CONTACT AND CONFLICT  •  DOCUMENTATION PROBLEMS  •  MOUNDS OF THE SOUTHEAST

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american archaeology
For nearly 5,000 years, the native inhabitants of the lower Mississippi Valley have been building large mounds of earth (see “A Grand Tradition of Mound Building,” page 32). Some contain burials, others seem only to support buildings high above the village, and the function of yet other mounds remains a mystery. While the size, shape, and function change over time, the urge to build did not. These mounds and the features that surround them are key elements of the rich and diverse culture of the region, one of the most densely populated in the Americas. They vividly illustrate the power of native cultures to command immense building projects using hundreds of workers.

For the past 150 years the mounds have been looted for valuable artifacts, leveled to make large-scale farming easier, used to fill in wetlands, and removed to make way for developments. Only a small fraction remain, and they are under constant assault. That makes them more valuable to scholars than ever, and it is critical that we try to preserve every remaining mound. The Conservancy has made it one of our highest priorities, and our office in Mississippi works tirelessly with landowners and others through the South. And we are having success. Much of the land is still relatively cheap, and many of the remaining mounds are owned by people who care about them. If we can muster the financial resources, we can permanently save this splendid American tradition.
Setting the Record Straight

Your article on the Fort Mims Massacre “Clarifying an Historic Event” (Fall 2007) incorrectly states that no fort stockade made of logs laid horizontally has ever appeared in the historical record. Fort Roberdeau was built in this manner. It was constructed in 1778 by General Daniel Roberdeau in SinKing Valley in South Central Pennsylvania.

Its purpose was to protect miners that were mining lead ore to make bullets for the American Revolution. The stockade was built with logs laid horizontally because the limestone strata on the site made it very difficult to dig a trench.

An archaeological dig was done at the fort site in 1930. The fort was reconstructed in 1976.

John Domenic Rawlings, Maryland

Global Warming Already?

I always look forward to reading your magazine and have just devoured the Winter 2007-08 issue from cover to cover. It was surprising to read in your cover feature, “Waterlogged Wonders,” that Mud Bay is located “just south of Olympia.” I can imagine the tidal inlet reaching that location as global warming leads to rising sea levels, but already?

James L Armagost Mount Vernon, Washington

Mud Bay is west of Olympia. We apologize for the error. Ed.

Editor’s Corner

Not so long ago experts believed that New World agriculture began roughly 5,000 years ago, which meant the people of the Americas were much slower to change from a mobile hunter-gatherer to a more sedentary lifestyle than some denizens of the Old World, where this transition occurred some 10,000 years ago. (See “How North American Agriculture Began,” page 19.)

Agriculture played a major role in the development of prehistoric cultures. They came to realize that when every able-bodied man, woman, and child isn’t devoting their waking hours to finding their next meal, good things happen. The domestication of crops produced a surplus of food that, presumably, resulted in growing populations, which led to divisions of labor, which in turn yielded such advances as ceramics, architecture, and social organization.

Researchers have since discovered that New World peoples in southern Mexico began cultivating crops about the same time as their Old World neighbors. The Ice Age ended about 10,000 years ago, and the earth became warmer, wetter, and more conducive to crop cultivation.

But agriculture’s effects are at times as mysterious as they are profound. Advanced cultures did not quickly spring from the domestication of squash, maize, and other early crops in southern Mexico. Indeed, thousands of years passed before accomplished cultures such as the Olmec and Maya emerged in this region.

Thousands of years also passed before peoples in what is now the United States took to domesticating crops. Archaeologists have made some dramatic breakthroughs in early agriculture, but many unanswered questions remain.
Welcome to the Archaeological Conservancy!

The Archaeological Conservancy is the only national nonprofit organization that identifies, acquires, and preserves the most significant archaeological sites in the United States. Since its beginning in 1980, the Conservancy has preserved more than 380 sites across the nation, ranging in age from the earliest habitation sites in North America to a 19th-century frontier army post. We are building a national system of archaeological preserves to ensure the survival of our irreplaceable cultural heritage.

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.

How We Raise Funds:
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 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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■ NEW EXHIBITS

National Museum of Mexican Art
Chicago, Ill.—The new exhibit “Horns, Hooves, Wings, Fins and Tails: Animal Imagery in the Permanent Collection” presents over 100 objects from the museum’s permanent collection that depict animals in Mexico from pre-Cuauhtémoc cultures and folklore to contemporary times. The exhibit explores various themes such as the Mexican national emblem of the eagle and the snake, the Aztec military orders of jaguars and eagles, religious icons brought by Spanish colonizers such as the serpent, dove, and lion, and mythical creatures such as mermaids. (312) 738-1503, www.nationalmuseumofmexicanart.org (Through June)

Museum of People and Cultures
Brigham Young University, Provo, Utah—The fascinating exhibit “Touching the Past: Traditions of Casas Grandes” displays and interprets the museum’s holdings of prehistoric Casas Grandes pottery. Casas Grandes, also known as Paquimé, was a major cultural and trade center in northern Mexico for hundreds of years before the arrival of the Spanish. Reaching its height in the 13th and 14th centuries, the site includes more than 2,000 rooms and is well known for its outstanding pottery, a technology that has been revived in recent years by residents of the nearby village of Mata Ortiz. (801) 422-0020, http://mpc.byu.edu (Long-term exhibit)

Burke Museum of Natural History and Culture
University of Washington, Seattle, Wash.—Explore the arts and cultures of the Columbia Plateau through the new exhibits “Peoples of the Plateau: The Indian Photographs of Lee Moorhouse, 1898–1915” and “This Place Called Home.” The little-known historical photographs on view in “Peoples of the Plateau” were taken between 1898 and 1915 by amateur photographer Thomas Leander “Lee” Moorhouse in several areas around eastern Washington and Oregon, and they provide a rich and important visual record of the interior Pacific Northwest as it transitioned from frontier life to the modern era. “This Place Called Home” expresses the traditional cultural continuity of the Yakima, Nez Perce, and Umatilla peoples with artifacts that include beadwork, cradleboards, cornhusk bags, baskets, and blankets, bringing to life the many types of materials depicted in Moorhouse’s photographs. The exhibit also includes video interviews with tribal elders recorded by museum staff members. (206) 543-5590, www.washington.edu/burkemuseum (Through June 8)

Arizona State Museum
University of Arizona, Tucson, Ariz.—Gems, minerals, copper, seashells, and other exotic goods have been carried across the Southwest along well-established and well-worn routes for more than 2,000 years. The new exhibit “Set in Stone: 2,000 Years of Gem and Mineral Trade in the Southwest” brings this long history to light, featuring 300 objects and audiovisual displays. With native jewelry and mining tools that span this time period, and with mineral samples, photographs, and recordings, the viewer experiences the historical quest for mineral wealth that helped shape the identity of the Southwest. (520) 621-6302, www.statemuseum.arizona.edu (Long-term exhibit)
Florida Aquarium

University of Miami, Miami, Fla.—Diving aficionados and history buffs can view an unusual collection of artifacts excavated from Little Salt Spring in Sarasota in the new exhibit “Dive into the Past: An Exhibit on the Little Salt Spring Archaeological Site.” Little Salt Spring is one of the nation’s most important archaeological sites because of its wealth of information about the first Floridians who lived in the area more than 12,000 years ago. The sinkhole’s water chemistry and temperature have helped to create a rare prehistoric submerged site where well-preserved late Paleo-Indian and Archaic artifacts have been excavated from a portion of the spring basin. Antler and bone tools, wooden relics, and preserved organic materials compose a large portion of the items on display. (813) 367-4036, www.fl aquarium.org (Through March 30)

Heard Museum Annual Katsina Doll Marketplace

April 5, Heard Museum, Phoenix, Ariz.—More than 100 Hopi katsina doll carvers will gather to show and sell their unique creations at the museum’s annual Katsina Doll Marketplace. Made from the root of the cottonwood tree, katsina dolls vary from village to village, representing important spirits to the Hopi religion. (602) 252-8344, www.heard.org

The Art of Craft: 1830

May 10, 10 a.m. - 4 p.m., Historic Rosedale Plantation, Charlotte, N.C.—Enjoy a weekend filled with native drums, dancers in full regalia, artists, storytellers, birds of prey, performers, and traditional foods. Sponsored by the Monocan Indian Nation. (434) 946-0389, www.monacannation.com

16th Annual Monacan Powwow

May 16–18, Abert Farm near Elon, Va.—Enjoy a weekend filled with native drums, dancers in full regalia, artists, storytellers, birds of prey, performers, and traditional foods. Sponsored by the Monocan Indian Nation. (434) 946-0389, www.monacannation.com

2008 Colorado Rock Art Association Annual Symposium

May 2–4, La Junta, Colo.—This year’s theme, “Rock Art Along the Arkansas River: Colorado’s Southeast,” will be explored through presentations and field trips to local rock art sites. Contact Lynda McNeil at (303) 449-9413, Lynda.McNeil@colorado.edu, www.coloradorockart.org

The Archaeological Society of Ohio Symposium 2008

May 16–17, Columbus Airport Marriott, Columbus, Ohio—The topic of this year’s symposium is “The Archaeology of the Ohio Valley,” with lectures by some of the field’s top scholars, including keynote speaker Dennis Stanford, who will discuss current research regarding the Paleo-Indian period. Contact Michael Van Steen at (937) 766-5411, www.ohioarch.org
Researchers working at the massive, early Classic Maya site in the Yucatán Peninsula believe they have discovered an ancient marketplace that covered nearly four acres and could have supported as many as 600 stalls.

For the past 13 years an interdisciplinary team of researchers, led by Bruce Dahlin of Shepherd University in West Virginia, has investigated Chunchucmil, one of the largest Maya sites. The team has been trying to understand how such a large city could exist in one of the driest areas of the Maya world. They found several parallel rows of rocks that suggested temporary structures of the sort found in a marketplace, like stalls and kiosks.

To test their marketplace theory, Richard Terry, a soils biochemist at Brigham Young University, and Tim Beach, geomorphologist at George-town University, analyzed the area’s soils. For comparison, they also analyzed soil samples from one of the few remaining outdoor markets in highland Guatemala. The researchers found phosphate concentrations at the site up to 20 times higher than those of the surrounding areas, but consistent with phosphate concentrations found at the Guatemala market. When food and other organic materials decompose, they leave durable chemical traces in the soil such as phosphorus, which clings to soil particles.

“The linear pattern of phosphorus distribution across the plaza indicated that most of the phosphorus had accumulated from ancient vegetable matter placed in alignment with the main [causeway] that enters the plaza from the east side,” Terry said. “This pattern provided an important line of evidence that the marketing of food stuffs from rows of vegetable stands had occurred in the past.” Combined with clear evidence of long-distance trade activities, the analyses provided the first concrete evidence for what appears to be a marketplace and a market-based economy. Chunchucmil’s residents apparently obtained their food by trade rather than growing it.

While the long-held view of the Maya economy being based on taxation and tribute, with food and other goods controlled and distributed by a ruling class, likely remains true for many areas, the evidence at Chunchucmil indicates that it had become a specialized trade center with a complex market economy that allowed for the accumulation of highly valued goods by an important middle class of merchants.

“The study of ancient Maya economic systems has been based primarily on durable prestige goods normally found in elite contexts,” Dahlin said. “This bias in the record has tacitly favored a top-down perspective, emphasizing goods that were exchanged by elites among themselves as well as rewards they gave to the common Maya for their loyalty and support. We now have a window on the kinds of economic exchanges that all the Maya engaged in.”

Future geochemical studies at other Maya sites will help determine how far the market economy may have spread. —Tamara Stewart
Seventeenth-Century Shipwreck Found off Dominican Republic Coast

Researchers believe the ship is Captain Kidd’s Quedagh Merchant.

A shipwreck thought to be the *Quedagh Merchant* was found in less than 10 feet of water just 70 feet off the coast of Catalina Island in the Dominican Republic. The wreck was spotted by a local resident who surmised its importance from its numerous cannons. At the request of the Dominican Republic, a team of researchers from Indiana University led by Charles Beeker, director of the school’s Academic Diving and Underwater Science Programs, is studying the ship and leading efforts to convert the site into an underwater preserve. Only a few pirate ships have been discovered in the Americas, and the find offers a rare opportunity to test the accuracy of historical documents against the archaeological record.

The ship is in pristine condition, which may be partly due to its being in water too shallow for treasure-hunting vessels with magnetometers to detect. “It’s remarkable the ship has remained undiscovered all these years, especially given its location so close to shore and the numerous expeditions that have looked for it,” says Beeker. The extensive historical documents describing the ship have so far been corroborated by the underwater findings, including the numerous cannons stacked in the cargo hold on top of multiple anchors, an unusual assemblage described by Captain William Kidd more than 300 years before. “As an archaeologist, it will take two years to conclusively prove this is indeed Captain Kidd’s vessel, but as a betting man, I’d say it is Captain Kidd’s vessel,” Beeker says.

According to historians, Scottish sailor Captain William Kidd captured the 400-ton *Quedagh Merchant* loaded with gold, silver, silks, and other goods in the Indian Ocean. In 1699, Kidd, then a New York resident, left the ship in the Caribbean as he traveled to New York to try to clear himself of piracy charges. It is thought that the crew left in charge of the vessel subsequently scavenged the ship’s treasure and set fire to the vessel, leaving it adrift down the Rio Dulce near Catalina Island.

