him as ancestral and demanded his return, despite the fact that he, like Kennewick Man, looked markedly different from contemporary Native Americans.

Another long legal battle ensued between the Native Americans and the Bureau of Land Management (BLM), who had custody of the mummy, though it attracted far less attention than the Kennewick Man lawsuit. As a result of the repatriation claim, the BLM consulted with the tribe about how the remains should be handled. Initially, the tribe was against further research; but in order to settle the custody dispute they did not oppose DNA analysis, according to Bryan Hockett, the BLM’s lead archaeologist in Nevada. The results showed that Spirit Cave Man was indeed related to native peoples in the Americas. Last November, the Fallon tribe reclaimed the remains from the Nevada State Museum, where they were housed. The tribe hasn’t disclosed the fate of the remains, although they have not ruled out the possibility that they could be studied further.

In 1976, restoration work on the University of California San Diego chancellor’s house in La Jolla led to the discovery of two sets of bones that were eventually found to be 9,500 years old. In 2006, the La Posta band of the Kumeyaay tribe demanded that the remains be handed over to them on the basis that the skeletons were discovered on land historically occupied by the tribe. This prompted a flurry of scientific interest in the remains, but in a 2011 rebuff to the scientists, the university announced plans to return them. The scientists sued to halt the transfer, but got turned down in federal court. An appellate court rejected their appeal. In 2014,
the U.S Supreme Court did, too. Last year, the remains were returned to the Kumeyaay. Tribal leaders haven’t disclosed what has happened to them since.

There are numerous other sets of extremely ancient remains that have been repatriated and reburied with far less fanfare. When the partial skeleton of a woman was found in a gravel quarry in southern Idaho in 1989, archaeologists were excited to discover that the remains were more than 10,600 years old. When precision measurements of her elongated skull suggested that she resembled modern Polynesians more than contemporary Native Americans, the mystery deepened. But Buhl Woman’s origins will remain a mystery. In 1993 she was returned to the Shoshone-Bannock of Fort Hall and reburied. No DNA testing was done.

A similar fate befell what scientists call Minnesota Woman, the nearly 8,000-year-old remains of a teenager unearthed in 1931 during highway construction in west-central Minnesota. Over nearly seventy years, the bones and skulls were studied sporadically, and questions were raised about who she was and why she had been wearing a pendant made from a conch shell only known to exist in Florida. No DNA testing was done before Minnesota Woman, a.k.a. Nimuue, was buried in South Dakota by Sioux tribes in 1999.

The partial skeleton of Gordon Creek Woman, discovered by U.S. Forest Service work crews in northern Colorado in 1963, was curated for decades by the University of Colorado Museum of Natural History. But it wasn’t until 2002 that improved dating techniques showed that the remains were more than 9,000 years old. By then, however, NAGPRA was in force, and in deference to the spirit of the law, researchers...
refrained from doing DNA analysis or other invasive research. Instead, the U.S. Forest Service concluded that, while the bones could not “reasonably be traced” to any present-day tribes, they were undoubtedly Native American. In 2013, they agreed to return the remains to the Northern Cheyenne for reburial at an undisclosed location in Colorado.

Archaeologists and Native Americans have often been at odds since NAGPRA was enacted in 1990. As a result of the law, museums and federal agencies have returned more than 50,000 sets of human remains and one million associated funerary objects to Indian tribes and native Hawaiian organizations. But institutions still have an estimated 120,000 sets of Native American human remains that were previously determined to be “culturally unidentifiable.” Under a 2010 addition to NAGPRA regulations, however, tribes may now claim any Native American remains—including any remains removed from lands recognized as a tribe’s “aboriginal lands.” “NAGPRA is not an authorization to conduct new scientific study for purposes of complying with the law, but returning human remains to a tribe does not preclude further research,” said David Tarler, who oversees the program’s civil enforcement and regulations for the National Park Service. “It is simply a matter of who has the decision-making authority.”

