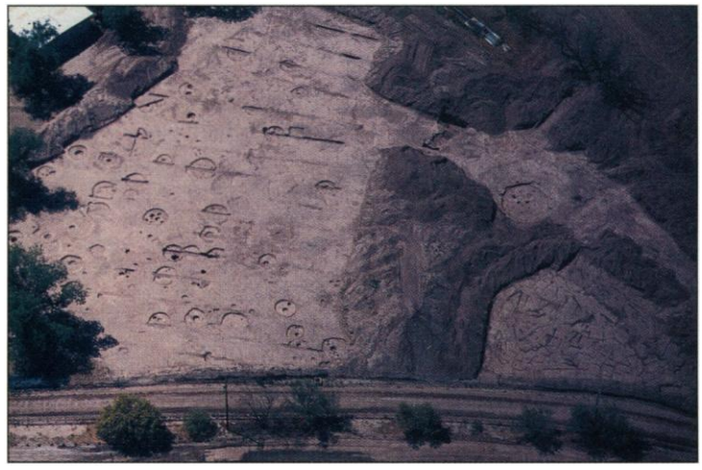
ARCHAEOLOGY

New Finds Explode Old Views Of the American Southwest

TUCSON, ARIZONA—In 1993, archaeologist Jonathan Mabry began a routine road survey near downtown here, checking for cultural remains in the path of a freeway upgrade. He wasn't expecting anything dramatic—no ancient city or sophisticated pottery—because the sediments just below the surface predated what was thought to be the region's first sedentary culture, the Hohokam. Before the Hohokam—famed for their beautiful shell jewelry and extensive irrigation system from about A.D. 700 to 1450—the region was thought to be inhabited chiefly by nomadic hunter-gatherers.

But then Mabry and colleagues at the Tucson contract archaeology firm Desert Archaeology Inc. (DAI) found prehistoric cultural materials in a layer 1 meter below the surface. Their curiosity turned to excitement when more digging turned up dozens of circular foundation pits for thatched dwellings. And excitement rose to astonishment in early 1994, when the crew took out wide swaths of alluvium with a front-end loader and a backhoe, and revealed scores of pit structures pocking more than a square hectare of flood plain—a sizable village from a supposedly nomadic era. "I couldn't believe how many houses I was seeing—how many hundreds of cultural features," Mabry recalls.



JONATHAN MABRY

Main Street beat. Round pit structures and a large communal structure (right), found near a Tucson highway, show the origins of southwestern villages.

Now, as the team prepares to publish a two-volume monograph on 3 years of work at seven different sites along Interstate 10, the discoveries are forcing archaeologists to rewrite the book on the origins of village life in the American Southwest. In addition to the largest southwestern settlement of the era, DAI's finds include pottery, beads, a communal-ceremonial structure, early evidence of maize farming, and the first signs of tobacco use in North America, all dating to between 760 B.C. and 200 B.C. The implication is that a sophisticated village culture—complete with sedentary society, intensive agriculture, and social stratification—developed here nearly 1000 years earlier than archaeologists had thought.

"No longer can we consider the Hohokam [and their contemporaries] the first farmers, the first potters, the first villagers of the Southwest," says Mabry, a director of investigation for DAI. And university scientists agree that the highway settlements reveal a culture far more sophisticated than the itinerant, preceramic hunter-gatherers envisioned by textbooks. "The sites provide an entirely new picture of what was happening in the Southwest in that earlier period," says W. H. Wills, an anthropologist at the University of New Mexico (UNM), Albuquerque. "There's really nothing like them." Adds Barbara Roth, an archaeologist at Oregon State University in Corvallis, "The size of the village and the architecture are wonderful new data. It just gives so much of a sharper picture" of existence in that period, called the Late Archaic. She says that the finds also raise new questions about how maize farming and pottery-making began in North America.

For decades, Roth notes, the Archaic era of the Southwest, dating from about 6000 B.C. to A.D. 100, was overshadowed by the impressive village cultures of the first millennium A.D.: the Anasazi "cliff dwellers" of the Colorado Plateau, the skilled potters of the Mogollon Highlands of eastern Arizona and western New Mexico, and the canal-digging Hohokam of the southwestern deserts. Those three peoples, whose remains continue to entrance Sun Belt tourists, were presumed to have been the first in North America to farm maize, and the first in the Southwest to make pottery and live in year-round villages. In recent years, though, a series of scattered finds began to direct attention to the Archaic peoples.