Debate continues as to whether Kidd was a pirate or a privateer (someone authorized by the government to capture pirates), but ultimately he was convicted of piracy in a London trial, his body left to hang for two years in a gibbet over the River Thames.

Indiana University has worked closely with the Dominican Republic for the last 11 years on underwater and land-based research related to the European Contact period. Much of the research has resulted in the establishment of underwater parks and preserves. —Tamara Stewart
UC Berkeley Reorganizes NAGPRA Process

Native Americans accuse school of not complying with the law.

Dozens of Native Americans held a protest at the University of California, Berkeley this past October following the university’s announcement that they planned to reorganize its NAGPRA unit in order to integrate repatriation efforts into broader university operations. Under the 1990 federal Native American Graves Protection and Repatriation Act (NAGPRA), universities and museums are required to identify the tribal affiliations of the bones and artifacts held in their collections and return them to federally recognized tribes that request them. The protest resulted from the slow repatriation process and the perceived lack of tribal input in the decision to disband the NAGPRA unit.

The university’s Phoebe A. Hearst Museum of Anthropology holds the second largest collection of remains in the country, with some 12,000 complete or partial sets collected between the early 1900s and the 1970s. But because many of the remains are from regions historically occupied by native groups that are not federally recognized, only a small percentage have been returned to tribal groups. Of the 8,622 burials from California in the collection, more than 5,000 were excavated in regions that currently have no federally recognized tribe.

“By NAGPRA, anything associated with tribes that are not federally recognized must go in the culturally unaffiliated category,” explains Judson King, a chemical engineering professor and former provost who became interim director of the museum last September. “A prime example is the Ohlone of the San Francisco Bay area, for which several different groups compete for recognition and leadership, and which are not yet a federally recognized tribe,” King adds. A state version of the law, known as Cal NAGPRA, is in the works. It will give a degree of recognition to more tribes and groups.

Since the October protest, King and two of his colleagues have attended four meetings with California and Nevada tribal leaders, as well as several state and national NAGPRA meetings, in order to gain input from tribes, to make sure the museum’s NAGPRA processes are clear, to assess the way they have been proceeding, and to seek and develop mechanisms for future interactions with tribes.

“From these meetings, I am convinced that the reorganization undertaken earlier by the Hearst Museum was a step in the right direction, although the process for getting there could have involved better consultation with the native community,” King said. He noted the reorganization actually increased the university’s budget for NAGPRA-related activities and gave responsibilities to a broader group of staff. “Repatriation visits, consultations, and requests have increased substantially since the reorganization, and we believe that they are being handled in a manner that works well,” he said.

Attempts to reach Native American groups for comment were unsuccessful. — Tamara Stewart
Research Suggests Prehistoric Beer Drinking

Ceramic analysis indicates fermented beverage was consumed in New Mexico.

Analyses of ceramic samples by Sandia National Laboratory suggest that groups living in central New Mexico some 800 years ago may have produced a type of fermented corn beverage long before the European introduction of grapes and wine to the Americas.

The Tarahumara Indians of northern Mexico have made a fermented corn beverage called tiswin for hundreds of years, consequently New Mexico State Archaeologist Glenna Dean reasoned that Ancestral Puebloan peoples likely brewed a form of beer prior to European contact. So Dean gathered ceramic samples consisting of pots used by the Tarahumara for brewing tiswin, ceramic sherds from 800-year old settlements in central New Mexico, and pots in which she had brewed tiswin.

Sandia researcher Ted Borek conducted gas chromatography and mass spectrometry analyses of vapors produced by heating these samples, all of which produced similar results. The study “may be new evidence of dietary practices among Ancestral Puebloan people that are no longer practiced,” said Dean. “Further study may find that lost dietary practices may have practical implications in improving the health of Native Americans—and others—today,”—Tamara Stewart

Recommendation To Rebury Remains Causes Controversy

Some Chinese-Americans argue for analysis to learn about history.

A recommendation to rebury numerous sets of Asian human remains uncovered during a construction project in Los Angeles has caused a controversy in the Chinese community. In 2005 workers with the Los Angeles County Metropolitan Transportation Authority (MTA) uncovered a forgotten cemetery while widening a street, leading to the recovery of 168 sets of remains and numerous associated artifacts.

The burials date from 1880 to 1920, and the artifacts date to about 1850. Nineteen of the badly deteriorated remains were positively identified as being Asian. The MTA formed a committee consisting of 13 members of the community, three of whom represent Chinese organizations, to advise it on how to handle the remains and artifacts. The committee voted to rebury them at an adjacent cemetery, which engendered opposition from other Chinese who want to study them.

“The findings are such rare items that to bury them without proper study would be a shame,” said ChorSwang Ngin, the chair of the anthropology department at Cal State LA. She said most Chinese want the remains and artifacts to be analyzed so they can learn more about their ancestors. Reburial without analysis means “an entire chapter of L.A.’s history would be lost,” she said, referring to a time when Chinese immigrants came to California to work.

The MTA is still reviewing its options and will make a decision in a few weeks.—Michael Bawaya
Looting is increasing in America’s national parks, according to officials from the National Park Service (NPS). The most recent data show that the number of reported incidents of looting increased from 372 in 2004 to 759 in 2005.

NPS national staff ranger Greg Lawler said that over the past decade an average of 340 significant looting incidents a year have been reported from the country’s 391 national parks, monuments, historic sites, and battlefields. Looters have taken valuable artifacts ranging from pre-Columbian clay pots to projectile points, and from Civil War belt buckles to Navajo Nightway ceremonial masks.

Yet, the NPS estimates that less than 25 percent of actual looting incidents are reported.

Lawler said a comprehensive NPS study of looting in 1988 concluded that 25 percent was a fair statistical estimate of the rate of incidents reported to NPS, and that’s the percentage they generally use. NPS special agent Todd Swain estimated that only 18 percent of the looting incidents are reported. “We know we’re missing statistics of archaeological thefts,” Lawler said, because some parks report incidents of theft, be it an artifact or a purse, without categorizing the items taken. Consequently, even if an artifact was stolen, it’s not recorded as an incidence of archaeological looting.

These inconsistencies in reporting will soon end. “The federal government is building a new incident reporting system in the Interior Department,” he said, “a system that will encompass NPS, the BLM, and other agencies. That will help a lot.”

Guy Whitmer, NPS special agent in charge of criminal investigations, said that over the last 10 years the Internet has become a major factor in the theft of archaeological artifacts. “Anyone anywhere in the world can market an item,” he said, “and they instantly have a worldwide bidding audience.”

According to Bonnie Magness-Gardiner, an archaeologist and manager of the FBI’s art theft program, prices are rising for some items, and looting does appear to be increasing at all federal sites, including the national parks. But, she added, it’s hard to know for certain whether the upsurge is because of better reporting in general, or because of an actual increase in looting.

“The Internet has made artifacts accessible to a wide audience,” she agreed. “In that sense the Internet has expanded the market. There is no longer a need for collectors to travel to New York City, or Chicago, or Los Angeles, or some other place. They can see it all and bid on it all right from home or office through the Internet.”

Whitmer said NPS does not have the staff to put anyone on Internet patrol full time.

“From the enforcement end, Whitmer added, “eBay alone is huge. They have been very cooperative with us, but there’s so much stuff that there’s no way for us to keep up. And that’s just eBay. Shops and traders run their own sites.” —Steven McFadden
Excavators trowel the area over Structure 5, one of the burned buildings they discovered. This building was excavated in 2007 after it had been completely exposed beneath the plow zone.
Spain’s attempt to establish a 16th-century fort in what is now North Carolina seems to have started well and then ended disastrously. A site at the foot of the Appalachian Mountains could solve the mystery of what happened and why.

By Constance E. Richards

american archaeology
As I trundled through the foothills of the Blue Ridge Mountains near Morganton, North Carolina, the usual landscape of colorful barbecue locales, fast food eateries, chain stores, and gas stations gave way to highway fruit stands, small ranch homes, hayfields, and the odd dilapidated tobacco barn. It is here, a few miles of twists and turns from town, that the Berry site lies. Berry contains the ruins of the oldest European settlement in what is now the United States. The investigation of this 12-acre site set among tree farms, green fields, and old homesteads, is overseen by archaeologists David Moore of nearby Warren Wilson College, Robin Beck of the University of Oklahoma, and Christopher Rodning of Tulane University. I pulled off the paved road onto a dirt drive leading to the excavation area. Gnats and sweat bees hovered, stirring into a frenzy as I walked through the long grass under a glaring July sun.

Greeted by Moore, who first investigated the site in 1986, and Beck, who joined him in 1994, I was ushered to the tent that offered shade to a group of field school students from Warren Wilson College. The college, in conjunction with Western Piedmont Community College, has conducted a field school at the site every summer since 2001, the year Rodning joined the project. Some 40 to 50 archaeologists, students, and volunteers work at the site during the height of the dig.

The landowners, Pat and James Berry, said the site was plowed in the 1950s, disturbing some of the top layers of artifacts, and part of the site was plowed again in the late 1990s. Despite this, the archaeologists are still recovering valuable data. “This year was extraordinary,” Beck said. “It was the first year we were able to completely excavate one of the buildings. We’ve been waiting 10 years to raise the resources to do so.”

The archaeologists excavated Structure 5, one of five burnt buildings that they think were associated with the Spanish settlement at Fort San Juan. Some of the areas between and around those structures have also been excavated. The structures were first noted when a 1997 proton-magnetometer survey identified several anomalies there. Excavations in 2001 revealed that these anomalies were the vestiges of buildings that formed a compound around a central plaza. Sixteenth-century Spanish artifacts such as lead shot, nails, copper lacing tips used for fastening clothing, links of chain
mail used as body armor, and shards of olive jars and blue majolica ointment jars were also recovered in this area. The only other known site in the Southeastern interior with a similar assemblage of 16th-century Spanish materials, according to Beck, is the Governor Martin site in Tallahassee, Florida, where Hernando de Soto wintered in 1539.

Several historical documents tell of a Spanish fort near, or adjacent to, Joara, a Native American village. The more detailed of these accounts came from Juan de la Bandera, a scribe who traveled with Captain Juan Pardo, the military officer who led Spanish explorations into Tennessee and the Carolinas in the 1560s. Pardo penned a shorter account.

Neither of these accounts speaks of the lives of the 30 Spanish soldiers who were garrisoned at Fort San Juan for 18 months to help establish a Spanish foothold in the continent’s interior.

The archaeologists are searching for evidence of the fort, how the Spanish lived, and the nature of their interaction with the Native Americans. The soldiers apparently coexisted peacefully with the Indians during their stay, then, for reasons unknown, the natives attacked the fort, killing all but one soldier who managed to escape to Santa Elena. The fort was burned to the ground, but the archaeologists are uncertain whether this occurred during the attack or sometime after.

This project is unusual, according to Rodning, because “the relationship between Fort San Juan and the native community of Joara is one in which native people were dominant, and, arguably, the Spanish soldiers were dependent upon native help and, perhaps, even threatened by the possibility of troubled relations with native groups. This situation is very different than the more common scenario, especially later in time, of European dominance or at least influence.”

“Scholars have debated about the routes of Pardo and de Soto for years,” Moore said, but there is a consensus that both expeditions passed through the upper Catawba Valley of North Carolina, with de Soto preceding Pardo. The latter first traveled from Santa Elena, the Spanish capital located on what is now Parris Island in South Carolina, searching for an overland route to Spanish silver mines in northern Mexico. The Spanish wanted to establish the route to protect the silver mines, which had been repeatedly attacked by native groups living north of the mines. They were also intent on “pacifying the local native populations and establishing a Spanish colonial presence in the interior,” said Rodning. During his march, Pardo built six small forts between what is now Beaufort, South Carolina, and eastern Tennessee to...
secure the route. The Spanish were dependent on native villages for food; therefore, though their silver mines were to the southwest, they initially headed north to take advantage of the hospitality of friendly Native American villages de Soto had previously visited.

According to Bandera’s account, in January 1567 Pardo arrived at a large native town at the foot of the Appalachian Mountains that the Spanish originally called Joara. (The archaeologists think Joara is a corruption of Xuala, which de Soto called the town.) Pardo renamed it Cuenca, after his home in Spain, and Fort San Juan was built. The threat of a possible French attack drew Pardo back to Santa Elena, and the 30 soldiers remained to defend the fort. “Before England had made any viable and sustainable claims to North America, both the Spanish and French were trying to establish their own claims and their own permanent presence on the colonial frontier,” Rodning noted.

The archaeological evidence from the Berry site confirms the historical accounts of Joara. During their investigations in the 1980s and ’90s, the archaeologists recovered ceramics at the Berry site that are characteristic of Native Americans who inhabited the upper Catawba and Yadkin river valleys during the 14th to 16th centuries. The site also contains the remnant of an earthen platform mound that was discovered in 1887 by the Bureau of American Ethnology during a mound exploration program led by the noted archaeologist Cyrus Thomas. This ceremonial mound, which was originally more than 12 feet high, was bulldozed in the early 1960s to a height of two feet.