The change to NAGPRA—in a time of major advances in forensics, dating, and DNA analysis—is adding new urgency to efforts to reconcile scientific interest in the most ancient remains, especially those 8,000 years and older, with the wishes of the nation’s 567 federally recognized tribes. “Human remains this old are quite rare,” said Bradley Lepper, curator of Archaeology at the Ohio History Connection. In a nationwide survey of these very ancient remains he found 324 sets, some of which were nothing more than a few bone fragments. One hundred and fifty-two of these sets were sufficiently intact that their gender could be determined. Without human remains, Lepper said, archaeology is reduced to studying “a stage littered with fragments of scenery and discarded props, but with no actors.”

“Kennewick Man had more to tell us, but now we will never know,” said University of Tennessee Knoxville anthropologist Richard Jantz, who, in collaboration with Smithsonian Institution forensic anthropologist Doug Owsley, has studied and cataloged many of the ancient remains discovered in North America. “It is not clear whether all, some, or none of these early people can be considered ancestors of contemporary North Americans,” Jantz said, noting that Kennewick Man’s researchers acknowledged that they were unable to identify a specific tribe that’s directly related to the skeleton due to the limited sample size of modern Native Americans, particularly those living in the United States. (NAGPRA defines Native American as being “of or relating to, a tribe, people, or culture that is indigenous to the United States.”) He contends that new technology and today’s exponential increases in computing power would almost surely reveal far more about many of the skeletons that he and Owsley have studied. “Once these remains are buried, they are no longer available to science,” he said. “We will never know any more about them.”

But that’s not to say that all ancient skeletons have been, or face the imminent threat of being, reburied. In fact the fates of these remains vary widely depending on a number of factors such as where and when they were discovered, who is the custodian, and which tribes, if any, express an interest in their return. “It’s case by case, tribe by tribe, and location by location,” said Michael Waters, director of the Center for the Study of the First Americans at Texas A&M University.

For example, the Santa Barbara Museum of Natural History has, without objection from the local Chumash tribe, cared for the ancient remains of Arlington Springs Man since they were unearthed on Santa Rosa Island in 1959. That, in large part, is because the museum has collaborated closely with the tribal leaders. A Chumash researcher worked with archaeologists to date the 13,000-year-old bones and museum curator John Johnson regularly apprises the tribe of new research. There have been no requests for repatriation.

“They treat the remains with great respect,” said seventy-eight-year-old Ernestine De Soto, whose mother was the last
known speaker of the Chumash language. “We want to know our origins too,” she said, noting that the unusual antiquity of the bones confirms the tribe’s creation story: that the Chumash began on Santa Cruz Island and migrated to the mainland on a rainbow bridge.

In 1982 Leanne, an 11,000-year-old fragmentary skeleton, was found near Leander, in central Texas. She has resided ever since at the University of Texas Archaeological Research Laboratory (TARL) in Austin. None of the fifteen tribes contacted by TARL have expressed any interest in claiming her remains. Marybeth Tomka, TARL’s head of collections, surmised that this is because the tribes lack the resources necessary to take possession of Leanne. All but two of these tribes are based in other states, and a repatriation claim would require at least two trips to TARL, according to Tomka—one to view the remains, and another to collect them. If the tribe doesn’t have land in which to rebury the remains, they would have to acquire it, and there would also likely be other expenses associated with the reburial ceremony.

The federal government allocates money in the form of NAGPRA grants to offset the expenses incurred by a repatriation claim, but these grants aren’t easily obtained. Melanie O’Brien, the manager of the National NAGPRA Program, said the program typically gets forty grant requests a year that amount to about $2.5 million, but it only has the money, $1.6 million, to award twenty to twenty-five of them. “The tribes and the repositories compete for the same funds,” Tomka said. She thinks NAGPRA is a good law, but she added that “there’s just not enough money to go around to implement it.”

A lack of funds has also limited the amount of research TARL has done on the remains. “We have used 3-D imaging of the skull to give an idea of what Leanne looked like, but we haven’t done as much as we could,” said Tomka. “DNA work is still something for the future.”