These were once cast as nomadic hunter-gatherers who only late in the period supplemented their diet of game, cactus fruit, and seeds with casual maize gardening. More recently, new excavations in Arizona began to turn up a few small clusters of pit houses and storage bins, suggesting that Archaic people lived in hamlets and relied on maize farming for at least part of the year, says Bruce Huckell of the Maxwell Museum of Anthropology at UNM, a leader in research on this area. In recent years Huckell has urged that the Late Archaic be renamed the Early Agricultural period. Nevertheless, the scattered sites left many questions unanswered, such as whether these people lived in one place all year round or were nomads who stopped for part of the year to plant and harvest. By 1993, says Wills, "we knew there were pit structures, knew these people were more maize-dependent and sedentary than we'd thought, but it still seemed a little murky."

Then came the Tucson highway project. State and federal antiquities laws require new government construction projects to first inventory archaeological resources in the construction zone, and DAI won an $800,000 contract from the Arizona Department of Transportation to do that. Over the past 4 years, the firm completed seven digs involving scores of workers and major construction equipment, and it recovered tens of thousands of artifacts. These intensely explored sites—now paved over—have added "dramatic and detailed" new information to the record of Late Archaic life, says Huckell.

At the center of the new discoveries sprawls the huge Santa Cruz Bend site, located along a 5-kilometer-long freeway upgrade paralleling the dry bed of the Santa Cruz River near downtown Tucson. Here, Mabry found some 730 dwellings, structures, storage pits, hearths, burial sites, and trash deposits. In one zone, the excavators found a large open area—perhaps a central plaza—in the midst of a dense cluster of circular depressions and post holes marking various structures. Nearby, they detected organized groupings of smaller dwellings around the foundation pit of a massive structure 8.5 meters in diameter, which may have been used for religious ceremonies, political gatherings, or other communal activities. Carbon-14 analysis of seeds of maize, mesquite remains, and grasses in these pits dates the structures to 760 B.C. to 200 B.C.—the so-called Cienega phase of the Late Archaic.

The sheer scale of this site transforms ear-

lier impressions of the ancient Southwest. Previously excavated Cienega-phase sites, for example, had yielded a maximum of eight pit structures. So finding hundreds of them arranged in the form of a village "boosts the scale of known settlements in this period in a fairly spectacular way," says Huckell. Likewise, the discovery of the "big house"—the oldest communal-ceremonial structure ever found in the Southwest—means "there was a level of social organization above the household, and we didn't know that," says Mabry.

The excavations at Santa Cruz Bend and the other flood plain sites show that Cienega-phase people were relatively sophisticated in other ways, too. For example, sherds of crude plainware pottery jars and bowls have been dated by carbon-14 analysis of associated seeds to 800 B.C. to 400 B.C.—at least 1000 years before the Hohokam were supposed to have brought pottery to the area. That raises the possibility, says Mabry, that pottery technology was developed independently in the Southwest rather than imported from the advanced cultures in Mesoamerica, given that the Cienega-phase pottery predates that found so far in northern Mexico and doesn't resemble pottery found further south. Similarly, a number of small, thin projectile points suggest experimentation with the bow and arrow 1500 years before the technology is generally thought to have been adopted in the Southwest.

Filling out this portrait of a still-unnamed society are other findings:

- Water-control ditches predating the well-known Hohokam canals by centuries strengthen the impression that agriculture was intensive.
- An array of shell bracelets, beads, and pendants demonstrates that Cienega-phase people were making a wide variety of ornaments and engaging in long-distance trade to the Pacific Coast, a millennium before the Hohokam made and exchanged their jewelry.
- Native tobacco seeds found near a tubular stone pipe in a pit structure dated to about 350 B.C. provide the earliest evidence of tobacco use in North America.
- A single grain of cotton pollen in a Cienega-phase structure hints that this crop was in use here more than 1000 years earlier than formerly believed.