The archaeologists are trying to determine the purposes of the five structures they’ve identified, as well as who used them. “We don’t have a description of the fort itself,” Moore said, such that only extensive, large-scale excavations can clarify the nature of these buildings and the Spanish compound. “The overall pattern of the buildings is Native American,” he observed, though all five of these buildings are unusually large by native standards. These “semi-subterranean” structures, as Moore called them, had a below-ground foundation from which wattle and daub walls arose. But at least one of the timbers from Structure 1, which was excavated in 2003, had a square-cut notch that was used to join this element to other timbers, suggesting Spanish influence. “We feel they were built by natives under the direction of the Spanish,” he said.

Last season, the archaeologists unearthed a central hearth and numerous upright burned wooden posts that were likely part of Structure 5’s frame. They also discovered burned firewood, fallen roof timbers that still retained their bark, and artifacts such as decorated ceramic fragments, and...
a link of chain mail armor. The most significant artifact found within Structure 5 is an iron scale that the Spanish likely used to weigh materials. A detailed list of supplies, with pounds of nails, lead shot, and other objects were included in Bandera’s account. “Its presence inside the building is another very good indication that Spanish soldiers were using that building,” Beck surmised. “Whether it was being used as a place to live or as a storehouse, or both, the scale suggests that it was Spaniards primarily using the building.” The Europeans introduced metals to the natives, who valued them as ornaments rather than tools, therefore the “Native Americans would not have had a use for the scale as an instrument for measuring things in standard weights,” he explained.

Both Native American and Spanish items were found in the pits that surround Structure 5 and the other buildings. The Spanish items correspond to the supplies enumerated in Bandera’s document: nails, lead shot, olive jars, and ointment jars. It’s very unlikely the soldiers would have traded these goods to the natives—nails, for example, were a precious commodity—therefore, these artifacts serve as additional evidence that the Spanish used the buildings.

Charred food remains are being analyzed so that the archaeologists can get a clearer picture of the soldiers’ diet. It’s known that they ate corn and beans that were obtained from the natives.

“It was an economic relationship, but also a military alliance of sorts,” Beck said of the Spanish-Native American relationship. “The presence of the Pardo expedition changed native politics. The chief of Joara was expanding his influence, and he used the expedition for his benefit.” Bandera wrote of how Pardo’s sergeant, Hernando Moyano, led groups of soldiers into the mountains to burn down two villages that were enemies of Joara.

But likening them to dinner guests who refused to go home, Beck believes the Spanish wore out their welcome. “The Spanish may have been blind to the problems they were causing,” said Moore, noting that Bandera’s and Pardo’s writings made no mention of conflict. However, other Spanish documents suggest that the soldiers’ continuous demands for food—they were no longer getting supplies from Santa

The Spanish were intent upon establishing a route from Santa Elena to their silver mines in northern Mexico. They were also intent on colonizing the region. But their geographic ignorance and dependence on Native Americans for food caused Captain Juan Pardo’s expedition to head north, where they knew Native American villages were located, instead of west. In addition to Santa Elena and Joara, Pardo established five other forts, but his expedition failed to get anywhere near Mexico. Pardo eventually turned west and reached several Native American villages in eastern Tennessee, but at that point, learning of a possible ambush by hostile Native Americans, he and his men retreated to Joara.
Elena—as well as their indiscretions with native women, eventually soured their relationship with the natives. Historical accounts also tell of the destruction of the fort and the escape of the lone soldier.

The archaeologists can only guess what transpired. “One scenario we could see was if there had been a surprise attack on the soldiers,” Moore speculated. But the small number of artifacts in Structure 5, the only building that’s been completely excavated, appears to argue against that scenario. If soldiers residing in Structure 5 had been taken by surprise by the natives, the archaeologists assume they would have found an artifact scatter reflecting the soldiers’ panicked response. “Everything on the floor would have still been there,” said Moore. Instead, “the area appears to be swept clean before it was burned.” Rodning said the archaeologists hope to solve this mystery by excavating the other burned buildings “to clarify whether they were built for the same purposes and activities as Structure 5, and whether these other structures were cleaned out before they were burned down or not.”

A separate, but perhaps related mystery is the ultimate fate of Joara. As yet, there is no evidence that native peoples were living in the upper Catawba Valley after the mid-17th century. “Something led to the abandonment of the area,” Beck said. “Not Juan Pardo himself… the Spanish may have boosted Joara’s local standing—gaining military capital. In the short term, Joara seems to have benefited from the Pardo expedition.”

Nonetheless, political changes could have also contributed to Joara’s demise, according to Moore. By their mere presence, the Spanish could have affected the balance of power between various native groups in the area. Another of the many consequences of Contact was the decimation of native populations by European-borne diseases such as smallpox, against which the natives’ immune systems were defenseless. European diseases may have wreaked havoc at Joara, but the archaeologists need much more evidence to be certain of that.

“Something disrupted what seemed to be a very efficient polity that was viable for a century,” Moore said. He and his colleagues hope to identify what that something was. But despite the several unanswered questions, Beck said that one thing is clear: though its colonial enterprise conquered the formidable Aztec and Inca empires, “Spain failed to actually embed its tentacles into” the interior of the American Southeast.

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To learn more about the Berry site excavation, visit the Web site www.warren-wilson.edu/~arch
How North American Agriculture Began

Plant domestication goes back 10,000 years, but the spread of agriculture was gradual, uneven, and puzzling.

By Julian Smith

Workers obtain core samples that included well-preserved maize pollen in southeast Mexico. They're operating a machine known as a vibracore that uses intense vibration to penetrate the ground. Some of the core samples were recovered from a depth of 40 feet below the surface.
It’s impossible to pinpoint the beginning of agriculture, one of the greatest advances in human history, but it’s easy to imagine. Some hunter-gatherers are struck by a flash of inspiration. Plant this seed here today and take care of the plant that grows, and eventually tomorrow’s meal—and the next, and the next—will be there for the taking. No longer will they be exclusively reliant on hunting animals or searching for wild plants to eat.

It wasn’t that simple, of course. The birth of agriculture took thousands of years. It was a slow, uneven process that depended on rare sets of circumstances and was undoubtedly punctuated by countless failures and dead ends. Still, the domestication of plants had a profound effect. Eventually a relative few would be able to provide food, more or less dependably, for many. The days of small groups of hunter-gatherers combing the landscape were over. Societies became more complex and newly permanent settlements began to grow. The onset of food surpluses and leisure time spurred the growth of new technologies, new social orders, and large-scale economies. It was also the beginning of an immense ecological shift.

Agriculture now covers about 40 percent of the earth’s land surface and employs 36 percent of the world’s workforce, and these plants have become as dependent on us as we are on them. A large part of the story of early agriculture happened in the New World. North America in particular has seen a number of recent discoveries that are helping to answer fundamental questions about the early days of this vital shift in our cultural history.

**Beginnings of North American Agriculture**

Of the 10 currently recognized independent centers of plant domestication worldwide, five were in the Americas. Three of these occurred in South America, where chile peppers, squashes, various beans, yuca, yams, and white and sweet potatoes were grown. North America’s contributions included squashes, maize (corn), and beans—the familiar trifecta of New World foods—as well as other species such as chile peppers and sunflowers, the seeds of which were consumed.

When and where the various domestication events happened is still being revised. Until the last few decades, some researchers thought that North American agriculture developed in Mexico approximately 5,000 years ago, whereas wheat and barley were domesticated in the Near East around 10,000 years ago. Recent discoveries, however, have dramatically changed the North American dates while identifying new regions where early domestication took place.

The transition from nomadic hunting and foraging cultures to settled agricultural societies occurs in different places around the world at different times, but researchers now agree that New World agriculture most likely began about 10,000 years ago. Dolores Piperno of the Smithsonian Institution says that agriculture in southwest Mexico, as in some other locations, seems to have arisen on the heels of the last Ice Age. Around 8000 B.C., the cold, arid climate became warmer and wetter as atmospheric carbon dioxide levels...
rose. In Mesoamerica lowlands, tropical forests expanded, lakes filled with water, and new plant and animal species replaced old ones. People appear to have used the fertile edges of the newly formed lakes to plant early varieties of squash and corn.

“When something like that happens—a major economic transition all around the world on the heels of the most profound global environmental change of the last few hundred thousand years—it has to be more than coincidence,” says Piperno. “People usually successfully cope with changing conditions.” In the new environment, cultivating plants was now a more successful strategy than it had been before. Much of the Pleistocene megafauna, which had served as prey for Paleo-Indians, had vanished. New plant species were available to experiment with and growing conditions were better.

But even then, domestication took longer than previously thought, according to Piperno. In some cases there was a long period of time between the onset of plant cultivation and the genetic changes that distinguish a domesticated plant from its wild ancestor, such as seed and fruit size.

In 1997, Smithsonian archaeologist Bruce Smith dated the seeds of a domesticated pepo (pumpkin) squash found...
in a cave in Oaxaca, Mexico, to nearly 10,000 years ago, making it North America’s oldest known domesticated plant. Phytoliths (fossilized mineral particles left by plants) from squash and arrowroot indicate that these plants were being grown in Panama approximately 9,000 years ago.

Maize was one of the New World’s earliest crops, as well as its most important. A domesticated form of the wild grass teosinte, maize is rich in carbohydrates, easy to transport and

This aerial photo shows the Clearwater site along the Santa Cruz River near downtown Tucson, Arizona. In 2001 Jonathan Mabry directed excavations there that uncovered pithouses (marked by the larger white circles) containing charred maize that was radiocarbon dated to 2100 B.C. The pithouses also contained pottery sherds dating to that time—the oldest known pottery in the Southwest.

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Maize was one of the New World’s earliest crops, as well as its most important. A domesticated form of the wild grass teosinte, maize is rich in carbohydrates, easy to transport and
store, and can be ground into flour to make a wide variety of foods. Several decades ago, when researchers found well-preserved maize remains in dry caves in the semi-arid highlands dating to around 5,000 years ago, they assumed that was the beginning of maize domestication. In fact, farmers were planting maize much earlier elsewhere. Mary Pohl, an archaeologist at Florida State University, and Kevin Pope of Geo Eco Arc Research, directed a project that found botanical evidence in the form of phytoliths from early species of domesticated maize dated to 5300 B.C. in the humid coastal state of Tabasco in southeast Mexico.

Pohl and Pope’s team also recently found domesticated manioc and sunflower seeds at a site in Tabasco dating to 4600 B.C. and 2600 B.C. respectively. This is particularly interesting given that the sunflower was also domesticated in eastern North America about 4,800 years ago. The common bean was also growing in garden plots in southern Mexico about 4,000 years ago.

Pohl and Pope discovered evidence that farmers cleared forests, most likely for fields, as far back as 7,100 years ago. At the same time tree pollen declined and maize pollen appeared, an accumulation of fine charcoal showed that the use of fire was accelerating, which could have resulted from slash-and-burn techniques. “Maize has a profound impact on the environment,” says Pohl.

The researchers took core samples up to 40 feet in depth. They also dug pits near some of the areas where the core samples were extracted and then correlated radiocarbon dates obtained from items at the same depths in the cores and the pits. This allowed them to reconstruct environmental changes and see how the landscape evolved over time in response to agriculture.

The data indicate that maize cultivation moved to the Gulf Coast of Mexico from southwest Mexico, where molecular evidence suggests it was domesticated around 7000 B.C., according to Pohl. Maize also spread south. Piperno’s team uncovered starch grains and phytoliths from both maize and manioc and evidence of slash-and-burn agriculture in Panama dating back to approximately 5600 B.C. Using microscopes to examine the size, shape, and features of the starch grains they found, they concluded that both maize and manioc were being grown there roughly 7,600 years ago. Like maize, manioc isn’t native to Panama (it was domesticated in South America), which indicates it was domesticated at an earlier date.

The key idea, Pohl says, is that “early maize domestication and diffusion was essentially a tropical lowland phenomenon.” Maize quickly traveled as far south as Ecuador. Meanwhile manioc was transported north from South America. “There’s some kind of major exchange and diffusion of plants at this time,” says Pohl. “There’s very little actual evidence of how this was going on. I don’t think anybody really knows.”
Another Area of Domestication

Several millennia after squash and maize were first grown in Mesoamerica, eastern North America became another center of plant domestication. Researchers have recently determined that the region’s farmers had domesticated at least four different plants long before maize arrived around 200 B.C. in what is now southwest Illinois.

Sunflower seeds from a site in central Tennessee suggested that the plant was domesticated there around 4,800 years ago, and seeds and achenes (single-seeded fruits) of marsh elder found at a site in west-central Illinois put the first planting date at around 4,400 years ago. This relative of ragweed is no longer cultivated, but it still grows wild across northern Mexico and the eastern and central United States.

The remains of pepo squash dated as early as 5,000 years ago were originally thought to be remnants of species introduced from Mexico, as there were no known wild species in the East that could have served as ancestors. Then in the early 1990s Smith and historian Wes Cowan (of the PBS History Detectives series) discovered the Ozark wild gourd in northwest Arkansas. This was probably the wild ancestor, meaning that pepo squash was another plant domesticated twice: in southern Missouri and in Mexico.

While searching for evidence of another Eastern domesticate in the early 1980s, Smith made a lucky discovery. Doing fieldwork of sorts—he came across an uncatalogued collection of artifacts down the hall from his office in the National Museum of National History—he found an old cigar box brimming with thousands of charred seeds recovered from a 1956 excavation at Russell Cave, in northeast Alabama. The seeds belonged to a species of chenopod, a genus still cultivated in Mexico and farther south that includes quinoa, goosefoot, and lamb’s-quarters. The seeds, which were dated to 2000 B.C., had a thin coat, a clear sign of domestication. (Wild seeds have thick coats for protection.)