Archaeologists have recovered one hundred and sixty-eight sets of ancient remains, many of which are roughly 8,000 years old, from the Windover Bog near Titusville, in east-central Florida. The bones are being curated at Florida State University, and no Native Americans have requested their repatriation. Archaeologist Glen Doran, who supervised excavation of the site in the 1980s, said efforts to sequence DNA have so far been unsuccessful due to the destructive effects of wet, highly acidic bog soils. “It’s frustrating, but we are hoping that techniques will improve,” Doran said. Researchers have done other types of analyses on the remains, which show a number of dissimilarities to modern Native Americans. Large sections of the bog remain unexcavated. (The site was purchased for safekeeping in 2013 by The Archaeological Conservancy.)

There are also those cases in which, rather than engaging in a nasty custody battle, scientists and Native Americans are in agreement as to the disposition of the remains. When a partial skeleton was discovered in On Your Knees Cave on Prince of Wales Island in Alaska in 1996, archaeologists immediately halted the excavation and consulted nearby Tlingit communities. Despite their initial reservations about collaborating with the archaeologists, the Tlingit saw a chance to validate their belief that their people had inhabited southeast Alaska for thousands of years.

As it turned out, analysis of the remains of the individual they called Shuká Káa (Man Ahead of Us) revealed that they were 10,300 years old—a discovery that supports theories that early inhabitants of North America were coastal navigators who roamed the Pacific Coast. DNA analysis concluded that he was ancestral to existing tribes in the Pacific Northwest. When his remains were finally reburied in 2007, the headstone read “Shuká Káa is testimony to our ancient occupancy of this land.”

Archaeologists’ collaboration with Athabaskan native communities has smoothed the investigation of even older remains at the Upward Sun River site in central Alaska, where two 11,500-year-old infant burials were discovered in 2013. Sequencing of maternally inherited DNA shows that the infants represent distinctly Native American lineages, and researchers say it lends support for the Beringian Standstill hypothesis, which holds that an early population, isolated for thousands of years in that region gave rise to all modern Native Americans.

“Collaboration between scientists and Native American groups is positive and we continue in our exploration of
what these children have to tell us about ancient Beringian lifeways,” said University of Alaska archaeologist Ben Potter. “We have ongoing work on a number of fronts geared toward understanding paleodiet, seasonal dietary shifts of the mothers, seasonal mobility, and other topics.” E. James Dixon of the University of New Mexico, one of the researchers involved in the Shuká Káa investigation, echoed Potter. “Archaeologists could do a much better job of partnering with tribal governments. Their perspective can enrich our role as archaeologists.”

In 1968, construction workers at Mel Anzick’s ranch near Wilsall, Montana, unearthed the remains of a two-year-old child buried in a collapsed rock shelter grave with a scattering of red ochre and more than 100 biface tools. The artifacts were produced by the Clovis, America’s first clearly identifiable culture. Radiocarbon testing showed the remains to be roughly 12,600 years old.

Because the grave was on private property, the law did not require that local tribes be notified. Even so, when Anzick’s daughter Sarah—who was inspired by this discovery to become a molecular biologist—sought to renew studies of the remains a few years ago, she apprised tribal leaders. Early attempts to sequence the child’s DNA failed. Then, with the benefit of new techniques, Willerslev and a team of forty scientists, including one member of the local Crow tribe, successfully sequenced the child’s genome. The results showed a common genetic heritage with today’s native peoples, especially those in Central and South America. In 2014, the child’s remains were quietly reburied in an emotion-laden traditional ceremony attended by the Anzicks, Willerslev, and the representatives of seven local tribes.

Willerslev was deeply touched by the ceremony, but he also acknowledged the loss to science due to advances in DNA analysis. “The research we did on the Anzick remains was not possible ten years ago,” he said. “But things have advanced so rapidly in just the three years since he was buried that we could learn even more about him today.” Nonetheless, he noted that much “of the presumed distrust between scientists and indigenous communities is not based on reality. I have been approached by different groups that are interested in knowing what can be learned from these ancient ancestors. They want to control the destiny of these remains, but they are curious, just like you and me.”