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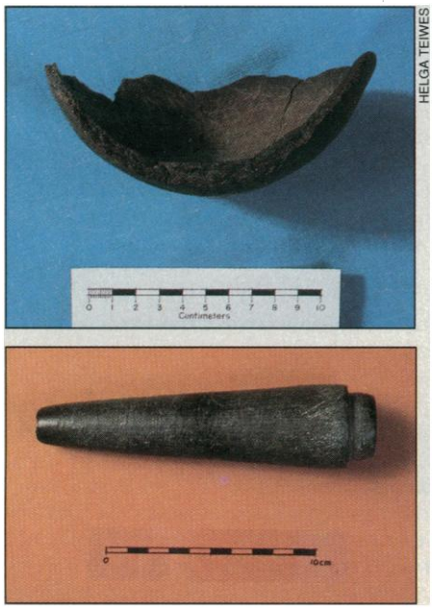
Southwestern style. Jewelry made of marine shells, including beads, pendants, and an earring, points to long-distance trade.

The sheer abundance of maize remains found in the trash deposits, moreover, makes it clear that this sophisticated culture was sustained by intensive floodwater farming, rather than by gardening and hunting and gathering. "I think this work on the flood plain pretty clearly proves that, in southern Arizona at least, agriculture wasn't a complementary activity of hunter-gatherers but a central pursuit of people who were actually farmer-foragers staying in one place for much of the year," says Huckell. "This shows again that maize brought about a sophisticated agricultural culture much earlier than some people have been willing to accept."



HELGA TEWES

Signs of sophistication. Sherds of the oldest pottery in the Southwest *(top)*, plus a ground stone pipe *(above)*, found with tobacco seeds, indicate an advanced culture.

At the same time, the flood plain finds are provoking new questions—for example, about the means and routes by which maize farming spread through the Southwest from its supposed origins in Mesoamerica. The "completeness" of the maize culture seen along the interstate "certainly supports the idea that agriculture came into the Southwest with a large inmigration" of an already agricultural people, rather than diffusing slowly out from the south through trade, says archaeologist R. G. Matson of the University of British Columbia. But UNM's Wills says more work is needed to clarify whether maize was brought by immigrants from the south, was imported and adapted by people already in the Southwest, or even arose independently. Indeed, the antiquity of the maize found near Tucson—about 1000 B.C.—calls into question timelines that put the spread of farming villages in Mesoamerica at about 1200 B.C., adds Matson. "Something seems wrong with the [Mesoamerican] dates," he says. "If corn was ubiquitous by 1000 B.C. in Tucson, it seems somebody ran north with it." He wonders if the Mesoamerican dates may be pushed back.

The discoveries raise questions about possible links between these first villagers of the Southwest and the three famous cultures that followed them. Mabry thinks Cienega-phase people were "probably among the ancestors" of the Hohokam. "It's still open to debate," he admits. "But many of the things the Hohokam did, these people did earlier. They were making shell jewelry, they were trading all over the Southwest, they were controlling water for agriculture, and they were making ceramic vessels and figurines. I think it's likely this incipient village culture was at least part of the heritage of the Hohokam, but we'll have to see." He says only a vast accumulation of evidence from Cienega-phase sites will decide this.

Archaeologists are also speculating about the roots of this farming culture. Piqued by a few maize dates older than 1200 B.C., Huckell wonders "whether there isn't an earlier hunter-gatherer era using maize to a lesser extent. ... We're starting to get hints of something before this period, and we need to look at that." Agrees David Gregory, Mabry's colleague at DAI: "These sites make you wonder where this all came from. And asking that makes you realize how much we don't know about the Middle Archaic, the period immediately preceding this one. That's going to be a big new question."

In the meantime, the interstate corridor near downtown Tucson is likely to yield more archaeological information soon. Next month, DAI will begin exposing artifacts at another big Cienega-phase site just north of Santa Cruz Bend. And preliminary surveys on other sections of the road project are turning up additional habitations. It all suggests, Mabry says, that 2500 years ago, what is now the I-10 right of way "was a good place to be."

–Mark Muro

Mark Muro writes for The Arizona Daily Star *in Tucson.*