As far north as New York, early agriculture dates are constantly being revised. Until recently the oldest direct date published for maize was around A.D. 1000, but a team including John Hart of the New York State Museum has pushed that back about a thousand years by examining old cooking...
tools. Charred residues adhering to sherds of pottery yielded maize phytoliths. The residue was dated to around A.D. 1. “It has changed our perceptions of crop histories and of the chronologies of various prehistoric pottery types” in New York, says Hart.

Eastern North America provides one of the best-documented regional records of the beginning of agriculture anywhere, according to Smith. Food production economies that emerged around 250 B.C. to A.D. 200 set the stage for the Hopewell culture, whose geometric earthworks have been found in Ohio, Illinois, and elsewhere. The emergence of ceramic vessels during the Hopewell period could have made plants easier to cook. Intensive maize agriculture after A.D. 800, largely due to the evolution of a more productive strain of maize, coincided with the development of the complex Mississippian culture in the river valleys of the Midwest and Southeast.

These agricultural advances could have occurred because people were becoming more “reliant on small resource areas” for their food rather than wandering considerable distances to obtain it, Smith says. Archaeologists are uncertain whether population growth during Mississippian times resulted in greater maize production, or the reverse.

As for how the domestication process took place, Smith theorizes that ancient people were “constantly auditioning different plants and animals.” Endless tinkering with native species would turn up a few for domestication, even if they might be replaced by better species down the road, as chenopod and marsh elder were by maize. “People didn’t just sit around and say, ‘Well, it’s getting awfully cold, we better get out there and domesticate something,’” he says. “People just enjoy changing things.”

With the help of selective breeding, some plants evolved into dependable food sources, a process that usually meant eliminating its natural defenses against predators, which made it unfit for life in the wild. Take maize, for example. Its wild ancestor teosinte has a hard case to protect its seeds from herbivores, says Piperno. Humans exerted artificial selection pressures on certain genes, called domestication genes, present in wild maize, which resulted in unprotected kernels that adhere to the cob instead of falling off when mature, as wild maize does. “These genes make the plant more productive, but often would be lethal in a wild setting,” she says.

Early Agriculture in the Southwest

It took thousands of years for maize to reach the U.S. Southwest. Jonathan Mabry, an archaeologist with the City of Tucson, in Arizona, has found abundant maize remains, storage structures, roasting pits, and irrigation canals at sites throughout the Tucson Basin that date between 2100 B.C. and A.D. 50. In fact, archaeologists have found so many early farming settlement sites in southeastern Arizona and northwestern Mexico that they have started calling the time the Early Agricultural Period.

Each early farming group probably had a “portfolio” of different field locations as well as techniques to raise plants in the poor soils and dry climate, says Mabry. Water table farming, the most reliable method, involved planting where the water table was near the surface. If that wasn’t possible, fields could be located in naturally flood-prone areas (flood farming) and runoff or seasonal stream flows could be diverted onto crops (runoff farming).

Irrigated farming, using diverted perennial river and spring flows, required the most labor but had consistently high yields. (The earliest known canals north of Peru were built along the Santa Cruz River and in some other parts of the Southwest by 1200 B.C.) At the other end of the spectrum were methods that were high in risk and low in yield. Rain-fed farming was based on the gamble that there would be enough precipitation at the right time of year to grow certain crops—a rarity in the Southwest deserts. Dry farming, practiced by groups like the Hopi, used marginal fields
whose soils retained sufficient moisture, either naturally or through artificial enhancements like manmade layers of mulch or gravel.

Agriculture didn’t arrive in a vacuum, says Mabry, and it was more of an incremental process than an abrupt event. “There is a lot of evidence that before the arrival of the first Mesoamerican cultigens, native Southwest foragers were actively manipulating certain wild native plants—encouraging them, protecting them, possibly even cultivating them,” he says. “If there ever were any pure gatherers in the American Southwest, they lived a very long time ago.”

So Southwest natives were ready for a plant like maize, which could flourish in the arid climate if planted in the right place and tended carefully. All of this hard-earned knowledge was put to use growing it, says Mabry. “Those early farmers were weighing lots of things: risk, labor, energy efficiency, net productivity.” By 2100 B.C., farmers were growing maize throughout the region. Pepo squash also arrived around this time, and the common bean shows up in the archaeological record between 1200 and 800 B.C.

This poses one of several questions researchers face: how did domesticated plants and the knowledge to grow them get to the Southwest from Mexico? One school of thought, called diffusion, argues that seeds and ideas moved via trade networks. Migration, the other main idea, holds that people brought the seeds and knowledge with them as they moved. The most obvious evidence of migration would be Mexican material culture appearing in the Southwest, “and you just don’t see that,” Smith says. On the other hand, he concedes that there were agricultural societies during that time in nearby northern Mexico.

Both Hart and Pohl say it’s hard to distinguish between diffusion and migration based on archaeological evidence. With semi-mobile groups growing crops for a short time, the odds of remains being discovered are often low. Pohl thinks both diffusion and migration played a role in transporting domesticated plants. Mabry agrees: “Both processes were in operation on the agricultural frontier,” he says. “Doesn’t that seem more likely that it was both instead of just one or the other?” Nonetheless, he believes “the diffusion-migration debate is going to continue for a long time.”

Another question is why did agriculture develop so unevenly in the New World? The prevailing theory, according to archaeologist Robert Hard of the University of Texas at San Antonio, is that hunter-gatherers were forced to take up agriculture when population density limited their movement, and that event occurred at different times in different places. Smith adds that a number of the earliest domesticated plants had a limited geographical range.

There is also the matter of why it took so long for agriculture to flourish in parts of North America. In China and the Near East, barely 1,000 years passed between the cultivation of crops and the emergence of diversified agricultural economies. Smith has focused his attention on societies of this period with low-level food production economies that were “distinctly, qualitatively different” from both hunting-and-gathering and agriculture. “These early food-production economies were extremely variable and successful long-term socioeconomic solutions,” he says, “but we still know very little about what they look like and what they were growing between 10,000 and 5,000 years ago.”

Such a large grey area calls into question the very definition of domestication, Smith says. When can plants and animals be considered officially domesticated? More research is required to answer these and other questions, and Piperno and her colleagues are eager to do the work. “It’s certain the future will bring more exciting discoveries,” she says, “and more energetic debates.”

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THE Development of Glazeware

WITH THE HELP OF ADVANCED TECHNOLOGY, RESEARCHERS ARE STUDYING THE HISTORY OF LEAD GLAZEWARE AND ITS EFFECTS ON ANCIENT CERAMICS AND PEOPLES.

BY DAVID MALAKOFF

These bowls were produced during the early and middle Rio Grande Glazeware periods. The early period featured geometric designs (above left), while the middle period saw more representational designs, such as a butterfly (top) and a mask (above right).

american archaeology
It would have been easy to miss. The rains had barely exposed the cracked rim of the little round jar made of gray clay. Hundreds of years ago, someone had buried the grapefruit-shaped pot near the bank of a big river. Then, in the 1990s, an archaeologist spotted it eroding out of a sandy gully not far from what we now call the Rio Grande in northern New Mexico. Inside the jar was something weighty. It looked like a handful of crude stone dice. But the cubes were actually crystals of galena, a mineral heavy with lead.

Archaeologists can’t tell who collected that stash of lead, or exactly when it was packed away so carefully. But the little jar and other discoveries are giving them some new insights into the role that lead once played in the ancient cultures of the American Southwest. Some 700 years ago lead became an essential ingredient in the colorful glassy glazes that potters from Zuni and other pueblos used to decorate their wares. Now, using advanced isotopic “fingerprinting” techniques, scientists are able to discover exactly where those potters got their lead. Some of the answers are surprising. And they are helping archaeologists uncover long-extinct trade networks and cultural tensions that helped shape one of America’s earliest technological revolutions.

“Lead-glazed pottery was a major innovation, and archaeologists who work in the Southwest are pretty interested in how the technology developed and then spread,” says Judith Habicht-Mauche, an archaeologist at the University of California, Santa Cruz (UCSC). “So having a tool that allows you to track lead ores as they moved across the landscape really helps us understand what was going on.”

Archaeologists have long been fascinated by the glazed polychrome pots and sherds they found at ancient sites throughout the Southwest. Some rare, early examples of glaze paints appear on black-on-white pottery in the eighth and ninth centuries in the Four Corners region where Utah, Arizona, Colorado, and New Mexico meet. But it isn't until the late 1200s that lead-glazed pots begin showing up with regularity in the archaeological record in the Rio Grande region of New Mexico.

Researchers recognized that their appearance marked an important departure from an earlier cultural tradition typified by duller pots decorated in black and white. But only in the last few decades have researchers begun to untangle the complicated history of what has come to be called Rio Grande Glaze Ware. Studies from the 1950s showed that some of the earliest examples of glaze-painted designs appeared around A.D. 1275 in Zuni villages to the west of the Rio Grande. Within a few decades, the colorful pots were commonplace in pueblos hundreds of miles to the east, around the present-day cities of Santa Fe and Albuquerque.

“Immigrants or traders probably carried the pots east,” says Deborah Huntley, an archaeologist with the Center for Desert Archaeology in Tucson, Arizona, who has studied Zuni glazeware. “This was a period of a fair amount of upheaval. You're beginning to see people moving out of smaller villages into larger pueblos, and there appears to be some sort of shift in religious practice.”

Perhaps communities began sharing the eye-catching pots as part of alliance-building rituals. “A religious movement may have spurred demand,” she speculates. “One idea is that they were a dramatic new item that made a pretty bold cultural statement.” But she adds that there isn’t enough evidence to know if “these pots were just the fine china for guests or also for everyday use.”

But Huntley says one thing is clear: ancient potters—probably women—soon began trading tips on how to make the fashionable new glazes. “Potters had to be telling each other how to do this; you couldn’t just look at a bowl and figure it out,” she says.

The main tip that the potters were trading is that certain minerals, like lead, lowered the melting point of the silica at the heart of their glaze paints. That meant that the potters from Zuni and the other pueblos could successfully fire, or harden, the glazed pots in their relatively cool open-pit fires, which reached about 900 degrees Centigrade. Once the secret was out, it appears to have spread quickly.

“If the Rio Grande people did learn from the Zunis,” Huntley says, “they learned within a few decades or so.” Soon the pueblos that had been trading for pots started making their own.
This emerging cultural highway didn’t flow just west to east, according to Huntley. In a study of Zuni pottery done as part of her doctoral dissertation, she found that, while potters tended to use local clay, they often imported the lead-rich galena for their glazes from sources along the distant Rio Grande Valley. “Pottery and know-how was moving east, lead ore was moving west,” she says. “I was fully expecting to find a local lead source around Zuni pueblo, so I was very surprised to find evidence for such long-distance exchange.”

Tools, Perspectives

Huntley’s surprising finding was largely due to new techniques that allow researchers to quickly trace even minute amounts of lead back to their natural sources. The techniques rest on the fact that lead atoms come in a variety of forms known as isotopes. Each isotope has the same number of protons in its nucleus, but a different number of neutrons. And every lead deposit has its own telltale combination of these isotopes, producing a fingerprint that can be detected with special devices.

In the past, archaeologists used isotopic fingerprints to figure out where ancient Mediterranean toolmakers and Asian bead makers got their raw materials. But the early fingerprinting devices were rudimentary, and the work was slow and expensive. In the 1990s, however, efficient new devices entered the picture just as Habicht-Mauche was getting interested in the question of exactly where those ancient Pueblo potters had gotten their galena. “One of my colleagues, a geologist, told me that there was this guy at our university who could tell you exactly where the lead came from,” she recalls.

The guy was geochemist A. Russell Flegal, who used isotope analysis to study how toxic lead particles flowed through the environment. In 1995, he and Habicht-Mauche found themselves out in the New Mexico desert, collecting samples of lead ore from dozens of abandoned mines and natural outcrops. Their guide was Homer Milford, a native New Mexican and geologist with the state’s Mining and Minerals Division. “I was into history and knew where the outcrops and historic mines were,” says Milford, now retired. “We’d tumble out of his truck and start picking up samples or chipping it out of the vein,” recalls Habicht-Mauche.
goal was to assemble a lineup of the Rio Grande region’s lead fingerprints, then try to match them against prints taken from various bits of glazed pottery.

Back at the UCSC’s Ceramic Materials Research Laboratory, the team took tiny samples of lead ore or pottery glaze—just a milligram or less—and dissolved them in acid. They then atomized the liquid in a machine called an ICP-MS (short for inductively coupled plasma mass spectrometer), which produced the isotopic fingerprints. Today, the team has fingerprinted more than 100 samples of lead ore, including one from the aforementioned small jar of galena, discovered by an archaeologist and geologist named Robert Weber. They’ve also fingerprinted more than 600 bits of glaze, including the Zuni material used in Huntley’s study.

Habicht-Mauche says the fingerprinting effort has helped answer some old questions—and raise lots of new ones—about the birth, spread, and ultimate demise of Rio Grande Glaze Ware. One major study, for instance, confirmed that the Cerrillos Hills near Santa Fe was a preferred source of galena for the region’s major pottery-making pueblos through the 1400s, even when other outcrops were nearer.