But part of the problem, it seems, is that Native Americans and scientists are often curious about different things. “Native Americans are not anti-science,” said Kimberly TallBear, a member of the Sisseton Wahpeton Oyate of South Dakota and a professor of Native Studies at the University of Alberta in Canada. “We merely want to assert our authority over our bodies, our lands, and the power of our stories. Many of the questions scientists ask are not important to us. Our creation stories and language carry information about our ancestors, too.”

MIKE TONER is a Pulitzer Prize-winning writer in Atlanta, Georgia. He is a frequent contributor to American Archaeology.
The Conservancy is excited to announce POINT-6, the sixth phase of an emergency acquisition project intended to purchase significant sites in immediate danger of destruction. The cultural remains of America’s prehistoric and historic peoples are rapidly being destroyed. Suburban development, modern agriculture, industry, and commercial looting all threaten not only the integrity, but the very existence, of our irreplaceable cultural heritage. Once an archaeological site has been disturbed, the context of the site can never be reconstructed and the precious information that the site contained about America’s past is lost forever.

The POINT Program (Protect Our Irreplaceable National Treasures) was first launched in 2000 with a $1 million challenge grant that the Conservancy had to match dollar for dollar in order to receive the funds. The Conservancy raised the matching funds because of the support of members, foundations, and corporations. The overwhelming success of the program prompted five additional phases of the project. Inspired by the past success of POINT and driven by the impact of the emergency funds on our preservation efforts, Conservancy board member Leslie Masson and her husband, Colin, have generously pledged a $1 million challenge grant to launch the POINT-6 Program.

The greatest obstacle to saving these sites is funding. Realizing this, our board member made the challenge grant with the expectation of building on the success of past POINT Programs. The $1 million gift must be matched dollar for dollar by June 2019 through gifts from foundations, corporations, and members. The funds would be used to quickly acquire archaeological sites throughout the nation that are in imminent danger of being destroyed or sold, as well as those sites for which cash is required to make the purchase.

The POINT-6 Program will focus primarily on sites in five geographic regions, as well as the sites of one national culture, the Paleo-Indians, who were the earliest inhabitants of the Americas. Although any endangered site of national significance will be eligible for protection under the program, regional preservation will focus on the following areas: Great Basin archaeology of the West; Four Corners archaeology of the Southwest; Algonquian and Iroquois village sites of the Northeast; Mississippian sites in the Southeast; and Mound-Builders sites of the Ohio Valley.

Sites that would otherwise have become strip malls, housing developments, or victims of looting, are protected because of support from our members for the POINT Program. For example, Junction Earthworks in Ohio, an approximately 2,000-year-old earthenwork complex that has been the subject of intermittent archaeological research since 1948, was saved with POINT funds. So was Manzanares Pueblo, a complex of adobe and masonry structures situated in the foothills of the Sangre de Cristo Mountains near Santa Fe, New Mexico. POINT funds were used to acquire a major addition to Marksville, the type-site of the eponymous mound-builder culture, in Louisiana, as well as Puzzle House, a major Mesa Verde site complex in Colorado. To date, the Conservancy has protected 134 highly-endangered sites throughout the nation because of the POINT Program. We look forward to preserving many more.
That Place Called Home

_Dahinda Meda protected Terrarium’s remarkable cultural resources for decades. Now the Conservancy will continue his work._

One day in 1975, while visiting with a friend, Dahinda Meda felt compelled to hike up to a very large boulder covered with petroglyphs. And that was it; Meda found his home. Just weeks later, Meda purchased a forty-acre parcel of land that he named Terrarium, because it sits in a bowl-like formation at the confluence of three creeks. Meda’s Terrarium, which he subsequently expanded to 360 acres, is rife with flora and fauna, water, and archaeology.