“We didn’t expect to see that kind of laser focus on one particular source,” she says. “But it appears that you didn’t just go to the closest place and get your ore. People went out of their way—often days out of their way—to get it.” One reason could have been that potters can be conservative. “Once they find something that works,” she says, “they tend to stick with it.” But tradition and religious beliefs may have also played a role. Cerrillos was already a traditional source of turquoise, the blue mineral that appears to have played an important role in Pueblo rituals. A major galena vein sits “just a half mile or so from the major turquoise deposit,” says Milford. “You would have walked right over the galena to get to the turquoise.”

Finally, a potter’s choice of galena may have been influenced by politics. “It could be that trade or political alliances gave some pueblos the ability to control access to desirable ore sources,” says Habicht-Mauche. “So your choices may have been limited.”

OUTSIDE Influences

Politics may also have had a hand in a shift in ore use that took place in the 1500s, she says. Until that time, pueblos such as San Marcos in northern New Mexico appeared to have produced the lion’s share of the region’s glazeware. Then, production appears to have shifted south, to the pueblos near the present-day city of Mountainair. A paper published in 2007 in the Journal of Archaeological Science by a team that included Huntley, Habicht-Mauche, and Flegal stated that, according to isotope data, these potters initially preferred Cerrillos galena. But over time they shifted to ore sources further south, near present-day Socorro.

The team says the shift may have resulted from an effort by the southern pueblos to socially distance themselves from their northern neighbors. But it may also have resulted from the arrival of nomadic Apaches and Spanish settlers.
who might have prevented the Salinas Pueblo potters from reaching their usual ore sources and forced them to rely on closer outcrops. “The arrival of the Spanish really changed the way people moved around the landscape,” says Huntley.

Indeed, by the late 1500s, the Spanish themselves had become interested in the area’s galena outcrops, and Milford says they were actively mining and smelting lead by the early 1600s. “At first, they didn’t really seem to care about the minerals,” he says. “But they began to exploit them pretty soon.” Ultimately, it appears the Spanish may have also helped bring about the demise of Rio Grande Glaze Ware. Researchers say that by the late 1600s, many of the major pottery-making pueblos had been abandoned or were in disarray, in part due to conflicts with the Spanish. By the early 1700s, lead-glazed pottery essentially disappears from the archaeological record, says Eric Blinman, an archaeologist with the Museum of New Mexico’s Office of Archaeological Studies.

“Did the Spanish restrict access to galena after the Pueblo Revolt?” he says, referring to the late 17th-century uprising by the Native Americans against the Spanish.

Whatever the reason, the loss has left researchers like Blinman with the challenge of trying to recreate the process of making Rio Grande Glaze Ware. For instance, it is no simple matter to go into a laboratory and figure out exactly how long, and at what temperature, ancient potters fired their pots, or what glaze recipe they used.

“The end result is that you can’t just rely on lab work,” he says. “You have to try things out, trial and error, in the field.” Blinman says he’s been doing just that “anytime we can get a burn permit” to build a potting fire. So far, he says, he’s had limited success recreating the elegant pots made hundreds of years ago.

However, the recent analysis of a small, late 15th-century pot with a raw batch of lead glaze from a pueblo south of Santa Fe could prove to be a breakthrough. “It had been kicking around in my collection for about 10 years, but until recently I had failed to recognize its significance,” he says. The analysis of the powder by Kari Schleher, a graduate student at the University of New Mexico, suggests that the glaze recipe included galena that had been “finely ground, then roasted” to remove sulfur and other impurities. “I suspect that they roasted the galena because it gave the potters some room for error. You could still get good consistent glazing at lower or uneven temperatures,” he says.

Blinman won’t know if he’s right about galena roasting until they can actually grind up a modern version of the glaze that looks just like the ancient one, and then try it out on a pot. But he’s patient. It took generations for the prehistoric people of the Southwest to perfect their glazes, he says. And he won’t be surprised “if it takes us a while to figure this all out. Ancient technologies are often far more complex than we give them credit for.”

DAVID MALAKOFF is an editor and correspondent for NPR’s science desk. His article “Simulating Prehistoric Life” appeared in the Fall 2007 issue of American Archaeology.
Native Americans constructed the country’s oldest mounds well over 5,000 years ago in what is now Louisiana. These and other mounds in the Southeast serve as proof of the sophistication of the region’s prehistoric peoples.

*By Kristin Ohlson*

In 1990, archaeologist Joe Saunders was summoned by a landowner whose property included some Indian mounds that had been disturbed by looters. The landowner, who feared the mound had been destabilized, wanted Saunders to fill in a trench that had been cut into the side of it. When Saunders bent down to look at the trench, the first thing he noticed was the gray color and fine texture of the soil just under the mound’s layer of humus, and the pale orange soil below the gray. “Damn, these look like old soils!” Saunders exclaimed to himself. The sequence of soil horizons in the trench are like those he had seen that were thousands of years old. He wondered if the site itself was older than anyone suspected.

Saunders was more keenly aware of soil characteristics than most archaeologists in the 1990s. He had recently been working in Texas, searching for archaeological remains in exposed riverbanks. He had learned to look for buried humus layers within the banks, because that’s where he often found the remains of Indian camps. He also learned that he could get an idea of the age of the camps by the characteristics of the soil just above them. If the soil under the dark layer of humus was fine and gray in color, it was likely that it was very old, weathered by rain that had been falling on it for thousands of years, leaching all its minerals and clay into deeper layers of the earth.

Saunders returned with soil scientist Thurman Allen,
who confirmed his hunch that these soils were ancient. Saunders began a test excavation of the mound, which is part of a larger earthwork complex called Hedgepeth in north-central Louisiana. He found charcoal samples in a hearth that were radiocarbon dated to 5,000 years ago. The following summer, Saunders tested another Louisiana mound complex called Frenchman’s Bend. Once again he saw what looked like old, weathered soil near the surface of the mound, and once again he located bits of charcoal that were well over 5,000 years old.

The next summer, Saunders began work at a mound complex called Watson Brake in northeast Louisiana, where he obtained over 30 samples that were radiocarbon dated to more than 5,000 years ago. “Watson Brake made it irrefutable,” says Saunders, who’s been working at this site ever since. “That proved that there were Middle Archaic mounds, without a doubt.”

There are perhaps a few hundred prehistoric Indian mounds remaining in the Southeastern United States, stretching from Florida to Oklahoma, and from the Gulf Coast to Kentucky. Some are on protected national or state lands, such as Etowah Indian Mounds in Georgia, Poverty Point State Historic Site in Louisiana, Town Creek Indian Mound in North Carolina, Pinson Mounds State Archaeological Park in Tennessee, and the Winterville Mounds in Mississippi.

But hundreds, perhaps even thousands, of mounds have been leveled for farming or development. Some of those too large to level have been used over the years as cemeteries and home sites; one even has a tennis court built on top of it. Archaeologists have been studying the mounds since the mid-1800s and they have found evidence of a variety of uses: burials, rituals, craft making, and various domestic activities. They even have accounts of life at the very latest of these mounds from the Spanish explorer Hernando de Soto, who encountered mound complexes in his sweep through the Southeast during the 1500s. Still, Saunders’ discoveries startled the experts.

“It was a real bombshell when we got the dates back on these mounds,” says Jay Johnson, director for the Center for Archaeological Research at the University of Mississippi, who helped Saunders date some stone tools found at Watson Break. “I remember giving a talk at a conference on some of the nifty little rocks I was analyzing for him. I told the group that they were late-Middle Archaic and there was a gasp throughout the room. No one thought the mounds were that old.”

That was because archaeologists didn’t believe that the hunter-gatherers of that period were capable of building them. The common assumption was that mound building couldn’t begin until people learned to grow crops, which began around 2000 B.C., in the Woodland period. Until then, archaeologists believed that these ancient people were living a precarious existence in small nomadic bands.
Mounds of the Lower Mississippi Valley

Mound building in the lower Mississippi Valley goes back some 5,700 years, and the mounds’ architecture and functions varied according to the time they were built and the culture that built them. The table below lists the region’s time periods, cultures, and mound characteristics.

<table>
<thead>
<tr>
<th>DATE</th>
<th>FORM</th>
<th>TRAITS</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle Archaic, 3700–2000 B.C.</td>
<td>Conical, varying heights, usually arranged in a doughnut shape</td>
<td>Some sites have only one mound, while others have several mounds.</td>
<td>Unknown</td>
</tr>
<tr>
<td>Poverty Point, 1700–1200 B.C. (Late Archaic Period)</td>
<td>Conical</td>
<td>May have one or more mounds at a site; fired clay objects, referred to as Poverty Point objects, are often found in them.</td>
<td>Unknown</td>
</tr>
<tr>
<td>Tchula, 600–100 B.C. (Early Woodland Period)</td>
<td>Small conical mounds</td>
<td>Sites may have one or two mounds that are isolated from habitation areas</td>
<td>Small isolated conical mounds appear to have been used as burial mounds</td>
</tr>
<tr>
<td>Marksville, 100 B.C.–A.D. 400 (Middle Woodland Period)</td>
<td>Conical burial mounds and flat-topped mounds</td>
<td>Mounds arranged in what appears to be a predetermined layout</td>
<td>Conical mounds contain burials with a variety of grave goods; flat-topped mounds appear to have been used as places for feasting, ceremonies, or for special structures</td>
</tr>
<tr>
<td>Coles Creek, A.D. 700–1200 (Late Woodland/Early Mississippian Period)</td>
<td>Flat topped with square, round, or rectangular bases; varying heights</td>
<td>Usually four mounds at a site, often arranged around a square or rectangular plaza</td>
<td>Served as sites for special buildings or residences of elite individuals; some contain burials</td>
</tr>
<tr>
<td>Plaquemine, A.D. 1200–1400 (Mississippian Period)</td>
<td>Very large flat-topped mounds with square, round, or rectangular bases</td>
<td>Large ceremonial centers, often with two large mounds facing each other across a plaza; mounds were often constructed in several stages or building episodes, with each stage serving as a foundation for a structure that was destroyed before another layer was added to the mound</td>
<td>Served as sites for special structures or residences of important individuals; also may have been sites for rituals or ceremonies</td>
</tr>
</tbody>
</table>
They weren’t capable of building huge earthen mounds, the thinking went, because there were never enough of them in one place to achieve such an undertaking, they didn’t have the power structures within their culture to organize and order that kind of labor, and they didn’t have the time—they were too busy hunting deer and foraging for edible plants.

“When I started school—and it wasn’t that long ago—the thinking was that the mobile hunter-gatherers were almost like cave men,” says Jessica Crawford, the Southeast regional director of The Archaeological Conservancy. “Very primitive, no possessions. People would have assumed they couldn’t have organized themselves to build a site like this. Very few people were giving them the credit they deserved.”

In the 1960s, a few archaeologists found intriguing hints suggesting that some of the mounds were very old. James Ford found charcoal dating back 7,000 years during a salvage operation at a mound called Monte Santo, just outside Baton Rouge. Three days later, the mound was leveled. However, his and others’ findings were considered anomalous and were disregarded, as they contradicted everything the archaeological community believed about hunter-gatherers. However, some of these beliefs were based on a faulty analogy.

“Back in the 1960s and ’70s, our view of what hunter-gatherers were like was driven by anthropological studies of contemporary hunter-gatherers, like the San people of the Kalahari Desert,” says University of Southern Mississippi archaeologist Ed Jackson, who is currently involved in a multi-year investigation of Winterville, an 800-year-old complex in west-central Mississippi. (The San are a group of foragers in southern Africa.) “But prehistorically, hunter-gatherers lived in lush environments and were able to gather more food than they needed immediately. The agriculturalist and state-level systems now have pushed the hunter-gatherer systems to the far recesses of the world. If we want an understanding of them, we can’t get it from cultural anthropology because the range of societies no longer exists. We need to look at the architectural record of the hunter-gatherers who built these mounds to understand the possibilities for cultures that subsisted on wild foods.”

T.R. Kidder of Washington University in St. Louis has been tracing the evidence for social complexity among Native American societies in the Lower Mississippi Valley for years, focusing recently on Mound A at the Poverty Point complex. Poverty Point dates from 2000 to 1000 B.C., when the hunter-gatherer lifestyle was still dominant. Until Saunders’ discovery, Poverty Point was considered the oldest of the Southeastern mound sites.

Poverty Point’s Mound A is a huge T-shaped earthen structure. Seventy feet tall, and its two intersecting sections each 700 feet long, Mound A is the second-largest mound in North America. Excavations have determined that the mound was...
constructed on a low swampy depression that was covered with a layer of fine gray silt mined from another area. The mound builders heaped an astounding 238,000 cubic meters of soil on the site—the equivalent of 17,000 dump trucks of dirt. The purpose of the mound is unclear. Kidder has looked for postholes or other indications of structures on top of the mound without success, nor has he discovered any artifacts or features that would suggest how it was used.

“We honestly don’t know why they built it,” Kidder says. “The standard archaeological cop-out is to say it’s ceremonial, which is just our way of saying we don’t know. I think of it as a monument, like the Lincoln Memorial or the Washington Monument—physical expressions of an idea or memory that people define and express on the landscape.”

Kidder’s most interesting theory about Mound A has to do with its construction. According to previous assumptions, it was built in stages over hundreds of years. Kidder, however, has arrived at a very different estimate. He and his colleagues dug deep pits and took core samples throughout the mound. They saturated the soil samples with epoxy, cut them into thin slices, and examined them under a microscope. Had the mound been built in stages over a long period of time, there would have been evidence of erosion or bioturbation—the colonization of the soil surface by plants or creatures like earthworms—in the soil samples, Kidder explains, and he’s found no indication of this.

That part of Louisiana has frequent rainfall, but none of the soil samples show the weathering caused by a lengthy exposure to rain. There is no ancient climate data for this area, but based on climate information going back to 1918, Kidder concludes that the longest stretch of time between downpours in that part of Louisiana is roughly 90 days. Based on his calculations of how much dirt a person could carry in a basket, Kidder believes from 1,000 to 3,000 people built Mound A in this remarkably short period.

“That’s a huge population relative to anything we’ve ever expected with hunter-gatherers,” Kidder says. “But when we look at American Indians, there has always been this tendency to see them as simple, even at their most complex. As we study more of the mounds, we’re finding out that the American Indian in the Southeast was remarkably sophisticated and complex.”

Greater cultural complexity is also the overall theme of much of the recent work at the younger Southeastern mounds, like those at Moundville. This was a large Mississippian village dating from approximately A.D. 1000–1450 that overlooks the Black Warrior River in west-central Alabama. At its height, Moundville had about a thousand inhabitants and 29 mounds. Based on radiocarbon dates and pottery analysis, Jim Knight of the University of Alabama, who excavated Moundville from 1988 to 1998, has concluded that most of the earthworks at Moundville were built simultaneously around 1200.

Over time, activity on the mounds ceased, “like lights going out,” he says. By then, the crafting of fancy goods like carved stone and embossed copper had declined. All but three of the mounds were abandoned during the last 100 years.

Archaeologist Vincas Steponaitis of the University of North Carolina thinks that Moundville was a political or religious center for the 10,000 people living in the surrounding valley. He arrived at this conclusion by comparing the large number of burials there to the relatively small number of houses and middens. Since the burials exceeded the population, he reasons that people from the valley must have been
American archaeology

University of Alabama archaeologists excavate test trenches into the summit of one of the larger mounds at Moundville. The test trenches are designed to locate the foundations of elite residential structures for further excavation.

By the Mississippian period

Native Americans had been building mounds and other earthworks for thousands of years, and archaeologist Sarah Sherwood thinks it’s possible that they developed specialized knowledge of mound construction that incorporated remarkable engineering as well as aesthetics. She came to this conclusion after an analysis of the soils and sediments of Mound A, one of several Mississippian mounds in Shiloh National Military Park in southwest Tennessee, which is also the site of a bloody Civil War battle.

Sherwood, an archaeologist at the University of the South, in Sewanee, Tennessee, was asked by the National Park Service to study the stratigraphy of Mound A, which is eroding into the Tennessee River. She found a highly complex pattern in which soils of different colors and textures were placed in alternating horizontal layers. Different soils best served different functions such as bearing weight, facilitating drainage, and preventing the erosion and collapse of slopes, and the soils were layered accordingly. For example, by examining soil samples with a microscope, she found that the base of the mound was composed of dense blocks of fine soil that she compared to cinder blocks because they provided a solid foundation.

Mound A, as well as other Mississippian mounds, reveal more sophisticated engineering than the mounds of earlier periods, according to Sherwood. “These people were the...
Archaeologist Sarah Sherwood examines the stratigraphic profile of Mound A at Shiloh. Sherwood believes that mound building became more sophisticated during the Mississippian period. Her research revealed the Mississippian's expertise in using soils of different colors and textures to construct Mound A, making it both sturdy and aesthetically pleasing.

da Vincis of dirt,” she says. “These people had to have been engineers, designers, inventors, and artists, with an eye for spiritual or ritual significance. There was a tremendous amount of knowledge behind the construction of these mounds.”

She adds that a civil engineer who examined Mound A’s stratigraphic profile informed her that he would build a modern earthen embankment in much the same fashion.

The polychromatic mounds, which were not covered by grass when they were in use, were also aesthetically pleasing. “I have colleagues who will argue that the soil colors are exclusively ritualistically significant,” Sherwood says. While she acknowledges that the colors could have played a role in rituals, she argues that the choice and placement of the different types of soils, with their varying colors and textures, was done primarily for reasons of engineering.

“This attention to the engineering properties of the earthen materials is the only reason these mounds are still here.”

Sherwood hopes to turn her practiced eye on other mounds, but the clock is ticking for many of these structures. Development is taking its toll. Steponaitis was reminded of this recently when he and his colleagues were surprised by an oil crew that showed up and began to dig a well in the middle of an archaeological excavation. Even though the landowner favored preservation, the mineral rights at the site belonged to a company that had little regard for antiquities. Steponaitis and others managed to save the site, but many other mounds remain endangered. If archaeologists are to continue studying these ancient wonders, they must be preserved.

KRISTIN OHLSON is the co-author of Kabul Beauty School: An American Woman Goes Behind the Veil. Her article “A Picture of Ancient Life and Death” appeared in the Winter 2007-08 issue of American Archaeology.
The Documentation Dilemma

Documentation is essential to understanding artifact collections and disseminating knowledge obtained from research. So what happens when museum collections aren’t catalogued, or their documentation goes missing, or research never gets published?

By Wayne Curtis

If someone ambitious were to carve a Mount Rushmore of great archaeologists of the American Southwest, one large face would no doubt belong to Paul Sidney Martin. A curator for more than four decades at The Field Museum in Chicago and an excavator of 70 sites in the Southwest, Martin was a paragon in his field. Stephen Nash, who’s working on a biography of Martin, has written that he “established a record of contributions to Southwestern archaeological knowledge, method, and theory that no other scholar can match.”

Renowned archaeologist Paul Martin sits on the hood of a Pierce-Arrow touring car in 1930 shooting a documentary film about his excavations at Lowry Ruin in southwestern Colorado. This photograph seems ironic in that Martin was guilty of numerous documentation lapses, frequently failing to catalogue his collections and publish his research.
Perhaps most impressive to modern archaeologists was Martin’s dogged ability to get his findings into monographs and reports and out to the public swiftly and dependably—nearly always within a year of a dig. “It’s the kind of rapidity of publication you just don’t see any more,” said Nash, curator of archaeology at the Denver Museum of Nature and Science.

Nash’s biography of Martin grew out of several years spent at The Field Museum sorting though Martin’s artifacts and documentation. But in the process Nash discovered something else about Martin’s scholarship—something not quite so flattering. “The untold story about Martin—or the story I’ve been trying to get out for the last decade—is that Martin never published anything on almost half of the sites he excavated,” Nash said. “And perhaps more incriminatingly, he never catalogued 95 percent of the collections he brought back to The Field Museum. If one looks objectively at Martin’s record, that’s a record of failure, not of success.”

Nash spent two years cataloguing those collections that had been languishing on shelves and in cartons. To Martin’s credit, the artifacts and reports were organized enough that he could piece things together, weaving a cohesive whole out of scattered bits. But many collections aren’t so lucky and they end up as random treasure troves that are of little use to scholars. “If objects are in a museum and they’re not catalogued,” said Nash, “then there’s no institutional memory of those objects.” And if research isn’t published, it never becomes part of the body of knowledge that advances the science of archaeology and informs its practitioners.

“This is where I get into trouble,” Nash said, admitting the failure to publish research and document collections is a sensitive issue among archaeologists. “Many of us are guilty for bringing in collections that aren’t fully utilized,” he said. “I’m guilty of it myself.” Though he’s unable to quantify the problem, Nash has witnessed it at each of the various public and private organizations he’s worked at in his 20-year career, and he’s found that a number of his colleagues have had similar experiences. “The road to research oblivion is paved with good intentions,” he said. Archaeologists intend to publish their research, but, for various reasons such as not being able to find the time, they may not do it. Publishing is “what they should do, not what they have to do. We need to change this and make publication a more stringent requirement for all.”

It’s also impossible to quantify the impact this problem has on archaeology. “We can’t know what harm is being done,” said Nash. “We do know we don’t have the entire picture.” To illustrate his point, Nash mentioned Martin’s research at the Curtis site in east-central Arizona. Curtis is a small 12th- to 13th-century pueblo where Martin found what is believed to be a Clovis point out of its original context. Martin didn’t publish his Curtis research, and consequently this important find—the artifact is one of the few complete Clovis points from this area—went unnoticed until years later.

Disappearing Documentation

“No dig is worth more than its records,” wrote archaeologist and prolific author Brian Fagan more than two decades ago. “If the records are incomplete, the dig is little better than a treasure hunt.”

Be that as it may, keeping complete records is a challenge for many museums, said Scott Van Keuren, an archaeologist at the University of Vermont who previously worked at the Natural History Museum of Los Angeles and has done research at a number of other museums. “Reports and site cards, photographs, and even artifacts are inexplicably missing.”

Nash noted that one of Martin’s assistants recalled him destroying his field notes after his conclusions were published, which was a common practice at the time. “The history of science is facilitated when you get people who are anal about saving everything,” Nash said, noting that most professionals today are better about retaining their documents, but some records are still destroyed. “There are no binding standards about what records to keep and how to keep them,” which contributes to the problem, he said.

According to Van Keuren, documents are sometimes
discarded by well-meaning but naïve workers seeking to free up storage space or simply reorganize collections.

“Sometimes the justification is that it was an early field project done before professionalization of the discipline. In the end, from the golden age of archaeology, we have all this material which is, in some cases, unusable,” he said, referring to artifact collections that lack documentation.

Van Keuren mentioned Grewé, a Hohokam site adjacent to the famed Casa Grande ruin southeast of Phoenix, Arizona, that was excavated by the Natural History Museum of Los Angeles in the 1920s. The archaeologists employed field methodology that was well ahead of the times. “One might think that would be a great opportunity to look at an early excavation” of this site, he said. “But all the field reports are missing. No one knows where they went. And there’s no way to correlate the artifacts, which are still at the museum, with specific features recorded on maps. Much of that collection is unusable for modern research.”

James Judge, professor emeritus at Fort Lewis College in Durango, Colorado, noted that facilities that accept artifacts aren’t equipped to document items that archaeologists
should document themselves. “The archaeological profession gives up responsibility for artifacts once they are curated,” Judge said. “And one shouldn’t turn anything over to a curatorial institution unless you know that somehow that material is going to be digitized or electronically handled and made available to researchers. That’s an issue that needs to be addressed. But we’re a long way from there, I can tell you.”

As with the failure to publish research and catalogue collections, it’s hard to gauge the extent of the disappearing documentation problem. Steve Lekson, the curator of anthropology at the University of Colorado’s Museum of Natural History, said there are probably collections at his museum that lack complete documentation, but there are no collections excavated by archaeologists missing most or all of their records. (His museum does have artifacts obtained from collectors that came with little or no documentation.) However, he doesn’t doubt that these problems exist elsewhere.

The sheer quantity of material being excavated today poses another huge documentation problem. Various federal and local preservation laws require that historically significant sites be surveyed and, if necessary, excavated prior to construction projects, and this has yielded large amounts of data that aren’t part of a larger research plan.

These archaeological projects, which are often referred to as contract archaeology, are “just a reaction to the larger economic trends of the last several decades,” said Van Keuren, “and there are hundreds of these big projects each year now.” He noted that the historic preservation acts of the 1900s—some of which require curation of artifacts at approved facilities—are “not really designed for this new world of archaeology that we’re in now” since so much archaeological data are being produced, all of which has to be documented and properly curated.

The documentation from these projects, which may largely consist of five or 10 copies of the report submitted to the overseeing government agency and the contract archaeology firm’s clients, is grey literature that ends up tucked away in file cabinets. “There’s no good systematic method to find what’s there” in those reports, said Judge.

**New Technology, New Problems**

Keeping documentation intact and accessible for decades, if not centuries, is a problem all institutions face. Lekson’s museum houses a large collection from the Yellowjacket community in southwest Colorado, that was excavated from 1954 to 1991. Some of the collection’s paper documents are

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**DIGITIZING CHACO CANYON**

Since 2002, archaeologist Stephen Plog and a handful of his students have been working on the monumental task of building a digital archive for Chaco Canyon in northwest New Mexico, one of the most important and most researched Anasazi sites. There have been a number of excavations at Chaco since the original project in 1896, and the records from these projects reside at a number of different institutions. Plog’s Chaco Digital Initiative has several goals, such as preserving the documents by digitizing them, and making them more accessible to researchers and the public by putting them on the Web.

Plog and his students have visited approximately 20 institutions in search of the records documenting the work at Chaco up to the early 1940s. “Most of what we’re dealing with is unpublished,” he said, noting that these items range from manuscripts to field notes to photographs. The work can be so time consuming that his students have spent as long as five or six weeks at both the American Museum of Natural History in New York City and the Smithsonian’s National Museum of Natural History in Washington, D.C. Building the archive is also very expensive. Plog estimated that it cost roughly $700,000 to date, most of which has come from a grant from the Andrew Mellon Foundation. Plog said it will take another four or five years to complete.

Most of the original records they’ve found are in good enough condition to scan, though some have deteriorated significantly, and others have gone missing. The National Museum of Natural History’s archives contain long scrolls filled with drawings from excavations in the 1920s. When Plog’s students unrolled the scrolls some of the papers began to break and had to be treated by a conservator prior to scanning.

Plog has put the digital records on several types of media such as CDs, hard drives, and on the Web to ensure their preservation. Even then, he said they’ll “have to grapple with” the challenge of how to preserve them for decades to come.