Terrarium lies on the ancestral lands of the Central Pomo, and in 1972, avocational archaeologist John Wright surveyed the land, noting nine house pits, a large midden mound, and many lithic points and tools. Subsequent research by archaeologists focused on the large petroglyph boulder, covered with cupules, grooves, concentric circles, and grinding marks. “This style of petroglyph is very uncommon in Mendocino County,” noted Dan Foster, an archaeologist with the California Department of Forestry and Fire Protection.

In 2012, archaeologist Greg White of Sub Terra Consulting surveyed Terrarium at the Conservancy’s behest. White found four archaeological sites, two of which had not had been previously recorded. His findings included several areas with lithic scatters of several different types of chert and obsidian, fire-cracked rock, bifaces, middens, stone tools, rock cupules, and large petroglyph boulders.

“Assemblages of this character and sites with this stage of soil development and weathering are typical of the Middle Archaic, dating sometime between 7,000 to 2,500 years old,” White wrote in his report. “I believe that archaeological investigation of Terrarium Property heritage resources has the potential to...
yield new and important insights into the proto-Pomo expansion of 550 B.C. This migration event has the potential to rank among the more distinct and well-defined prehistoric cultural migration phenomena of the Far West."

“I know of no other such site, in northern California, whose future is being safeguarded,” wrote Sherrie Smith-Ferri, a member of the Dry Creek Band of Pomo Indians and director of the Grace Hudson Museum.

Some time before his death in April of 2016, Meda and his wife, Norma Grier, met with the Conservancy to discuss how to permanently protect Terrarium. It took several years to work out the terms, but the Conservancy has now obtained an archaeological conservation easement that will protect Terrarium in perpetuity, in keeping with Dahinda Meda’s wishes.

—Cory Wilkins

CONSERVANCY Plan of Action
Site: Terrarium
Culture: Middle Archaic
Status: Conservation-minded owners wanted to preserve the site.
Acquisition: The Conservancy is purchasing a conservation easement for $79,000
How you can help: Please send contributions to The Archaeological Conservancy, attn.: Terrarium, 1717 Girard Blvd. NE, Albuquerque, NM 87106
Atkeson Pueblo Stabilized

SOUTHWEST—This spring, volunteers led by the Verde Valley Archaeology Center (VVAC) stabilized portions of Atkeson Pueblo, a Southern Sinagua settlement and Conservancy preserve that overlooks Oak Creek in the Verde Valley of central Arizona. First described in 1906 by archaeologist Jesse W. Fewkes, the pueblo was occupied between A.D. 1300 and 1425 and has the tallest remaining original wall in the valley, standing up to ten-feet high. The site also contains about thirty-five masonry rooms, a possible large community room, and a circular depression that may be a kiva or reservoir.

Recent VVAC volunteer crews repointed parts of the massive outside wall, and rebuilt a door frame that was deteriorating and threatening the wall’s stability. “The last major stabilization effort was done thirty years ago and the repointing of the walls had eroded to where it needed to be redone,” said Todd Bostwick, VVAC’s director of archaeology. “Our team of volunteers, led by VVAC president Jim Graceffa and Walter Gosart, have done a great job of replacing the wooden frame, repointing various areas where mortar has deteriorated, and replacing stones that had fallen from walls. This work will help stabilize the walls to prevent them from collapsing in the near future.”

VVAC manages six Conservancy preserves in the area, routinely monitoring them for signs of trespass or increased erosion, and maintaining the fence, gate, and vegetation cover. VVAC volunteers plan to return to Atkeson Pueblo this fall to continue the repointing of the large wall.

Parkin Addition

SOUTHEAST—Parkin Archeological State Park, located on the St. Francis River in northeast Arkansas, is a Mississippian mound site that has a history of archaeological research. Typical of many of the fortified villages of its time, one side was protected by the river, while the other three sides were surrounded by a wooden palisade and a shallow moat.

Parkin is believed to have been the village of Casqui, the capital of the eponymous chiefdom. Casqui was visited by Spanish explorer Hernando de Soto in 1541 during his legendary, destructive trek through the Southeast. While at Casqui, he erected a large cross on the mound, after which a mass was said. De Soto continued his search for gold and died of a fever in May 1542. Contact with de Soto and later explorers took a terrible toll on the entire Native American population of the Southeast, and mound sites like Parkin were eventually deserted.

Fast forward to the late 1800s, when the city of Parkin was established and a sawmill and workers’ homes were built on the site that protected it from the farming practices that destroyed many other mound sites. In the 1960s, a University of Arkansas field school determined that there were sufficient cultural resources to turn the property into an archaeological park. Arkansas established the park in 1991 with the help of local residents who donated their land and the Conservancy,
which acquired many parcels. Since the beginning, the Conservancy has worked closely with Arkansas State Parks, the Arkansas Archeological Survey and the staff at Parkin Archeological State Park, including Jeffrey M. Mitchem, the Arkansas Archeological Survey Station Archaeologist.

Recently, Richard and Linda Toland, one of the local families who helped with the original land acquisitions for the park, donated an adjacent tract that will eventually be incorporated into the park. The Tolands became friends of the Conservancy back in the early days, before there was a Southeast Regional Office and the Conservancy’s president, Mark Michel, was flying to Arkansas regularly to negotiate with landowners. The Tolands’ five-acre tract contains remains associated with the sawmill and, possibly, the Casqui occupation. The land is an important addition to one of Arkansas’ most significant archaeological sites.

Biesterfeldt is one of twenty-four new National Historic Landmarks. “These twenty-four new designations depict different threads of the American story that have been told through activism, architecture, music, and religious observance,” said former Secretary of the Interior Sally Jewell.

Biesterfeldt is an earth lodge village site on the Sheyenne River, and the trade goods recovered from it date it to the mid-to-late eighteenth century, the time when ethnographic and documentary evidence place the Cheyenne there. The preserve was an important Cheyenne settlement during their transformation from a settled, Eastern Woodlands horticultural society to equestrian bison-hunters who roamed the Plains, and therefore it has great research potential.

Biesterfeldt is one of twenty-four new National Historic Landmarks. “Their designation ensures future generations have the ability to learn from the past as we preserve and protect the historic value of these properties and the more than 2,500 other landmarks nationwide.”

Minnesota State University students excavate Biesterfeldt in 2008.
Reviews

Visual Culture of the Ancient Americas: Contemporary Perspectives
Edited by Andrew Finegold and Ellen Hoobler
(University of Oklahoma Press, 2017; 312 pgs., illus., $40 cloth, www.oup.com)

This collection of interesting and diverse essays is an important contribution to ancient American art history, a field of study that has only flourished in the past fifty years.

This group of established and emerging scholars focuses on the pre-Columbian art of the Andes, the Maya region, and central Mexico. It is also a tribute to Esther Pasztory, professor emerita of art history at Columbia University, who has played a defining role in the developing discipline.

Until the 1960s, pre-Columbia art was usually lumped in with “primitive art” and largely left to archaeologists. Pasztory spent more than forty years changing that image, and today pre-Columbian art is universally recognized for its complexity and sophistication. In this volume seventeen scholars, many of them former students of Pasztory, tackle a wide variety of topics including the Inca and Nazca art of Peru, the art of Maya temples, and Aztec picture writing. Special attention is given to the art of Teotihuacán, the great pre-Columbian city near present day Mexico City that dominated the region from about 100 B.C. to A.D. 650 and had a population of more than 80,000 people at its peak. Study of its enigmatic murals and ceramics have led to new insights of its development.

In an afterword, Pasztory sums up the progress of pre-Columbian art studies and finds that they “can give more” because Native American art evolved entirely independent of Western assumptions of the nature of art. Realism, for example, is basic to Western art, but largely lacking elsewhere. She makes the case for the inclusion of the art of ancient America into a universal art theory.

With its twenty-seven color and 110 black and white illustrations, Visual Culture of the Ancient Americas is an outstanding commentary on the current status of pre-Columbian art history and its potential to aid the understanding of these complex societies as well as the art of the planet.