**Years of research at Chaco Canyon has resulted in many documents, as well as documentation problems. The Chaco Digital Initiative is solving some of these problems.**
degrading. “The old Ektachromes are starting to fade,” he said, referring to the photographs. “The old maps are starting to crumble.”

It might seem counterintuitive, but archaeology’s documentation problems have been “exacerbated by the introduction of the computer,” according to Raymond Thompson, the former director of the Arizona State Museum in Tucson. Over the last several decades, data have been stored on several generations of computer punch cards, floppy disks, and Zip drives, all of which are obsolete, or quickly becoming so. “If you’ve got all your data on punch cards, where are you going to read those punch cards,” Nash said, referring to a technology used in the 1960s and ’70s. Some of Paul Martin’s data is on punch cards at The Field Museum, and the museum has no way to read it.

“I recall running across unreadable punch cards at the University of Arizona,” Van Keuren said, echoing Nash. “Now, of course, the problem extends to some varieties of floppy disks.” Preserving existing data, be it old photographs or text on paper or floppies, is expensive, labor-intensive, and the technology quickly changes, said Thompson. The Arizona State Museum is trying to find the money to digitize its photographic archives, he said.

Judge published an online database of his mid-1990s Puzzle House excavation in southwest Colorado. More than 28,000 artifacts were documented on a Web site hosted by servers at Fort Lewis College—a far more complete accounting than would likely be published through traditional means. But technology is not without problems. Judge added. “Within the last year [the college] upgraded their software and as a result the URL changed and—well, I couldn’t find my own Web site.” He eventually found it after extensive searching.

Judge considered publishing his data on a compact disk rather than on the Web, but he did some research and found that a CD has a 25-year life expectancy. “I think the Web’s going to last longer than 25 years,” he said. “But if they keep changing the URLs, then that affects accessibility.”

While issues of publication and technology remain to be sorted out, Nash offers a straightforward if provocative solution to the problem of the growing backlog of inadequately documented excavations: stop the digging, at least for now, and at least for sites not threatened with imminent destruction.

“The further removed in time, the harder it’s going to be to catalogue these collections,” Nash said. “So my mantra is, don’t dig another non-threatened site until we’ve got all these museum collections taken care of. And it’s not just museum collections—universities have collections that are in the same boat. My professional opinion—and I have to be careful of throwing stones—is that we shouldn’t dig another site until everything from the previous excavations are taken care of.”

Nash’s work at The Field Museum cataloguing Martin’s artifacts was underwritten by a two-year National Science Foundation grant, but he said NSF no longer funds collection management, and that means more people competing for funding from other organizations, such as the National Endowment of the Humanities. “Field work is fun. You don’t see Harrison Ford’s Indiana Jones sitting in the laboratory cataloguing collections,” he said. Organizations are much more likely to fund excavations, with their promise of new discoveries, than the comparatively mundane work of cataloguing existing collections, which only compounds the problem. “Until we catalogue all these collections,” Nash said, archaeology won’t know what it’s missing.

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new acquisition

A Possible Mississippian Mound Preserved

The site may have been a Late Mississippian outlier.

High in the bluffs above the Mississippi River floodplain, near the town of Natchez in southwest Mississippi, are several prominent mound sites built at different times by various cultures. The functions of many of these sites remain a mystery due to a lack of research. One such site, Bates Mound 1, was recently donated to the Conservancy by George and Linda Bates, members of the family that has protected it for many years.

Bates Mound 1 is a rectangular flat-topped mound that is approximately 10 feet in height located in a pasture on the bank of a small creek. Other family members own another mound called Bates Mound 2.

Little is known about the age or cultural affiliation of the Bates mound and no professional excavations have taken place there. A very small collection of pottery from the surface of the mound suggests the site was occupied during the Late Mississippian period (ca. A.D. 1000–1650). If this is indeed the time period to which the mound dates, then Bates Mound 1 may have been a ceremonial or domiciliary mound where special structures were located or high-status individuals lived. Because there is no evidence there were additional mounds at the site that were later destroyed, Bates Mound 1 may have been a single-mound outlier related to one of the larger multi-mound sites in the area. Research is required to confirm this theory.

The location of Bates Mound 1 is less than a mile from the other Bates mound, which is conically shaped, a form usually indicative of a burial mound. Whether the two mounds are related is another question to be answered by future research.

Bates Mound 1 is in excellent condition. In this area, mounds of approximately 10 feet or less have been converted to farmland or had structures, or even cemeteries, built on them. According to George Bates, whose family purchased the site in the 1930s, there have been trees on the mound since, as a boy, he ate lunch in their shade when he tended his family’s cattle. With its four corners well defined and what may be the remnants of a ramp on its eastern side, it’s possible that Bates Mound 1 looks much like it did shortly after it was abandoned.

On a recent visit to the mound, George Bates reminisced about the hours he has spent roaming the creeks and pastures of his family’s land. “It’s a sacred place,” he said. “It just seems a shame to take money for it.” Thanks to his foresight and his reverence for the site, the Conservancy will ensure that Bates Mound 1 will remain undisturbed.

—Jessica Crawford
A Glimpse of Early Industry

The Conservancy seeks a 19th-century pipe factory.

Just 10 miles east of Appomattox, where the Civil War ended, is the small, remote town of Pamplin, Virginia. It’s thought that pipe making was under way in Pamplin by the 1740s, shortly after the first settlers arrived, and it developed into a cottage industry. The pipes were made primarily by local women from the nearby deposits of red clay. They were fired in backyard, wood-burning ovens and were then packed in barrels and crates lined with pine needles or sawdust by local store owners. Pamplin pipes were shipped all over the United States. Crates of pipes were found in the buried hold of the steamboat Bertrand, which was salvaged from the Missouri River in 1968. Carrying supplies to the sparsely populated goldfields of Montana, the Bertrand sank north of Omaha, Nebraska, in 1865.

Pamplin’s cottage industry paved the way for the establishment of a factory sometime before 1880 by E. H. Merrill, an Akron, Ohio, company that was the leading producer of tobacco pipes in America in the 1850s. The Merrills invented a pipe-making machine, and it’s believed that eight to 10 of these machines were utilized at the Pamplin factory. The machine-molded pipes were then packed in stoneware crocks that were stacked in the kiln for firing.

The company changed hands several times, and by 1935 it claimed to be the largest pipe-making factory in the world, producing one million pipes a month. In its later years the factory specialized in novelty and souvenir pipes such as the Tomahawk, which contained an image of an Indian wearing a Plains-style headdress. The factory closed in 1952, most likely due to the rising popularity of cigarettes.

The building that once housed the factory and the brick kiln and chimney are still standing and serve as a museum. Archaeological investigations in the 1970s revealed that the property contains the remains of several periods of pipe manufacturing as well as the remnants of three other structures relating to the factory. Further excavations could reveal more information about the factory as well as the lives of early workers in Virginia.

In 1976, Raymond and Nancy Dickerson purchased the factory. Since then they have worked to preserve and interpret the history of pipe making in Pamplin. In 1980 they had the property listed on the National Register of Historic Places.

In early 2007, the Conservancy began working with the Dickersons on permanently preserving the site. After acquiring the site, the Conservancy intends to transfer ownership to the Appomattox Historical Foundation, which plans to improve the museum. Thanks to the Dickersons and the Appomattox Historical Foundation, an important example of Virginia’s, as well as the nation’s, early industrial history will remain intact. —Sonja Ingram

Conservancy Plan of Action

SITE: Pamplin Pipe Factory
CULTURE AND TIME PERIOD: 18–20th century
STATUS: The site is threatened by possible commercial development.
ACQUISITION: The Archaeological Conservancy has an option to purchase the site for $77,500.
HOW YOU CAN HELP: Please send contributions to The Archaeological Conservancy, Attn: Pamplin Pipe Factory, 5301 Central Ave. NE, Suite 902, Albuquerque, NM 87108-1517.
Landowner Donates Prehistoric Site in Eastern Arizona

Property contains abundant cultural and natural resources.

This past fall, Scottsdale resident John Hoopingarner Standing-bear donated a 20-acre parcel overlooking Hay Hollow Wash and the Conservancy’s Broken K Pueblo Archaeological Preserve in eastern Arizona for permanent preservation. The property, which contains petroglyphs, an enclosed stone structure, and associated artifacts, is thought to have been used by residents of Broken K Pueblo who lived across the wash between about A.D. 1150 and 1300, with earlier inhabitants of the area likely making use of its rich natural resources as well.

With approximately 100 masonry rooms surrounding a plaza area, Broken K Pueblo is one of the largest, latest sites in the Hay Hollow Valley, which was once a major crossroads for prehistoric travelers. The site is considered ancestral to the Hopi Tribe and Zuni Pueblo, who recently assisted the Conservancy with the creation of a long-term management plan for the preserve. Although little is known about the associated Dr. John Standingbear Archaeological Preserve located along a sandstone

and basalt outcropping above Broken K Pueblo, based on its petroglyphs, an unusual three-dimensional sandstone carving of a hand, and a semi-circular enclosure formed of basalt rocks and boulders, the site likely served ceremonial purposes for the Broken K inhabitants. The preserve is also rich with native vegetation, which has been studied by researchers at nearby Northland Pioneer College.

Hoopingarner Standingbear, who was adopted by the Bear Clan of the Tewa Tribe on the Hopi Reservation in eastern Arizona, wanted to preserve the site in honor of his mother Ruth, without whose help this would not have been possible. “One of my big things in life is protecting the land and helping it return to its pristine state,” says Hoopingarner Standingbear of the property, which was once heavily grazed, but through years of stewardship has largely returned to its native state. “I want to preserve the land and the sites so that they can be studied and learned from by future generations.”

Following the creation of a long-term management plan for the property, the Conservancy will work with Northland Pioneer College faculty to encourage their use of the Standingbear Preserve as a biological and archaeological learning laboratory, and to include native communities, particularly the Tewa people of First Mesa and the White Mountain Apache, in future educational projects. —Tamara Stewart
Archaeologist Donates Important Paleo-Indian Site

Evidence from the Gault site challenges established theories about the Clovis culture.

Located along a creek in Central Texas near the eastern edge of the Edwards Plateau, the Gault site has yielded a dense concentration of artifacts indicating intermittent human occupation spanning more than 13,000 years. Gault is one of the largest and most prolific Clovis sites in America, and it has yielded considerable evidence that challenges the notion that Clovis was the first American culture.

J. E. Pearce, founder of the University of Texas’ Anthropology Department, dug at Gault in 1929 and 1930, and his correspondence indicates that people were looting the site both before and during his project. Despite the discovery in 1990 of Clovis period artifacts that included highly unusual incised stones buried deep beneath the surface, the site continued to be looted until 1998, when Gault’s new owners realized its tremendous scientific potential.

“Although years of looting had largely destroyed the later part of the archaeological record at Gault (deposits dating between roughly 9,000 and 500 years ago), older deposits there are intact and contain extraordinarily rich and informative archaeological evidence of occupations greater than 9,000 years old,” says Michael Collins, an archaeologist with the University of Texas at Austin. “It is these older deposits that will be the primary focus of a concerted effort to expand our knowledge of the earliest peoples in central America.”

Archaeologist Michael Collins, who donated the site to the Conservancy, has been working at the Gault site since 1991. His work has yielded new insights into the Clovis culture.
Texas and contribute to a better understanding of the peo-
pling of the Americas.”

Collins has investigated the site since 1991, and he
founded the non-profit Gault School of Archaeological
Research to ensure future research at, and public interpreta-
tion of, the site. Early last year, Collins purchased a major por-
tion of the site and recently donated it to The Archaeological
Conservancy for permanent preservation.

“I view the site as one of the most important known
localities representing the early part of the record of people
in the Americas,” says Collins. “This is for two reasons: I have
for about the last 10 years believed that the Clovis archaeo-
logical record did not fit well with the prevailing view that
Clovis evidences the first people in North America, and no
site to my knowledge better demonstrates the discordance
between the Clovis-First theory and the actual archaeologi-
cal evidence for Clovis. Gault also holds evidence of earlier
occupations of a different nature than Clovis. In combination,
these hold the potential to inform us about what is currently
one of the more intensely debated and researched aspects
of American prehistory. I was not willing to leave the future
preservation and study of this site to chance and believe that
The Archaeological Conservancy affords the best possible
stewardship for the site.”

Researchers working at Gault have recovered several
hundred thousand stone and bone artifacts dating to the
Clovis period, as well as features that include a well, a distinc-
tive stone tool manufacturing area, a small pit of unknown
function, and an artificial stone pavement that is one of the
oldest examples of architecture in North America. Stone
tool manufacturing was a major activity of the Clovis. The
diversity of tools and their wear patterns indicate a variety
of other domestic activities also took place.

“Evidence at Gault contradicts the romantic notion that
Clovis folk were specialized, nomadic mammoth hunters,”
Collins says. The remains of bison, horses, and at least one
mammoth have been found in the Clovis component, but
archaeologists have found far more bones of small animals
such as turtles, birds, frogs, and small to medium-sized mam-
mals. The thickness of the deposits and the creation, use,
and refurbishment of stone tools made from the local chert
indicate a long Clovis occupation of the site.