Projectile Points and the Illinois Landscape: People, Time, and Place
By Robert J. Reber, et. al.
(Illinois State Archaeological Survey, 2017; 292 pgs., illus., $60 cloth; www.isas.illinois.edu)

This volume contains thousands of full-color photographs of mostly stone projectile points, knives, and cache-blades from all over Illinois. More than 100 different types are represented, with multiple examples illustrating distinguishing characteristics, distributions, ages, and cultural affiliations. The type of stone is also identified and each blade is reproduced in its actual size. Each spread, organized by age, has a short essay on the blade type, its age and uses, and other interesting information. Essays on related topics like bison hunting, early horticulture, and bird symbolism add to the context of the points.

This is comprehensive reference book that will be of interest to amateur and professional archaeologists from all over the Midwest and beyond. It is beautifully written, produced, and illustrated by seven amateur and professional archaeologists associated with the Illinois State Archaeological Survey at the University of Illinois at Urbana-Champaign. This book is an important contribution to Native American archaeology and a must for every archaeological library.
Archaeological Perspectives on the French in the New World

Edited by Elizabeth M. Scott

(University Press of Florida, 2017; 292 pgs., illus., $90 cloth; www.upf.com)

The story of French settlements in the Americas is largely confined to Québec and New Orleans, but this volume demonstrates that there is much more to be told. Thirteen authors examine the French presence in North America, the Caribbean, and French Guiana, regardless if they were under French political control or that of American, British, or Spanish regimes. French-speaking communities of ethnic French, French-African American, and French-Native American (Métis) are examined. Even after they no longer had regular contact with France, these communities maintained a French identity for generations.

By the mid-1750s French settlements stretched in a far-flung arc from Canada, through the Great Lakes and Mississippi Valley, to the Gulf Coast, and Caribbean. They tended to be thinly populated with French settlers, but they were cohesive and linked together by trade along the rivers and lakes. Fur traders and voyageurs moved goods and produce between settlements and kept up contact with France. At the end of the French and Indian War in 1763, France lost all its North American colonies, and thousands of French Acadians from present-day New Brunswick, Nova Scotia, and Prince Edward Island were dispersed to France, Spanish Louisiana, and the English colonies.

In this volume, the authors examine these far-flung French settlements, using the latest in archaeological techniques to discover and analyze the material culture. They find that be it in Sainte Genevieve, Missouri, or Fort Saint Joseph, Michigan, Francophone communities maintained a continuity of cultural traditions including diet, personal possessions, and home construction styles. During and after the upheavals of the French Revolution, more French settlers came to the New World and tended to maintain their French identity.

The authors of this volume are on the cutting edge of a growing sub-field of French-American archaeology. They combine archaeological research with a rich body of historical records to illuminate a colorful part of the American experience that complements the more familiar legacy of British and Spanish colonists. —Mark Michel

The Archaeology of Houses and Households in the Native Southeast

By Benjamin A. Steere

(University of Alabama Press, 2017; 232 pgs., illus., $55 cloth or ebook; www.uapress.ua.edu)

The book contains the largest detailed architectural data sets for the Southeast, which were compiled to understand the developmental history of houses and household in the region for the Woodland, Mississippian, and Historic periods (ca. 200 B.C. to A.D. 1800). More than 1,200 domestic and public structures from sixty-five archaeological sites in North Carolina, Georgia, Alabama, Tennessee, Kentucky, and the southern parts of Missouri, Indiana, and Illinois are examined. Much of the data comes from hard to access cultural resource management sources, while the remainder is from published and unpublished reports.

Since houses are a major investment of materials and labor, they are good indicators of major changes in the larger society. Author Benjamin Steere, an archaeologist at Western Carolina University, seeks to apply these findings to a larger theory of society. Despite his impressive assembly of house and household data, Steere sees this study as a first step of an expanding data set that can lead to even better understanding of these cultures.
Chaco Canyon boasts some of the most impressive ruins in the Southwest.