The wear patterns on the stone tools suggest the Paleo-
Indians were engaged in leather, bone, and woodworking,
scraping hides, and cutting meat and grass.” This is the signa-
ture of generalized foraging which requires in-depth familiar-
ity with local resources—knowledge that takes time to
master,” adds Collins. “Indeed, Clovis were capable big game
hunters, but this aspect of their subsistence was integrated
with more generalized foraging in many different settings.”

In a few areas of the site, Collins and his colleagues have
dug below the Clovis components, finding chipped-stone
artifacts that extend as much as two feet below the Clovis
level. Because of the poor organic preservation, the research-
ers were unable to obtain samples that could be radiocarbon
dated. Consequently they’ve resorted to infrared stimulated
luminescence dating, which measures the time since bur-
ied silica-rich dust grains of quartz and feldspar were last
exposed to sunlight. Using this method, they’ve dated the
Clovis occupation to between 13,000 and 13,200 years ago,
and the cultural materials beneath the Clovis level to more
than 13,600 years ago.

“Clovis knappers made stone tools using a highly distinc-
tive mode of shaping stone;” says Collins. “The flakes from
the pre-Clovis levels at Gault are completely lacking in these dis-
tinctive features and many of these flakes have been exposed
to fire. These contrasts tell us that we are finding evidence of
different behaviors, not just earlier Clovis behavior.”

Through the Gault School of Archaeological Research,
Collins plans to establish an educational and research facility
adjacent to the site with an interpretive center where schools
and the general public would have the opportunity to learn
about the prehistory of central Texas. The Conservancy will
work closely with Collins and other researchers to create a
long-term management plan to address site security, stabil-
ization, future research, and other management concerns.

—Tamara Stewart
Work Continues at Lancaster

SOUTHWEST—Conservancy staff and other project participants are continuing to complete management and preservation activities at the James A. Lancaster site in southwestern Colorado. The work is part of the larger preservation and acquisition project paid for in part by a State Historical Fund Grant from the Colorado Historical Society.

This remarkably well preserved Pueblo II- and Pueblo III-period community is located in the Mesa Verde region. The site contains 35 circular pit structures and kivas, a circular tower feature, a large multi-story community structure, and other related features.

The most recent work completed by the Conservancy’s team includes photo documentation and backfilling at one room in the large community structure where intact masonry walls had been exposed. Interpretive materials including a brochure for visitors touring the preserve and signs that will be placed in local museums are being prepared as part of a public education program.

The project will be completed in 2008. Other tasks that will be undertaken during the coming months include construction of a new fence around the preserve and drafting an updated site map. The site map will feature high quality aerial photographs from Crow Canyon Archaeological Center that will provide detailed topographic information. Archaeological feature data will then be added, making it an extremely accurate and useful map for future research.

Research at Glass Mounds

SOUTHEAST—With assistance from a research grant from the Mississippi Department of Archives and History, University of Alabama Ph.D. student Lauren Downs conducted excavations on Mound A at the Conservancy’s Glass Mounds preserve in southern Mississippi. Located near the Mississippi River just south of the city of Vicksburg, Glass Mounds is a late Mississippian site that originally consisted of four mounds, three of which remain. It was occupied around A.D. 1500, and it’s thought to have been one of the most important mound centers in the region.
Downs' research focused on collecting data about structures that may have existed on the 27-foot Mound A, as well as the elite occupation at the site and the construction of the mound. To determine the best places to dig, she took soil core samples at the top of the mound and the base, and then excavated in the areas where the core samples yielded evidence such as concentrations of daub, the dried mud material used for building.

Downs and her crew dug a trench across the top of the mound that revealed evidence of at least two structures—one on the east side of the mound and the other on the west side. An excavation unit in the north side of the mound provided information about the mound's early construction sequence.

Downs plans to return to Glass Mounds in September to further expose the structures on top of Mound A.

Prehistoric Pueblos of the American Southwest
June 5 – October 13, Rio Alamosa, New Mexico. Monticello Box Ranch in southwest New Mexico marks the border of the Anasazi and the Mogollon pueblo cultures. Ruins from 2,000 years show cultural interaction, settlement, and migration. This well-preserved site is relatively untouched and awaits excavation. Participants will help uncover biological and cultural relationships between the pueblo peoples. Ultimately, the site will be available for educators, government agencies, and Native Americans. This is one of four major sites dating from the earliest Pueblo settlement to the latest (A.D. 600–1400). In the mornings participants will prospect for new sites or excavate a meter-square grid while making notes and drawing the excavation maps. Washing, sorting, and cataloguing artifacts and reviewing data will be done in the afternoons. Orientation and training will include an excursion to the historic Ojo Caliente warm springs, lectures, and demonstrations of flint-knapping and atlatl-propelled spear throwing. Contact Earthwatch Institute (800) 776-0188, info@earthwatch.org

Mohegan Tribe/ Eastern Connecticut State University Field School
June 23 – August 1, Mohegan Reservation, Connecticut. The Mohegan/ECSU Archaeological Field School is one of the oldest archaeological partnerships with a Native American tribe. This will be the 14th year investigating archaeological resources on the Mohegan Reservation. The reservation is rich with known and unknown archaeological sites including pre-Contact occupations, 17th-century village sites, 18th and 19th-century homesteads, and burial grounds. Participants will work directly with members of the Mohegan Tribe. The excavation focuses on the relationship of archaeologists and indigenous peoples. A speaker series of Native American professionals, medicine people, scholars, elders, and dignitaries will address field school members. Participants can also take trips to a number of nearby reservations. Contact Jeffery C. Bendremer (860) 862-6394, jbendremer@moheganmail.com

American Archaeology
The Natchez Indians: A History to 1735
By James F. Barnett Jr.
(University Press of Mississippi, 2007; 224 pgs., illus., $40 cloth; www.upress.state.ms.us)

In 1682, members of Rene-Robert Cavelier de La Salle’s French expedition were the first Europeans to encounter members of what would become one of the best historically documented Southeastern Indian tribes. The Natchez Indians’ location on the lower Mississippi River, north of New Orleans at present-day Natchez, Mississippi, made them extremely desirable allies to the French as they attempted to thwart English influence along the great river. Subsequent European encounters with the Natchez, including the establishment of a French settlement on their land, resulted in a wealth of historical information about the tribe that has been confirmed by archaeological research. For example, buildings described in French colonial accounts have been located and excavated.

Drawing from his years of experience as the Director of the Division of Historic Properties at the Grand Village of the Natchez Indians for the Mississippi Department of Archives and History, James F. Barnett Jr. has written the most comprehensive and well-rounded history of the Natchez Indians to date. He skillfully combines data from recent archaeological research at the Grand Village ceremonial center and at surrounding sites, well-known and recently discovered maps, and historical accounts to produce a fascinating picture of a powerful Indian nation and its evolution before, during, and after European contact.

Barnett’s descriptions of places and people based on historical writings and the descriptions of those places and the remains found there today make the book engaging.

The Natchez Indians is a valuable tool for scholars studying the colonial Southeast or anyone interested in the period. It is a reminder that evidence of great events and people lies just under our feet and how the struggles of a proud people played a role in forming the country we are today. —Jessica Crawford
Reviews

Subfloor Pits and the Archaeology of Slavery in Colonial Virginia
By Patricia M. Samford
(University of Alabama Press, 2007; 232 pgs., illus., $49 cloth, $30 paper; www.uapress.ua.edu)

A common characteristic of Virginia slave quarters is the presence of subfloor pits. Commonly explained as root cellars or storage places for personal belongings, these pits may well have served as West African-style shrines. Through the analysis of 103 subfloor pits dating from the 17th century to the Civil War, Samford shows how the slaves used these pits. Her work exposes the material culture of a people with little or no history and illuminates aspects of their lives, and it shows how West African traditions were preserved over long periods of time in a very hostile social environment.

Slave archaeology is one of the new fields of American historical archaeology, and this study shows that it can elucidate our understanding of a major American culture. Samford delivers an exciting piece of research into an exciting new area of archaeology and demonstrates the potential it has to enhance our understanding of a little understood part of the American heritage.

New Perspectives on Pottery Mound Pueblo
By Polly Schaafsma
(University of New Mexico Press, 2007; 302 pgs., illus., $55 cloth; unmpress.com)

Pottery Mound is an important Puebloan archaeological site located on the Rio Puerco in central New Mexico. It was occupied from about A.D. 1370 to 1475, but its pottery and kiva murals reflect both Western and Rio Grande Pueblo traditions. Its architecture is complicated and not fully understood. Beginning in 1954, University of New Mexico archaeologist Frank Hibben brought many field schools to the site, but field records and publications were few.

This was clearly a village of prodigious potters, mural painters, and weavers. Hibben’s discovery of 11 elaborately painted kivas attests to the richness of ceremonial life in the village, as do the massive amounts of pottery sherds that were recovered, thus giving the pueblo its name.

In this noteworthy volume, Polly Schaafsma brings together scholars with field experience at the site along with others who have studied its remarkable legacy. Eleven noted authors explore the various aspects of the ruins and its remains. Their essays, complemented by four informative appendices, describe the excavations at the site and the remarkable artifacts that were recovered. It is rare to find painted murals intact in the American Southwest; consequently, recording 11 of them is remarkable. No other site to date has yielded such a large number of paintings or painted kivas, and the variety of subject matter and detail is rivaled at only two other sites in the region. The Pottery Mound murals portray people and gods dressed in rich costumes. Some are armed and some are conducting ceremonies. Animals are abundant as are celestial objects like stars, clouds, and rainbows. Plants like maize and squash are also common.

Hibben believed the paintings were Mexican. Schaafsma, a leading expert on Southwestern rock art, argues for their inclusion in Puebloan artistic tradition, especially rock and kiva art of the Rio Grande Valley. Her chapter on the artistic tradition is the highlight of the book. Richly illustrated and finely produced, this volume is a must for those interested in the art and archaeology of the Puebloan world. —Mark Michel

american archaeology
A Spectacular River Trip

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The Yampa River offers breathtaking scenery.

The Mound Builders’ Legacy

**OHIO MOUND BUILDERS**

**When:** September 13–17, 2008

Massive mounds and earthworks, some nearly 70 feet tall and others covering hundreds of acres, are the legacy of the Hopewell and Adena cultures that dominated the eastern United States from 800 B.C. to A.D. 400. Archaeologists have found exotic mica objects, copper ornaments, burials and the remains wooden structures and stone at many of the mound sites. The significance of the mounds, which often were built in animal and geometric forms, is still a subject of great study.

Our tour begins in Columbus, Ohio, with a visit to the Hopewell collections at the Ohio Historical Center. From the Newark Earthworks, a magnificent Hopewell Mound complex that once covered more than seven miles, the tour heads to Chillicothe and Hopewell Culture National Historic Park, now a flourishing center of Hopewell research. You’ll also visit Serpent Mound, a massive effigy mound that stretches more than 1,400 feet. Throughout the tour, expert archaeologists give their insights into the world of mound builders.
Exploring the Land of the Anasazi

**BEST OF THE SOUTHWEST**

**When:** September 20–30, 2008  
**How Much:** $2,495 per person ($275 single supplement)

The American Southwest is home to some of the best-preserved evidence of prehistoric civilizations in the New World. The magnificent ruins of Chaco Canyon and Mesa Verde are but two vivid reminders of the complex cultures that dominated the region between the 10th and 14th centuries. The Best of the Southwest tour includes these two settlements as well as other prehistoric sites and modern pueblos where ancient traditions persist.

**Mark Michel**  
Department of Anthropology, University of Alabama

For more information about our tours, visit our Web site [www.archaeologicalconservancy.org/tour.html](http://www.archaeologicalconservancy.org/tour.html)

Moundville was a large Mississippian village dating from approximately A.D. 1000 to 1450.

From Mississippian Mounds to Removal

**NATIVE PEOPLES OF ALABAMA**

**When:** September 29–October 4, 2008

Alabama is a place of natural beauty. Here, the environment was integral to the daily lives of the Native Americans who celebrated it in their spiritual practices. By the 1800s, Alabama’s plentiful game, timberlands, water, and fertile soils lured waves of settlers seeking a new life. Following in the footsteps of naturalist William Bartram, we will explore the beauty and history of Alabama, from its ancient earthen mounds to Creek War battlefields.

**Jim Walker**

The Wonders of Oaxaca

**OAXACA**

**When:** October 24–November 3, 2008  
**How Much:** $2,395 per person ($275 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 while alive. The Day of the Dead is one of celebrations.

You’ll visit Oaxaca’s museums and markets. Our tour also explores the Mixtecan and Zapotecan archaeological sites in the region, including Mitla, Monte Albán, San José Mogote, and Dainzú. You’ll also visit several crafts villages featuring weaving, pottery, carved animals, and other local art.

**Jill Walker**

Visitors explore the magnificent ruins at Monte Albán, a city built by the Zapotec and Mixtec.

For more information about our tours, visit our Web site [www.archaeologicalconservancy.org/tour.html](http://www.archaeologicalconservancy.org/tour.html)
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Several years ago the Conservancy established a leadership society, the Living Spirit Circle, to recognize the growing number of members who were interested in making a legacy gift to support archaeological preservation. Contributors to the group have included the Conservancy in their will or estate plans, or have made a life-income gift such as a charitable annuity.

This elite group has grown to over 100 members and is an essential component of the Conservancy’s success in identifying and preserving America’s most endangered archaeological resources. They have made an important investment in protecting America’s past.

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**Edited by Paul F. Reed**

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