Chaco Canyon In Depth

When: September 9 – 17, 2017
Where: New Mexico and Colorado
How Much: $2,295 ($240 single supplement)

Explore the vast cultural system of Chaco Canyon and the extensive network of outlying communities that developed in northwestern New Mexico and southwestern Colorado from A.D. 800 to 1140. We'll visit Pueblo Bonito and other remarkable great houses in Chaco Canyon as well as the great kiva at Casa Rinconada. We'll hike to some of the most spectacular and remote sites in the canyon.

We'll also have the opportunity to visit many of the most important outlying communities that are integral parts of the entire Chacoan complex that is still being uncovered by researchers. Scholars are struggling to understand how this vast system developed and operated, and why it suddenly collapsed around 1140. To complete the experience, we'll tour the modern day Pueblo of Acoma and spend two memorable nights camping in Chaco Canyon. Some of the leading Chaco experts will join us.
Cliff Dwellers

When: September 16 – 26, 2017
Where: Arizona and Colorado
How Much: $2,595 ($480 single supplement)

This fall the Conservancy brings back one of its most popular Southwestern tours: an exciting look at the region’s spectacular prehistoric cliff dwellings. Ancient Southwestern groups experimented with building their houses in cliff faces and rockshelters. These structures not only offered protection from the weather, but many of them also served as natural solar collectors during the winter.

We’ll meet in Phoenix and start the tour with a visit to the Hohokam platform mounds. Then we’ll visit the Sinagua pueblos in the Verde Valley and around Flagstaff. There will be a tour of majestic Monument Valley and Oak Creek Canyon, and we’ll see the cliff dwellings of Montezuma Castle in the Verde Valley, Cliff Palace in Mesa Verde, and the White House Ruin in Canyon de Chelly, among other attractions.

The trip also includes a visit to Lorenzo Hubbell’s historic trading post, a stop at Second Mesa at Hopi, a jeep tour of Canyon de Chelly, and walking tours of some of the Conservancy’s preserves, including Yellowjacket and Boon Pueblo.

Oaxaca

When: October 27 – November 6, 2017
Where: Mexico
How Much: $2,695 ($310 single supplement)

Join us in Oaxaca, Mexico, during one of the most unusual festivals anywhere: the Day of the Dead. On this day, people prepare home altars and cemeteries to welcome the dead, who are believed to return to enjoy the food and drink they indulged in during life. Rather than a morbid occasion, it’s a celebratory one.

Our tour explores the Mixtecan and Zapotecan archaeological sites in the region, including Milla, Monte Albán, San José Mogote, and Dainzú. You’ll have the opportunity to explore Oaxaca’s museums and markets as well as several crafts villages featuring weaving, pottery, carved animals, and other local art.
The Archaeological Conservancy would like to thank the following individuals, foundations, and corporations for their generous support during the period of February through April 2017. Their generosity, along with the generosity of the Conservancy’s other members, makes our work possible.

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**Gifts of Distinction**

The Anasazi Circle is an elite group of members who contribute $2,500 or more annually to the Conservancy’s ongoing efforts to permanently preserve America’s cultural treasures. Since its inception in 1993, participation in the Anasazi Circle has increased by over 267 percent.

Anasazi Circle member support is essential to the Conservancy’s ability to continually expand its preservation goals. It is crucial to preserve information regarding our nation’s past so we can better understand it. Cultural evidence is often destroyed before proper analysis can be done, and the knowledge is lost forever. The Conservancy uses donations to act quickly to protect sites and prevent significant information from being destroyed.

The benefits of Anasazi Circle membership include discounts on tours, recognition in *American Archaeology*, an award-winning magazine, and an invitation to an exclusive seminar weekend beginning September 29 in Annapolis, Maryland, where you’ll learn about the archaeology of the Chesapeake. By sending in your donation of $2,500 or more today, you can ensure your invitation to the Conservancy’s 2017 Anasazi Circle.
The Spirit of the West Express—Silver Edition

Celebrate the 100th ANNIVERSARY of the Indian Head Nickel with this real working electric train collection.

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